

Connecting North Dakota for a Healthier Future

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. . . . Surveys indicate that North Dakota’s rural facilities have severe shortages of technical staff to support and implement HIT, face significant financial challenges obtaining the capital to acquire EHRs and other HIT tools, and have limited access to technical assistance resources to guide their efforts. . . .

—*Michael Rodriguez, 2008*

NORTH DAKOTA HIT STEERING COMMITTEE

VISION

Implement a statewide health information technology and exchange infrastructure.

MISSION

Facilitate the adoption and use of health information technology and exchange to improve health-care quality, patient safety, and overall efficiency of health care and public health services in North Dakota.

WEB SITE

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I. EXECUTIVE SUMMARY

Over the last several years, health IT (HIT) and health information exchange (HIE) have gained momentum and recognition as important tools for improving health and health care. However, despite an executive order in 2004 calling for every American to have an electronic health record (EHR) by 2014ⁱ and the creation of the position of the National Coordinator for Health Information Technology (NCHIT) within the Office of the Secretary of Health and Human Services (HHS) to promote and accelerate the use of interoperable EHRs, adoption of EHRs and other health information technology (HIT) has been slow. While estimates of ambulatory EHR adoption vary from nine percent to almost 30 percentⁱⁱ because of inconsistent definitions of what constitutes an EHR, a 2008 study using a definition based on expert consensus found that only four percent of physicians reported having an extensive, fully functional electronic records system and 13 percent reported having a basic system.ⁱⁱⁱ

Research on HIT adoption rates indicate the major barriers to adoption include high financial investment, uncertainty of return on investment (ROI), perceived belief that workflow and productivity decrease, physician and staff resistance, and concerns that technologies will become obsolete. In addition, doubts about privacy and security of patient data, practice compliance with HIPAA legislation, and the potential for inappropriate disclosure of patient information to third parties are major concerns.

HIT adoption has been particularly slow in rural or underserved areas.^{iv} A significant issue is the large capital investment for HIT purchases because many rural health care organizations have limited resources for technology purchases. Rural hospitals and physicians may not have the purchasing power that larger, integrated health care delivery systems have and often pay the same price for certain technologies. In addition, rural organizations face difficulty recruiting and retaining HIT expertise, and with many small physician offices and facilities in rural areas, these organizations often do not have technically trained staff to plan for, implement, and maintain robust HIT systems.

The state of North Dakota is no exception. Recent research conducted by the University of North Dakota's Center for Rural Health on behalf of the North Dakota Health Information Technology Steering Committee surveyed hospitals, long term care facilities, and local public health units. Similarly, North Dakota Health Care Review, Inc. surveyed private physician practices. Results indicate significant adoption across large provider organizations connected to a health care system, while smaller, more rural facilities are well behind the curve. *Surveys indicate that North Dakota's rural facilities have severe shortages of technical staff to support and implement HIT, face significant financial challenges to obtain the capital to acquire EHRs and other HIT tools, and have limited access to technical assistance resources to guide their efforts.* Fewer than half of all rural hospitals in North Dakota are part of a system, while all of the urban hospitals belong to a system. Among the urban hospitals, none of the survey respondents had fewer than 11 full-time IT support staff, with 2 of them having more than 50 IT staff. By contrast, among the rural hospitals 35 of the 37 respondents had 3 or fewer full-time IT support with 7 facilities having no IT staff. This disparity points very strongly toward the need to support the training and recruitment of IT staff for North Dakota's rural health care providers.

The Center for Rural Health also surveyed a small sample of students in their final year of school and recent graduates of health professional programs; surveys were received from medical students, physician assistants and clinical laboratory science students at the University of North Dakota, in addition radiologic technology students from the Minnesota State Community and Technical College, Detroit Lakes, MN. All indicated a strong preference for practicing in a clinical environment supported by electronic health information systems: electronic medical records (EMRs), laboratory information systems (LIS), and computed radiology (CR). Of the 21 medical students surveyed, 19 had opportunities to utilize EMRs, CR, and LIS during their training, and 18 of the 21 indicated having these tools available would be *very important* or *extremely important* in their decision when selecting a site to practice professionally. As students continue to utilize technology in their training, so too will it be necessary for them to have these tools in practices when recruiting them to North Dakota.

In order to move the state of North Dakota forward, to improve access, quality, and patient safety through the use of technology, strong consideration should be given to the pursuit of the following initiatives:

- Create a formal organization within the state charged with coordinating HIT efforts and potentially governing a health-information-exchange initiative.
- Develop a North Dakota Strategic Plan for implementing and sustaining a statewide electronic-health-information exchange.
- Create a state-funded grant or loan program to support rural and public health entities in the implementation of HIT-driven quality improvement programs.
- Develop health information technology training programs to build human resource capacity.
- Implement a peer-to-peer HIT support program for rural health care provider organizations.
- Sponsor a rotating rural HIT technical support team to assist organizations that do not have the necessary staff to implement HIT projects.

The state of North Dakota faces many obstacles in providing the highest quality of care to patients, particularly across rural areas. Opportunities to support the evaluation, adoption, and maintenance of health information technology are plentiful, but they will require the dedication of significant human and financial resources. These important investments will ensure that a broader digital divide does not continue to grow between rural and urban health care providers, and between North Dakota and the rest of the country.

ⁱ White House, “Executive Order: Incentives for the Use of Health Information Technology and Establishing the Position of the National Health Information Technology Coordinator,” 27 April 2004, <http://www.whitehouse.gov/news/releases/2004/04/20040427-4.html> (September 26, 2008)

ⁱⁱ Jha A, Ferris TG, Donelan K, et al. How common are electronic health records 25. in the United States? A summary of the evidence. *Health Affairs*. 2006;Oct 11: w496–w507

Hing E, Burt C, Woodwell D. Electronic Medical Record Use by Office-based Physicians and their Practices: United States, 2006. <http://www.cdc.gov/nchs/data/ad/ad393.pdf> Accessed September 26, 2008.

ⁱⁱⁱ DesRoches CM, Campbell EG, Rao SR, et al. Electronic Health Record 28. Adoption in the Ambulatory Setting: Findings from a National Survey of Physicians. *N Engl J Med* 2008;359:50-60.

^{iv} Ibid.

II. BACKGROUND

The Institute of Medicine's (IOM) *Crossing the Quality Chasm* establishes the case that an improved American health system is reliant on its ability to channel new and advanced technology, including the movement for health information technology (HIT). The IOM finds that HIT can be a contributing factor in improving care quality through the collection and sharing of clinical information, the reduction of errors, computer-aided decision support systems, and enhanced patient and clinician communications. As a starting point for the discussion of this report, health information technology (HIT) is defined as

. . . the application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing and use of health care information, data, and knowledge for communication and decision-making. Common examples of HIT may include practice management systems, disease registries, clinical messaging, personal health records (PHR), electronic prescribing (eRx), electronic health records (EHR) and health information exchanges (HIE).^v

HIT is broadly accepted as a means to an end in health care, with the *end goal of improving the quality, safety, and efficiency of care* provided to patients at each point of care. HIT is viewed as a tool to facilitate the provision of information for patient care at key junctures in the care process, to improve the utilization of standards-driven decision-making for patient care and as a means of managing the health of populations across the country. To support widespread adoption of HIT and facilitate electronic sharing of health information, there are a number of initiatives underway at the federal, state, regional, and local levels.

FEDERAL HIT INITIATIVES

On July 21, 2004, the first national coordinator for health information technology, Dr. David Brailer, outlined four main goals to achieve “**always-current, always-available electronic health records for Americans**”^{vi} in order to reach the vision of improved health care through the utilization of technology:

1. Inform Clinical Practice
2. Interconnect Clinicians
3. Personalize Care
4. Improve Population Health

The Office of the National Coordinator (ONC) for Health Information Technology is charged with guiding federal efforts to promote HIT adoption for improving quality of health care. Under Dr. Robert Kolodner, the current national coordinator for HIT, ONC refined these guiding principles through the development of a private sector nonprofit organization referred to as the Certification Commission for Healthcare Information Technology (CCHIT), which serves as a recognized certification body for EHR products and their networks; facilitated the development of interoperability standards through the Health Information Technology Standards Panel (HITSP), and established the American Health Information Community (AHIC), which has served as the federal advisory committee, composed of health care leaders from public and private sectors. This group made great progress developing recommendations to the Secretary of

HHS on how best to accelerate the adoption of interoperable health IT. Currently, a public/private collaborative entity is being developed in order to continue the work, which is referred to as “AHIC Successor.”

These efforts are part of a larger, long-term plan by ONC to guide the creation of a Nationwide Health Information Network (NHIN). The ONC envisions NHIN as connecting with local and regional health information exchange efforts, which would in turn support the sharing of health information on a national level.

The Federal Health IT Strategic Plan includes two goals with four objectives, and the themes of privacy and security, interoperability, adoption, and collaborative governance recur across the goals; however, they apply in very different ways to health care and population health.

- 1. Patient-focused health care.** Enable the transformation to higher quality, more cost-efficient, patient focused health care through electronic health information access and use by care providers, patients, and their designees.

Privacy Security. Facilitate electronic exchange, access, and use of electronic health information while protecting the privacy and security of patients’ health information.

Interoperability. Enable the movement of electronic health information to where and when it is needed to support individual health and care needs.

Adoption. Promote nationwide deployment of electronic health records and personal health records that put information to use in support of health care.

Collaborative Governance. Establish mechanisms for multi-stakeholder priority-setting and decision-making to guide development of the nation’s health IT infrastructure.

- 2. Population Health.** Enable the appropriate, authorized, and timely access and use of electronic health information to benefit public health, biomedical research, quality improvement, and emergency preparedness.

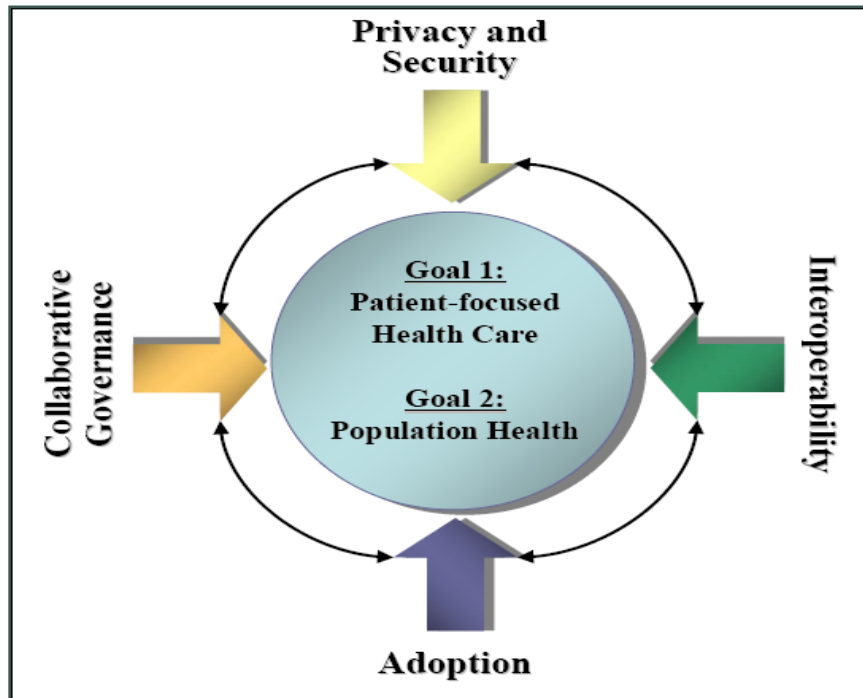
Privacy Security. Advance privacy and security policies, principles, procedures, and protections for information access and use in population health.

Interoperability. Enable the mobility of health information to support population-oriented uses.

Adoption. Promote nationwide adoption of technologies and technical functions that will improve population and individual health.

Collaborative Governance. Establish a coordinated organizational process supporting information use of population health.

The goals, organized around four core themes, are summarized in the following graphic:



The Bush administration has moved from a call for “*all* Americans to have EMRs by 2014”^{vii} to a more refined platform referred to as the “four cornerstones” of value-driven health care, including using health IT, measuring and reporting quality data and price data, and creating incentives for quality, efficient care.^{viii} The four items are being operationalized under the Department of Health and Human Services (DHHS) plan.^{ix}

FOUR CORNERSTONES OF VALUE-DRIVEN HEALTH CARE

1. **Health IT Standards.** Achieving interoperability across the nation between health care providers, payers, and health data users through the promotion and adoption of health data exchange standards and through certification of electronic health records that meet emerging standards for interoperability, security, functionality, and reliability.
2. **Quality Standards.** To make confident decisions about their health care providers and treatment options, consumers need quality of care information. Similarly, this information is important to providers interested in improving the quality of care they deliver. Quality measurement should be based on measures that are developed through consensus-based processes involving all stakeholders.
3. **Price Standards.** To make confident decisions about their health care, consumers also need price information. Efforts are underway to develop uniform approaches to measuring and reporting price information for the benefit of consumers. In addition, strategies are being developed to measure the overall cost of services for common episodes of care and the treatment of common chronic diseases.
4. **Incentives.** All parties—providers, patients, insurance plans, and payers—should participate in arrangements that reward both those who offer and those who purchase high-quality,

competitively-priced health care. Such arrangements may include pay-for-performance reimbursement methods for providers or offering consumer-directed health plan products.

OTHER NATIONAL INITIATIVES

Two key national organizations of state-level leaders, working collaboratively to learn from each other in order to accelerate the adoption of technology nationwide as well as in their individual states, are

- The **State Alliance for eHealth** created by the National Governors Association (NGA) for Best Practices in order to help states navigate the complicated processes necessary for developing and using this new technology. This group has support provided through DHHS and ONC and has issued their first annual report and recommendations for states “Accelerating Progress: Using HIT and electronic HIE to improve care.” in September 2008.
ND Representative, Ken Svedjan, is a voting member on this Alliance, and Mike Mullen, the ND Assistant Attorney General, also serves on the NGA State Alliance for e-Health, Privacy and Security Taskforce.
- The **National Conference of State Legislatures (NCSL)** is the bipartisan organization that serves legislators and staffs of states, commonwealths, and territories. NCSL also released a report in November 2008, “HIT-2007 and 2008 State Legislation,” which is a compilation of the policy issues that have been addressed at a state level in the past two years. More than 370 bills with provisions relating to health IT were introduced in state legislatures. This report identifies five major policy trends: planning, targeted financing initiatives, updating of privacy laws to facilitate HIE, promoting HIE, and advancing adoption and use.
ND Senator Judy Lee serves as the co-chair of the NCSL-HIT Champions (HITCh) Committee.

HEALTH RESOURCES AND SERVICES ADMINISTRATION HIT INITIATIVES

The mission of the Health Resources and Services Administration (HRSA), located within the DHHS, is to provide a safety net of direct health care services to 20 million people each year (about one in every 15 Americans). HRSA is the nation’s access agency, delivering needed health care services to uninsured, underserved, and vulnerable populations. The Office of Health Information Technology (OHIT), within HRSA, was formed in 2005 to develop an agency-wide health IT strategy and to strengthen work in health IT, including support of telehealth, practice management systems, electronic health records, and chronic disease registries.

The long-term vision of OHIT is to transform systems of care for safety-net populations through the effective use of health IT. In the words of HRSA Administrator Dr. Betty Duke: “Health information technology has the potential to revolutionize health care, especially for residents of underserved communities.”^x

The OHIT advances its mission using four main strategies:

1. Increase effective use of health IT across the safety net community.
2. Increase effective use of health IT for HRSA grantees through internal consulting, technical assistance, and resource development.
3. Promote strategic collaboration and partnership with public and private sectors.
4. Promote telehealth across HRSA's programs.

OFFICE OF RURAL HEALTH POLICY HIT INITIATIVES

The Office of Rural Health Policy (ORHP) at HRSA manages a cadre of grant programs aimed at building networks of care across America's rural communities in order to expand access, coordinate, restrain costs, and improve the quality of essential health care in rural areas. Although HIT is not the central focus of most of the ORHP grants, numerous rural health facilities and networks have demonstrated the viability of using these grant programs to develop and implement collaborative HIT initiatives. These programs have supported initiatives ranging from implementing tele-radiology and tele-consults to shared HIT technical staff and resources to creating and operating a centralized technology support organization.

While ORHP grants, as well as other grant programs, are effective tools for getting rural collaboratives started that involve and support HIT, it is critically important to identify and implement reimbursement models for technology supported care (such as telemedicine), which is a challenge faced across the country.

Critical Access Hospital (CAH) HIT Network Implementation Grants

The CAH HIT Network grants, a one-time opportunity in 2007, provided funds to support the development of CAH HIT Network pilot programs in states receiving the grants. Examples of HIT may include practice management systems, disease registry systems, care management systems, clinical messaging systems, personal health record systems, electronic health record systems, and health information exchanges. HRSA believes that it is cost effective to utilize networks of health care providers to develop HIT systems. HRSA is interested in programs that can measure the impact of HIT in terms of outcomes that support the aims of this funding opportunity and requires at least five performance outcome measures, two of which HRSA has defined to include diabetes control and heart disease risk reduction. The grantees must utilize measures to support the aim of enhancing the effectiveness, efficiency, safety, and quality as related to HIT implementation.^{xi}

Federal efforts, through OHIT and the Agency for Healthcare Research and Quality (AHRQ), also in DHHS, have been underway and are designed to build state and regional collaborations, demonstrate the viability of multiple information exchange approaches, and promote the adoption of uniform standards across agencies to further the viability of interoperable electronic information exchange. To accelerate progress on developing a national electronic health information system, AHRQ has awarded over 100 grants totaling more than \$120 million across 38 states to help communities, hospitals, providers, and health care systems plan, implement, and demonstrate the value of health IT, some of which have targeted rural health care settings. AHRQ awarded six state or state-based contracts totaling \$25 million over 5 years to develop statewide HIT networks (Colorado, Indiana, Rhode Island, Tennessee, Utah, and Delaware).

The value of electronic health information exchange is beginning to be documented across the country. The recently released *Fifth Annual Survey of Health Information Exchange at the State and Local Levels* notes that 29 out of 42 (69 percent) of the fully operational exchange efforts report reductions in health care costs (based on 130 community initiatives across 48 states). About half (52 percent, 22 of 42) of fully operational exchange efforts reported positive impacts on the delivery of health care, including:

- Decreased prescribing errors,
- Improved access to test results,
- Improved compliance with chronic care and prevention guidelines,
- Better care outcomes for patients,
- Increased recognition of disease outbreaks, and
- Improved quality of practice life.^{xiii}

These results are important in demonstrating a return on the investments being made by federal agencies, states, and others across the country.

UNIVERSAL SERVICE ADMINISTRATIVE COMPANY (USAC), FEDERAL COMMUNICATIONS COMMISSION (FCC) RURAL HEALTH CARE PILOT PROGRAM

The universal service system was originally designed to make local telephone service available to all Americans at reasonable rates. The Telecommunications Act of 1996 called for a revision of the universal service system.^{xiii} The act moved to support expansion and usage of broadband technology for the high-speed transfer of data across rural communities. In 2006, the FCC created a new rural health care pilot program that will subsidize statewide and regional broadband networks for the delivery of health care services, especially telemedicine, in rural and urban areas. In November 2007, the FCC selected 69 entities to participate in the construction of dedicated broadband networks that connect health care providers in a state or region.^{xiv} This program will provide up to 85 percent of an applicant's costs of deploying a dedicated broadband network, including any necessary network design studies, as well as the costs of advanced telecommunications and information services that will ride over this network.^{xv}

HOSPITAL SPONSORSHIP OF HIT ADOPTION UNDER THE STARK SAFE HARBORS

Hospital organizations nationwide have launched programs to partially subsidize the cost of electronic health records for physicians as permitted under federal regulations. Exceptions to the federal Stark Safe Harbors law have enabled hospitals to subsidize certain EHR costs for physicians while not being subject to accusations of steering referrals back to the hospital. Approximately 40 incentive programs have been introduced by government agencies, insurance companies, employer coalitions, and public-private partnerships. Of these, half explicitly call for the use of records software certified by the CCHIT.

^v <http://www.hhs.gov/healthit/glossary.html>

^{vi} *The Decade of Healthcare Information Technology: Delivering Consumer-centric and Information-rich Healthcare; Framework for Strategic Action*, July 21, 2004, Department of Health and Human Services.

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- vii *The ONC-Coordinated Federal Health Information Technology Strategic Plan: 2008-2012, Using the Power of Information Technology to Transform Health and Care*, Department of Health and Human Services, Office of the National Coordinator for Health Information Technology, June 3, 2008.
- viii See additional details on value driven healthcare at: <http://www.hhs.gov/transparency/>
- ix <http://www.hhs.gov/valuedriven/fourcornerstones/index.html>
- x Interview with Elizabeth Duke, PhD, Administrator, HRSA, December 20, 2006.
- xi <http://ruralhealth.hrsa.gov/funding/flexpurpose.htm>
- xii <http://www.ehealthinitiative.org/HIESurvey/> Accessed September 22, 2008.
- xiii Telecommunications Act of 1996:
- xiv For purposes of the pilot program, utilizes the definition of “health care provider” in 47 C.F.R. § 54.601(a).
- xv Rural Health Care Support Mechanism, WC Docket No. 02-60, Adopted by the Federal Communications Commission: September 26, 2006.

III. STATE SPONSORED HIT INITIATIVES

There are numerous models of state sponsored HIT and health information exchange (HIE) initiatives across the country. States have commissioned studies to support the development of strategic plans to implement and sustain statewide electronic health information exchange (e.g., Wyoming, Delaware, and Connecticut), issued executive orders supporting technology adoption or endorsing specific technology initiatives, and provided direct funding for HIT adoption through grants and loans. Some states have mandated the adoption of electronic health records by all health care providers in the state.

Arizona is another example of a state-sponsored approach to addressing rural HIT endeavors. The State Office of Rural Health (SORH), in partnership with the federal Medicare Rural Hospital Flexibility (FLEX) grant program (a state based partnership to assist rural hospitals in stabilizing their local health care infrastructures), conducts outreach and education to rural providers on HIT, assists in identifying resources for planning and implementation of HIT, and helps set related expectations. The governor of Arizona involved a wide range of interests in determining a strategy to achieve a vision of 100 percent electronic health data exchange among payers, health care providers, consumers of health care, researchers, and government agencies, as appropriate. Hundreds of Arizonans, representing diverse interests and geographies, voluntarily contributed to the process that resulted in the *Arizona Health-e Connection Roadmap*.^{xvi}

Arizona's SORH has conducted numerous HIT-specific initiatives, including helping to create a Rural HIT Adoption Grant Program for the state, providing training on electronic health records systems to the Board of Trustees of the state's Critical Access Hospital* program, forming HIT users groups at the CAHs, and working with the state to access additional statewide technology support funds. In 2008, the governor targeted efforts to improve patient safety by promoting the use of electronic prescribing across public and private health care provider settings, as well as encouraging the use of consumer controlled health care tools, such as personal health records.^{xvii}

Minnesota is another state actively promoting the adoption of standards-based electronic health records to support statewide electronic health information infrastructure. Minnesota has done this through a combination of legislative mandates, grant, and loan programs, and the efforts of a centralized coordinating body.

Minnesota's e-Health efforts began in 2004 with the passage of a law creating the *Electronic Health Record Planning and Implementation Work Group*. The group was mandated to

1. Identify barriers to the adoption and implementation of electronic health record systems in Minnesota;
2. Identify core components of an electronic health record and standards for interoperability;
3. Assess the status of current implementation of electronic health records in Minnesota;

* Critical access hospitals (CAHs) have no more than 25 beds, are located in underserved rural areas, and are certified to receive cost-based reimbursements from Medicare. North Dakota has 34 CAHs among its 39 licensed rural hospitals.

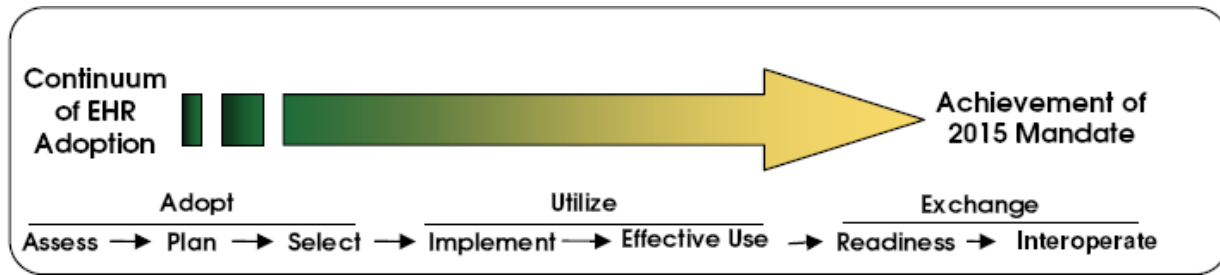
4. Assess the costs for primary and acute health care providers, including safety net clinics and hospitals, to implement electronic health records systems;
5. Identify partnership models and collaboration potential for implementing electronic health records systems;
6. Monitor the development of federal standards, coordinate input to the National Health Information Infrastructure Process, and ensure that Minnesota's recommendations are consistent with emerging federal standards; and
7. Identify barriers and develop a plan to develop a unified record system among public hospitals and clinics.^{xviii}

The Work Group, composed of representatives of hospitals, health plans, physicians, nurses, other health care providers, academic institutions, state government purchasers, public health providers, citizens, and others with knowledge of health information technology and electronic health records systems, was also directed to provide preliminary assessments and recommendations on the appropriate role of the state in the development, financing, promotion, and implementation of an electronic health records system.

The Work Group, now the Minnesota e-Health Initiative Advisory Committee, oversees the work of the Minnesota e-Health Initiative, a public-private partnership accelerating the use of health information technology in the state. The advisory committee provides an annual update to the Minnesota Legislature on progress made toward achieving the vision of a unified electronic health records system. Minnesota has incrementally ramped up its efforts each year since 2004 to support the adoption and use of health information technology across the state. The Minnesota e-Health Initiative's efforts are strongly supported by the governor and state legislature, which enacted several significant laws in the 2007 and 2008 legislative sessions including:

- A mandate that all health care providers and hospitals have an interoperable EHR system by 2015;
- A requirement to develop a statewide implementation plan to meet the 2015 interoperable EHR mandate;
- A requirement to establish uniform health data standards by 2009; and
- A requirement that all health care providers and payers establish and use an electronic prescribing system by January 1, 2011.^{xix}

Minnesota, like most states, had limited adoption of EHRs in 2004, with approximately 5 percent to 15 percent adoption across primary care clinics and physician offices.^{xx} Recognizing this limited adoption of HIT as a major barrier to the achievement of their 2015 mandate, they have supported a number of grant and loan programs, providing more than \$14 million since 2006. Legislative preference is given to projects benefiting providers located in rural and underserved areas of Minnesota with unmet need for the development and funding of electronic health records. Grant funds, administered by the Minnesota State Office of Rural Health, are being awarded on a three-to-one match basis with grants supporting planning, acquisition, and implementation of certified interoperable EHRs. The vision for achieving full EHR adoption is represented by the following model:



Source: *Minnesota e-Health Resource Guide, 2008.*

There are many additional state approaches to supporting and implementing HIT and developing plans for statewide electronic health information infrastructure. The following are examples of state funded initiatives:

1. Some states have established a fund for planning and implementation of HIT and made it available to health care providers; for example, Missouri created a fund that includes both state appropriations and donations from private entities.
2. Vermont is investing approximately \$32 million in HIT, raised by a tax on health insurers to be paid into the Vermont Health IT Trust Fund. Health plans operating in the state were required to submit their first payment on October 1, 2008, choosing between paying two-tenths of a percent on all health care claims of the previous quarter for their Vermont members or a fee based on a proportion of last year's overall claims. The Vermont Information Technology Leaders, a nonprofit organization established as a public-private partnership to operate the state's health IT programs, will manage the funds.
3. Wisconsin created a tax credit for health care providers who purchase electronic medical records. Providers can claim up to 50 percent of the cost of the system with a maximum of \$10 million a year.
4. In addition to previously mentioned efforts, Minnesota is targeting its state employees as model health care consumers. Minnesota will provide access to consumer-owned electronic personal health records to all state employees. These records, portable among health care providers, health plan companies, and employers, are being supported in an effort to control costs, improve quality, enhance safety, and demonstrate the feasibility of a statewide health information exchange.

Summaries of many of the state-based efforts are being compiled and tracked by a variety of organizations across the country; for example, the HIMSS State Dashboard maintained by the Health Information and Management Systems Society (HIMSS, see www.himss.org/StateDashboard/ for updates), the State-Level Health Information Exchange Consensus Project, which is working to identify the emerging characteristics and distinct roles, and the American Health Information Management Association (www.slhie.org/index.asp).

^{xvi} *Arizona Health-e Connection Roadmap*, April 4, 2006.

^{xvii} *Executive Order 2008-21*, Office of the Governor, State of Arizona, May 1, 2008.

^{xviii} *Laws of Minnesota 2004*, Chapter 288, Article 7, Section 7.

^{xix} see *Minnesota Statutes 2007*, section 62J.495-497.

^{xx} *eHealth Advisory Committee Report to the Legislature*, 2005.

IV. NORTH DAKOTA HIT INITIATIVES

FEDERALLY FUNDED PROJECTS IN ND

In September 2007, the Center for Rural Health at the University of North Dakota School of Medicine and Health Sciences was awarded a \$1.6 million grant through HRSA, federal Office of Rural Health Policy, whose overall goal is to facilitate the flow of information across health settings in order to improve quality, patient safety, efficiency, and effectiveness of health care delivery. Three North Dakota Critical Access Hospitals (CAHs), (Northwood Deaconess Health Center, Northwood; Pembina County Memorial, Cavalier; First Care Health Center, Park River), and the local ancillary providers (Valley Community Health Centers, Northwood and Larimore; Wedgwood Manor, Cavalier; and First Care Rural Health Clinic, Park River) along with one tertiary referral hospital (Altru Health System, Grand Forks), are participating in this network model pilot project. Each CAH will implement their own electronic medical record (EMR) system, which will make the patient records readily available within and between the local CAH and their respective ancillary facility in order to improve the timeliness, continuity, and quality of care. In addition, rural providers will have access (through a password-protected site on the Altru system) to medical records of their patients who are seen at Altru, which can markedly decrease the chance of error that incomplete, outdated information contributes to.

A number of North Dakota health care facilities have taken the initiative to work collaboratively in order to more effectively and efficiently facilitate the adoption of technology within their facilities. Two notable examples, which recently received federal funds through HRSA's federal Office of Rural Health Policy, Rural Network Development grant program, are Northland Healthcare Alliance and the recently formed group of rural hospitals named Northwest Alliance Information Technology (NWAIT).

Northland Healthcare Alliance (NHA) began in 1996 and includes various health care facilities in 18 communities in North Dakota and South Dakota (Ashley, Bottineau, Bowman, Carrington, Dickinson, Enderlin, Fargo, Garrison, Harvey, Hettinger, Jamestown, Linton, Mobridge, Rolla, Turtle Lake, Valley City, Watford City, and Williston). They will use the three-year funding to develop a master patient identifier (MPI) to be used for patients with in the participating facilities.

Northwest Alliance Information Technology (NWAIT), which consists of ten rural hospitals (Bottineau, Cando, Crosby, Harvey, Kenmare, Minot, Rolla, Rugby, Stanley, Tioga, and Watford City), will use the three-year funding to complete technology inventories of each facility to determine equipment and communication needs and support IT staff participation in the IT coordinator meetings for the purpose of developing a coordinated plan to establish a shared data center.

In addition, the University of North Dakota School of Medicine and Health Sciences' Center for Rural Health and its Computer Services together are one of 69 other state projects selected as recipients of the FCC Rural Health Care Pilot Program. Universal Services Funds will fund 85 percent of the cost to construct a high-speed data network that will connect the UND medical school's four main campus sites (Bismarck, Minot, Fargo, Grand Forks) and its own clinical

medical sites to rural health care facilities (Jamestown, Dickinson, Williston, Hettinger, Devils Lake) in North Dakota. These hospitals were chosen for the FCC pilot program because they serve as Rural Opportunities in Medicine (ROME) and Student/Resident Experiences and Rotations in Community Health (SEARCH) program sites. ROME is a seven-month interdisciplinary experience in a rural primary care setting available to third-year medical students; SEARCH also offers a rural practice opportunity for students who have completed one year of training in the following: medicine, primary care, nurse practitioner, physician assistant, graduate social work, and dentistry. This high-speed network will be used to facilitate learning and research opportunities for health care professional students.

NON-FEDERALLY FUNDED HIT PROJECTS IN ND

Blue Cross Blue Shield North Dakota (BCBSND) supports the only grant program available in the state with a focus on using technology as a tool for improving the quality, safety, and efficiency of health care services. The rural health grant program has been in existence since 2001 and is administered by the Center for Rural Health, UNDSMHS. Recognizing the fundamental importance of technology to health care, the focus was changed in 2004 to only support HIT planning and implementation. This HIT grant program has awarded over \$1.4 million toward 32 funded projects such as picture archiving communication systems (PACS), computed radiography (CR), laboratory information systems (LIS), and shared servers among other electronic modules to help facilities build systems incrementally.

In addition to the funding opportunities mentioned previously, many North Dakota health care facilities have obtained federal grants over the last ten years. Since 1999, North Dakota health care facilities have received over \$10.7 million in grants, both federal and non-federal (BCBSND). While this may sound impressive, these funds have provided only seed money to support partial investments for developing formal relationships among collaborators and purchasing a modest amount of technology. Because of the financial challenges, many facilities rely on the availability of grant funds to drive the implementation of an EMR. The approximate cost of implementing an EMR in a single rural hospital, which does not have a previous relationship with a vendor, is between \$850,000 to 1.2 million; for a clinic setting, a typical range is approximately \$15,000 to \$25,000 per physician.

In order for North Dakota to progress with improving quality of health care through the adoption and implementation of technology, it will require aggressive and more significant capital investment to develop sustainable business models and sufficient economies of scale to support HIT infrastructure for the state.

STATE HIT EFFORTS

North Dakota has been an active participant over the last three years in HIT discussions in national and regional meetings, as well as within the state. The first “ND HIT Summit” was held in April 2006 and was sponsored by Senator Kent Conrad, North Dakota Health Care Review, North Dakota Healthcare Association, North Dakota Medical Association, the UND Center for Rural Health, Blue Cross Blue Shield of North Dakota, and Gruby Technologies. Attended by over 160 participants, the Summit partners recognized the need to continue the dialogue and created the **ND HIT Steering Committee**. Based on a review of models from other states and in an effort to involve a wider base of public and private stakeholders, the Steering Committee was

expanded to include the North Dakota Departments of Health, Human Services, and Information Technology, as well as AARP and a number of other rural and urban representatives.

The ND HIT Steering Committee developed the following:

- **Vision.** Implement a statewide health information technology and exchange infrastructure.
- **Mission.** Facilitate the adoption and use of health information technology and exchange to improve health care quality, patient safety, and overall efficiency of health care and public health services in North Dakota.

In August 2006, the HIT Steering Committee coordinated a one-day workshop with over 40 key stakeholders from across the state. The meeting focused on a national overview of HIT and health information exchange (HIE) initiatives in other states with particular attention to how technology is impacting health care quality, safety, and performance. As a result of this meeting, the HIT Stakeholder Group, an expansion of the HIT Steering Committee (22 members), was created. This Stakeholder Group includes 49 members representing 48 organizations, such as the ND Long Term Care Association, the Veterans Affairs Medical Center, as well as individual pharmacists, public health, and other health care providers.

During the 2007 ND Legislative Session, HB 2303 (sponsored by Senator Judy Lee and Representative Clara Sue Price) was introduced to support and formalize the creation of the HIT Steering Committee and provide for an HIT grant program. This bill failed, but a subsequent amendment was added to HB 1021, the Information Technology Department's appropriation bill, which was adopted. This amendment codified the Steering Committee by adding a new section to ND Century Code 23-01; however, no funding was appropriated to support the grant program or the operation of the committee.

In practical terms, the group has been

- Assessing the overall HIT environment in North Dakota;
- Engaging with leadership from other state HIT and HIE initiatives;
- Exploring how to build a confidential and protected master patient index (MPI) that can be shared between health care providers;
- Examining existing HIT systems and data bases (e.g., immunization registry, Medicaid beneficiaries);
- Assessing current state privacy/security laws and standards for exchanging health information; and
- Identifying and disseminating new funding sources and tracking HIT planning and implementation projects in the state.

A second joint Steering Committee and Stakeholder Group meeting was held in August of 2007. The purpose was to convene five Work Groups to explore topics relevant to developing a statewide HIT plan: (1) Health Information Exchange (HIE), (2) Education/Communication, (3) Legislative/Policy, (4) Privacy/Security, and (5) Finance/Resources). Each work group is chaired by a Steering Committee member with additional members participating from the Stakeholder Group.

In developing the structure of the Steering Committee and Work Groups, they have taken lessons learned from numerous other statewide HIT and HIE initiatives and used resources such as the *State Level HIE Initiative: Development Work Book* compiled by the Foundation of Research and Education at the American Health Information Management Association. Also, in order to facilitate communication of the Steering Committee's work, a website, hosted by the Center for Rural Health, was developed; it contains all meeting minutes, presentations, reference materials, and a calendar of upcoming events, meetings, and timelines. The website serves as an HIT resource for North Dakota stakeholders.

The Steering Committee was authorized but not funded by state government. Statewide activities have been supported financially through Blue Cross Blue Shield of North Dakota and in-kind contributions from Committee and Work Group members. Additionally, the majority of support is provided by federally funded grants through HRSA's Office of Rural Health Policy, administered by the UND Center for Rural Health through the following:

- State Office of Rural Health Grant Program,
- Small Hospital Improvement Program, and
- Medicare Rural Hospital Flexibility Grant Program.

PRIVACY AND SECURITY

The North Dakota Privacy Security Work Group tracked actions taken by federal agencies and by the National Governors Association (NGA) to advance health information technology relating to e-prescribing and development of security standards for electronic health information. Working in parallel to the national Health Information Security and Privacy Collaborative (HISPC) this work group concluded that

1. North Dakota's laws relating to the privacy of health information are generally adequate— that is, protecting privacy but not interfering with the exchange of electronic health information; and
2. North Dakota health care organizations should adopt federal standards for the security of electronic information in order to avoid the need for later modification if federal standards are different or more stringent than any locally developed standards, and because some health care organizations and government agencies now exchange electronic health information across state lines.

V. KEY FINDINGS AND CHALLENGES

To expedite the discussions of the Work Groups and provide updates on HIT initiatives in North Dakota and in other states, the third annual meeting of the ND HIT Steering Committee was held in June 2008 in Bismarck. This meeting included several presentations on current HIT initiatives underway across private physician and hospital sectors, within the health plan community, and in the Departments of Health and Human Services in North Dakota. In addition, speakers from Utah and Minnesota presented summaries of their state-led initiatives. While the first day was primarily an open forum of all participants, the second day focused on Work Group efforts (see Appendix B: Summary Report: ND HIT Steering Committee Meeting, June 2008). Through this and previous meetings the Steering Committee reconfirmed the need to assess the planning, adoption and implementation of HIT in ND currently being undertaken.

The UND Center for Rural Health working on behalf of and in collaboration with Steering Committee and Stakeholder group members worked to design survey tools in order to obtain information on areas including health information technology staff support; barriers and drivers or reasons for electronic medical record (EMR) adoption use of telemedicine, and the extent to which HIT planning and implementation was underway.

The Center for Rural Health conducted the surveys (electronically) of hospitals, long-term care facilities, local public health units, and health professions students (April to October 2008) from Dakota Health Care Review (NDHCR), North Dakota's Medicare Quality Improvement (QIO) program also conducted complementary surveys (telephone) of physician and community clinics. The results from all surveys were collected, compiled, and analyzed by the Center for Rural Health and NDHCR respectively.

Hospitals. The survey tool used for the hospitals was a modification of the tool developed by the NDHCR in 2005. The Administrators or Chief Information Officers or IT Managers from 45 rural and urban hospitals were asked to complete the survey and 43 (95 percent) did so (see Appendix C).

Long Term Care (LTC). The LTC facility survey was an adaptation of a tool recently used by Stratis Health, Minnesota's Medicare Quality Information Organization (QIO), on behalf of the Minnesota Department of Health. The UND Center for Rural Health worked with the ND Long Term Care Association to distribute the survey to Administrators of 83 facilities of which 44 (53 percent) responded (see Appendix D).

Local Public Health Units (LPHU). The North Dakota LPHUs were surveyed using an instrument developed by the Center for Rural Health in collaboration with the ND Department of Health and the LPHU-Public Health Liaison. The survey was distributed to the Administrators of all 28 LPHU and 25 (89 percent) responded (see Appendix F).



Physician and Community Clinics. North Dakota Health Care Review, Inc., conducted the survey of private physicians and community clinics, (defined as those having at least 40 percent of their full-time physicians engaged in primary care (i.e., general practice, family practice, internal medicine, or geriatrics) 99 practices (of approximately 300) met this criterion. Those with an EMR were asked to identify their vendor and product version, to determine which are using a CCHIT-certified EMR. Ninety-four of 99 responded.

Students in Health Professions. The survey instrument for students was developed by the Center for Rural Health and administered through academic entities (e.g., UND School of Medicine and Health Sciences' Departments of Family and Community Medicine, and Clinical Laboratory Science; and Minnesota State Community and Technical College, Detroit Lakes, MN, Radiologic Technology). The surveys were distributed, by the Program Director or designee, to students in their final year and recent graduates from the selected programs (see Appendix E).

The survey results provided key insights into HIT issues across the state, including the following:

- **Wide prevalence of broadband access across the state.** More than 90 percent of the hospital survey respondents indicated that they currently have in place adequate and expandable broadband access for Internet connections. Combined with the widespread use of local area networks (LANs) within organizations, this provides some of the basic infrastructure for the potential exchange of electronic health information across the state.

- **Strong urban–rural divide with regard to hospitals.**

Adoption of EMR

Respondents from hospitals indicated the top two most significant drivers for implementing an EMR were to improve quality of health care and patient safety. Despite a desire to improve health care services using technology, 14 of 37 rural hospitals indicated some level of EMR adoption. In comparison, 100 percent of urban hospitals reported implementing an EMR. The two most significant barriers for rural and urban were lack of finances and reimbursement issues. NDHCRI conducted a similar survey of hospitals in 2005. Among “rural” hospitals, in the three-year period, only three hospitals have implemented EMRs, all as a result of the HRSA, ORHP, CAH HIT Network grant, administered by the CRH (see ND Map of EMR Adoption page 148).

Planning for implementation

The planning process for implementation of an EMR, and other related technology, is critical to success. A great number of rural hospitals indicated they have not begun planning activities, but over half indicated an interest in technical assistance to do so, such as assessing workflow analysis (61 percent); assessing computer skills of staff (51 percent), and developing a HIT work group (57 percent).

Technical resources for IT support

One of the most stark contrasts is the divergence in IT staff support available to urban versus rural facilities. All six urban hospitals have significantly higher numbers of



employees involved in HIT work, having at least 11 full-time IT support staff and two facilities have more than 50 IT staff. In addition, all urban hospitals responding to the survey indicated they have a designated IT person such as a CIO or IT Manager; among rural facilities, nearly 20 percent said that they did not have any person designated to provide IT support. Among the rural hospitals that did have a designated IT staff person, their reported experience and training was significantly lower than that of their urban counterparts. For example, over half of rural hospital IT managers have less than a four-year college degree, while all of the urban hospital IT managers have at least a bachelor's, with many of them having a graduate degree AND more than 20 years of direct experience. Over 84 percent of the rural hospital respondents indicated an interest in addressing their lack of IT staff support by considering the use of shared IT staff arrangements with other organizations.

- **Computer Science and related academic programs lack focus on health IT curriculum.** The CRH conducted informal telephone surveys of Computer Science related programs (i.e., health information technician, management information systems, and computer information systems) in twelve North Dakota academic institutions. Nine indicated they have no specific focus on health information technology within their curriculum; one included an EHR project within a class; and two were specific health information technician programs. This brings to light an additional challenge of lack of availability of course work within existing computer-science-type programs that focus on health IT.
- **Hospital system versus non-system resources.** In addition to the urban–rural contrast, there was also a stark contrast between facilities that are part of a health care system and those that are independent. Fewer than half of the rural hospitals are affiliated with a health care system while all urban hospitals indicated they are.
- **Non-aligned physicians lag behind system-based physicians in EMR adoption.** A survey was conducted by the NDHCR of private physicians and community clinics (defined as those having 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 practices (of approximately 300) met this criterion. Of the six largest health care systems, five are using EMRs in their clinics, which accounts for 40 of the 44 practices that indicated they are currently using an EMR. Of the five clinics using an EMR that are not part of a large system, three are associated with CAH systems, one is an independent practice, and one is a larger multi-specialty independent practice. NDHCRI also conducted a similar survey of clinics in 2005, allowing a comparison over time. Among “rural” clinics (discounting those that are part of the 6 large systems), over the three-year period, only two rural clinics have implemented outpatient EMR, also as a result of the HRSA, ORHP, CAH HIT Network grant, administered by the CRH.
- **Technology enhances recruitment of new health care providers.** Surveys of medical and other health profession students at the University of North Dakota and Minnesota



State Community and Technical College, Detroit Lakes, MN, indicate a strong preference for practicing in a clinical environment supported by electronic health information systems: electronic medical records (EMRs), laboratory information systems (LIS), and computed radiology (CR) or digitized radiographic images rather than films. More than 90 percent of the 21 medical students surveyed had opportunities to utilize EMRs, CR, and LIS during their training. More than 85 percent of medical students indicated that having EMRs available in their professional work settings would be very important or extremely important in choosing their professional practices.

“It is becoming more and more challenging to practice without EMR technology. The old traditional paper format is a thing of the past that is full of potential for medical errors.”

—Recent Medical School Graduate

Of the 15 laboratory technician students surveyed, 79 percent indicated that having an LIS in place was very important or extremely important in choosing their professional practices. For the 18 radiologic technology students surveyed, 78 percent indicated that having CR in their professional work settings would be very important or extremely important in choosing their professional practices. Clearly, having HIT in North Dakota practice settings is very important to recruiting health care providers.

- **Long-term care (LTC) facilities face significant barriers in adopting HIT.** Primary barriers cited by LTC facilities are the lack of financial resources (capital) to invest in HIT and the lack of reimbursement to sustain the cost of maintaining HIT over time. Of those responding to the survey, 79 percent are not using an EMR, over 70 percent have not completed planning activities such as computer skills assessment of staff and workflow analysis, and over one-fourth of respondents indicated no interest in doing this. The response rate was lower than other health care facilities (44 of 83, 53 percent), which may be attributed to the lack of IT staff. Fifty-two percent indicated they do not currently have a designated individual to oversee IT with the knowledge base to complete a survey of this type.
- **Telemedicine adoption across ND.** Although the results indicate a wide range of telemedicine models in use in urban hospitals, it is an underutilized resource in rural hospitals. By far the most prevalent telemedicine practice across both urban and rural hospitals and LTC facilities is videoconferencing (facility meetings held via videoconference), with 100 percent utilization across urban hospitals and 81 percent utilization across rural hospitals. The second most prevalent use of telemedicine is tele-radiology—capturing and sending x-rays and other radiology images to remote locations for interpretation by specialists. All urban facilities and 54 percent of rural facilities are using this technology; 26 percent of rural hospitals are planning to implement tele-radiology within two years.



In terms of plans for use of telemedicine technology, rural hospitals identified tele-dermatology (32 percent) and telepharmacy (31 percent) as applications they intend to implement within two years. Also, a high percentage of urban and rural hospitals indicated no plan at this time but expressed interest in exploring telemedicine for such things as tele-stroke, tele-dialysis, patient education, and provider-patient and provider-provider consultations to name a few.

Although the survey results indicated a minimal use of telemedicine in LTC facilities, interest was expressed in exploring a number of uses. For example, 30 (68 percent) indicated interested in exploring the use of home health monitors; however, only 3 percent of ND LTC respondents indicated they are currently using home health monitors (video and non-videos). *Physician and community clinics were not queried with regard to their use of telemedicine.*

Telemedicine applications are particularly important given recently enacted federal legislation that stipulates that as of January 1, 2009, skilled nursing facilities, in-hospital dialysis centers, and community mental health centers can be originating sites for Medicare reimbursement, thus encouraging additional opportunities to implement or expand telemedicine initiatives.

- **Local Public Health Units (LPHU) use multiple electronic data management systems that operate independently of each other.** Over half of the LPHUs indicated they use an electronic system to report required program information to the ND Department of Health (e.g., immunizations, family planning, Women's Way, Women Infant and Children [WIC]). However, most of these programs are federal or national in nature and come with specific and differing models for submission and management of health information, not to mention the separate systems for ND health care facilities and insurance entities. Forty-eight percent (12) are currently not able to exchange client health information electronically, using Health Level (HL7) standard messaging, with other LPHUs or private providers (HL7 is an all-volunteer, not-for-profit organization involved in development of international health care standards); the capacity for client information management applications remains limited at only 20 percent.

Local public health units in North Dakota recognize the value of efficient and effective HIT; however, resources for this are very limited. Survey results were similar to other ND health care facilities. With regard to lack of IT staff support, 40 percent responded they do not have a designated person for IT. In regard to lack of financial resources and lack of progress in planning and readiness, over 50 percent of respondents have not conducted work flow analysis, 60 percent have not conducted assessment of computer skills of staff, 72 percent have no plan for implementing systems used for HIT and HIE, and 76 percent reported they do not have a strategic plan for HIT. However, the majority were interested in technical assistance in all of these areas.

VI. RECOMMENDATIONS FOR SUPPORTING NORTH DAKOTA'S HIT EFFORTS

Survey results support many of the concerns expressed over the last two years: financial and technical barriers to HIT adoption, strong divide between the rural and urban facilities relative to IT resources, and the need for statewide guidance on moving North Dakota's HIT infrastructure forward. Below are key recommendations to address concerns and achieve important goals:

- **Create a formal organization within the state charged with coordinating HIT efforts and potentially governing a health information exchange initiative.**

The ND HIT Steering Committee has been meeting as a voluntary effort for over two years to discuss opportunities to promote HIT adoption across the state. There are no financial resources allocated to this effort from the state; a significant amount of federal grant funds have been provided through the Center for Rural Health. Participation of steering committee members fluctuates with their professional work commitments. In order to provide sustained guidance to HIT development, a more formal and financially supported organization charged with convening and coordinating HIT and HIE efforts within the state and empowered to make formal recommendations is needed.

- **Develop a North Dakota Strategic Plan for implementing and sustaining a statewide electronic health information exchange.**

Without a formal strategic plan for implementing and sustaining a statewide initiative to facilitate the electronic exchange of health information, there is no process or document around which to build consensus. A statewide strategic plan is needed to efficiently and effectively guide North Dakota's HIT efforts. This is viewed as a priority by the HIT Steering Committee, but it is hampered by lack of associated funding.

- **Create a state-funded grant or loan program to support rural and public health entities in the implementation of health-information-technology-driven quality improvement programs.**

Survey results indicate that financing is a significant barrier to implementing HIT, particularly in rural areas. Creating a state-funded loan or grant program to support these efforts, a strategy used by many other states, would significantly help to reduce this barrier. Oversight of these funds could be granted to a formalized statewide health information organization.

- **Develop health information technology training programs to build human resource capacity.**

Another significant barrier indicated in survey results is the shortage of trained IT technical staff. Creating training programs for existing staff and developing an ongoing pool of resources are critical needs. These training programs can build on existing educational resources across North Dakota's universities while also leveraging telehealth tools to provide distance-learning opportunities for those in remote and rural areas.



- **Implement a peer-to-peer HIT support program for rural health care organizations.**
In addition to developing formal education, there is a need for informal mentoring programs for rural health care facilities. Similar to current pairing of critical access hospitals with larger referral hospitals, opportunities to pair hospitals in HIT support can be structured. There is clear need among rural hospitals for on-going technical advice in general areas such as developing and implementing HIT strategic plans, as well as specific areas such as evaluating and implementing hospital information systems. Surveys show that there are several systems that have been implemented or are being planned in multiple hospitals. Learning from previous efforts and planning together for future health information exchange on a local, regional, and statewide level harnesses knowledge and enhances efficiency of IT staff charged with this work.
- **Sponsor rotating rural HIT technical support teams to assist organizations that do not have the staff necessary to implement projects.**
Few of the HIT challenges that any one particular agency is facing are unique, and overcoming these may best be met by enhancing shared knowledge and reducing relative isolation. Convening regional meetings organized in the context of a users' group to focus on HIT issues specific to a particular system in use by multiple CAHs, such as MediTech, Healthland (formerly Dairyland), etc., could facilitate this information and problem-solving exchange.
- **Convene a statewide meeting focused on telehealth**
The surveys highlight the current use of many types of telehealth efforts, ranging from medical education and videoconferencing, to patient-specific efforts such as tele-dialysis (provider-patient consults). To enhance information dissemination across the state, a statewide telehealth conference can bring together individuals involved with and interested in using technology. Such a meeting could draw on experts from the federally funded regional telehealth resource centers and use telehealth technology to include participants from around the state unable to attend in person.
- **Develop an HIT e-newsletter**
A regular information exchange through an HIT e-newsletter could keep people apprised of local, regional, and national HIT efforts. An HIT e-newsletter should be distributed on a regular cycle, either monthly, or quarterly, to facilitate broader communication.

These recommendations are a starting point for the next phase of North Dakota's HIT efforts. The North Dakota HIT Steering Committee, with support from the North Dakota state legislature and other public and private entities with a stake in ensuring efficient, high quality health care for all of North Dakota's residents, will continue to work to determine priorities and targeted HIT efforts across the state that ensure a broader digital divide does not continue to grow between rural and urban health care providers, and between North Dakota and the rest of the country.

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APPENDIX B – SUMMARY REPORT: ND HIT STEERING COMMITTEE/STAKEHOLDER WORKGROUPS MEETING (JUNE 2008)

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I. Background

The first “ND HIT Summit” was held in April, 2006 sponsored by Senator Kent Conrad, ND Health Care Review, ND Health Care Association, ND Medical Association, the Center for Rural Health at the UND School of Medicine and Health Sciences, BlueCross BlueShield of ND, and Gruby Technologies. As a result of a successful event, attended by over 160 participants, the Summit partners recognized the need to continue the dialogue and created the *ND HIT Steering Committee*. Based on a review of models from other states and in an effort to involve a wider base of stakeholders, the Steering Committee was expanded to include the ND Departments of Health, Human Services, and Information Technology, AARP and other rural and urban representatives.

The HIT Steering Committee has developed and been guided by the following principles in its work for North Dakota:

- **Vision:** *Implement a statewide health information technology and exchange infrastructure.*
- **Mission:** *Facilitate the adoption and use of health information technology and exchange to improve health care quality, patient safety and overall efficiency of health care and public health services in North Dakota.*

In developing this vision, they have relied on numerous other statewide efforts and by such documents as the *State Level HIE Initiative: Development Work Book* compiled by the Foundation of Research and Education at the American Health Information Management Association. They have also developed a website, hosted by the UND Center for Rural Health, to log all meeting minutes, provide a repository of presentations and reference materials; to provide a calendar of upcoming events, meetings and timelines, and to serve as an HIT resource for ND stakeholders.

In August 2006, the HIT Steering Committee coordinated a one-day workshop with over 40 key stakeholders from across the state; this day included a national overview on HIT activity, as well as HIT and health information exchange (HIE) initiatives in other states; particular attention was given to how technology is impacting health care quality, safety, and performance. As a result of

this meeting the HIT Stakeholder Group, which is an expansion of the HIT Steering Committee, was created. This group includes more than 40 members from such domains as the ND Long Term Care Association, the Veteran’s Administration Medical Center, pharmacists, public health units, and numerous individual health care providers.

In January, 2007, HB 2303 (sponsored by Senator Lee and Representative Price) was introduced during the legislative session to formalize the creation of the HIT Steering Committee and provide for an HIT grant program. This Bill failed, but an amendment was then made to HB 1021 of the Information Technology Department’s appropriation bill, which was adopted. This amendment codified the Steering Committee by adding a new section to ND Century Code 23-01, but no funding to support the grant program was appropriated.

In practical terms, the group has been:

- Exploring how to build a confidential and protected, master patient index (MPI) that can be shared between health care providers.
- Examining existing HIT systems and databases (e.g. immunization registry, Medicaid beneficiaries).
- Assessing the current state laws and standards for exchanging health information.
- Identifying funding sources to develop, implement, and sustain the ND HIT system for providers and interested parties.
- Assessing the overall HIT environment in North Dakota.

A second in-person joint Steering Committee and Stakeholder Group meeting was held in August of 2007. The purpose was to convene five workgroups that were tasked with exploring topics in order to eventually develop a statewide HIT plan: 1) *Health Information Exchange*; 2) *Education/Communication*; 3) *Legislation/Policy*; 4) *Privacy/Security*; 5) *Finance/Resources*). Each work group is chaired by a Steering Committee member with additional members participating from the Stakeholder Group. The *majority of the activities* of the ND HIT Steering Committee since 2006 have been supported by the following grants: State Office of Rural Health, Medicare Rural Hospital Flexibility Program, Small Hospital Improvement Program, all administered through the Center for Rural Health, UND School of Medicine and Health Sciences. These activities have also been supported by the extensive time volunteered by each member’s involvement in the work groups and committee meetings. BlueCross BlueShield of ND also contributed financially towards this most recent statewide meeting.

In an effort to reinvigorate the discussions, provide updates on HIT initiatives in the state and provide additional input from other state eHealth efforts, an in-person meeting of all members of the HIT Steering Committee and Stakeholder Work Groups coordinate by the Center for Rural Health on the 4th and 5th of June in Bismarck. A copy of the agenda for the meeting is attached. The following sections provide a summary of the meeting themes, discussion points, and next steps.

II. Meeting Objectives

a. Develop the focus of potential legislation for 2009

The long-term goal of the HIT Steering Committee is to promote the development of a statewide health information exchange to facilitate electronic data transmission. However, an underlying assumption for the HIT Steering Committee has been that the State of North Dakota would be a central player in promoting HIT, for example, through legislative funding of HIT adoption programs¹. December 4, 2008 is the deadline to file bills with the Legislative Council for the upcoming session, thus putting the HIT Steering Committee on the clock. However, at the time of the June meeting, the Working Groups had not developed a cohesive agenda to present to the legislature. The series of presentations for the June meeting on North Dakota HIT projects, federal legislation and from North Dakota legislators were intended to inform the discussion of the workgroups on day two.

b. Develop next steps for Work Groups

Each of the work groups was asked to reflect on the presentations that were given, review the activities of their Work Group to date and to provide next steps on activities that are on-going. In addition, given the emphasis on bringing a recommendation to the legislature, each group was asked to identify ways to keep the appropriate legislative committees apprised of their work. As an introductory step, a visit to the Interim Information Technology Committee meeting was facilitated on June 5th with the Work Group members present.

III. Discussion

During the presentations, facilitated discussions, and the Work Group meetings, a number of key questions were raised:

- What are the urgent health needs or problems that HIT is being promoted to address in North Dakota?
 - In order for HIT to be effectively applied, the need to which it is being applied must be clearly stated and understood. Much of the discussion focused on the fact that there is limited prevalence of chronic conditions or diseases across the state that need to be addressed. It was noted that much of the need for health care information is localized to specific communities and/or within regions, especially relative to hospital referral patterns, which can easily identify the need for electronic health information flow. It was a question particularly central to the discussion among the HIE Work Group, whose members include many of the North Dakota hospital partners. A key outcome of the discussions within this group was to work collaboratively across the hospitals to identify specific data sharing needs and opportunities.

¹ See *North Dakota Legislature HB2303 (failed)* which originally created the HIT Steering Committee and provided funds for an HIT grant program and *HB1021(passed)* only creating the HIT Steering Committee. www.legis.nd.gov/assembly/60-2007

- Does a comprehensive summary of current or planned HIT initiatives across the state currently exist?
 - There was a brief presentation made on the status of the *ND HIT Environment Scan* being conducted by the Center for Rural Health (CRH). As of the meeting date, surveys had been distributed to all of the hospitals in the rural and urban areas of the state, with plans to survey the long term care facilities as well. However, few of the facilities had returned their surveys to CRH at that point, meaning they had limited data to present. It was agreed by all that this is a crucial step in identifying not only existing areas where HIT is being utilized, but also gaps that could potentially be the target of technical assistance efforts or even potential recommendations to the legislature.

- Given the current economic climate, is it realistic to expect significant support from the state legislature for funding of HIT efforts?
 - In follow up to several of the presentations made by other states on eHealth initiatives, many questions and concerns were raised with the cost and sustainability of implementing statewide eHealth initiatives. The concerns with cost also raised the issue of funding models utilized and the need for strong business models. In the case of the Utah Health Information Network (UHIN), the model uses a fee structure whereby members (i.e., health care organizations that have electronic data routed through the UHIN HIE) pay a transactional fee. The model is sustainable in that fees exceed expenses, while also being less expensive than alternative methods (e.g., point to point data transfer) available to the members. They are, in essence, providing a cheaper alternative. In the case of Minnesota's eHealth initiatives, there are a combination of financial resources being brought to bear, including those of the state, private health plans, as well as leveraging federal and foundation support. The cost and sustainability model of the long term operational structure has yet to be determined. The expectations shared across the committee members present were that North Dakota would have to be very strategic in identifying those areas where state funds are needed to initiate or sustain HIT adoption and HIE promotion across the state.

- How can existing gaps in HIT technical staffing be addressed, particularly in the more rural areas of North Dakota?
 - A number of presentations made during the meeting suggested that there are significant gaps in technical resources among facilities working to evaluate, implement and sustain HIT, particularly at smaller rural facilities. While there is consistent agreement that there is a benefit to adopting and maintaining electronic systems, the reality in many rural facilities points to a slow pace of adoption. A number of approaches were discussed during the meeting for addressing these issues, such as providing remote HIT training sessions via teleconferencing equipment and pursuing the recruitment of more highly trained technical staff who could potentially be shared among a number of facilities. All participants encouraged that the technical staff training aspects of any HIT Steering Committee recommendations or plans be given high priority.

IV. Next Steps

There was general agreement among the meeting participants that having an in-person meeting on a more regular basis helped to spur activity. It was also agreed that the presentations from outside eHealth stakeholders helped to inform the discussions. As a series of next steps from the meeting, the following items were identified:

- All participants (representatives from health care facilities) were encouraged to complete and return the HIT surveys from their facilities as soon as possible to provide this important baseline information.
- Each of the Work Groups will provide a summary of their discussions to CRH and identify key activities to be followed up on.
- A review of the existing Work Groups will take place to determine whether they are structured effectively and have the necessary members to move forward. An example of this includes evaluating whether a Clinical Provider/Standards Work Group is needed.
- Ongoing connections across the hospitals in the state will be evaluated to further facilitate the effective transfer of data electronically to improve the continuum of care.

North Dakota HIT Steering Committee/Stakeholder Work Groups

June 4-5, 2008
Radisson, Bismarck

Meeting Goals:

- 1) Develop the focus of potential legislation for 2009
- 2) Develop next steps for Work Groups

Wednesday, June 4th

- 9:00 - 9:30** **Registration – Continental Breakfast**
- 9:30 - 9:50** **Welcome and introductions**
- 9:50 - 10:05** **Governor’s Office – HIT/HIE Vision for the State**
- 10:05 - 10:20** **Mike Mullen, ND Assistant Attorney General**
Member - National Governor’s Association’s
Privacy/Security Subcommittee
- 10:20 - 11:30** **Update on ND Statewide Projects**
- Initiate (MMIS)
- Jenny Witham, IT Director - Department of Human Services
- Immunization Program, Department of Health
Randy Miller, Business Manager, Immunization Program, Dept. of Health
- Advanced Medical Home Project
- Dr. Jon Rice, Sr. VP and Chief Medical Officer, BCBSND
- ND HIT Environmental Scan - Status/Preliminary Results
Lynette Dickson, Program Director, Center for Rural Health
- 11:30 - 12:30** **Minnesota eHealth Initiative**
Bill Brand, Deputy Director, Center for Health informatics, Minnesota Department of
Health
- 12:30- 1:15** **Lunch**
- 1:15 - 2:15** **Utah Health Information Network (UHIN)**
Teresa Rivera, Assistant Executive Director

2:15 - 3:00 ND Healthcare (urban and rural) Systems

St. Alexius Medical Center, Bismarck
Nancy Willis, VP Govt. Relations & Marketing and Todd Bortke, CIO

Mountrail County Health System, Stanley
Marin Swofford, Financial Computer Assistant

3:00 - 3:15 Break**3:15 - 4:15 Potential Statewide Health Information Exchange (HIE) Solutions****Thursday, June 5th****7:30-8:00** Continental Breakfast**8:00-8:15** Opening remarks
Facilitator - Michael Rodriguez, John Snow, Inc.**8:15-8:30 Update Federal HIT Legislation**
Dana Halvorson, Legislative Aide - Senator Conrad's Office**8:30-9:45** Discussion/Planning**9:45-10:00** Break**10:00-11:15** Discussion/Planning**11:15-12:00** Wrap-up Discussion

List of Attendees

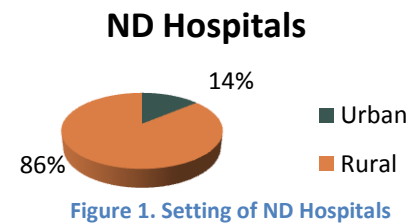
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13	June	Herman	North Dakota American Heart Association
14	Cathy	Houle, MD	West River Medical Center
15	Marlowe	Kro	AARP North Dakota
16	Don	Larson	University of North Dakota - SMHS Information Resources
17	Karen	Larson	Community HealthCare Association of the Dakotas (CHAD)
18	Marlene	Miller	UND Center for Rural Health
Presenter	Randy	Miller	Immunization Program - ND Dept. of Health
19	Mike	Mullen	Office of the Attorney General
20	Kylie	Nissen	Center for Rural Health, UNDSMHS
21	Alan	Okerson	Trinity Health
22	Laurie	Peters	ND HIMA
23	Chad	Peterson	Northwood Deaconess Health Center
24	Stacey	Ramberg	Mountrail County Health Center
25	Jon	Rice	BCBSND
Presenter	Teresa	Rivera	Utah Health Information Network
Presenter	Michael	Rodriguez	John Snow, Inc.
26	Don	Schott	BCBSND
27	Jeff	Shallman	Altru Health System
28	Marin	Swofford	Mountrail County Health Center
29	Pamela	Thompson	NDLTCA
30	Alexander	Todorovic	Altru Health System
31	Darrell	Vanyo	BCBSND
32	Tami	Wahl	Governor's Office
33	Nancy	Willis	St. Alexius Medical Center
34	Jennifer	Witham	ND Dept. of Human Services
35	Kimber	Wraalstad	Presentation Medical Center

APPENDIX C – SUMMARY REPORT: ND HIT ENVIRONMENTAL SCAN OF NORTH DAKOTA HOSPITALS (AUGUST 2008)

Results – North Dakota Health Information Technology Survey of Hospitals

The survey was conducted by the Center for Rural Health in collaboration with the North Dakota HIT Steering Committee in late spring of 2008. The survey tool used for the hospitals was a modification of the tool developed by the North Dakota Health Care Review, Inc. (ND's Medicare Quality Improvement Program) in 2005. North Dakota's 45 rural and urban hospitals were asked to complete a survey and 43 (or 93%) did so. Emails were sent to each of North Dakota's hospital administrators and/or Chief Information Officer or IT Managers asking them to click on the included link to complete an electronic survey through a program called Survey Monkey. Survey Monkey is an ad-free, web-based tool designed for creating and administering surveys on the Internet that allows participant to respond by clicking on a web link that has been given to them. The survey was designed to obtain current information on such areas as health information technology staff support and planning committees; barriers and drivers to electronic medical record (EMR) adoption; usage of telemedicine; and the extent to which HIT planning and implementation generally was taking place. Hospitals were also asked to predict the future costs of HIT to their facilities.

Response rate: 43 hospitals total (95.6%) out of 45 North Dakota hospitals; 37 rural hospitals, 6 urban hospitals (Figure 1)



HOSPITAL DEMOGRAPHICS

1. Is your hospital a critical access hospital?

81.0% Yes (34 rural)
19.0% No (3 rural, 5 urban)

2. How many licensed beds does your hospital have?

Rural	Urban
25.6 average licensed beds	295.4 average licensed beds

Average daily census for swing beds

Rural	Urban
6.58 patients	*Only one urban hospital has swing beds; they average 13.1 patients.

Average daily census for acute beds**Rural:**

4.2 patients

Urban

118.63 patients

3. Number of FTE(s) for the following providers associated with your hospital.**Physicians****Rural**

Range: 0 – 21 MD/DO
 Average: 3.11 MD/DO
 Median: 2 MD/DO

Urban

Range: 115 – 450 MD/DO
 Average: 213.8 MD/DO
 Median: 170 MD/DO

Physician Assistance**Rural**

Range: 0 – 6 PA
 Average: 1.50 PA
 Median: 0.9 PA

Urban

Range: 9 – 80 PA
 Average: 29.8 PA
 Median: 18 PA

Nurse Practitioners**Rural**

Range: 0 – 5 NP
 Average: 1.31 NP
 Median: 1 NP

Urban

Range: 6 – 50 NP
 Average: 23 NP
 Median: 22 NP

4. What is the primary payor mix for your facility in percentages? If you do not calculate some of the payor types separately (e.g. self-pay and/or commercial) please combine and include in Other.**Rural**

Medicare: 47.50%
Medicaid: 6.11%
Blue Cross Blue Shield: 19.55%
Tricare: 0.78%
Self-Pay: 6.97%
Commercial: 5.82%
Other: 5.78%

Urban

Medicare: 39.58%
Medicaid: 8.30%
Blue Cross Blue Shield: 28.05%
Tricare: 0.75%
Self-Pay: 3.78%
Commercial: 3.43%
Other: 13.0%

5. Is your hospital part of a system? (37 rural, 6 urban)**Rural**

Yes: 45.2%
No: 54.8%

Urban

Yes: 100.0%
No: 0.0%

For those who are part of a hospital system, what system are you part of? (Figure 2)

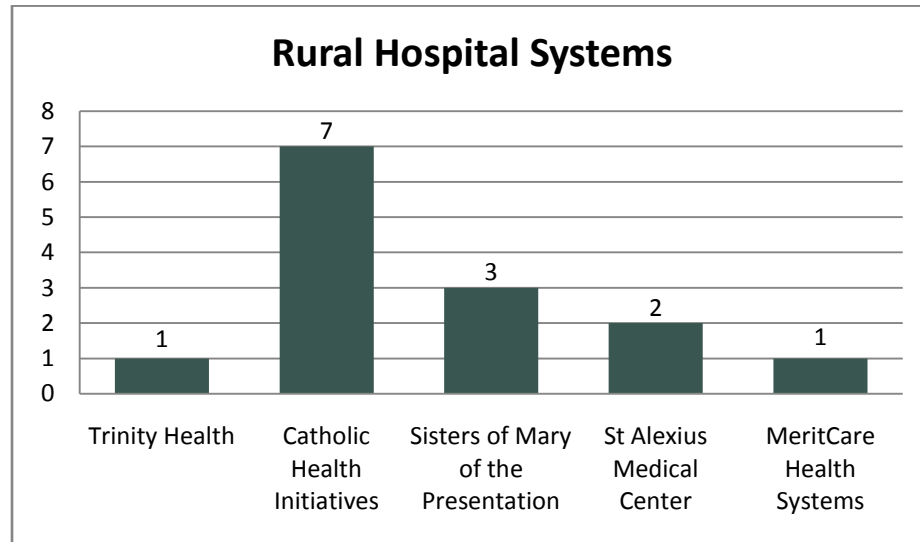


Figure 2. Systems and the number of rural hospitals that are affiliated.

For those who are part of a hospital system, what system are you part of? (Figure 3)

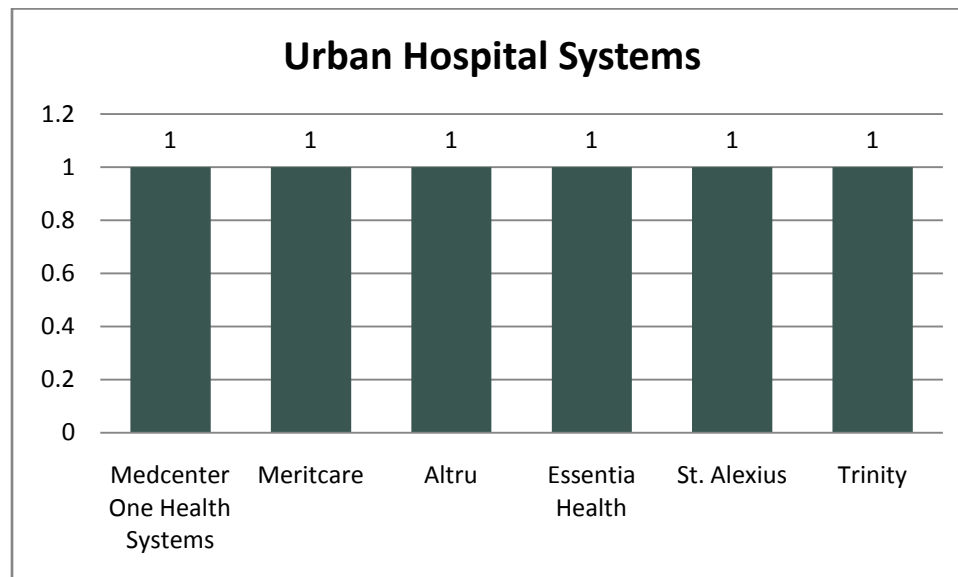


Figure 3. Systems and the number of urban hospitals that are affiliated.

For those who are part of a system, how many of hospitals, clinics, long-term care facilities, and other facilities are in your system?

Rural

Hospitals	Clinics	Long-term Care Facilities	Other
25% – 1 hospital	33% – 0 clinics	17% – 0 LTC facilities	67% – 0 other
8% – 3 hospitals	17% – 2 clinics	33% – 1 LTC facility	33% – Home Health Care
42% – 4 hospitals	8% – 4 clinics	8% – 2 LTC facilities	
17% – 77 hospitals	17% – 7 clinics	8% – 5 LTC facilities	
8% – 87 hospitals	8% – 10 clinics	17% – 6 LTC facilities	
	8% – 11 clinics	17% – 40 LTC facilities	
	8% – 34 clinics		

Urban

Hospitals	Clinics	Long-term Care Facilities	Other
40% – 1 hospital	20% – 4 clinics	60% – 0 LTC facilities	40% - Transitional Care Unit; Occupational Medicine; Kidney Dialysis, College of Nursing, Fitness MRI
40% – 3 hospitals	20% – 9 clinics	20% – 1 LTC facility	
20% – 15 hospitals	20% – 11 clinics	20% – 4 LTC facilities	
	20% – 34 clinics		
	20% – 55 clinics		

6. Is your hospital affiliated with a network (separate of the above mentioned system) that has some or an exclusive focus on the adoption of HIT? (36 rural, 5 urban)

Rural

Yes: 60.0%
No: 40.0%

Urban

Yes: 40%
No: 60%

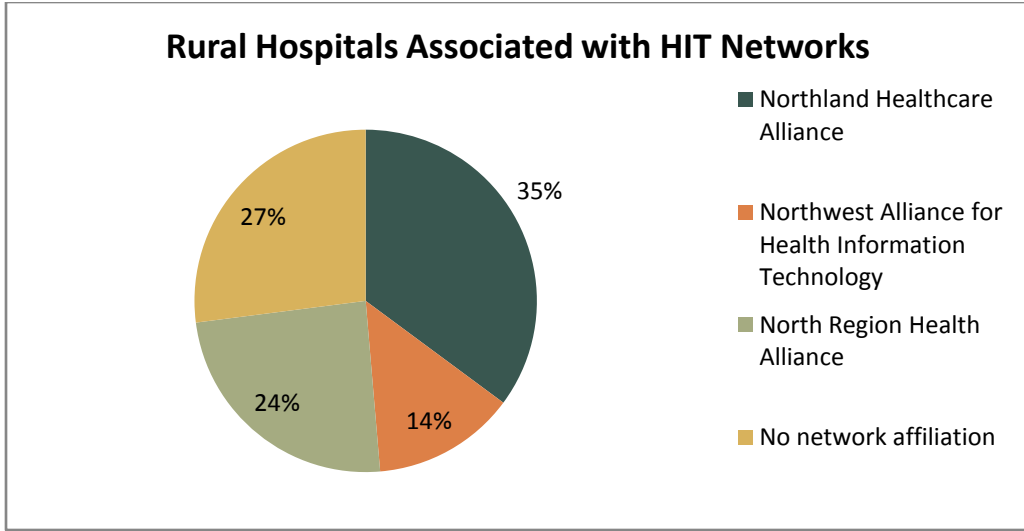


Figure 4. Number of Rural Hospitals involved in a HIT-focused network.

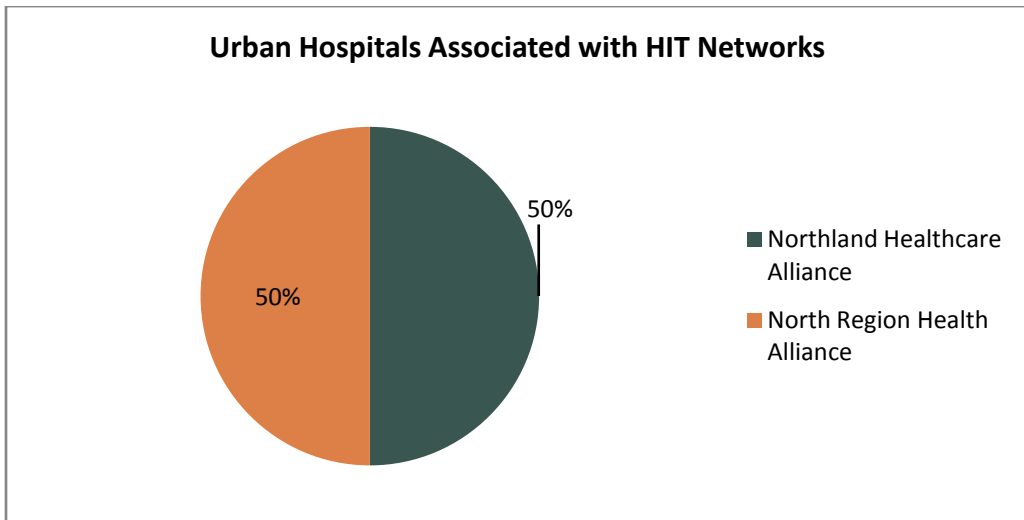


Figure 5. Number of Urban Hospitals involved in a HIT-focused network.

HIT STAFF SUPPORT AND STEERING COMMITTEE(S)

7. Do you have an individual designated to oversee the information technology for your facility? (e.g. Chief Information Officer, information technology manager, computer technician) (37 rural, 6 urban)

All of the urban hospitals in North Dakota have an IT person designated; 30 rural hospitals have IT staff, leaving 7 of the rural hospitals with no designated person to oversee information technology at their facility. (Figure 6 and Figure 7)

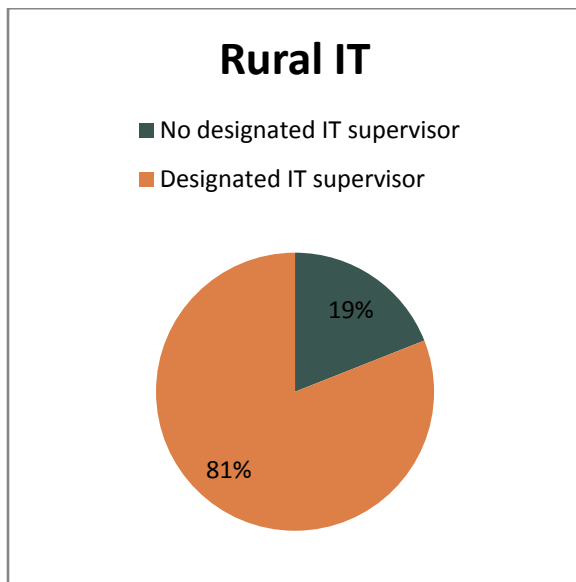


Figure 6. Rural facilities that have an individual designated to oversee information technology.

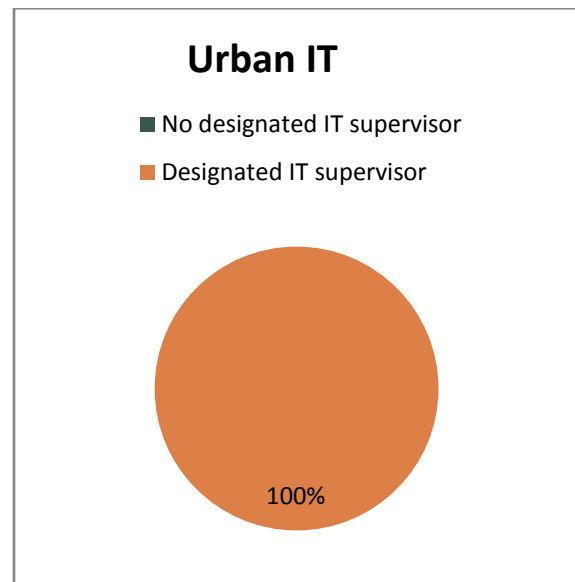


Figure 7. Urban facilities that have an individual to oversee information technology.

7. What best describes the educational background/experience of the CIO/IT Manager in your facility? (27 rural, 5 urban)

Of those that responded, over half of rural hospital IT managers have less than a four-year degree in computers/information systems, while all of the urban hospital IT managers has at minimum a four-year degree in computers/information systems.

Rural

	0-5 years of experience	6-10 years of experience	11-19 years of experience	20 plus years of experience
<i>Graduate degree in Computer/Information Systems or related area</i>	0.00%	3.60%	0.00%	0.00%
<i>Bachelors degree in Computer/Information Systems or related area</i>	3.60%	14.30%	7.10%	0.00%
<i>Associate degree in Computer/Information Systems or related area</i>	7.10%	17.90%	3.60%	0.00%
<i>Certificate(s) in Computer/Information Systems or related area</i>	0.00%	3.60%	0.00%	3.60%

Urban

	0-5 years of experience	6-10 years of experience	11-19 years of experience	20 plus years of experience
<i>Graduate degree in Computer/Information Systems or related area</i>	0.00%	0.00%	0.00%	40.0%
<i>Bachelors degree in Computer/Information Systems or related area</i>	0.00%	0.00%	20.0%	40.0%
<i>Associate degree in Computer/Information Systems or related area</i>	0.00%	0.00%	0.00%	0.00%
<i>Certificate(s) in Computer/Information Systems or related area</i>	0.00%	0.00%	0.00%	0.00%

8. Does your facility share the services of the CIO/IT Manager, computer technician, etc. with (one or more) other health care facilities? (37 rural, 5 urban)

Rural

Yes: 39.0%

No: 61.0%

Urban

Yes: 60%

No: 40%

If you do share services, please indicate what staff are shared with that type of facility (check all that apply).

Rural

	tertiary facility	one rural hospital	more than one rural hospital	hospital owned ancillary facility	non-hospital owned ancillary facility	network of healthcare facilities
<i>CIO</i>	13.8%	0.0%	6.9%	3.4%	6.9%	6.9%
<i>IT Manager</i>	13.8%	10.3%	13.8%	6.9%	3.4%	3.4%
<i>Computer technician</i>	13.8%	0.0%	6.9%	10.3%	3.4%	0.0%
<i>Other IT staff</i>	10.3%	0.0%	0.0%	3.4%	0.0%	0.0%

Urban

	tertiary facility	one rural hospital	more than one rural hospital	hospital owned ancillary facility	non-hospital owned ancillary facility	network of healthcare facilities
<i>CIO</i>	0.0%	0.0%	8.0%	8.0%	8.0%	0.0%
<i>IT Manager</i>	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%
<i>Computer technician</i>	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%
<i>Other IT staff</i>	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%

If you are currently NOT sharing the services of the CIO/IT Manager, computer technician, etc., would your facility consider doing so? (29 rural, 6 urban)

Rural

Yes: 84.2%
No: 17.6%

Urban

Yes: 83.3%
No: 16.7%

9. How many FTEs work in the IT department (not administrative staff) at your healthcare facility? (37 rural, 6 urban)

Rural

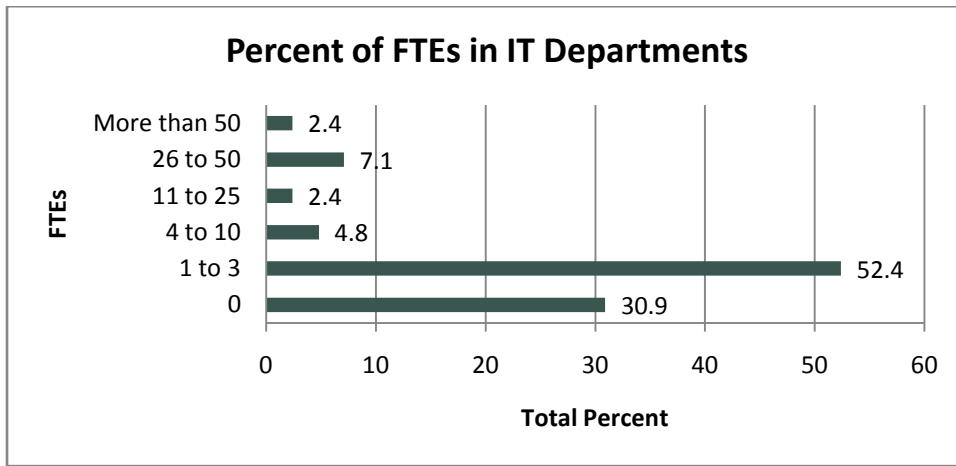


Figure 8. Percent of FTEs that work in the rural hospital's information technology department.

Urban

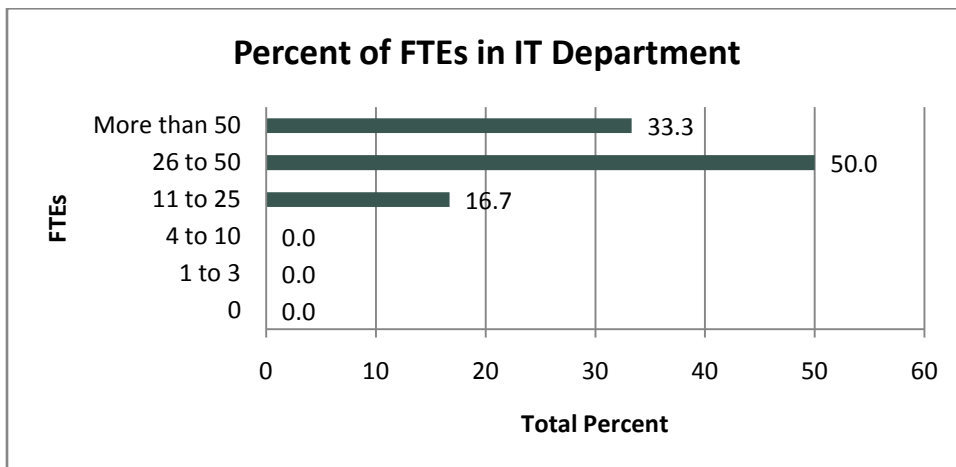


Figure 9. Percent of FTEs that work in the urban hospital's information technology department.

10. Which best describes how you see the number of IT staff at your facility changing over the next 5 years? (37 rural, 6 urban)

Rural

Will grow: 54.8%
Will stay the same: 47.6%
Will decrease: 0.0%

Urban

Will grow: 66.3%
Will stay the same: 33.3%
Will decrease: 0.0%

If you predict that the number of IT staff will stay the same or decrease, which of the following reasons apply? (20 rural, 2 urban)

Rural

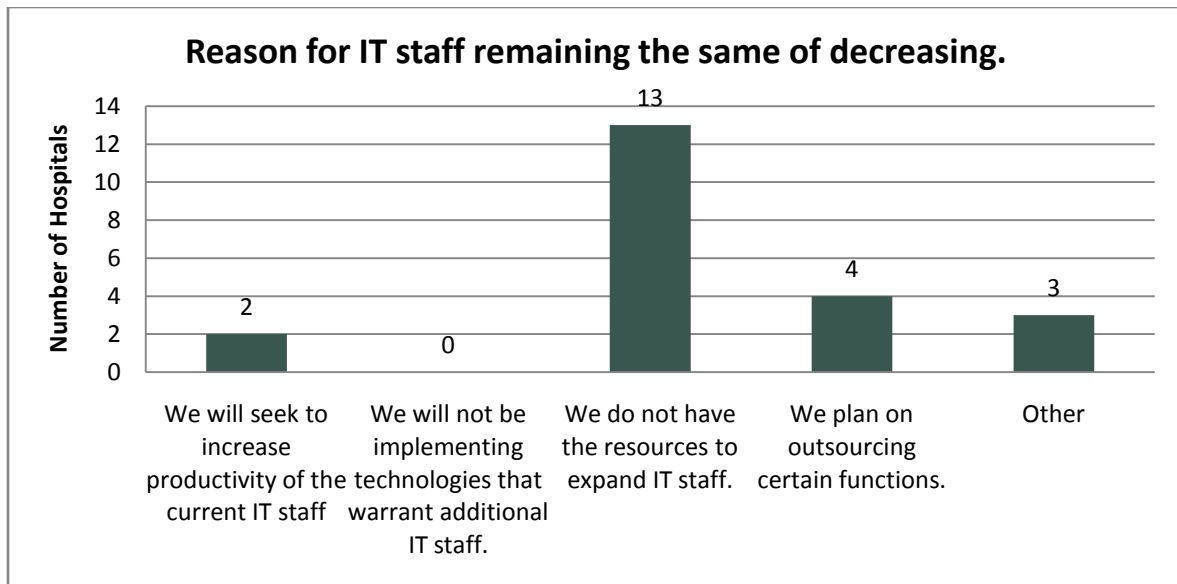


Figure 10. Reasons indicated for IT staff remaining the same or decreasing in the next 5 years.

Other reasons: We currently have contracted IT staff. We have a need to have more services than they can provide by remote access and only coming onsite 4 days per month; Sharing IT regionally within CHI; Currently staff is sufficient for projects sharing allows us to reallocate resources as needed.

If you predict that the number of IT staff will stay the same or decrease, which of the following reasons apply? (20 rural, 2 urban)

Urban

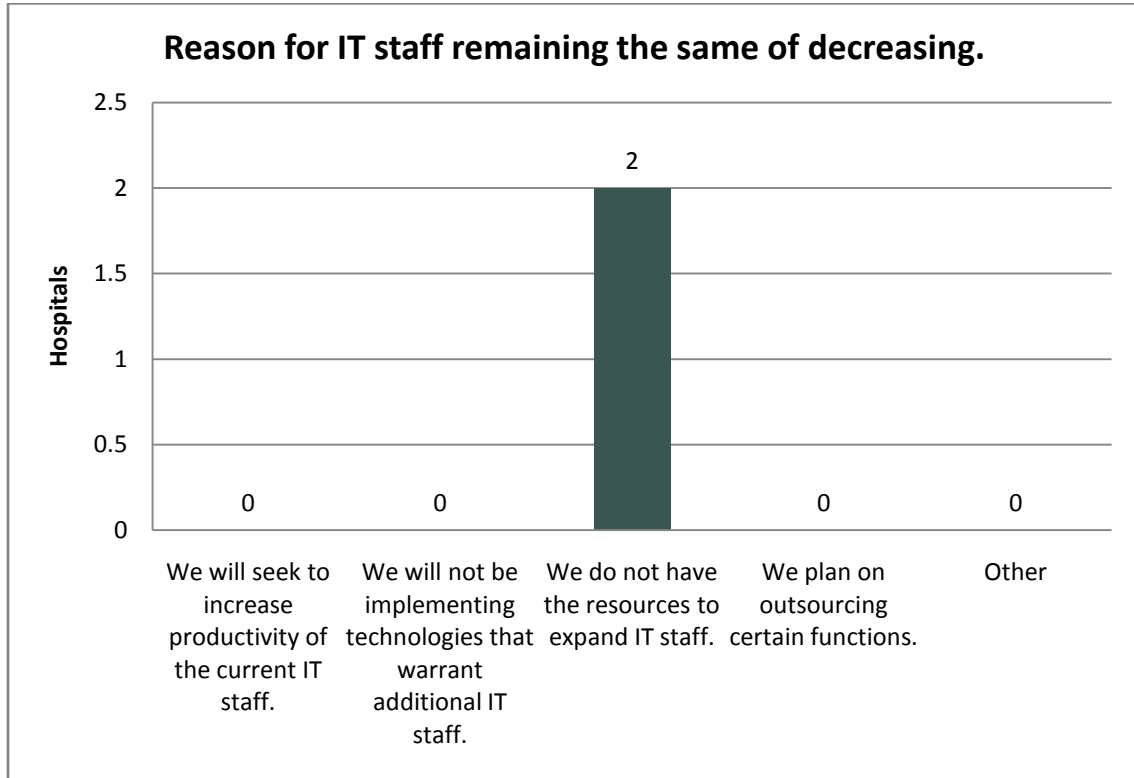


Figure 11. Reasons indicated for IT staff remaining the same or decreasing in the next 5 years.

11. Does your facility have a formal HIT steering committee/work group? (37 rural, 6 urban)

Rural

Yes: 33.3%
No: 57.1%
In the process of forming now: 9.5%

Urban

Yes: 66.7%
No: 33.3%
In the process of forming now: 0.0%

If you answered yes, that you have an HIT steering committee/work group, which of the following disciplines/departments are represented? (13 rural, 4 urban)

Both the rural and urban facilities have chosen not to include a consumer representative on their HIT steering committees/workgroups.

	Rural	Urban
	Response Percent	Response Percent
<i>Nursing</i>	93.8%	100.0%
<i>Health Information Manager</i>	87.5%	100.0%
<i>Business Office</i>	81.3%	100.0%
<i>Laboratory</i>	68.8%	75.0%
<i>Radiology</i>	68.8%	75.0%
<i>Physician</i>	56.3%	100.0%
<i>Pharmacy</i>	43.8%	100.0%
<i>Physical Therapy</i>	31.3%	50.0%
<i>Nurse Practitioner/Physician Assistant</i>	12.5%	25.0%
<i>Dietician</i>	6.3%	25.0%
<i>Mental/Behavioral Health</i>	6.3%	50.0%
<i>Occupational Therapy</i>	6.3%	25.0%
<i>Consumer</i>	0.0%	0.0%
<i>Other</i>	50.0%	25.0%

Other Rural: Chief Executive Officer/Chief Financial Officer (2), Administrative Staff, Quality, Clinic Staff, Purchasing, Administration (2), Plant Operations, Human Resources, Accounting, Information Technology (2), Clinic Manager, Director of Nursing, Biller, Coder

Other Urban: Biomedical, Purchasing, Clinics

12. Which best describes how you obtain clinical input on information technology deployments? (34 rural, 6 urban)

Rural

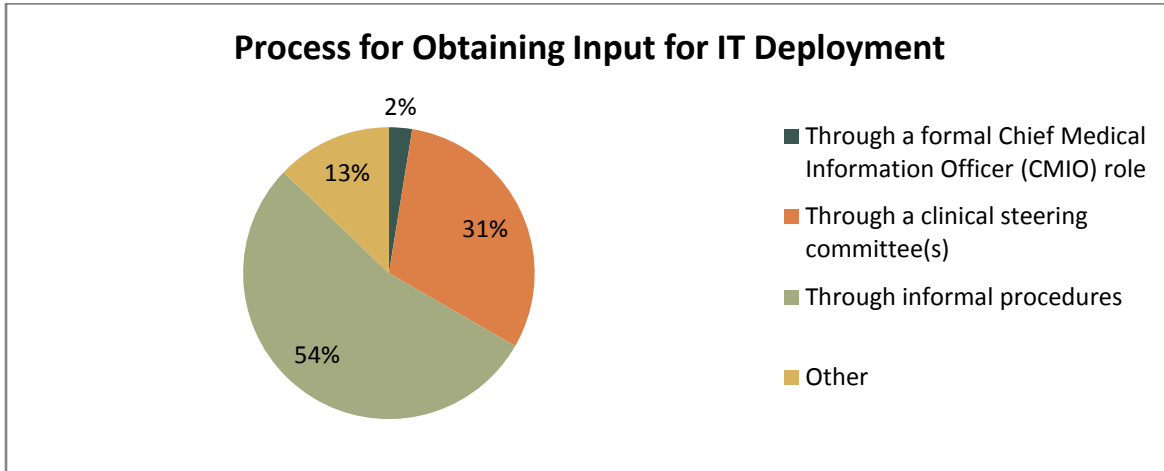


Figure 12. Rural hospitals' processes for obtaining input regarding information technology deployment.

Urban

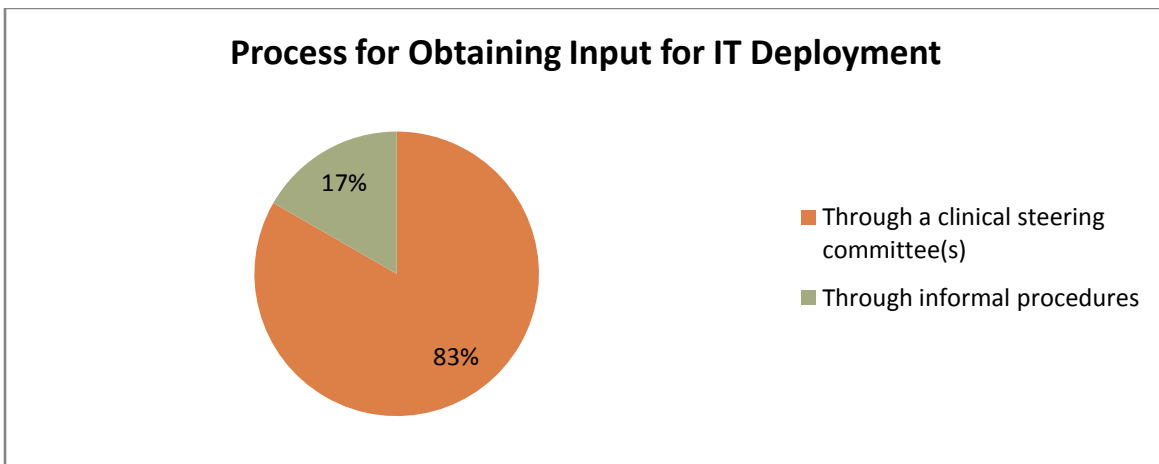


Figure 13. Urban hospitals' processes for obtaining input regarding information technology deployment.

HIT PLANNING AND IMPLEMENTATION

13. Does your facility currently use an electronic medical record (EMR) system? An electronic medical record refers to 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; bi-directional viewing of laboratory information. The practice management system is the medical office functions which support and surround the EMR. (37 rural, 6 urban)

Rural

Yes: 37.8%

No: 62.2%

Urban

Yes: 100.0%

No: 0.0%

If you do have an EMR, please indicate your EMR vendor. (14 rural, 5 urban)

	Rural	Urban
<i>American Healthnet</i>	5.6%	0.0%
<i>Cerner</i>	16.7%	40.0%
<i>Healthland (Dairyland)</i>	27.8%	0.0%
<i>Meditech</i>	16.7%	0.0%
<i>Quadra med</i>	5.6%	20.0%
<i>Other</i>	27.8%	40.0%

Other Rural: Tech Time, St. Alexius Medical Center (2)

Other Urban: GE Centricity, GE and Siemens

14. How long has your facility been using an EMR? (13 rural, 6 urban)

	Rural	Urban
<i>Currently implementing</i>	30.8%	0.0%
<i>1 year or less</i>	23.1%	16.7%
<i>2 -3 years</i>	15.4%	0.0%
<i>4-5 years</i>	15.4%	33.3%
<i>10 or more years</i>	15.4%	50.0%

15. How do the providers enter clinical information into the EMR? (14 rural, 6 urban)

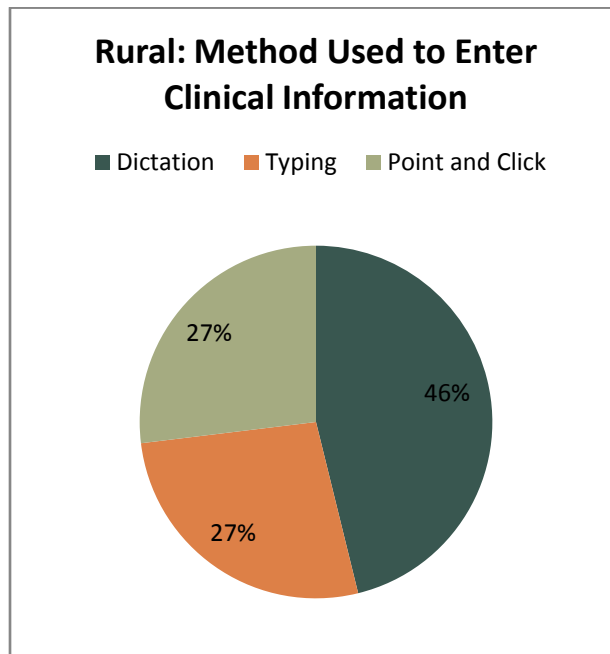


Figure 14. Method for entering clinical information into an EMR at rural facilities.

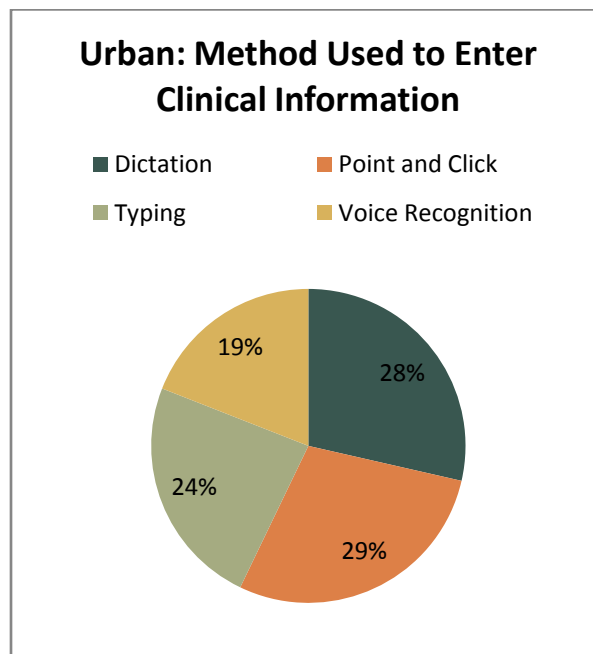


Figure 15. Method for entering clinical information into an EMR at urban facilities.



16. If your facility HAS an EMR, please indicate what best describes the exchange of electronic (hospital-based) health information with the various sites. (15 rural, 5 urban)

Rural

Electronic health information is primarily exchanged with onsite physician offices, followed closely by onsite clinics and the emergency departments. Within two years, the primary areas that hospitals are planning to expand include offsite physician offices, offsite clinics, and bedside terminals.

	Information is currently exchanged	Will exchange within 0-2 years	Will exchange within 3-4 Years	Will exchange in 5 years or more	No plan to exchange (but interested in exploring)	No plan and not interested in exploring
Other (non-affiliated) hospitals	8.3% (1)	33.3% (4)	25.0% (3)	16.7% (2)	16.7% (2)	0.0% (0)
Emergency department	60.0% (9)	20.0% (3)	13.3% (2)	0.0% (0)	6.7% (1)	0.0% (0)
Onsite clinics	66.7% (8)	16.7% (2)	8.3% (1)	0.0% (0)	8.3% (1)	8.3% (1)
Offsite clinics	16.7% (2)	41.7% (5)	0.0% (0)	8.3% (1)	33.3% (4)	0.0% (0)
Onsite physician offices	69.2% (9)	15.4% (2)	7.7% (1)	0.0% (0)	7.7% (1)	0.0% (0)
Offsite physician offices	7.7% (1)	46.2% (6)	0.0% (0)	7.7% (1)	30.8% (4)	7.7% (1)
Non-affiliated physician offices and/or clinics	7.7% (1)	23.1% (3)	23.1% (3)	15.4% (2)	30.8% (4)	7.7% (1)
Non-affiliated laboratories	30.0% (3)	30.0% (3)	20.0% (2)	0.0% (0)	20.0% (2)	0.0% (0)
Free-standing imaging centers	40.0% (4)	30.0% (3)	0.0% (0)	0.0% (0)	10.0% (1)	20.0% (2)
Long-term care facilities	21.4% (3)	28.6% (4)	21.4% (3)	7.1% (1)	21.4% (3)	0.0% (0)
Home health agencies	23.1% (3)	15.4% (2)	23.1% (3)	7.7% (1)	30.8% (4)	0.0% (0)
Retail pharmacies	0.0% (0)	18.2% (2)	27.3% (3)	27.3% (3)	27.3% (3)	0.0% (0)
Pharmacy Benefit Mangers	0.0% (0)	10.0% (1)	20.0% (2)	20.0% (2)	40.0% (4)	10.0% (1)
Bedside terminal	27.3% (3)	36.4% (4)	0.0% (0)	0.0% (0)	18.2% (2)	18.2% (2)
Local Public Health Unit	0.0% (0)	9.1% (1)	27.3% (3)	18.2% (2)	45.5% (5)	0.0% (0)
ND Department of Health	0.0% (0)	9.1% (1)	9.1% (1)	18.2% (2)	45.5% (5)	18.2% (2)
ND Department of Human Services	0.0% (0)	9.1% (1)	9.1% (1)	18.2% (2)	45.5% (5)	18.2% (2)
Other	25.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	25.0% (1)	50.0% (2)

Other: We share limited data with ER, Laboratory, trying to share with non-affiliated clinic, nurses chart with workstations on wheels.

16. (cont.) If your facility HAS an EMR, please indicate what best describes the exchange of electronic (hospital-based) health information with the various sites. (15 rural, 5 urban)

Urban

All urban hospitals are currently exchanging information with the emergency department, onsite clinics, and offsite clinics. No urban hospital is currently exchanging with their local public health unit, but all of them plan to do so within the next five years.

	Information is currently exchanged	Will exchange within 0-2 years	Will exchange within 3-4 Years	Will exchange in 5 years or more	No plan to exchange (but interested in exploring)	No plan and not interested in exploring
Other (non-affiliated) hospitals	40.0% (2)	40.0% (2)	0.0% (0)	0.0% (0)	20.0% (1)	0.0% (0)
Emergency department	100.0% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Onsite clinics	100.0% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Offsite clinics	100.0% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Onsite physician offices	80.0% (4)	20.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Offsite physician offices	80.0% (4)	20.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Non-affiliated physician offices and/or clinics	60.0% (3)	20.0% (1)	20.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Non-affiliated laboratories	50.0% (2)	25.0% (1)	25.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Free-standing imaging centers	0.0% (0)	50.0% (1)	50.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Long-term care facilities	50.0% (2)	0.0% (0)	50.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)
Home health agencies	50.0% (2)	0.0% (0)	50.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)
Retail pharmacies	50.0% (2)	50.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Pharmacy Benefit Mangers	33.3% (1)	0.0% (0)	33.3% (1)	33.3% (1)	0.0% (0)	0.0% (0)
Bedside terminal	75.0% (3)	25.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Local Public Health Unit	0.0% (0)	33.3% (1)	66.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)
ND Department of Health	66.7% (2)	33.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
ND Department of Human Services	50.0% (1)	0.0% (0)	50.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Other	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

17. Please indicate how significant each item below is or has been as a driver for implementing/planning for an EMR. (34 rural, 6 urban)

Rural

Top 3 most significant drivers for implementing/ planning for an EMR are:

1. Improving quality of healthcare.
2. Availability of grant funding.
3. Improving patient safety.

	Most significant	Moderately significant	Least significant	Not at all significant
Improving quality of healthcare	61.8% (21)	38.2% (13)	0.0% (0)	0.0% (0)
Improving patient safety	58.8% (20)	41.2% (14)	0.0% (0)	0.0% (0)
Inefficiencies experienced by providers	26.5% (9)	50.0% (17)	20.6% (7)	2.9% (1)
Rising healthcare costs	26.5% (9)	29.4% (10)	32.4% (11)	11.8% (4)
Availability of grant funding	60.6% (20)	24.2% (8)	9.1% (3)	6.1% (2)
Increased public attention on HIT	11.8% (4)	52.9% (18)	20.6% (7)	14.7% (5)
Public health surveillance needs	6.1% (2)	27.3% (9)	54.5% (18)	12.1% (4)
We have a physician(s) who advocates for EMR	15.2% (5)	27.3% (9)	30.3% (10)	27.3% (9)
Clinical staff advocate for EMR	9.1% (3)	30.3% (10)	39.4% (13)	21.2% (7)
Administrator advocate for EMR	21.2% (7)	57.6% (19)	18.2% (6)	3.0% (1)
Board of Directors interested in EMR	6.5% (2)	45.2% (14)	41.9% (13)	6.5% (2)
Other	0.0% (0)	40.0% (2)	20.0% (1)	40.0% (2)

Other: Medical Records advocate (health information management) for EMR; Local pharmacies would like to see e-prescribing

17. (cont.) Please indicate how significant each item below is or has been as a driver for implementing/ planning for an EMR. (34 rural, 6 urban)

Urban

Top 3 most significant drivers for implementing/ planning for an EMR are:

1. Improving quality of healthcare.
2. Improving patient safety.
3. Inefficiencies experienced by providers/Administrator advocate for EMR.

	Most significant	Moderately significant	Least significant	Not at all significant
Improving quality of healthcare	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)
Improving patient safety	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)
Inefficiencies experienced by providers	60.0% (3)	40.0% (2)	0.0% (0)	0.0% (0)
Rising healthcare costs	20.0% (1)	80.0% (4)	0.0% (0)	0.0% (0)
Availability of grant funding	0.0% (0)	40.0% (2)	60.0% (3)	0.0% (0)
Increased public attention on HIT	0.0% (0)	40.0% (2)	60.0% (3)	0.0% (0)
Public health surveillance needs	0.0% (0)	40.0% (2)	60.0% (3)	0.0% (0)
We have a physician(s)who advocates for EMR	40.0% (2)	60.0% (3)	0.0% (0)	0.0% (0)
Clinical staff advocate for EMR	40.0% (2)	60.0% (3)	0.0% (0)	0.0% (0)
Administrator advocate for EMR	60.0% (3)	40.0% (2)	0.0% (0)	0.0% (0)
Board of Directors interested in EMR	20.0% (1)	80.0% (4)	0.0% (0)	0.0% (0)
Other	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

18. Please rate to what degree the following barriers have slowed or prevented implementation of an EMR in your organization (check all that apply). (37 rural, 6 urban)

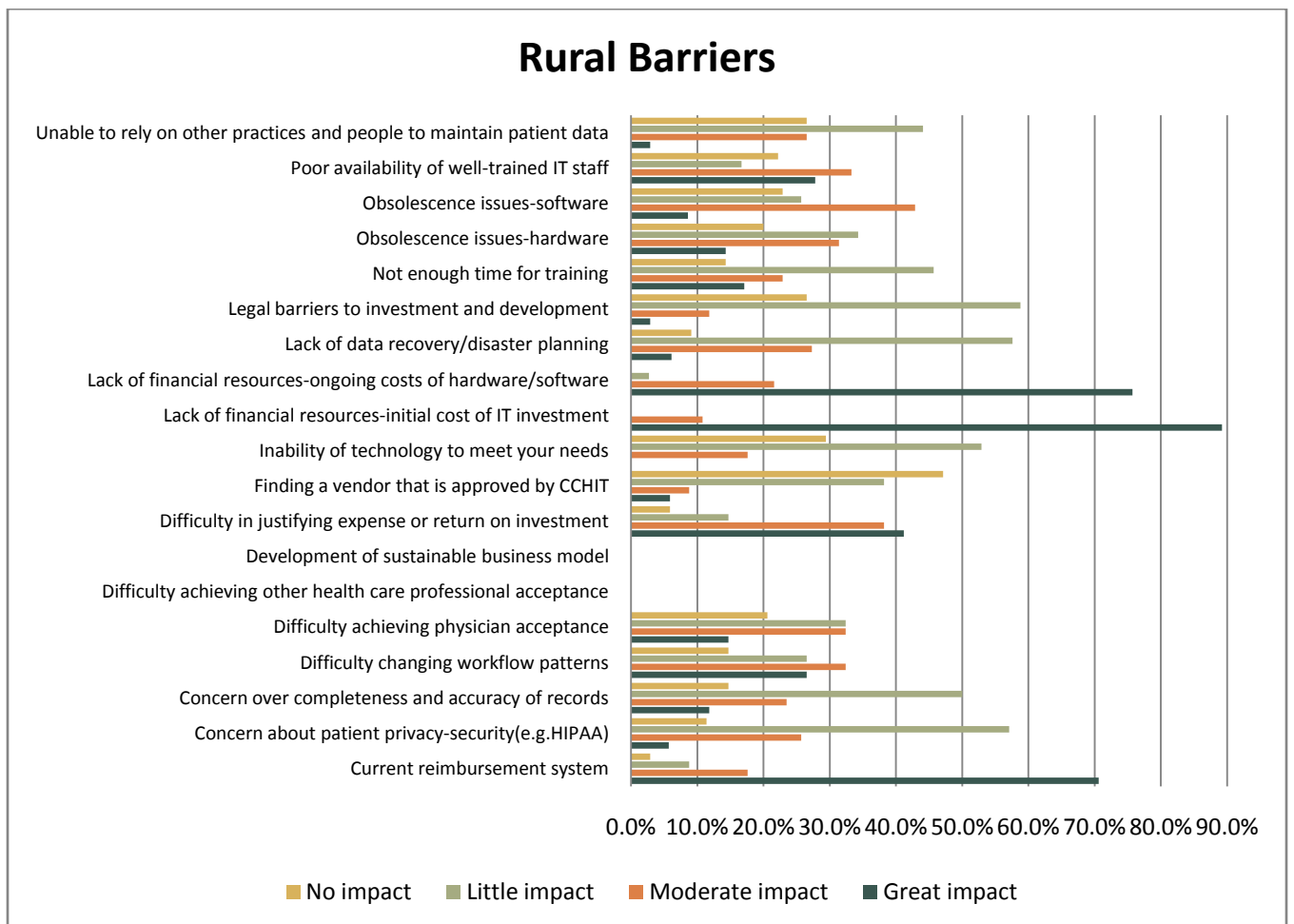
Rural

The barriers that have the most impact for rural hospitals to implement an EMR are:

1. Lack of financial resources, initial cost of IT investment
2. Lack of financial resources, ongoing costs of hardware/software
3. Current reimbursement system

The barriers that have the least impact on EMR implementation in rural hospitals are:

1. Finding a vendor that is approved by CCHIT
2. Inability of technology to meet their needs
3. Legal barriers to investments and development/unable to rely on other practices and people to maintain patient data



18. (cont.) Please rate to what degree the following barriers have slowed or prevented implementation of an EMR in your organization (check all that apply). (37 rural, 6 urban)

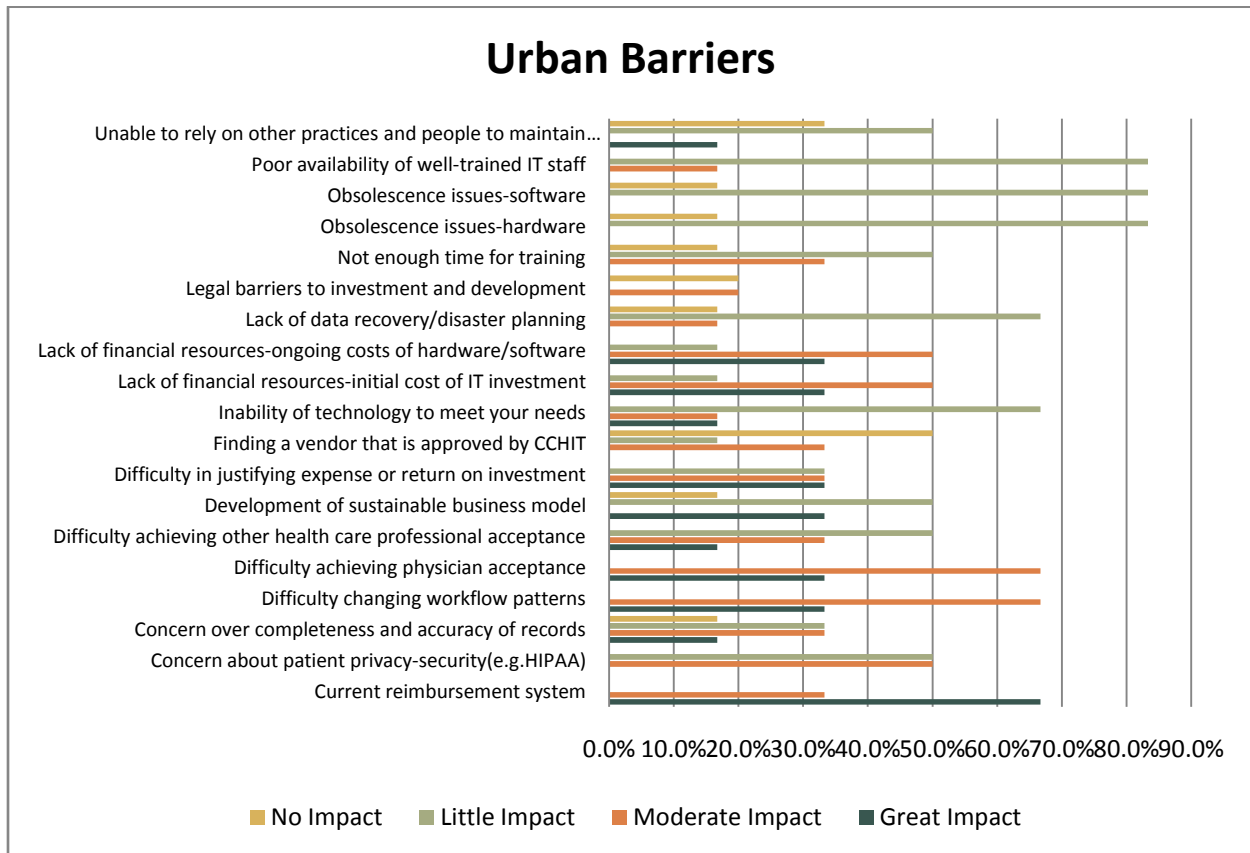
Urban

The barriers that have the most impact for urban hospitals to implement an EMR are:

1. Current reimbursement system
2. Poor availability of well-trained IT staff
3. Obsolescence issues of hardware and software

The barriers that have the least impact on EMR implementation in urban hospitals are:

1. Finding a vendor that is approved by Certification Commission on Health Information Technology
2. Inability of technology to meet their needs
3. Unable to rely on other practices and people to maintain patient data



19. Are the computers in your facility networked? (37 rural, 6 urban)

Rural

Yes: 100.0%
No: 0.0%

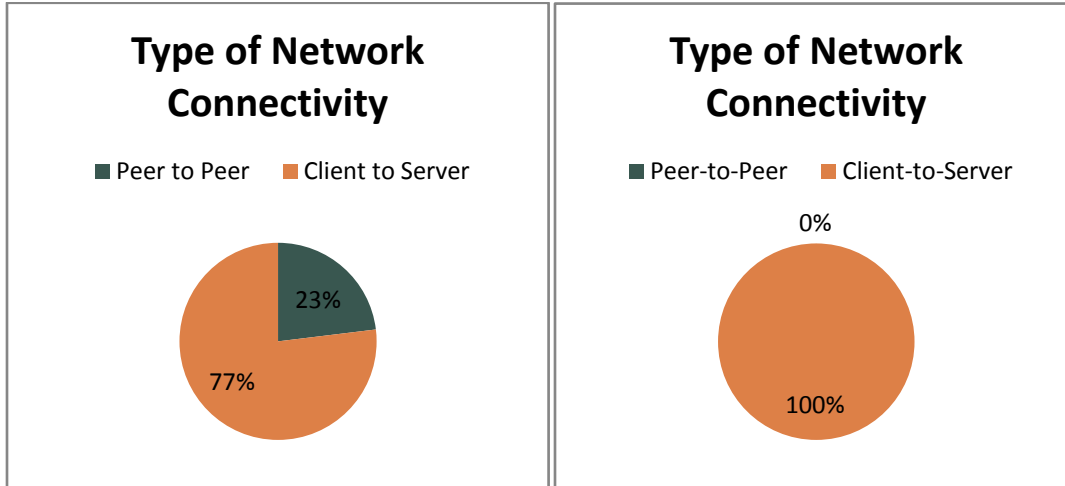
Urban

Yes: 100.0%
No: 0.0%

Is your network a peer to peer or client to server network? (37 rural, 6 urban)

Rural

Urban



20. What percentage of the computers in your hospital have Internet access? (37 rural, 6 urban)

	Rural	Urban
0-25%	0.0%	0.0%
26-50%	2.7%	0.0%
51-75%	2.7%	16.7%
76-99%	48.6%	33.3%
100%	45.9%	50.0%

21. Which Windows operating system(s) are used on your computers? (37 rural, 6 urban)

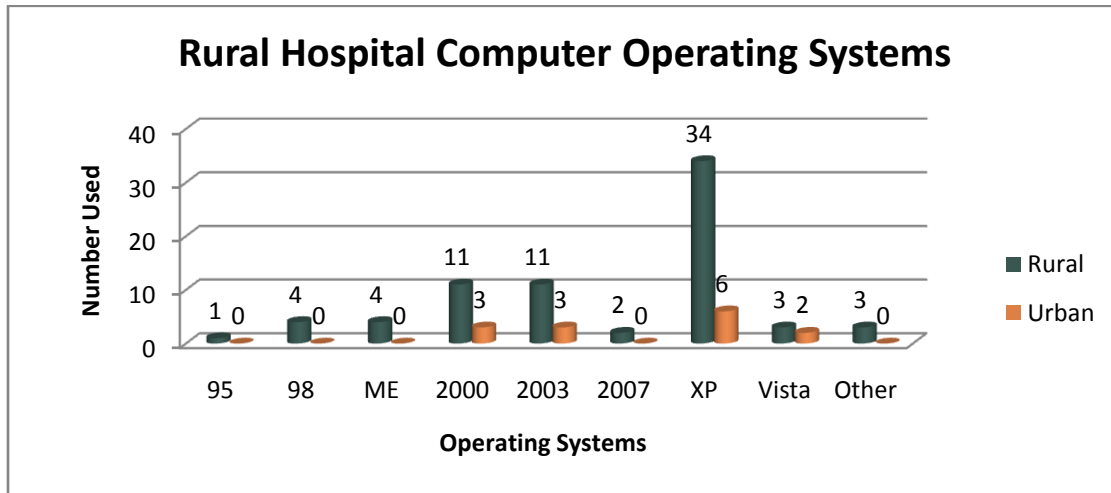


Figure 16. Operating Systems on rural and urban hospital computers.

22. Does your hospital currently use bar coding technology? (37 rural, 6 urban)

	Rural	Urban
Yes	16.2%	100%
No, but we have budgeted to implement bar coding within the next 1-2 years.	27.0%	0%
No, but we have budgeted to implement bar coding within the next 3-4 years.	18.9%	0%
No, but we have budgeted to implement bar coding within the next 5 or more years.	10.8%	0%
No, we have no interest in implementing bar coding.	27.0%	0%

If you are using bar coding technology, what areas are you using it in? (10 rural, 6 urban)

Rural	Urban	
30.0%	83.3%	Pharmaceutical: tracking and/or administration
40.0%	33.3%	Blood bank
50.0%	100.0%	Patient identification bracelets
50.0%	66.7%	Supply chain management
20.0%	0.0%	Other

Other Rural: We will bar code for sure in the next year for Supply Chain, but other bar coding on hold until a more cost effective program can be found for our small CAH; Charting.

23. Has your facility conducted an assessment of computer skills of administrative and/or clinical staff in the past 2 years? (37 rural, 6 urban)

	Rural	Urban
<i>Yes, we have completed assessments.</i>	13.5%	66.7%
<i>Yes, we have completed assessments and implemented a training program.</i>	8.1%	0.0%
<i>No, but we plan to do this.</i>	27.0%	0.0%
<i>No, but we are interested in technical assistance on how to do this.</i>	51.4%	16.7%
<i>No, and we have no interest or plans to do so.</i>	5.4%	16.7%

24. Has your facility conducted any analysis of work flow in the past 2 years? (36 rural, 6 urban)

	Rural	Urban
<i>Yes, we have completed an analysis of workflow.</i>	8.3%	83.3%
<i>Yes, we have completed analysis of work flow and implemented needed changes.</i>	8.3%	16.7%
<i>No, but we plan to do this.</i>	19.4%	0.0%
<i>No, but we are interested in technical assistance on how to do this.</i>	61.1%	0.0%
<i>No, and we have no interest or plans to do so.</i>	5.6%	0.0%

25. How would you best describe plans for purchasing the following hardware and equipment used for HIT infrastructure in your hospital? (37 rural, 6 urban)

Rural

	Already in place	Within 0-2 years	Within 3-4 Years	5 years or more	No plan at this time, (but interested in exploring)	No plan at this time, (NOT interested in exploring)
Data Server (not shared) - Facility owned/maintained	77.1% (27)	5.7% (2)	0.0% (0)	0.0% (0)	8.6% (3)	8.6% (3)
Data Server (shared) - owned by rural site, shared with one or more rural sites	20.0% (6)	16.7% (5)	0.0% (0)	0.0% (0)	26.7% (8)	36.7% (11)
Data Server (shared) - owned by tertiary facility, shared with one or more rural sites	19.4% (6)	16.1% (5)	0.0% (0)	0.0% (0)	25.8% (8)	38.7% (12)
Data back-up onsite	85.3% (29)	11.8% (4)	0.0% (0)	0.0% (0)	2.9% (1)	0.0% (0)
Data back-up offsite	35.3% (12)	44.1% (15)	0.0% (0)	0.0% (0)	17.6% (6)	2.9% (1)
Computer workstations - mobile	51.4% (18)	25.7% (9)	5.7% (2)	0.0% (0)	17.1% (6)	0.0% (0)
Computer workstations - stationary	91.7% (33)	8.3% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Scanners	47.1% (16)	41.2% (14)	2.9% (1)	0.0% (0)	11.8% (4)	0.0% (0)
Digitizers	30.0% (9)	26.7% (8)	3.3% (1)	3.3% (1)	33.3% (10)	3.3% (1)
Tablet Computers	9.1% (3)	24.2% (8)	18.2% (6)	0.0% (0)	33.3% (11)	15.2% (5)
Wireless Internet Access	64.7% (22)	17.6% (6)	0.0% (0)	2.9% (1)	17.6% (6)	0.0% (0)
Dial-up Internet Access	12.9% (4)	6.5% (2)	0.0% (0)	0.0% (0)	0.0% (0)	83.9% (26)
High-speed/Broadband Internet Access	91.4% (32)	2.9% (1)	0.0% (0)	0.0% (0)	5.7% (2)	0.0% (0)

25. (cont.) How would you best describe plans for purchasing the following hardware and equipment used for HIT infrastructure in your hospital? (37 rural, 6 urban)

Urban

	Already in place	Within 0-2 years	Within 3-4 Years	5 years or more	No plan at this time, (but interested in exploring)	No plan at this time, (NOT interested in exploring)
Data Server (not shared) - Facility owned/maintained	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Data Server (shared) - owned by rural site, shared with one or more rural sites	60.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (1)	20.0% (1)
Data Server (shared) - owned by tertiary facility, shared with one or more rural sites	66.7% (4)	0.0% (0)	0.0% (0)	0.0% (0)	33.3% (2)	0.0% (0)
Data back-up onsite	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Data back-up offsite	60.0% (3)	20.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (1)
Computer workstations - mobile	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Computer workstations - stationary	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Scanners	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Digitizers	83.3% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	16.7% (1)
Tablet Computers	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Wireless Internet Access	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Dial-up Internet Access	40.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	60.0% (3)
High-speed/Broadband Internet Access	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

26. How would you best describe plans for implementing the following electronic administrative/financial systems at your hospital? (37 rural, 6 urban)

Rural

	Already in place	Within 0-2 years	Within 3-4 years	5 years or more	No plan at this time, (but interested in exploring)	No plan at this time, (NOT interested in exploring)
<i>Claims submission</i>	81.1%	18.9%	0.0%	0.0%	0.0%	0.0%
<i>Patient billing</i>	78.4%	21.6%	0.0%	0.0%	0.0%	0.0%
<i>Accounting</i>	77.8%	19.4%	0.0%	0.0%	0.0%	2.8%
<i>Payroll</i>	78.4%	16.2%	0.0%	0.0%	2.7%	2.7%
<i>Pharmacy supply chain management</i>	37.1%	40.0%	8.6%	0.0%	11.4%	2.9%
<i>Medical-surgical supply management</i>	35.3%	38.2%	5.9%	2.9%	8.8%	8.8%
<i>Other</i>	0.0%	33.3%	0.0%	33.3%	33.3%	0.0%

Urban

	Already in place	Within 0-2 years	Within 3-4 years	5 years or more	No plan at this time, (but interested in exploring)	No plan at this time, (NOT interested in exploring)
<i>Claims submission</i>	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Patient billing</i>	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Accounting</i>	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Payroll</i>	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Pharmacy supply chain management</i>	83.3%	16.7%	0.0%	0.0%	0.0%	0.0%
<i>Medical-surgical supply management</i>	83.3%	16.7%	0.0%	0.0%	0.0%	0.0%
<i>Other</i>	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%

27. How would you best describe plans for implementing the following electronic patient management process at your hospital? (36 rural, 6 urban)

Rural

	Already in place	Within 1-2 years	Within 3-4 years	5 years or more	No plan at this time (but interested in exploring)	No plan at this time (NOT interested in exploring)
<i>Admission/discharge/transfer (ADT)</i>	72.20%	16.70%	2.80%	2.80%	5.60%	0.00%
<i>Scheduling of procedures</i>	30.60%	22.20%	13.90%	5.60%	16.70%	11.10%
<i>Claims scrubbing</i>	27.30%	33.30%	6.10%	9.10%	24.20%	0.00%

Urban

	Already in place	Within 1-2 years	Within 3-4 years	5 years or more	No plan at this time (but interested in exploring)	No plan at this time (NOT interested in exploring)
<i>Admission/discharge/transfer (ADT)</i>	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Scheduling of procedures</i>	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Claims scrubbing</i>	83.3%	16.7%	0.0%	0.0%	0.0%	0.0%

28. How would you best describe plans for implementing the following electronic clinical systems at your hospital? (37 rural, 6 urban)

Rural

	Already in place	Within 0-2 years	In 3-4 years	5 years or more	No plan at this time (but interested in exploring)	No plan at this time (NOT interested in exploring)
Computerized Physician Order Entry (CPOE)	8.3% (3)	41.7% (15)	22.2% (8)	5.6% (2)	16.7% (6)	5.6% (2)
Computed Radiography (CR)	50.0% (18)	41.7% (15)	5.6% (2)	0.0% (0)	2.8% (1)	0.0% (0)
Clinical Decision Support System (CDSS)	0.0% (0)	22.2% (8)	25.0% (9)	13.9% (5)	33.3% (12)	5.6% (2)
Clinical data repository of current data	13.9% (5)	36.1% (13)	13.9% (5)	13.9% (5)	22.2% (8)	0.0% (0)
'Closed loop' medication administration (orders through administration)	2.8% (1)	38.9% (14)	25.0% (9)	13.9% (5)	19.4% (7)	0.0% (0)
Integrated Emergency Dept. system, with orders, results and patient tracking	5.6% (2)	41.7% (15)	16.7% (6)	16.7% (6)	19.4% (7)	0.0% (0)
Integrated Laboratory Information System (LIS)	41.7% (15)	25.0% (9)	19.4% (7)	8.3% (3)	5.6% (2)	0.0% (0)
Mining of historic data	5.7% (2)	25.7% (9)	17.1% (6)	20.0% (7)	31.4% (11)	0.0% (0)
Nursing and ancillary documentation	11.1% (4)	36.1% (13)	19.4% (7)	16.7% (6)	16.7% (6)	0.0% (0)
Patient portal/personal health record (PHR)	0.0% (0)	13.9% (5)	36.1% (13)	16.7% (6)	33.3% (12)	0.0% (0)
Picture Archiving and Communications System (PACS)	50.0% (18)	25.0% (9)	11.1% (4)	2.8% (1)	8.3% (3)	2.8% (1)
Pharmacy Information System	25.0% (9)	36.1% (13)	22.2% (8)	5.6% (2)	11.1% (4)	0.0% (0)
Physician documentation	16.2% (6)	43.2% (16)	13.5% (5)	13.5% (5)	13.5% (5)	0.0% (0)
Physician portal for remote access	8.3% (3)	36.1% (13)	19.4% (7)	13.9% (5)	25.0% (9)	0.0% (0)
Single sign-on	8.1% (3)	40.5% (15)	16.2% (6)	5.4% (2)	27.0% (10)	2.7% (1)
Electronic signature	10.8% (4)	48.6% (18)	10.8% (4)	8.1% (3)	21.6% (8)	0.0% (0)
Data capture from devices	13.9% (5)	30.6% (11)	13.9% (5)	16.7% (6)	25.0% (9)	0.0% (0)
Other	0.0% (0)	50.0% (1)	0.0% (0)	0.0% (0)	50.0% (1)	0.0% (0)

28. (cont.) How would you best describe plans for implementing the following electronic clinical systems at your hospital? (37 rural, 6 urban)

Urban

	Already in place	Within 0-2 years	In 3-4 years	5 years or more	No plan at this time (but interested in exploring)	No plan at this time (NOT interested in exploring)
Computerized Physician Order Entry (CPOE)	16.7% (1)	83.3% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Computed Radiography (CR)	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Clinical Decision Support System (CDSS)	66.7% (4)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Clinical data repository of current data	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
'Closed loop' medication administration (orders through administration)	66.7% (4)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Integrated Emergency Dept. system, with orders, results and patient tracking	33.3% (2)	66.7% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Integrated Laboratory Information System (LIS)	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Mining of historic data	83.3% (5)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Nursing and ancillary documentation	50.0% (3)	50.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Patient portal/personal health record (PHR)	16.7% (1)	83.3% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Picture Archiving and Communications System (PACS)	83.3% (5)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Pharmacy Information System	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Physician documentation	50.0% (3)	50.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Physician portal for remote access	83.3% (5)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Single sign-on	33.3% (2)	66.7% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Electronic signature	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Data capture from devices	50.0% (3)	50.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Other	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

29. How would you best describe plans for utilizing telemedicine at your hospital?

Telemedicine is the use of telecommunications and IT to deliver health services and transmit health information over distance. (36 rural, 6 urban)

Rural

	Already in place	Within 0-2 years	In 3-4 years	5 years or more	No plan at this time (but interested in exploring)	No plan at this time (NOT interested in exploring)
Tele-Dermatology (e.g.wound care)	14.7% (5)	32.4% (11)	2.9% (1)	0.0% (0)	29.4% (10)	20.6% (7)
Tele-Dialysis (consults)	6.1% (2)	12.1% (4)	12.1% (4)	0.0% (0)	39.4% (13)	30.3% (10)
Tele-Emergency Room	9.1% (3)	21.2% (7)	0.0% (0)	0.0% (0)	42.4% (14)	30.3% (10)
Tele-Intensive Care Unit	3.0% (1)	15.2% (5)	0.0% (0)	3.0% (1)	33.3% (11)	45.5% (15)
Tele-Mental/behavioral health	24.2% (8)	15.2% (5)	3.0% (1)	0.0% (0)	27.3% (9)	30.3% (10)
Tele-Pharmacy	22.9% (8)	31.4% (11)	5.7% (2)	0.0% (0)	34.3% (12)	8.6% (3)
Tele-Radiology	54.3% (19)	25.7% (9)	0.0% (0)	0.0% (0)	14.3% (5)	11.4% (4)
Tele-Stroke	3.0% (1)	18.2% (6)	3.0% (1)	0.0% (0)	48.5% (16)	27.3% (9)
Patient education	26.5% (9)	14.7% (5)	8.8% (3)	0.0% (0)	35.3% (12)	14.7% (5)
Provider education	44.1% (15)	14.7% (5)	0.0% (0)	0.0% (0)	32.4% (11)	8.8% (3)
Videoconferencing	80.6% (29)	13.9% (5)	2.8% (1)	0.0% (0)	5.6% (2)	0.0% (0)
Patient-provider consultation	20.0% (7)	25.7% (9)	0.0% (0)	2.9% (1)	40.0% (14)	11.4% (4)
Provider-provider consultation	17.6% (6)	23.5% (8)	5.9% (2)	0.0% (0)	41.2% (14)	11.8% (4)
Other clinical services via telemedicine	11.1% (2)	27.8% (5)	0.0% (0)	0.0% (0)	44.4% (8)	16.7% (3)

29. cont. How would you best describe plans for utilizing telemedicine at your hospital?
(36 rural, 6 urban)

Urban

	Already in place	Within 0-2 years	In 3-4 years	5 years or more	No plan at this time (but interested in exploring)	No plan at this time (NOT interested in exploring)
Tele-Dermatology(e.g.wound care)	60.0% (3)	20.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (1)
Tele-Dialysis(consults)	20.0% (1)	20.0% (1)	0.0% (0)	0.0% (0)	60.0% (3)	0.0% (0)
Tele-Emergency Room	40.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	60.0% (3)	0.0% (0)
Tele-Intensive Care Unit	25.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	75.0% (3)	0.0% (0)
Tele-Mental/behavioral health	40.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	60.0% (3)	0.0% (0)
Tele-Pharmacy	40.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	60.0% (3)	0.0% (0)
Tele-Radiology	100.0% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Tele-Stroke	0.0% (0)	25.0% (1)	0.0% (0)	0.0% (0)	50.0% (2)	25.0% (1)
Patient education	50.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	50.0% (3)	0.0% (0)
Provider education	66.7% (4)	0.0% (0)	0.0% (0)	0.0% (0)	33.3% (2)	0.0% (0)
Videoconferencing	100.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Patient-provider consultation	66.7% (4)	0.0% (0)	0.0% (0)	0.0% (0)	33.3% (2)	0.0% (0)
Provider-provider consultation	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	66.7% (4)	0.0% (0)
Other clinical services via telemedicine	100.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

If your hospital is utilizing telemedicine, do you have an individual designated to manage the overall telemedicine system? (31 rural, 5 urban)

Rural

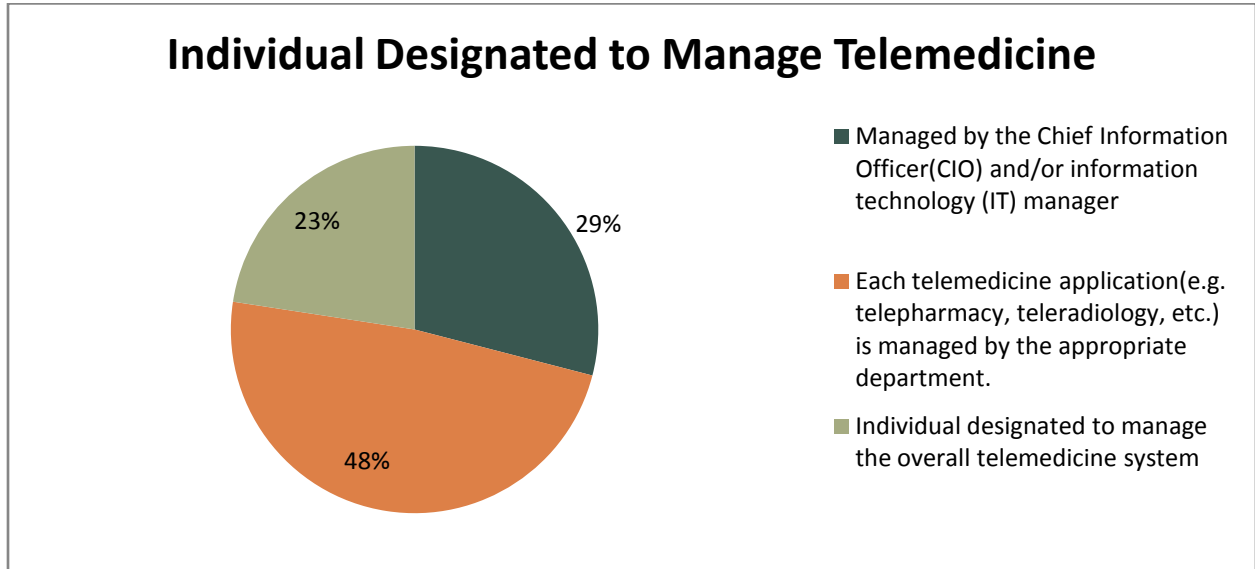


Figure 17. Individual designated to manage the telemedicine system in rural facilities.

Urban

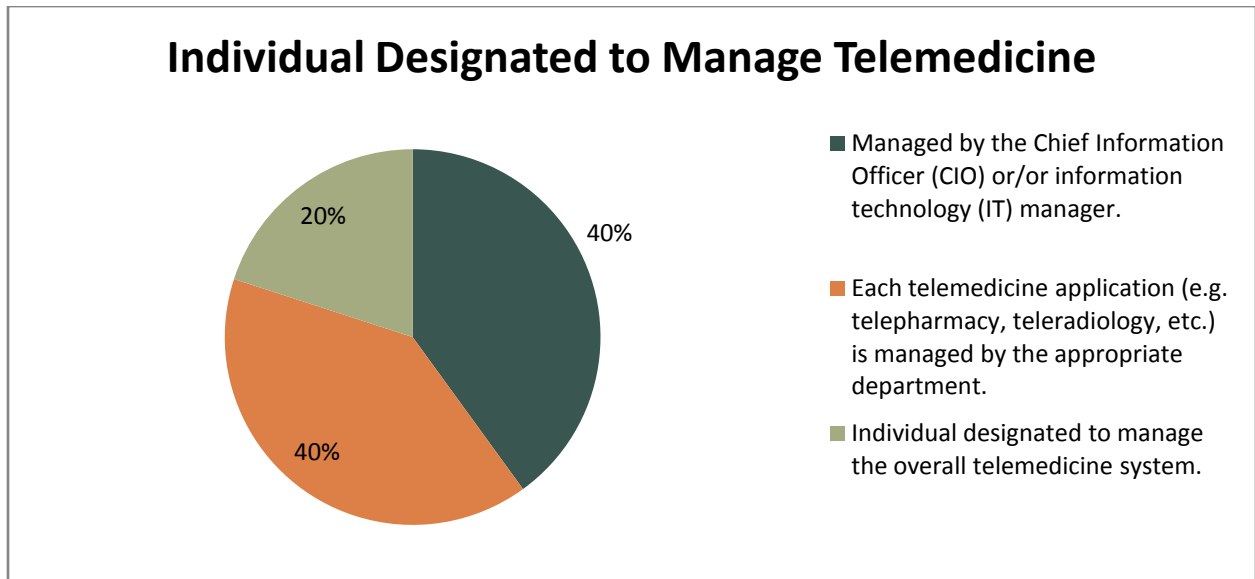


Figure 18. Individual designated to manage the telemedicine system in urban facilities.

30. What is the time frame of your strategic plan for HIT? (37 rural, 6 urban)

Rural

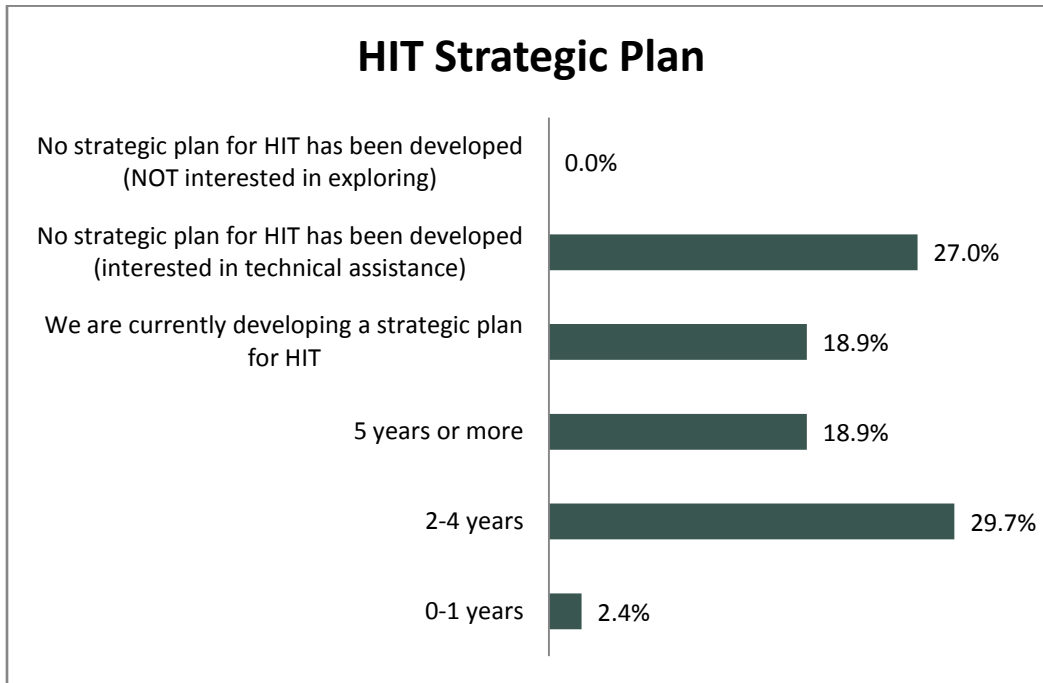


Figure 19. Rural hospitals strategic plan for health information systems.

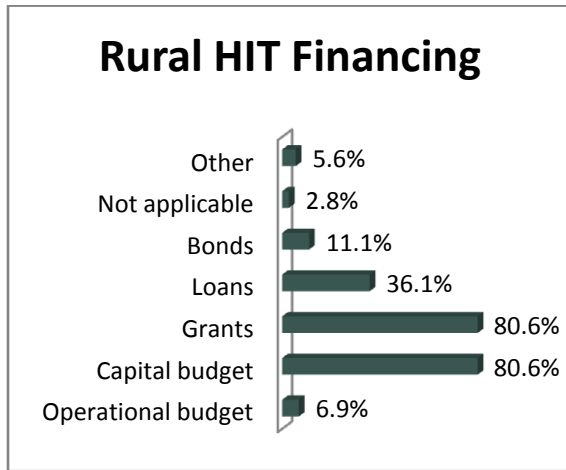
Urban



Figure 20. Urban hospitals strategic plan for health information systems.

31. How do you finance your HIT systems? (Indicate all that apply) (36 rural, 6 urban)

Rural



Urban

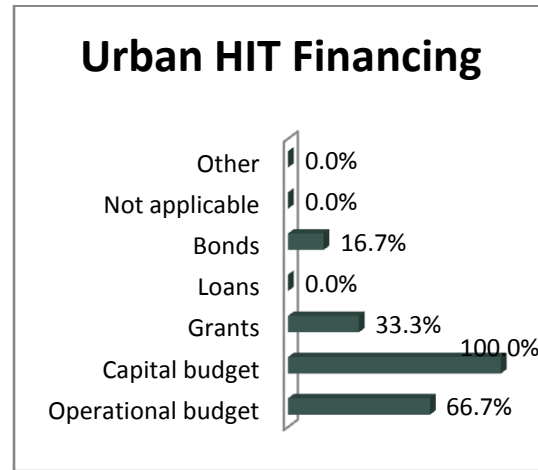


Figure 21. Rural hospital financing for HIT Systems.

Figure 22. Urban hospital financing for HIT Systems.

Other Rural: Where ever we can!!!; Health Foundation.

32. What is your current operating budget for HIT as a percentage of the overall operating revenue? (33 rural, 4 urban)

	Rural	Urban
<i>Less than 1%</i>	21.2%	0.0%
<i>1%</i>	24.2%	20.0%
<i>2%</i>	21.2%	40.0%
<i>3%</i>	3.0%	40.0%
<i>4%</i>	3.0%	0.0%
<i>5%</i>	3.0%	0.0%
<i>6%</i>	0.0%	0.0%
<i>7%</i>	0.0%	0.0%
<i>8%</i>	3.0%	0.0%
<i>9%</i>	0.0%	0.0%
<i>10%</i>	0.0%	0.0%
<i>More than 10%</i>	6.1%	0.0%
<i>Not applicable</i>	15.2%	0.0%

33. Which of the following describes the projected spending on HIT in the upcoming years? (36 rural, 5 urban)

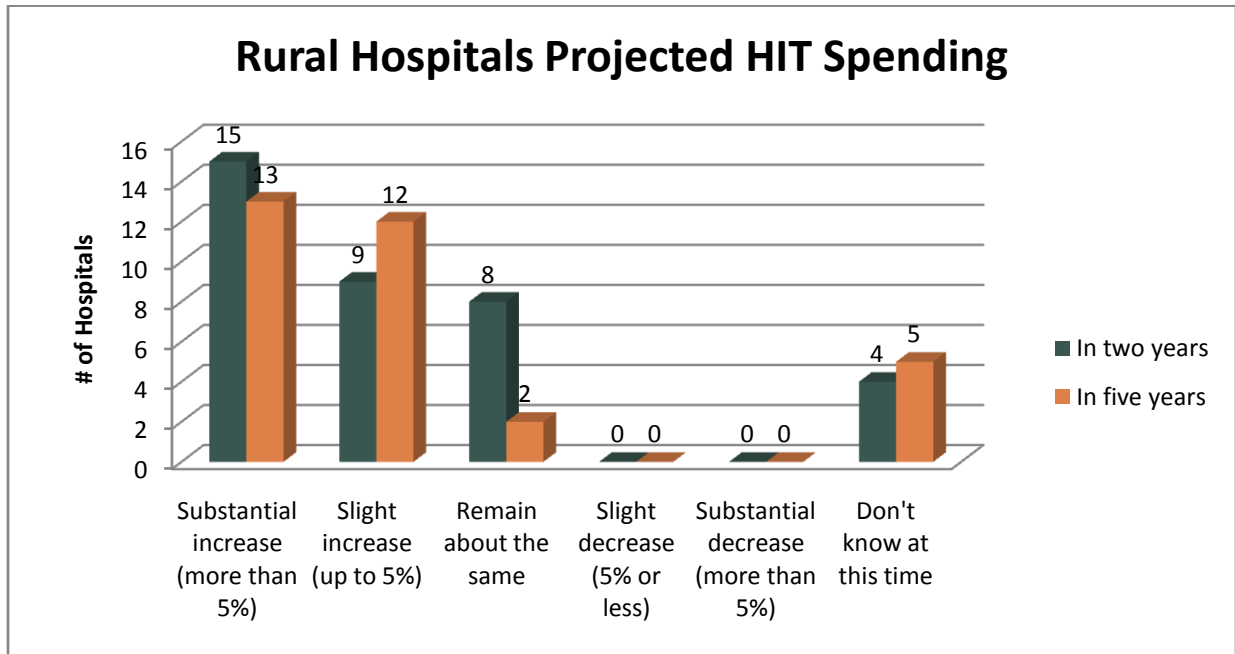


Figure 23. Rural hospitals projected HIT spending pattern in 2 years and in 5 years.

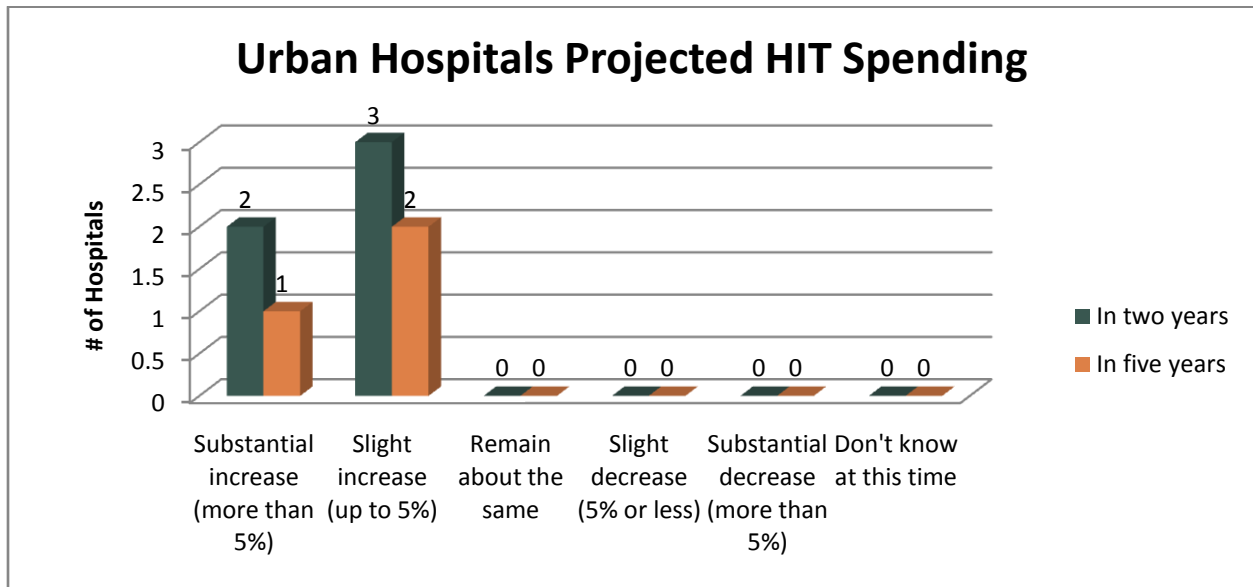


Figure 24. Urban hospitals projected HIT spending pattern in 2 years and in 5 years.

DEFINITIONS:

Clinician: Clinician includes physicians, PA, NP, nurses, behavioral health professionals, registered dietitians, chiropractors and other licensed or certified care providers.

Computed Radiography (CR): Computed Radiography uses very similar equipment to conventional radiography except that in place of a film to create the image, an imaging plate is used. Hence, instead of taking a film into a darkroom for developing in chemical trays, the imaging plate is run through a computer scanner to read and digitize the image. The image can then be viewed and enhanced using software that has functions very similar to conventional image-processing software, such as contrast, brightness, and zoom.

Electronic Medical Record (EMR): An electronic medical record refers to 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; bi-directional viewing of laboratory information. The practice management system is the medical office functions which support and surround the EMR.

Laboratory Information System (LIS): A Laboratory Information System is an electronic system used by pathology departments to record activity in the department. Typical modules include: pathology request and specimen registration and management; result reporting; blood bank and management reporting.

Picture Archiving Communication Systems (PACS): Picture Archiving Communication Systems are computers or networks dedicated to the storage, retrieval, distribution and presentation of images. The medical images are stored in an independent format.

Telemedicine: Telemedicine is the use of telecommunications and IT to deliver health services and transmit health information over distance.

APPENDIX D – SUMMARY REPORT: ND HIT ENVIRONMENTAL SCAN OF NORTH DAKOTA LONG-TERM CARE FACILITIES (SEPTEMBER 2008)

Results – North Dakota Health Information Technology Survey of Long-Term Care Facilities

The long term care (LTC) facility survey instrument was created by adapting the survey tool recently developed, tested, and distributed by Stratis Health, Minnesota’s Medicare Quality Information Organization (QIO), on behalf of the Minnesota Department of Health. The Center for Rural Health worked with the ND Long Term Care Association to finalize and test the tool which was distributed electronically (linked to Survey Monkey), in July 2008 by the LTC Association to their 83 sites. Survey Monkey is an ad-free, web-based tool designed for creating and administering surveys on the net that allows participant to respond by clicking on a web link that has been given to them. The results from all surveys described were received, compiled, and analyzed by the Center for Rural Health.

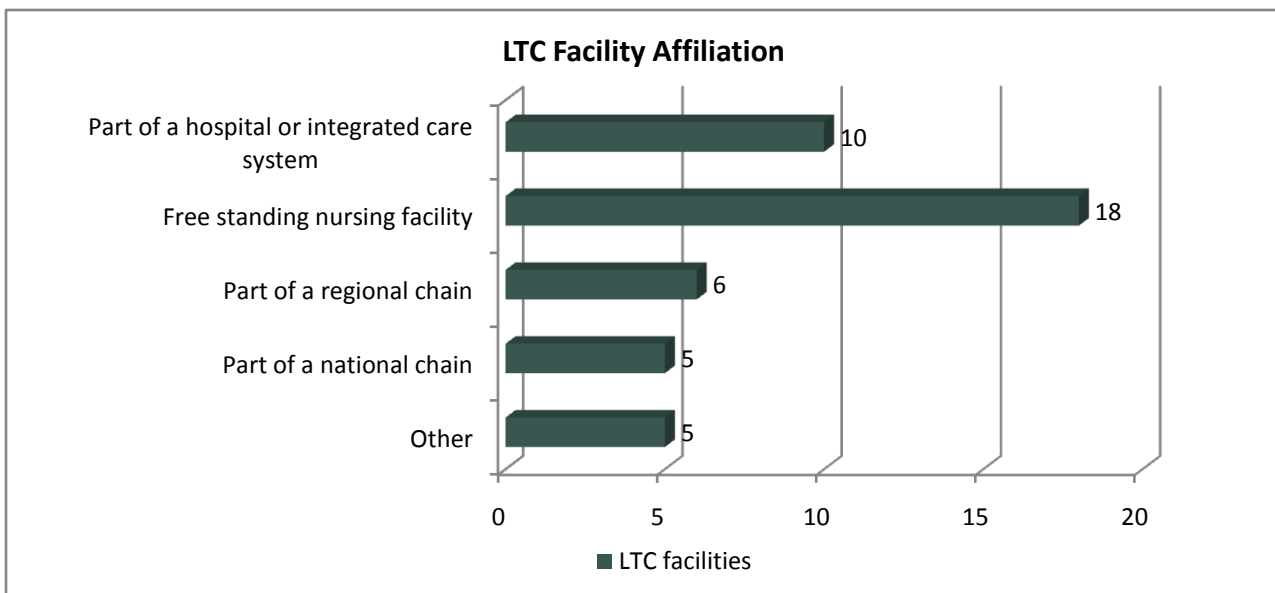
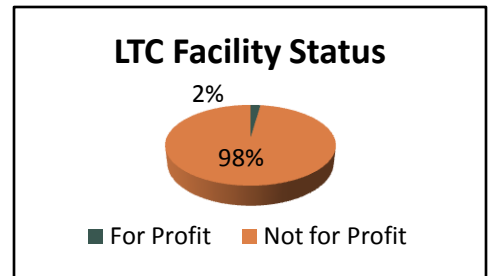
LONG TERM CARE FACILITY DEMOGRAPHICS

Response rate: 44 (53%) North Dakota long-term care (LTC) facilities completed the survey out of 83 possible North Dakota LTC facilities.

1. Only one of the long-term care (LTC) facilities that responded is for profit.

2. Affiliation of LTC facility:

Other: State Veterans Home; Free standing and managed by national chain (Good Samaritan Society); SNF - HIT is the umbrella company, which provide services to people with disabilities; Hospital attached skilled nursing home independently run; Associated with hospital but free standing

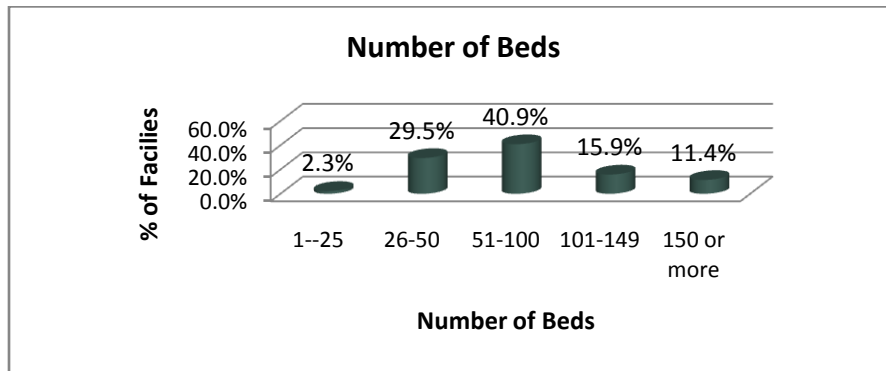


3. Is your LTC facility affiliated with a network that has some or an exclusive focus on the adoption of health information technology (HIT)?

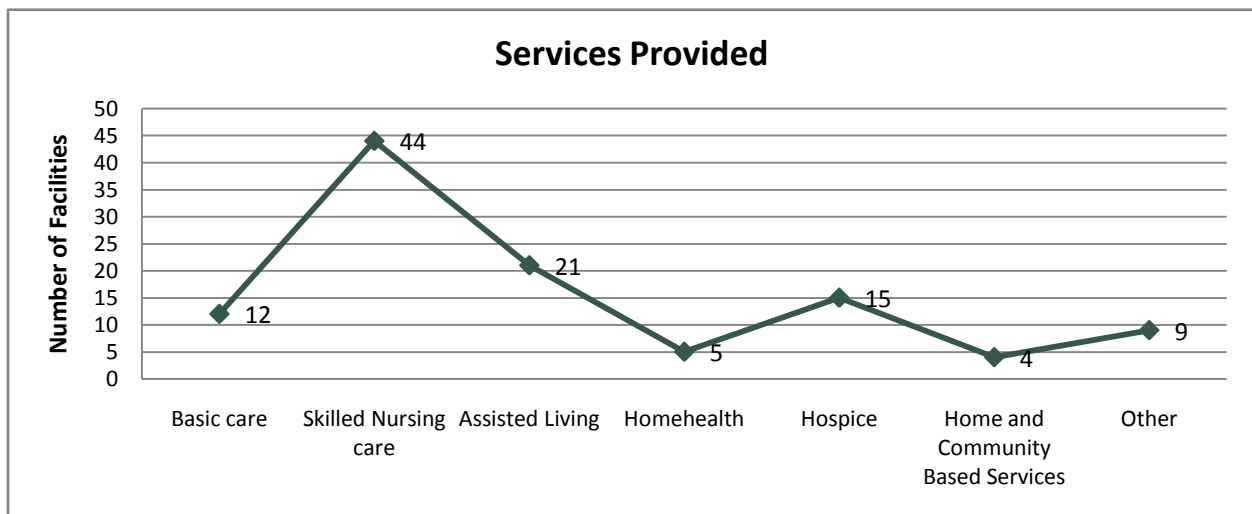
Northland Healthcare Alliance	28.6%	4
North Region Healthcare Alliance	21.4%	3
Northwest Alliance for Information Technology (NWAIT)	28.6%	4
Other	21.4%	3

Other: Benedictine Health System (2); Health Management Services; Good Samaritan

4. Number of beds:



5. Services Provided



5. Primary Payor mix:

Private Pay

Range: 5% – 60%
Average: 30.6%
Median: 29%

Medicare

Range: 0% – 55%
Average: 8.04%
Median: 5%

Medicaid

Range: 5% – 90%
Average: 53.15%
Median: 54.5%

LTC Insurance

Range: 0% – 45%
Average: 12.8%
Median: 10%

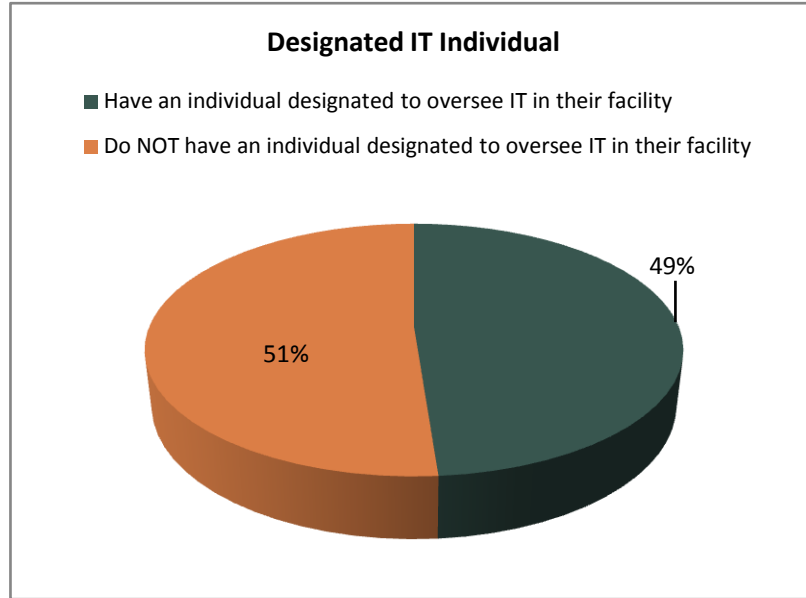
Other

Range: 0% – 6%
Average: 2.7%
Median: 1%

HIT STAFF SUPPORT AND STEERING COMMITTEE(S)

5. Do you have an individual designated to oversee the information technology for your facility? (e.g. Chief Information Officer, information technology manager, computer technician)

Just over half of the long-term care facilities that responded, 23 facilities, do not have an individual designated to oversee information technology in their facility.

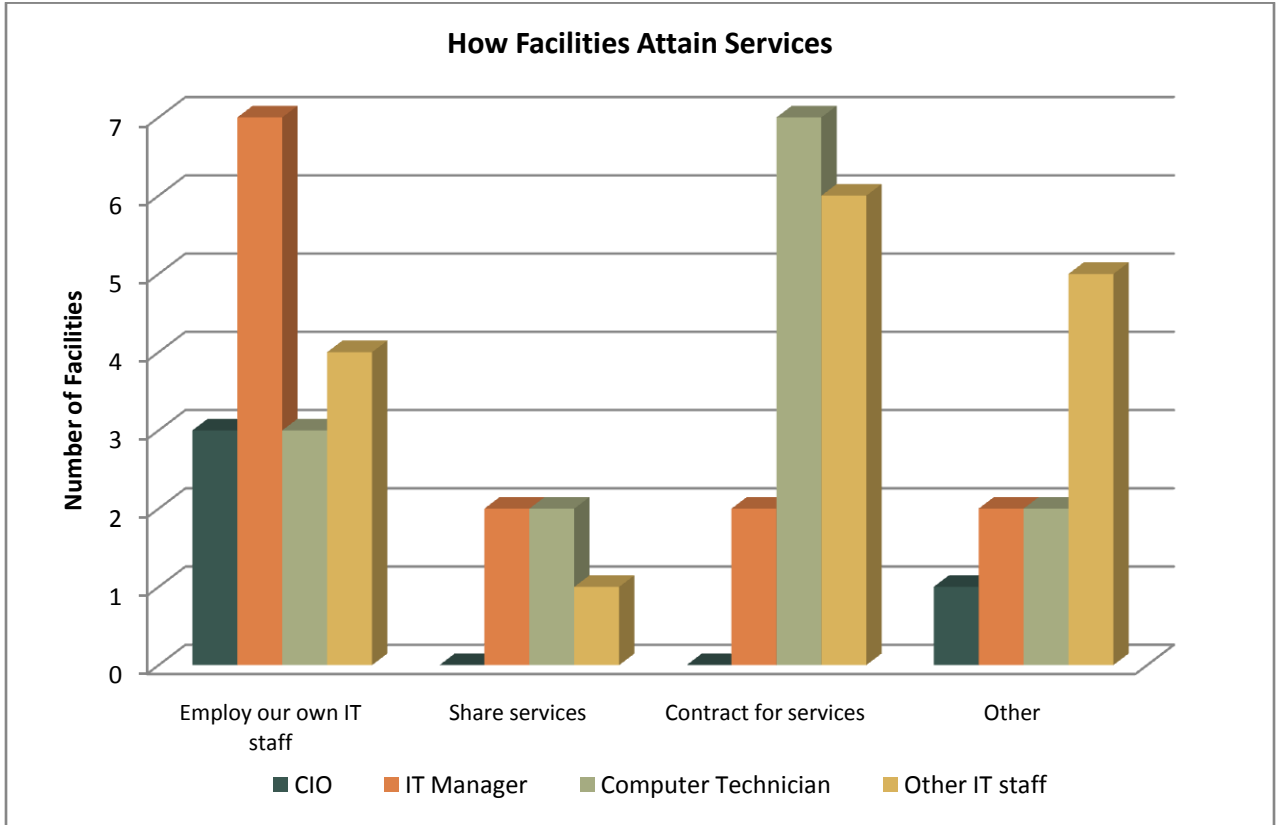


6. What best describes the educational background/experience of the CIO/IT Manager in your facility?

Nearly half of LTC IT managers have no formal education in computers/information systems at all, and only one IT manager has a graduate degree in computers/information systems.

	0-5 years of experience	6-10 years of experience	11-19 years of experience	20 plus years of experience
<i>Graduate degree in Computer/Information Systems or related area</i>	0.0%	0.0%	0.0%	5.0%
<i>Bachelors degree in Computer/Information Systems or related area</i>	5.0%	15.0%	0.0%	5.0%
<i>Associate degree in Computer/Information Systems or related area</i>	10.0%	5.0%	10.0%	5.0%
<i>Certificate(s) in Computer/Information Systems or related area</i>	5.0%	5.0%	35.0%	0.0%

7. How does your LTC facility obtain the services of the CIO/IT Manager, computer technician, etc.?



If you do share facilities, please indicate what staff are shared with that type of facility (check all that apply).

	Other nursing facilities	Large hospital (Grand Forks, Fargo, Bis/Mandan, Minot)	One or more rural hospital(s)	Ancillary facility	Network of healthcare facilities	Response Count
<i>CIO</i>	12.5%	37.5%	0.0%	0.0%	50.0%	8
<i>IT Manager</i>	0.0%	37.5%	0.0%	12.5%	50.0%	8
<i>Computer technician</i>	0.0%	50.0%	0.0%	10.0%	40.0%	10
<i>Other IT staff</i>	0.0%	37.5%	0.0%	12.5%	50.0%	8

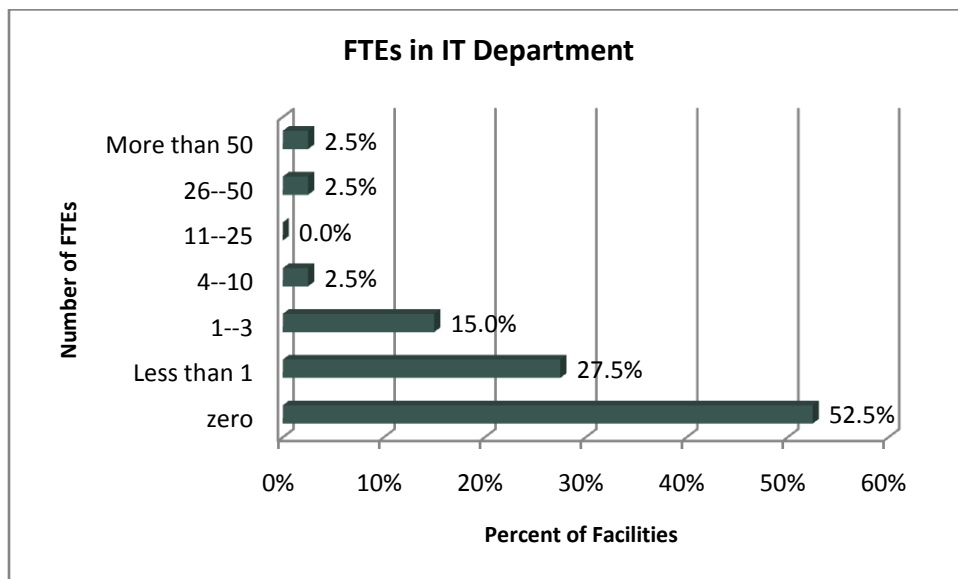
Other: Part of BHS System; Hire a local amateur who is self taught; Good Samaritan National Campus (6); Local Internet/Phone service provider (2)

If you are currently NOT sharing the services of the CIO/IT Manager, computer technician, etc., would your facility consider doing so?

Yes: 48.5%

No: 51.5%

8. How many FTEs work in the IT department (not administrative staff) at your healthcare facility?



9. Which best describes how you see the number of IT staff at your facility changing over the next 5 years?

Will grow: 21.4%

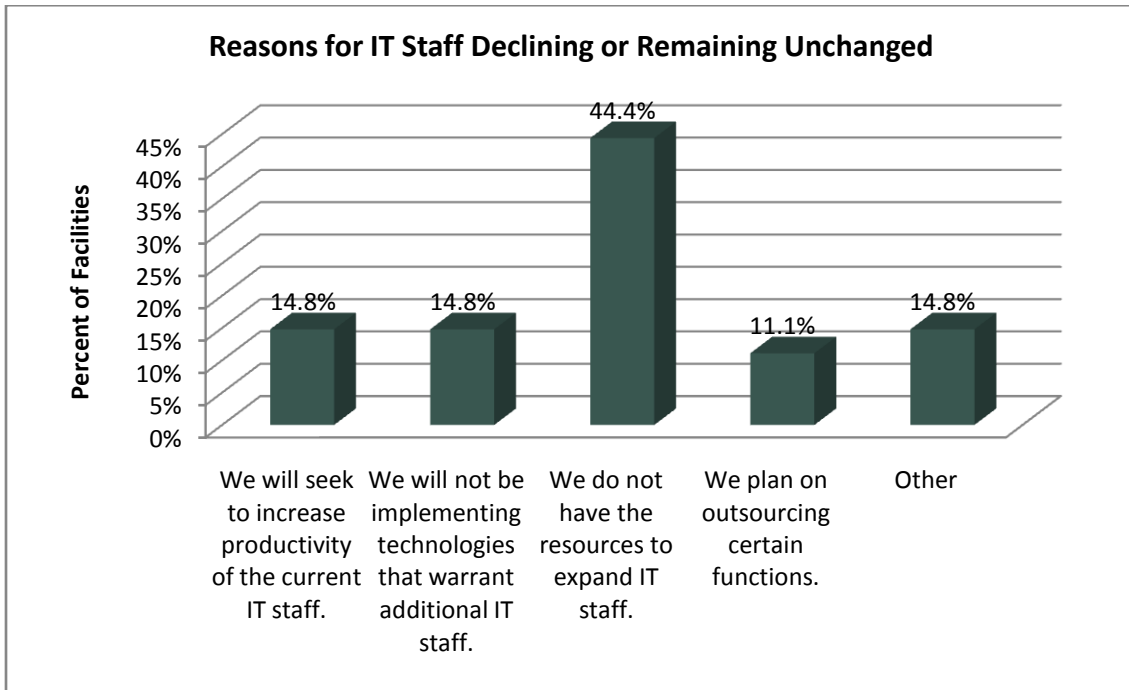
Will stay the same: 45.2%

Will decrease: 0.0%

Don't know: 33.3%

If you predict that the number of IT staff will stay the same or decrease, which of the following reasons apply?

The number one reason for not increasing IT staff in LTC facilities is because they do not have the resources available.



Other: Will take on additional facilities; All part of our BHS system; Any staffing changes will be at the corporate level; Good Samaritan is moving forward with more staff.

11. Does your facility have a formal HIT steering committee/work group?

Rural

Yes: 11.5%

No: **72.1%**

In the process of forming now: 9.3%

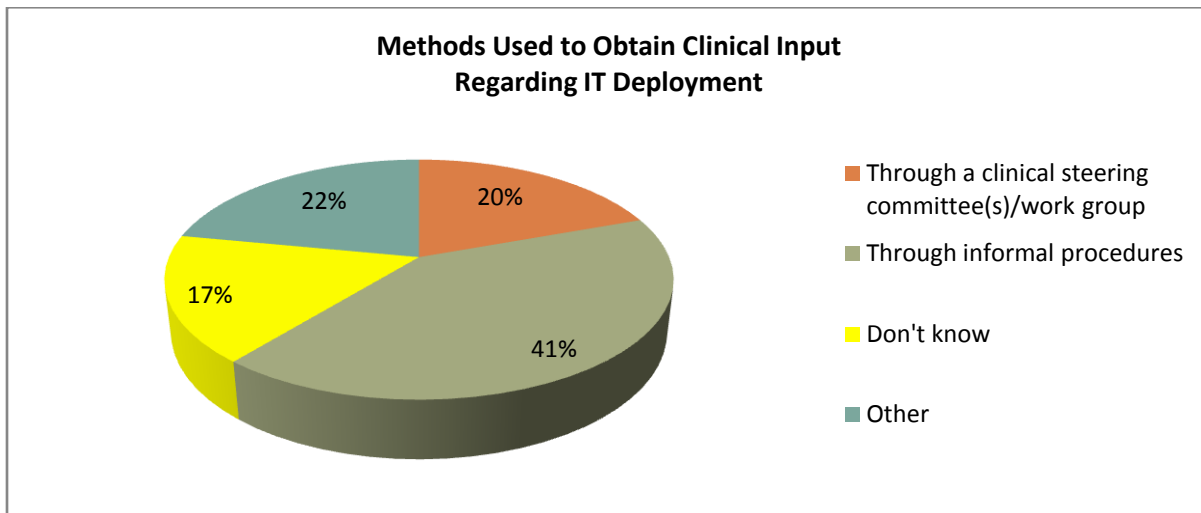
We have a representative on our Health System's steering committee: 7.0%

If you answered yes, that you have an HIT steering committee/work group, which of the following disciplines/departments are represented?

Discipline/Department	% of facilities that have representation
Administration	100.0%
Nursing	87.5%
Medical Records/Health Information Manager	75.0%
Plant/Maintenance	37.5%
Activities	25.0%
Dietary	25.0%
Social Services	25.0%
Pharmacy	25.0%
Other	25.0%
Medical Director/Physician	12.5%
Therapies (e.g. PT, OT, Speech Therapy)	12.5%
Resident council	0.0%

Other Rural: Accounting, Business Office, Human Resources

12. Which best describes how you obtain clinical input on information technology deployments?



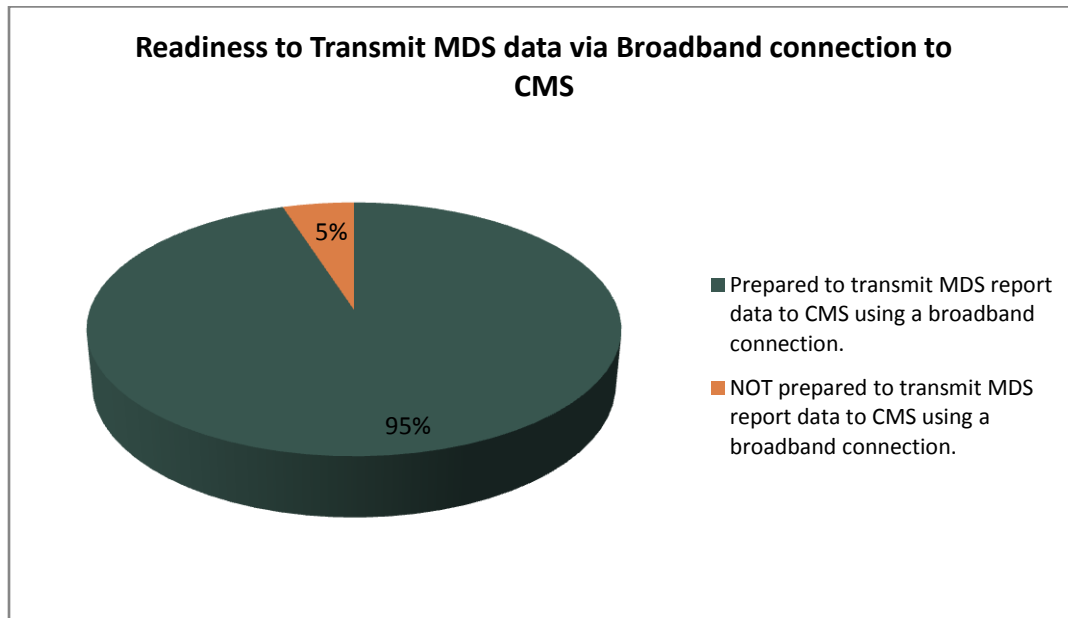
Other: Through our National Campus (5); MDS Nurse; NDLTCA; Home office; Medical Staff Meeting

CURRENT LEVEL OF PLANNING AND USE OF HIT

13. MDS Software being utilized by LTC Facilities: (The Long Term Care Minimum Data Set (MDS) is a standardized, primary screening and assessment tool of health status which forms the foundation of the comprehensive assessment for all residents of long-term care facilities certified to participate in Medicare or Medicaid.)

MDS Software	Number of Facility Users
Achieve	5
American Data	2
American Health Tech	2
American Healthnet	2
Dairyland Healthcare Solutions	2
Dairyland & Melyx	1
ECS American Date	1
Encompass	1
Good Samaritan Society Software	3
Healthland	1
Healthmedx	1
MDI	6
Melyx	4
Melyx Pro	4
Point Click Care	1
VistaKeane	1

14. Based on CMS's requirement of facilities to transmit MDS data by a high speed connection as early as September 1, 2008, how prepared are the facilities to transmit MDS data to CMS?

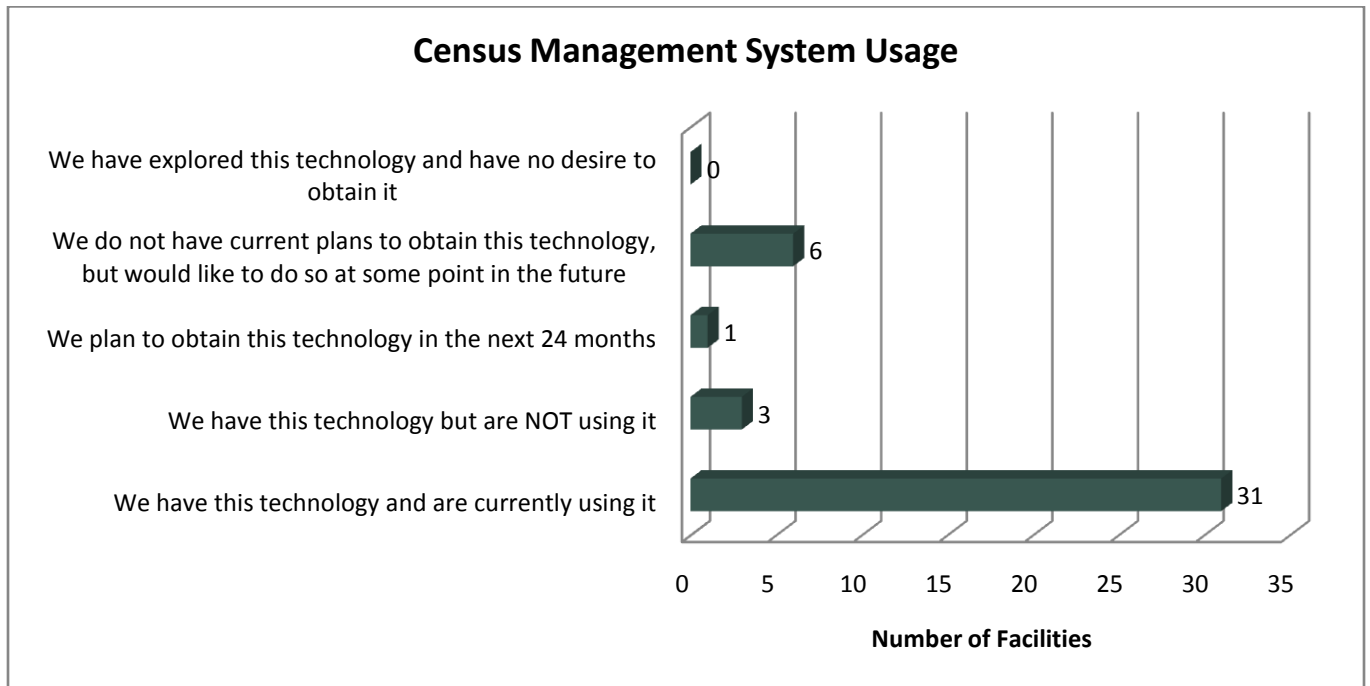


One of the two facilities that indicated that they were not going to be prepared to transmit MDS data to CMS over a broadband connection by September 1, 2008 reported that the earliest date that they could be fully connected to broadband by cable or a satellite connection is January 1, 2010.

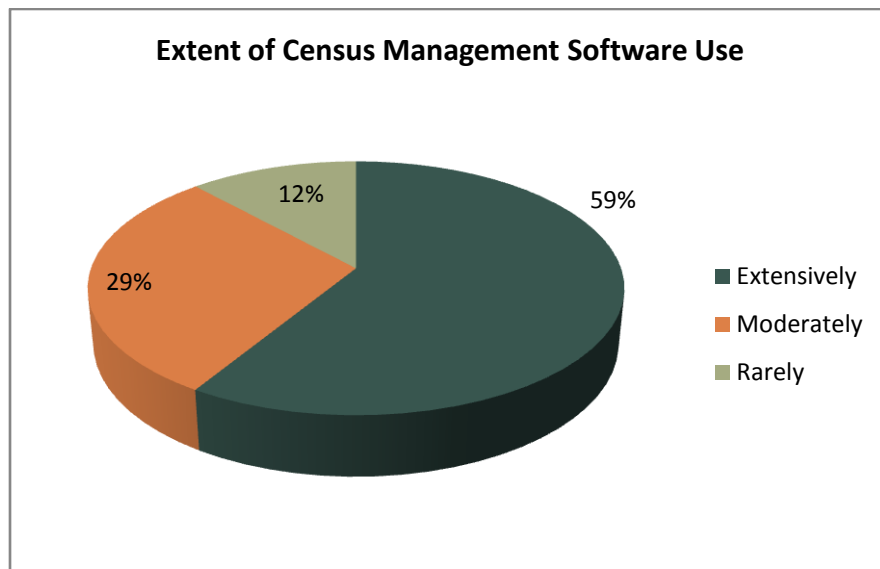
15. Information that facilities believe would be helpful in understanding their readiness to submit MDS data over a broadband connection:

- We are currently submitting our MDS data over a Broadband Connection (7 responses).
- We have been using broadband MDS transmission for over a year for federal and three years for state.
- We have our connection through MeritCare Health System and they are unable to meet the new CMS standard. We are continuing to research.
- We have a department at our National Campus that creates or purchases it for all Good Samaritan Society facilities.
- We are using our network.

16. Census Management System (Consensus Management is defined as patient demographics. It can be stand-alone software that provides real-time information to resident transfers, discharges, admissions, pre-admissions, payor changes, and staff scheduling.)



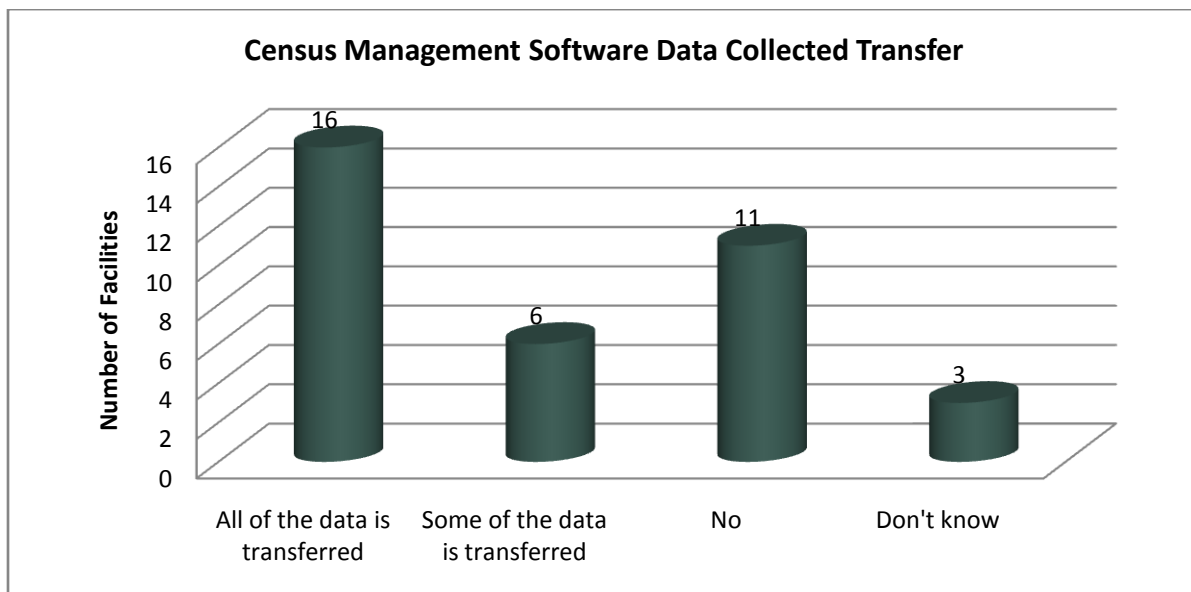
17. To what extent do the facilities use Census Management software?



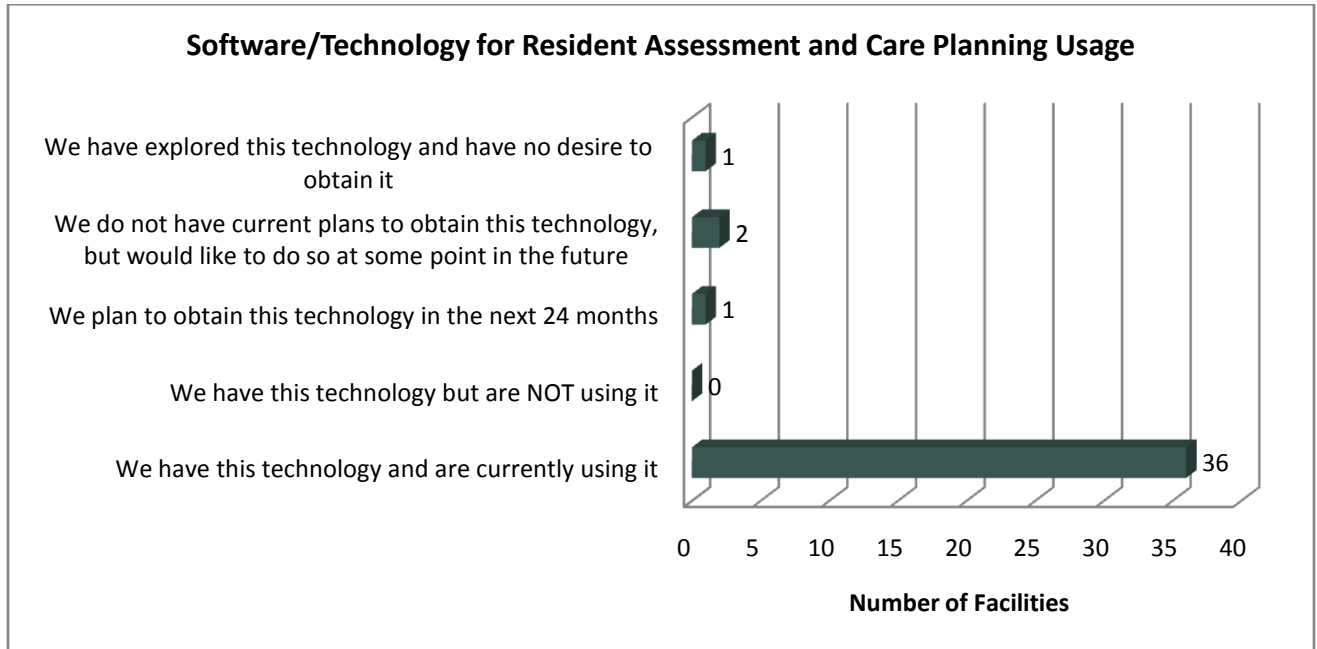
18. Name of Census Management software used by facilities:

Census Management Software	Number of Facility Users
Achieve Matrix	3
Solomon and Achieve/DataCare	1
American Data	1
American Healthnet	2
American HealthTech	1
Dairyland Healthcare Solutions	3
ECS American Data	1
Encompass	1
Good Samaritan Society Software	4
Healthland	1
Healthmedx	1
MDI	6
Melyx	3
Melyx Pro	3

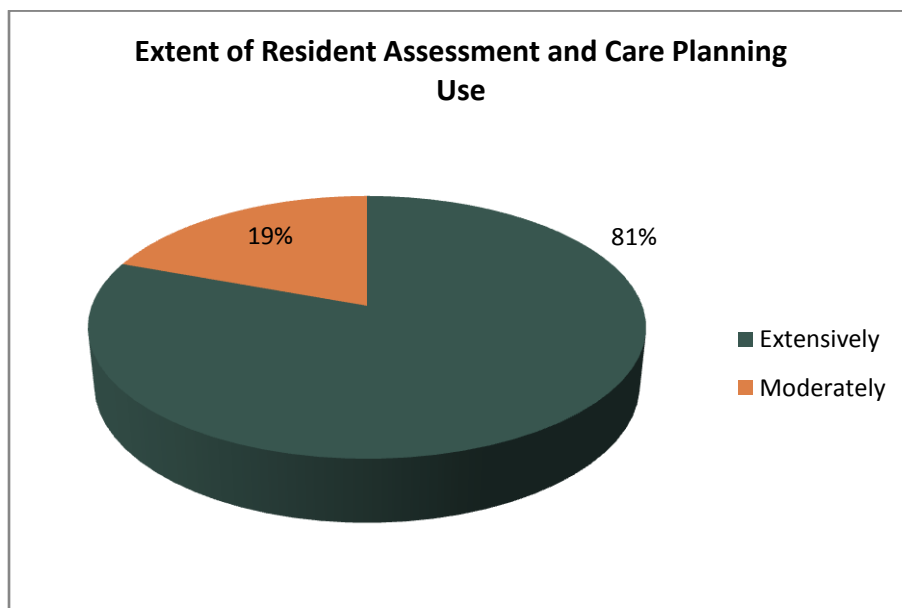
19. Is the data collected by the Census Management software transferred electronically either inside or outside the facility?



20. Software/technology for Resident Assessment and Care Planning (Electronic data collection and availability of data for creation of the plan of care and goal setting. May be limited to an overall Plan of Care, or may allow for discipline-specific plans of care, e.g. therapy plans of care and nursing plans of care.)



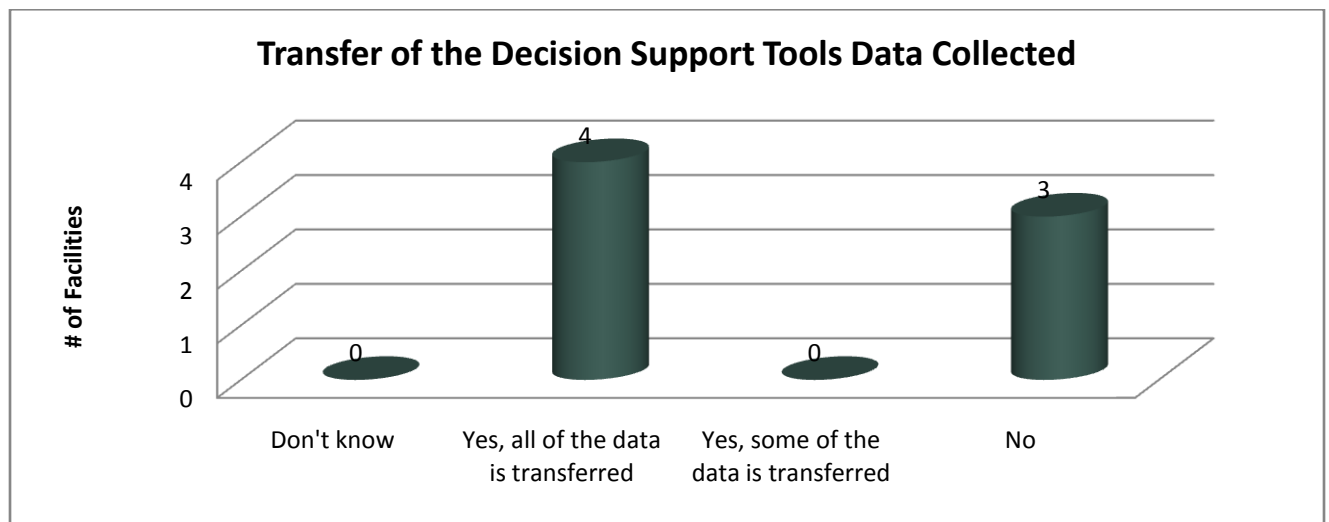
21. To what extent do the facilities use software/technology for Resident Assessment and Care Planning?



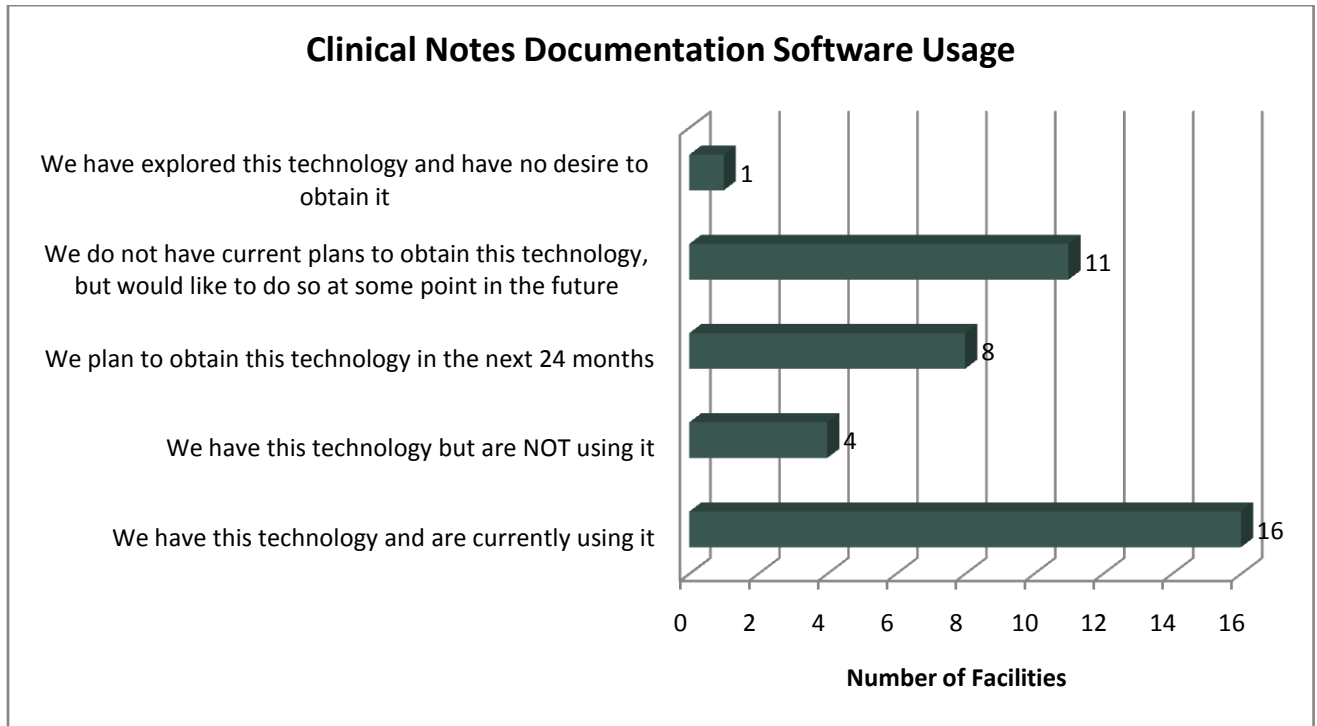
22. Name of software/technology for Resident Assessment and Care Planning used by facilities:

Census Management Software	Number of Facility Users
Achieve	1
Achieve Matrix	3
Solomon and Achieve/DataCare	1
American Data	2
American Healthnet	1
American HealthTech	1
Caremedx	1
Clarus	1
Dairyland Healthcare Solutions	3
ECS American Data	1
Encompass	1
Good Samaritan Society Software	4
LTC	1
MDI	5
Melyx	3
Melyx Pro	1
Point Click Care	1
VistaKeane	1

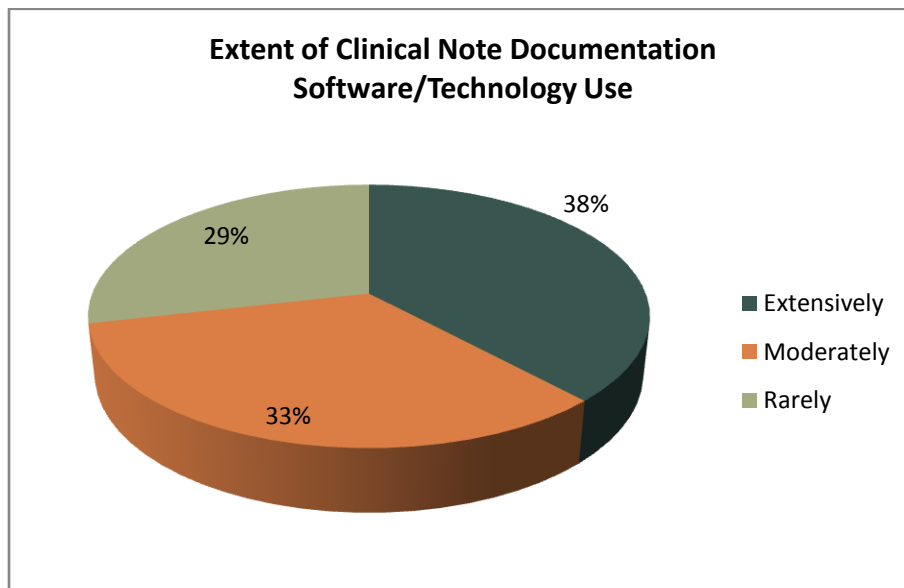
23. Is the data collected by the Resident Assessment and Care Planning software/technology transferred electronically either inside or outside the facility?



24. Does your facility currently use software/technology for documentation of clinical notes? (Create, addend, correct, authenticate, and close clinical visit data; including assessments/clinical measurements, interventions, communications).



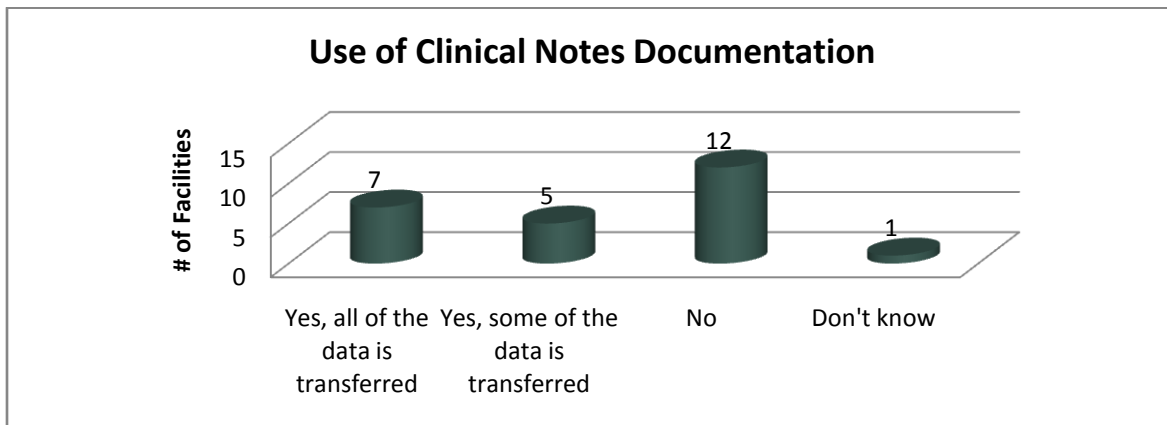
21. To what extent do the facilities use software/technology for documentation of clinical notes?



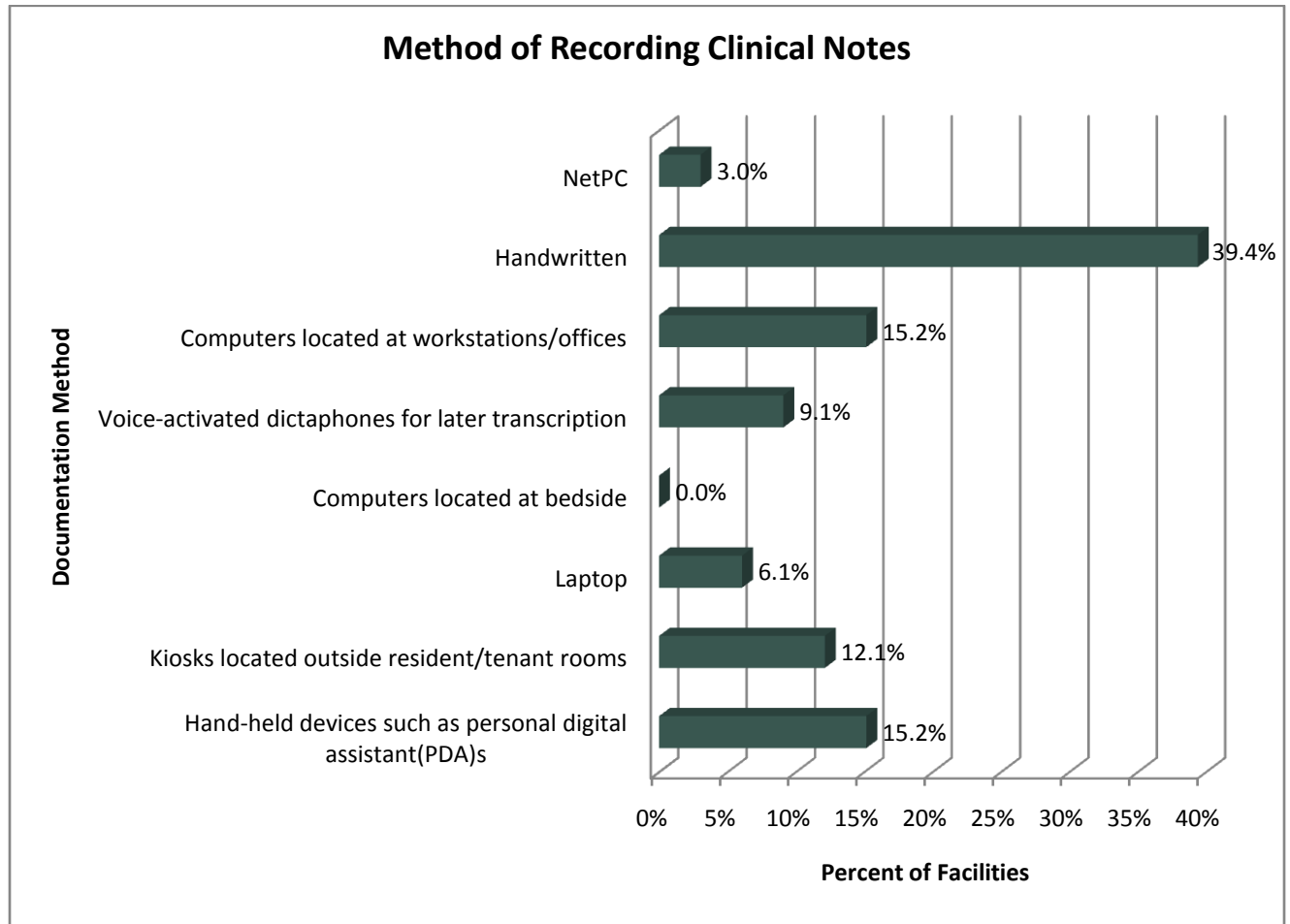
22. Name of software/technology for documentation of clinical notes used by facilities:

Clinical Notes Documentation Software	Number of Facility Users
Achieve Matrix	3
American Data	1
American Healthnet	1
Caremedx/Healthmedx	1
Clarus	1
Dairyland Healthcare Solutions	1
ECS American Data	1
Encompass	1
Good Samaritan Society Software	2
MDI/Express Dictate	1
MDI	1
Melyx	1
Melyx Pro	2
Point Click Care	1
VistaKeane	1

23. Is the data collected by the documentation of clinical notes software/technology transferred electronically either inside or outside the facility?



23. Where does documentation of clinical notes occur in LTC facilities?

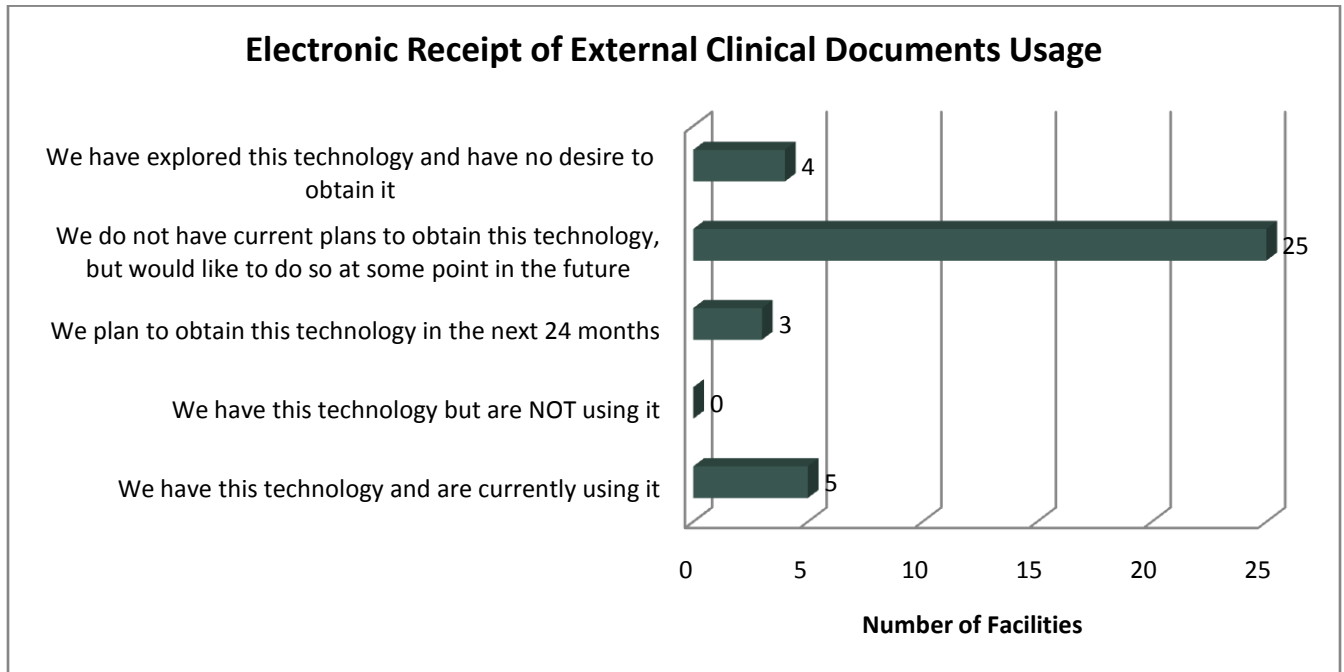


24. When does documentation of clinical notes occur?

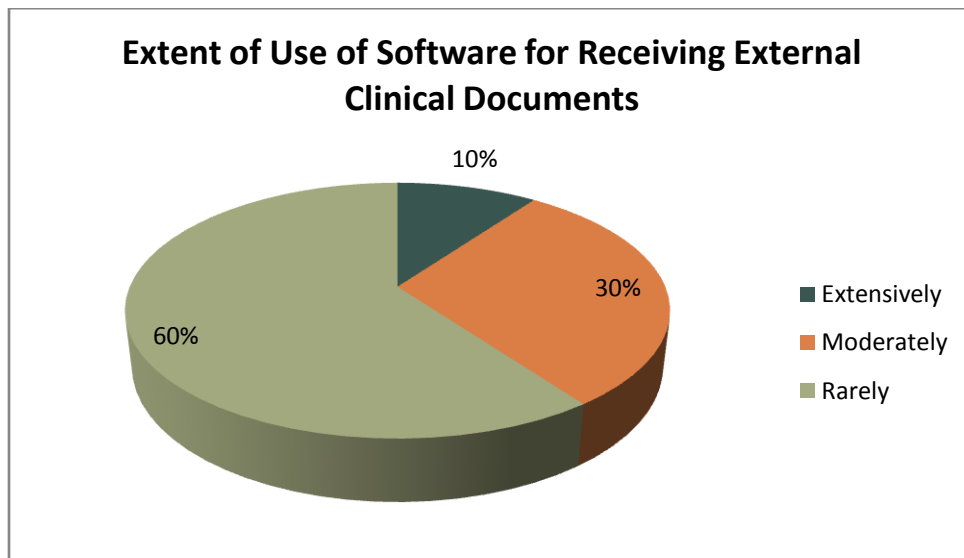
Time of Documentation	Facilities
After each encounter	37.9%
After multiple encounters	48.3%
Other	24.1%

Other: During shift; every 4 to 5 minutes; Medicare charting daily, behaviors each encounter, etc.; depends upon discipline, can be after each or after multiple; dependent on information and staff time - at time of service or sometime during the shift; when staff can work it in, sometimes at the end of the shift; After each encounter and after multiple encounters; as needed basis.

25. Does your facility currently use software/technology to receive external clinical documents? (Electronic receipt from external facilities/agencies, provider notes, laboratory data, radiology data, medical devices, patient history, patient consults, pharmacy/consultant pharmacist reports, etc. May capture import of paper documents by scanning to include with other electronic health record data. May also include the ability to view existing documents that were captured by other systems.)



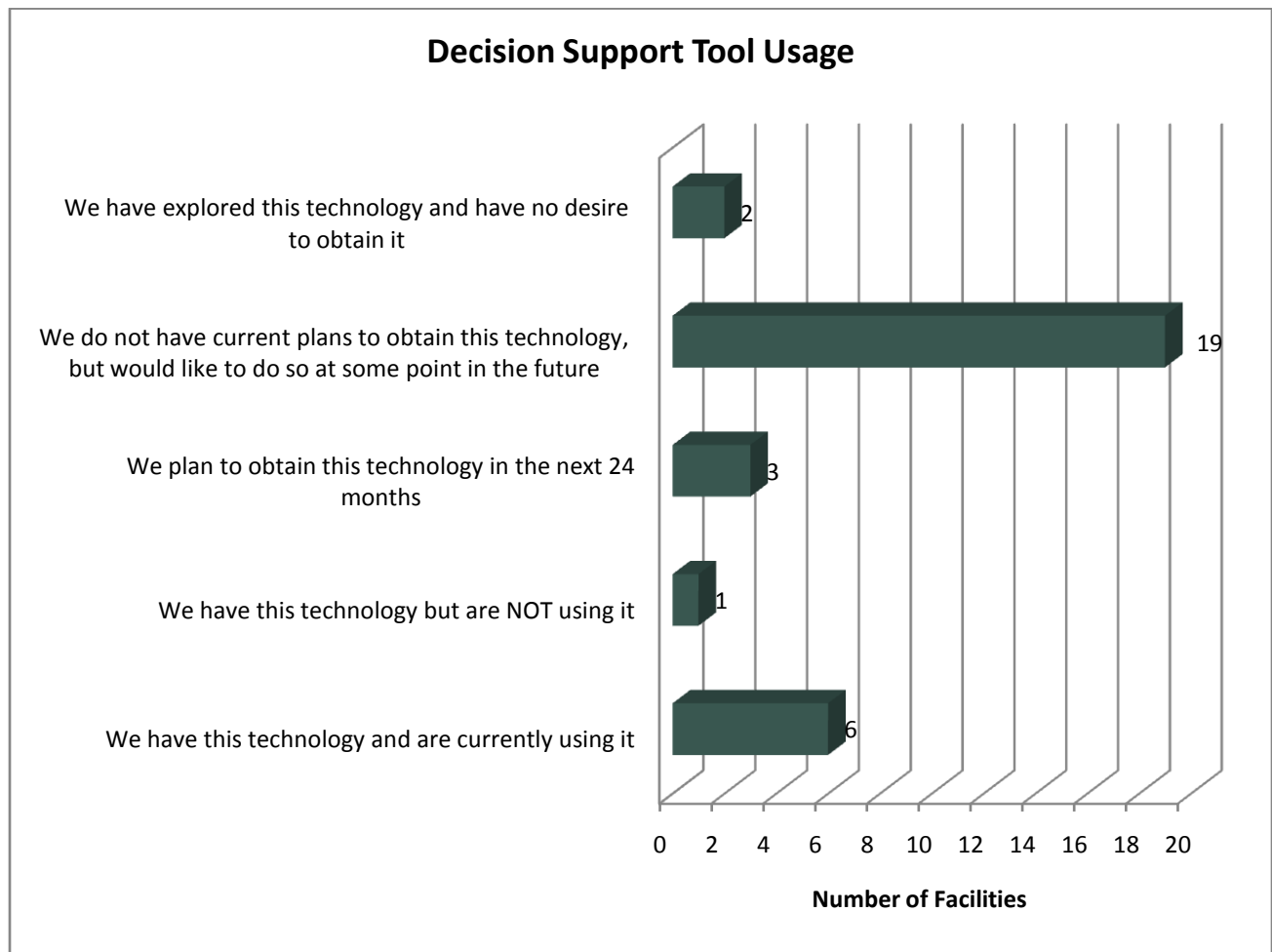
26. To what extent do the facilities use software/technology to receive external clinical documents?



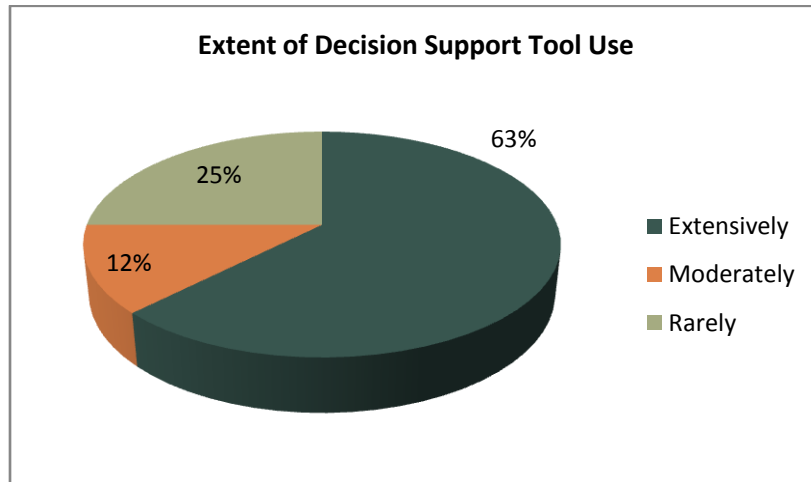
27. Name of software used by facilities to receive external clinical documents:

Software used for receiving external clinical documents	Number of Facility Users
Achieve Matrix	2
Dairyland Healthcare Solutions	2
Altru Health System's software (don't know the name)	1

28. Does your facility currently use software/technology for decision support tools?
 (Clinical support tools provide best practice suggestions for care plans and interventions based on clinical problems/diagnoses. May include alerts or reminders for specific interventions (disease management programs), automated prompts for preventive practices (e.g. immunizations), or decision support for e-prescribing.)



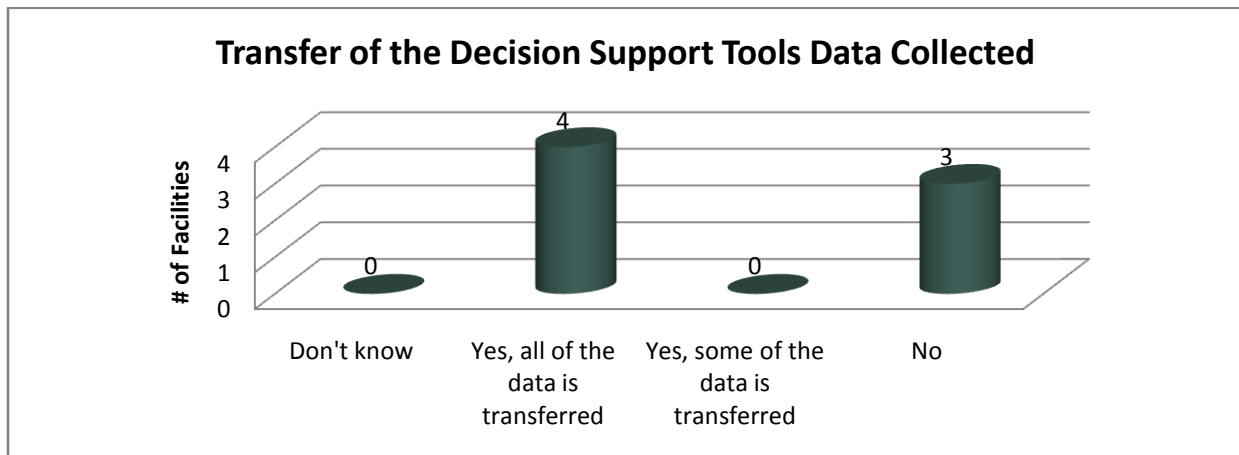
29. To what extent do the facilities use software for decision support tools?



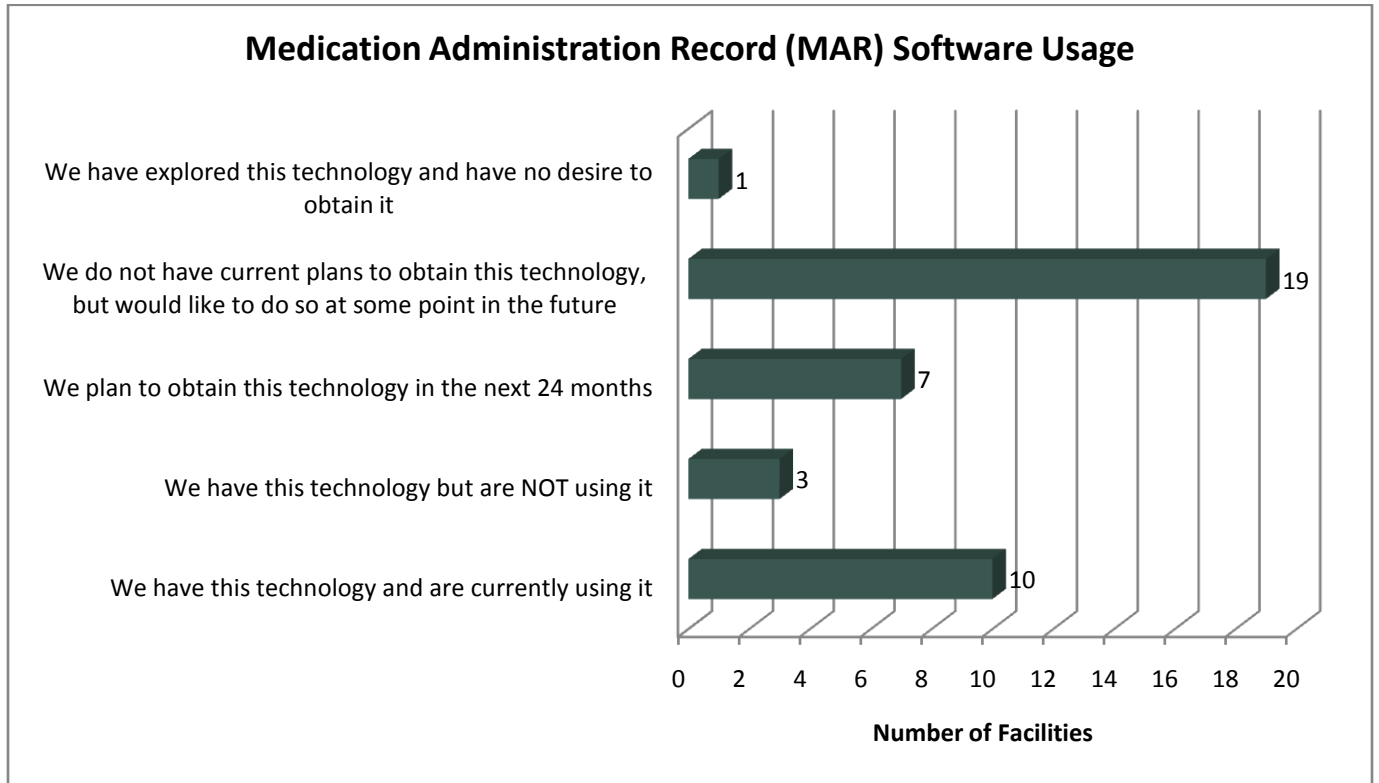
30. Name of software used by facilities for decision support tools:

Software used for decision support tools	Number of Facility Users
Achieve Matrix	2
Dairyland	1
ECS American Data	1
Melyx Pro	1

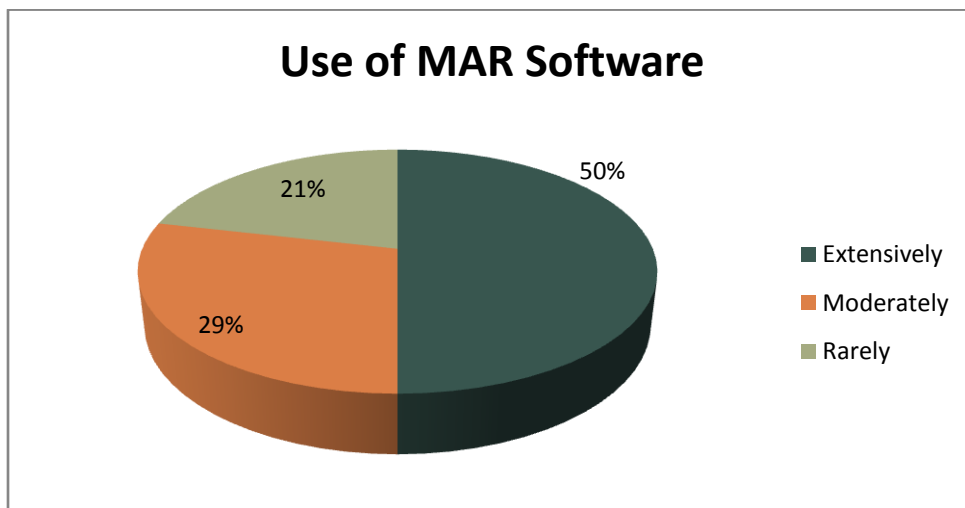
31. Is the data collected by the software used for decision support tools transferred electronically either inside your facility or outside your facility?



32. Does your facility currently use software/technology to complete the medication administration record (MAR)? (All medications administered to patients are recorded in the MAR and generated from the medication list. May allow provider to view recent lab results and patient allergies; interfaces with pharmacy system, computerized order entry system, and patient tracking (admission-discharge-transfer) system.)



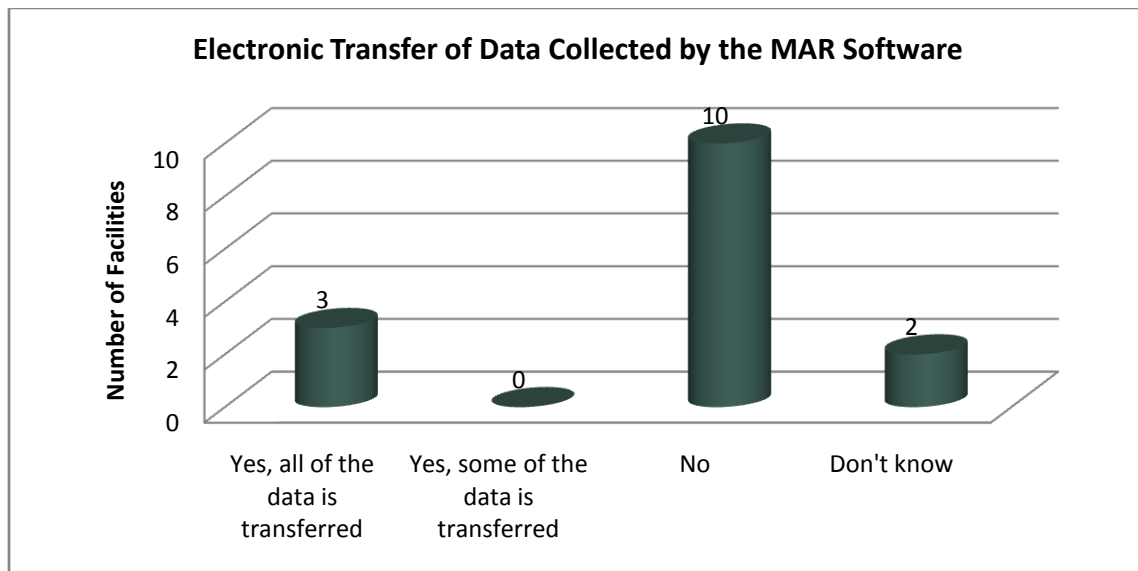
33. To what extent do the facilities use the MAR software?



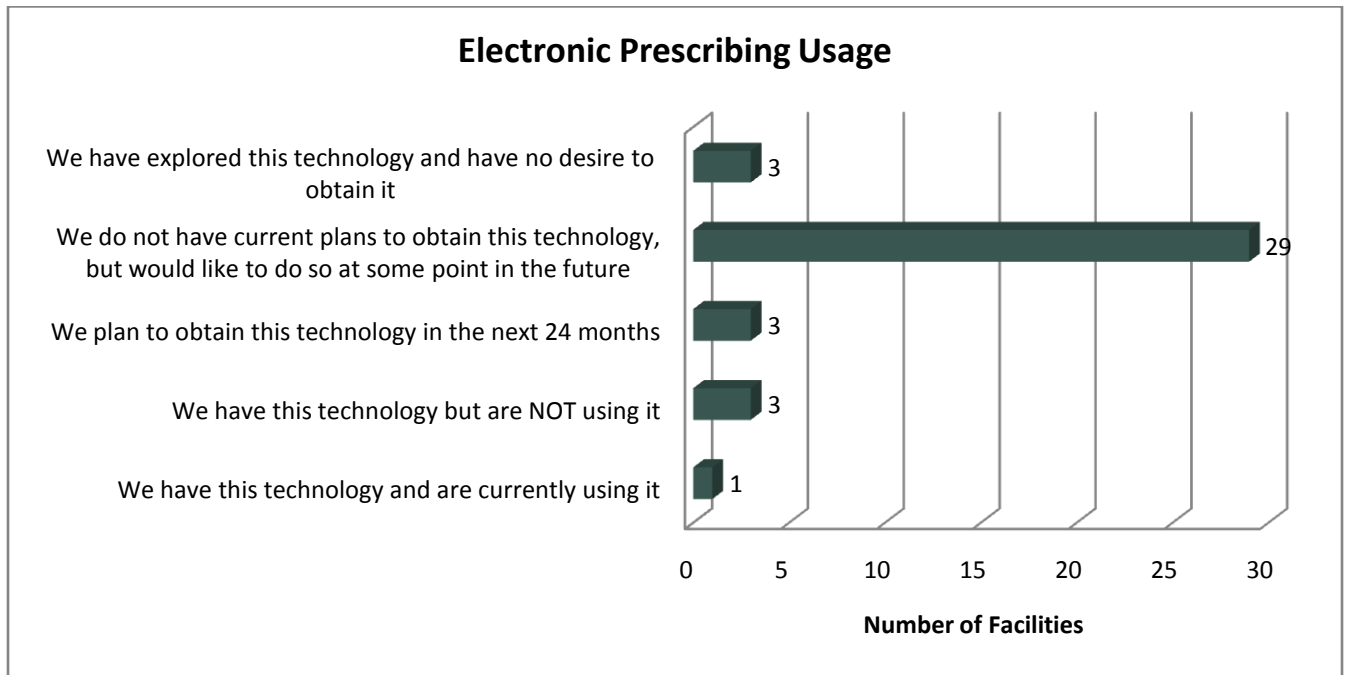
34. Name of MAR software used by facilities:

Software used for MAR	Number of Facility Users
Achieve Matrix	1
Achieve/DataCare	1
American Data	1
American Healthnet	1
Caremedx	1
Dairyland Healthcare Solutions	2
ECS American Data	1
Encompass	1
Good Samaritan Society	1
Healthland	1
Melyx Pro	1
VistaKeane	1
Self-made in Excel and Lotus	1

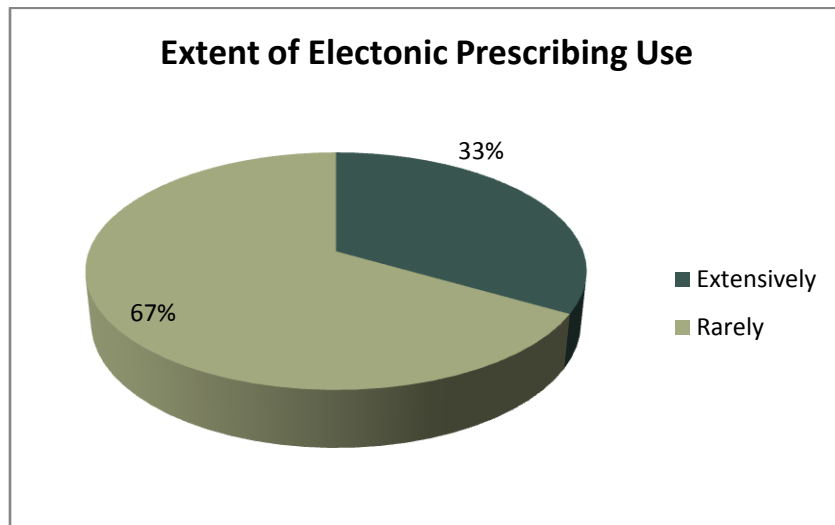
35. Is the data collected by the software used to complete the MAR transferred electronically either inside your facility or outside your facility?



36. Does your facility currently use electronic prescribing between medical director/physician and pharmacies? (Electronic transmission of prescription information between health care providers and pharmacies.)



37. To what extent do the facilities use the software for electronic prescribing between medical director/physician and pharmacies?

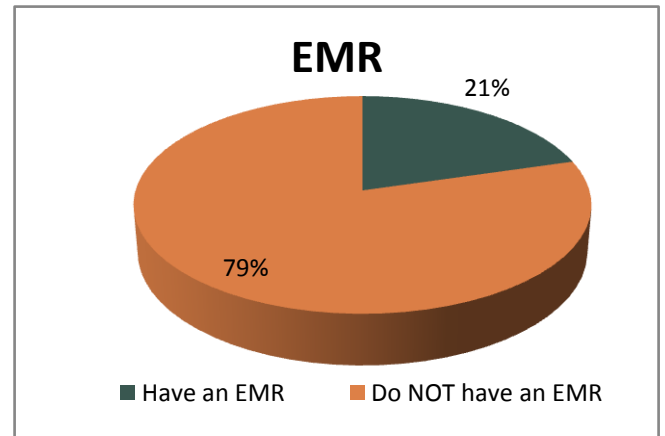


38. What is the name of the software used to electronically prescribe between medical director/physician and pharmacies?

Software used for E-Prescribing	Number of Facility Users
Achieve Matrix	2
ECS American Data	1
Fax Machine	1

39. Does your facility currently use an electronic medical record (EMR)? (An electronic medical record (EMR) refers to 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; bi-directional viewing of laboratory information.)

Less than a quarter of the LTC facilities use electronic medical records.



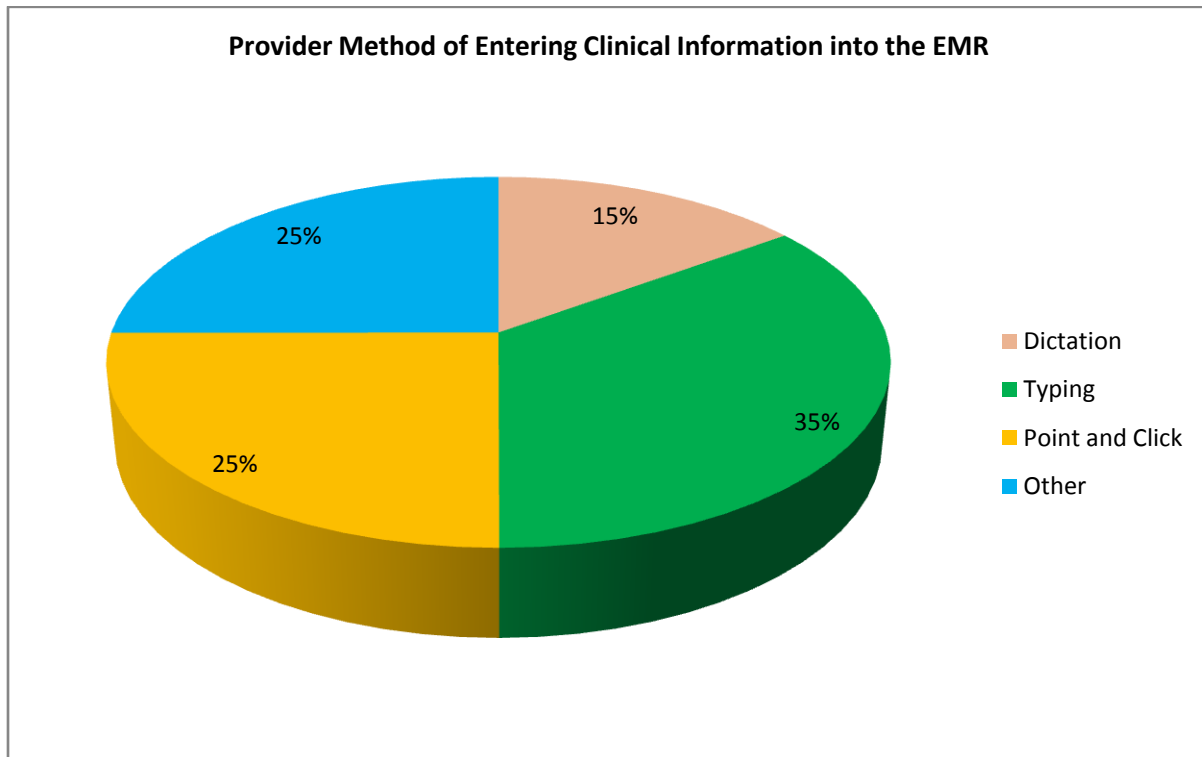
40. What is the name of the EMR vendor/company?

EMR Vendor/Company	Number of Facilities Using the Specified Vendor/Company
Achieve Healthcare Technologies	4
Healthland (Dairyland)	2
HealthMedX	1
MDI Technologies	1
ECS American Data	1
Encompass	1

41. How long has your facility been using an EMR?

Length of Time	Number of Facilities
Under 1 year	1
1 year	1
2 years	1
3 years	3
4 years	2
5 years	1

42. How do the providers enter clinical information into the EMR?



43. For facilities that indicated that their facility HAS implemented an EMR, what best describes the exchange of electronic health information with the various sites? (Check all appropriate)

	Information is currently exchanged	Will exchange within 0-2 years	Will exchange within 3-4 Years	Will exchange in 5 years or more	No plan to exchange (but interested in exploring)	No plan and not interested in exploring
Hospitals	0.0% (0)	0.0% (0)	25.0% (2)	12.5% (1)	62.5% (5)	0.0% (0)
Affiliated physician offices and/or clinics	37.5% (3)	12.5% (1)	12.5% (1)	25.0% (2)	12.5% (1)	0.0% (0)
Non-affiliated physician offices and/or clinics	0.0% (0)	12.5% (1)	12.5% (1)	0.0% (0)	50.0% (4)	25.0% (2)
Laboratories	12.5% (1)	12.5% (1)	0.0% (0)	25.0% (2)	50.0% (4)	0.0% (0)
Free-standing imaging centers	0.0% (0)	0.0% (0)	0.0% (0)	12.5% (1)	37.5% (3)	50.0% (4)
Other long-term care facilities	12.5% (1)	0.0% (0)	12.5% (1)	12.5% (1)	37.5% (3)	25.0% (2)
Home health agencies	25.0% (2)	0.0% (0)	0.0% (0)	12.5% (1)	37.5% (3)	25.0% (2)
Retail pharmacies	12.5% (1)	0.0% (0)	12.5% (1)	0.0% (0)	62.5% (5)	12.5% (1)
Pharmacy Benefit Managers	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	37.5% (3)	62.5% (5)
Bedside terminal	12.5% (1)	0.0% (0)	25.0% (2)	12.5% (1)	37.5% (3)	12.5% (1)
Local Public Health Unit	0.0% (0)	0.0% (0)	0.0% (0)	12.5% (1)	50.0% (4)	37.5% (3)
ND Department of Health	75.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	12.5% (1)	12.5% (1)
ND Department of Human Services	75.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	12.5% (1)	12.5% (1)
CMS	100.0% (8)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Other	0.0% (0)	100.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

Other: VA Medical Facilities

44. Significance of each item below as a driver for implementing/planning for an electronic medical record (EMR)? (Check all that apply)

	Most significant	Moderately significant	Least significant	Not at all significant
Improving quality of healthcare	68.8% (22)	25.0% (8)	3.1% (1)	3.1% (1)
Improving resident/tenant safety	56.3% (18)	34.4% (11)	6.3% (2)	3.1% (1)
Inefficiencies experienced by providers	37.5% (12)	46.9% (15)	12.5% (4)	3.1% (1)
Rising healthcare costs	34.4% (11)	37.5% (12)	25.0% (8)	3.1% (1)
Availability of grant funding	34.4% (11)	28.1% (9)	18.8% (6)	18.8% (6)
Increased public attention on HIT	0.0% (0)	53.1% (17)	25.0% (8)	21.9% (7)
Public health surveillance needs	3.1% (1)	31.3% (10)	43.8% (14)	21.9% (7)
We have a physician(s) who advocates for EMR	12.5% (4)	18.8% (6)	34.4% (11)	34.4% (11)
Clinical staff advocate for EMR	12.5% (4)	40.6% (13)	34.4% (11)	12.5% (4)
Administrator advocate for EMR	21.9% (7)	56.3% (18)	12.5% (4)	9.4% (3)
Board of Directors interested in EMR	12.5% (4)	37.5% (12)	28.1% (9)	25.0% (8)
Federal reporting requirements (e.g. MDS)	50.0% (16)	34.4% (11)	12.5% (4)	3.1% (1)
Other	25.0% (1)	25.0% (1)	0.0% (0)	50.0% (2)

Other: No planning exists at this time; exchange of health care information with other providers; it's the law.

45. On a scale of 1-4, to what degree have the following barriers slowed or prevented implementation and/or the use of software/technology in facilities? (Check all that apply.)

	1 Great impact	2 Moderate impact	3 Little impact	4 No impact
Current reimbursement system	55.6% (20)	22.2% (8)	16.7% (6)	5.6% (2)
Concern about patient privacy-security (e.g. HIPAA)	5.6% (2)	36.1% (13)	44.4% (16)	13.9% (5)
Concern over completeness and accuracy of records	22.9% (8)	45.7% (16)	22.9% (8)	8.6% (3)
Difficulty changing workflow patterns	33.3% (12)	36.1% (13)	22.2% (8)	8.3% (3)
Difficulty achieving physician acceptance	8.3% (3)	19.4% (7)	47.2% (17)	25.0% (9)
Difficulty achieving other health care professional acceptance	5.6% (2)	36.1% (13)	41.7% (15)	16.7% (6)
Development of sustainable business model	20.0% (7)	37.1% (13)	31.4% (11)	11.4% (4)
Difficulty in justifying expense or return on investment	44.4% (16)	22.2% (8)	30.6% (11)	2.8% (1)
Finding a vendor that is approved by Committee for Certification of HIT(CCHIT)	8.8% (3)	26.5% (9)	35.3% (12)	29.4% (10)
Inability of technology to meet your needs	25.0% (9)	0.0% (0)	55.6% (20)	19.4% (7)
Lack of financial resources-initial cost of IT investment	58.3% (21)	22.2% (8)	16.7% (6)	2.8% (1)
Lack of financial resources-ongoing costs of hardware/software	52.8% (19)	27.8% (10)	13.9% (5)	5.6% (2)
Lack of data recovery/disaster planning	2.8% (1)	36.1% (13)	44.4% (16)	16.7% (6)
Legal barriers to investment and development	5.7% (2)	22.9% (8)	54.3% (19)	17.1% (6)
Not enough time for training	27.8% (10)	33.3% (12)	30.6% (11)	8.3% (3)
Obsolescence issues-hardware	11.4% (4)	37.1% (13)	45.7% (16)	5.7% (2)
Obsolescence issues-software	14.3% (5)	34.3% (12)	45.7% (16)	5.7% (2)
Poor availability of well-trained IT staff	11.1% (4)	47.2% (17)	22.2% (8)	19.4% (7)
Unable to rely on other practices and people to maintain patient data	8.8% (3)	44.1% (15)	32.4% (11)	14.7% (5)

Other: Resident trust accounts for billing

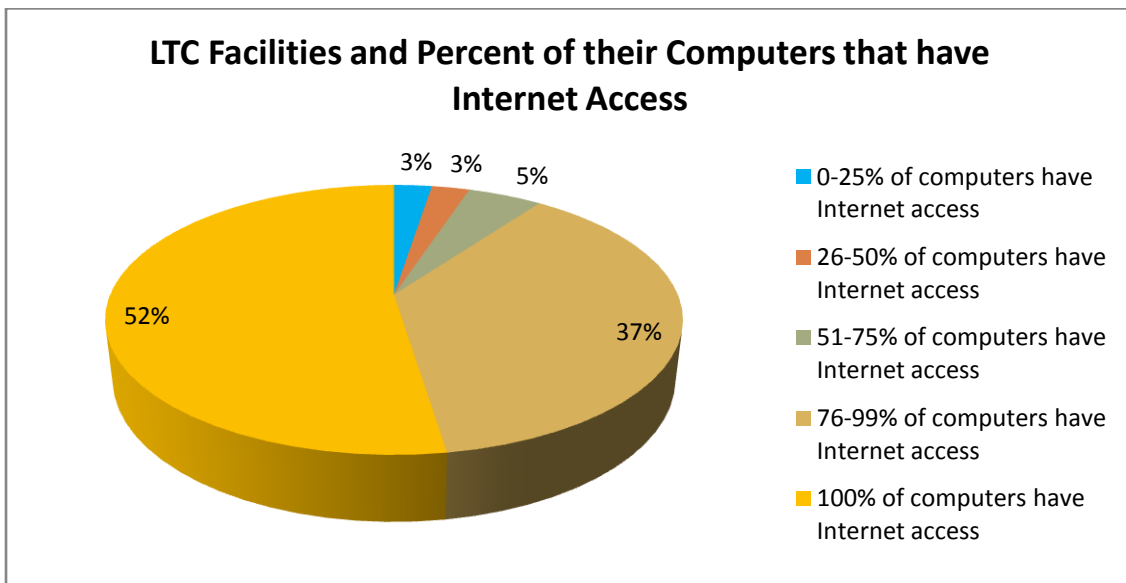
46. Are computers in the various LTC facilities networked?

Yes: 94.9% (37 facilities)
 No: 5.1% (2 facilities)

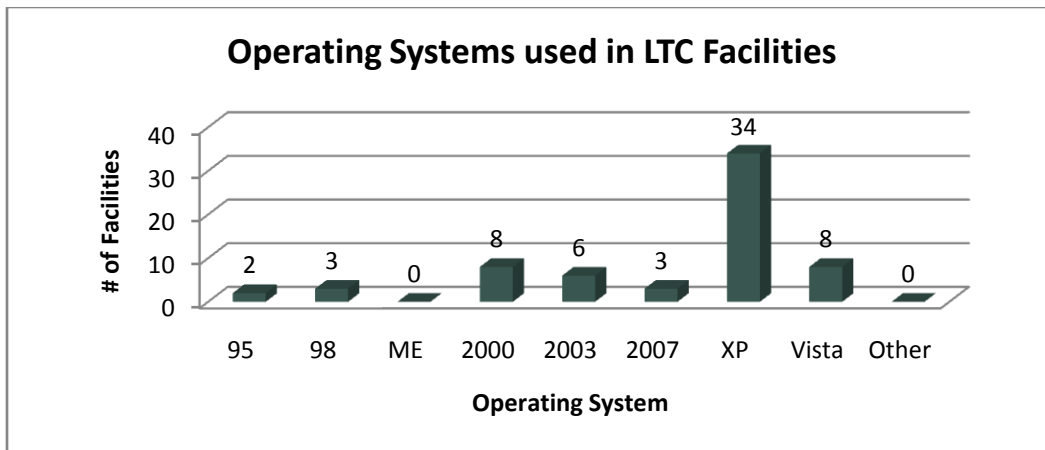
If they are networked, is their network a...

Peer to peer network: 22.2% (9 facilities)
 Client to server network: 77.8% (28 facilities)

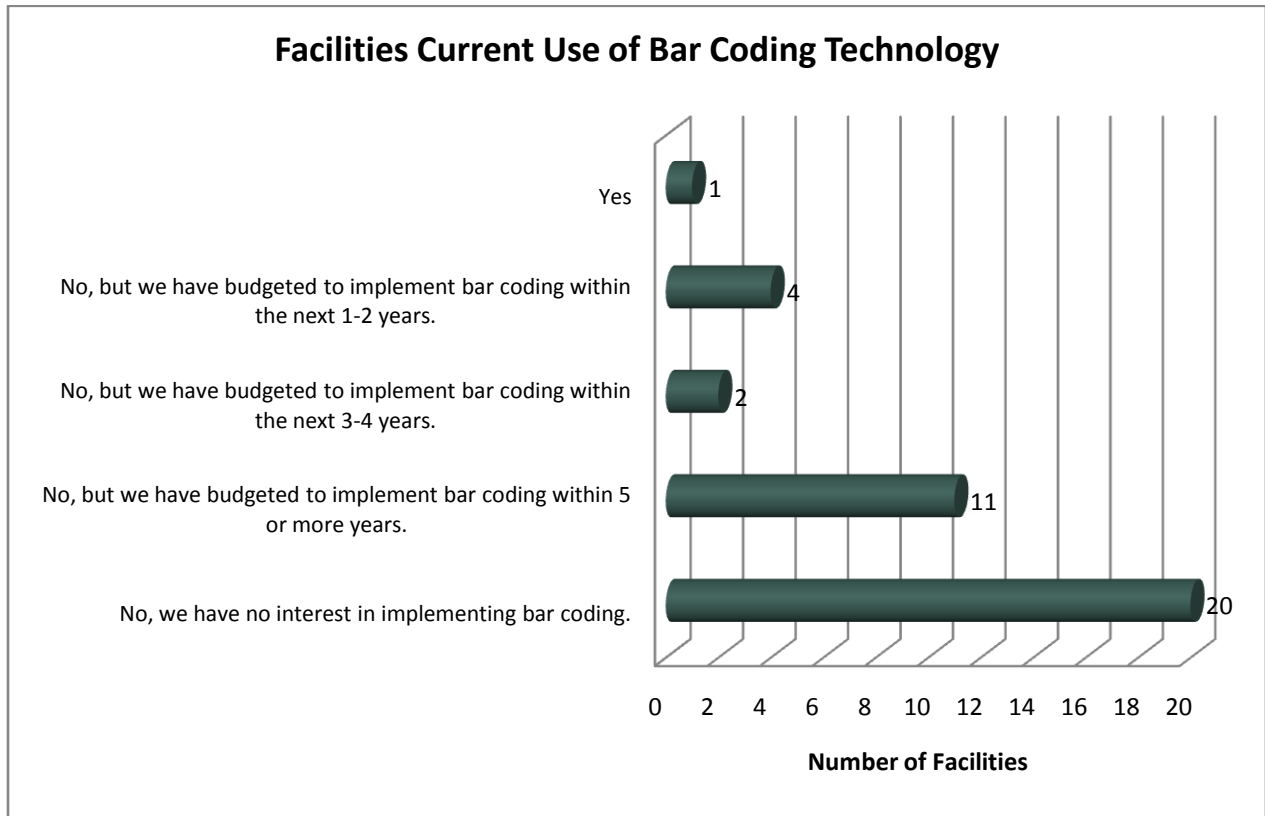
47. What percent of the computers the LTC facilities have Internet access?



48. Which Windows operating system(s) are used on the LTC facilities' computers?



49. Do the LTC facilities currently use bar coding technology?

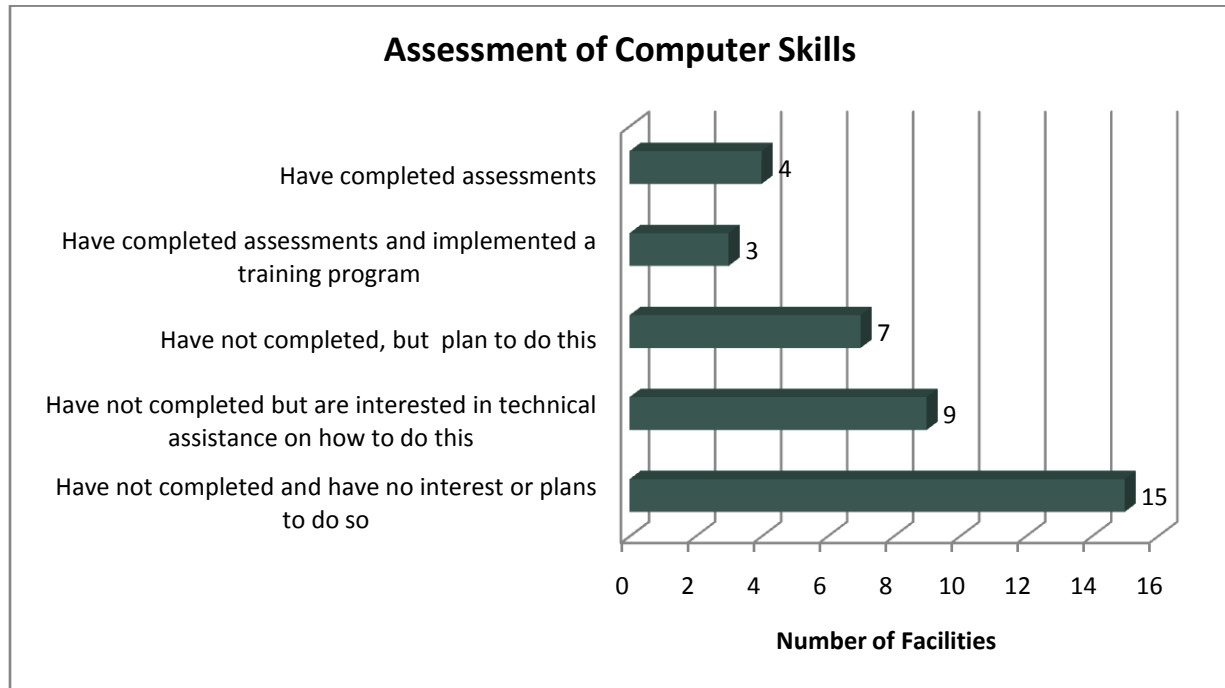


For those that do use bar coding technology, in what areas is it being used? (Check all that apply)

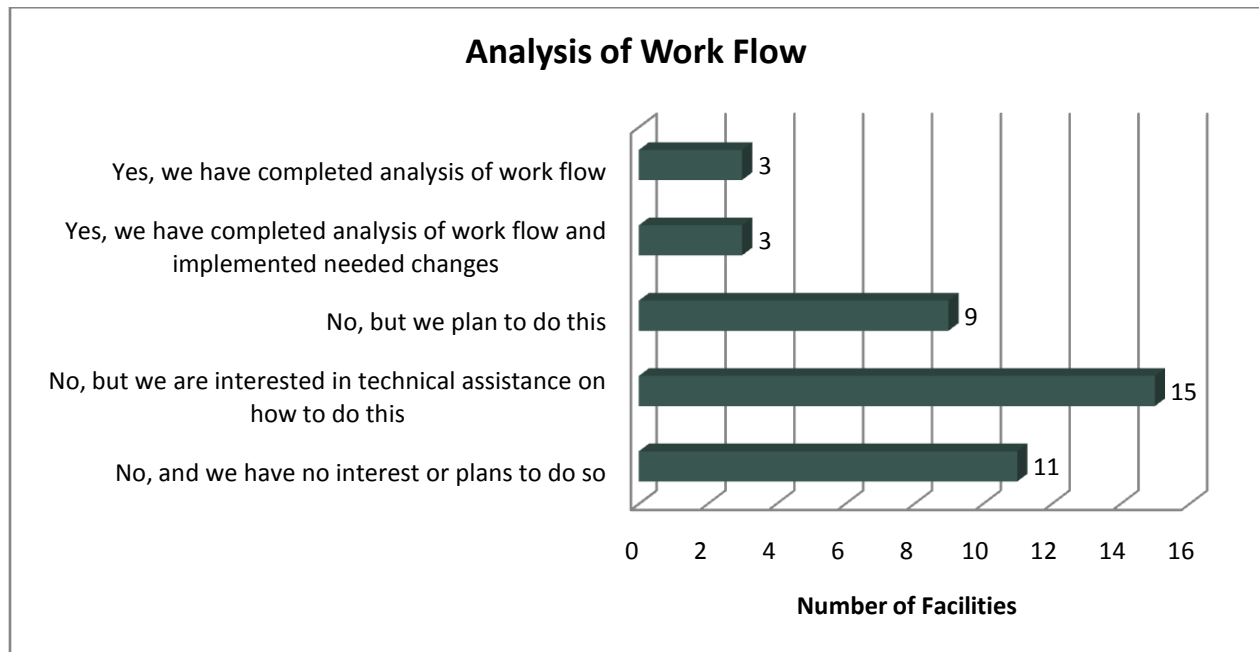
Use	Number of Facilities
Pharmaceutical: tracking and/or administration	2
Resident/tenant identification bracelets	1
Other	1

Other: Inventory

50. Have the LTC facilities conducted an assessment of computer skills of administrative and/or clinical staff in the past two years?



51. Have the LTC facilities conducted any analysis of work flow in the past two years?



52. How would the LTC facilities best describe plans for purchasing the following hardware and equipment used for HIT infrastructure in their facility?

	Already in place	Within 0-2 years	Within 3-4 Years	5 years or more	No plan at this time, (but interested in exploring)	No plan at this time, (NOT interested in exploring)
Data Server (not shared) - Facility owned/maintained	63.9% (23)	5.6% (2)	2.8% (1)	0.0% (0)	5.6% (2)	22.2% (8)
Data Server (shared) - owned by rural site, shared with one or more rural sites	19.4% (6)	12.9% (4)	0.0% (0)	0.0% (0)	6.5% (2)	61.3% (19)
Data Server (shared) - owned by tertiary facility, shared with one or more rural sites	10.3% (3)	6.9% (2)	3.4% (1)	0.0% (0)	10.3% (3)	72.4% (21)
Data back-up onsite	81.1% (30)	5.4% (2)	0.0% (0)	0.0% (0)	2.7% (1)	10.8% (4)
Data back-up offsite	50.0% (18)	16.7% (6)	2.8% (1)	0.0% (0)	11.1% (4)	19.4% (7)
Computer workstations - mobile	39.4% (13)	33.3% (11)	3.0% (1)	6.1% (2)	9.1% (3)	9.1% (3)
Computer workstations - stationary	81.1% (30)	10.8% (4)	0.0% (0)	0.0% (0)	2.7% (1)	5.4% (2)
Scanners	52.8% (19)	16.7% (6)	5.6% (2)	0.0% (0)	13.9% (5)	11.1% (4)
Digitizers	17.2% (5)	20.7% (6)	6.9% (2)	3.4% (1)	27.6% (8)	24.1% (7)
Tablet Computers	6.7% (2)	26.7% (8)	6.7% (2)	3.3% (1)	40.0% (12)	16.7% (5)
Wireless Internet Access	44.1% (15)	26.5% (9)	8.8% (3)	5.9% (2)	11.8% (4)	2.9% (1)
Dial-up Internet Access	10.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	3.6% (1)	85.7% (24)
High-speed/Broadband Internet Access	94.6% (35)	2.7% (1)	0.0% (0)	0.0% (0)	2.7% (1)	0.0% (0)

53. How would the LTC facilities best describe plans for implementing the following electronic administrative/financial systems at their facility?

	Already in place	Within 0-2 years	Within 3-4 years	5 years or more	No plan at this time, (but interested in exploring)	No plan at this time, (NOT interested in exploring)
Claims submission	92.3% (36)	7.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Patient billing	89.7% (35)	7.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	2.6% (1)
Accounting	84.6% (33)	12.8% (5)	0.0% (0)	0.0% (0)	0.0% (0)	2.6% (1)
Payroll	89.5% (34)	10.5% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Other	100.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

Other: Accounts Payable & Time and Attendance; payroll done by state, not EHR.

54. How would the LTC facilities best describe plans for implementing the following electronic clinical systems at their facility?

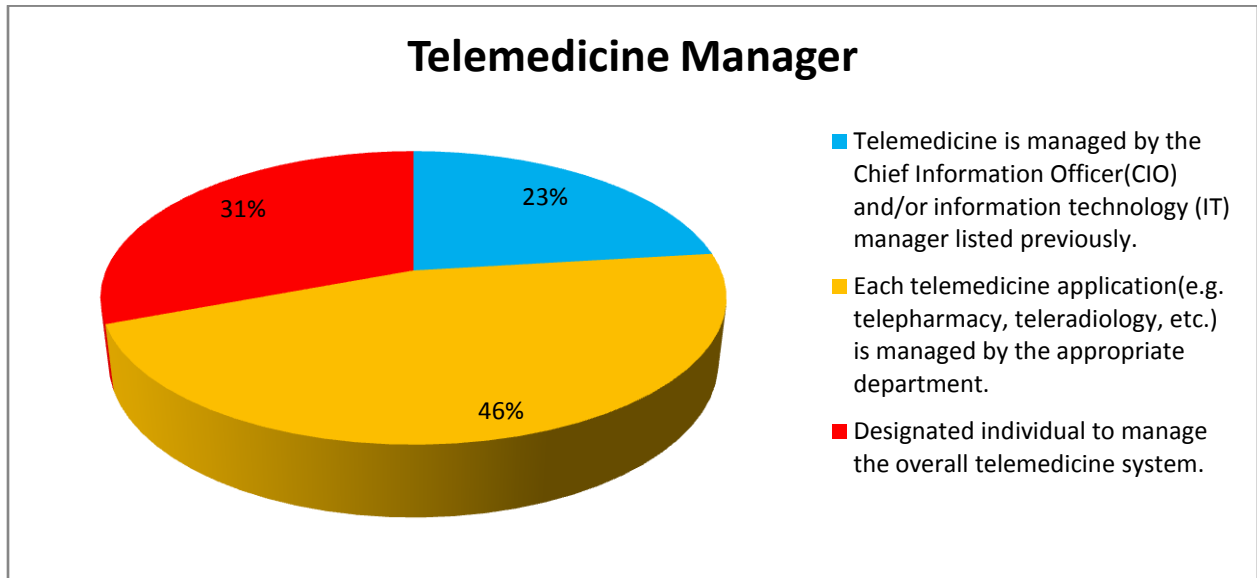
	Already in place	Within 0-2 years	In 3-4 years	5 years or more	No plan at this time (but interested in exploring)	No plan at this time (NOT interested in exploring)
Computerized Physician Order Entry (CPOE)	10.5% (4)	26.3% (10)	18.4% (7)	7.9% (3)	26.3% (10)	10.5% (4)
Clinical Decision Support System (CDSS)	8.1% (3)	21.6% (8)	16.2% (6)	2.7% (1)	37.8% (14)	13.5% (5)
Clinical data repository of current data	13.9% (5)	27.8% (10)	11.1% (4)	2.8% (1)	33.3% (12)	13.9% (5)
'Closed loop' medication administration (orders through administration)	8.1% (3)	29.7% (11)	16.2% (6)	2.7% (1)	29.7% (11)	13.5% (5)
Mining of historic data	14.3% (5)	20.0% (7)	14.3% (5)	14.3% (5)	20.0% (7)	17.1% (6)
Nursing and ancillary documentation	21.1% (8)	42.1% (16)	5.3% (2)	5.3% (2)	15.8% (6)	10.5% (4)
Patient portal/personal health record (PHR)	8.1% (3)	21.6% (8)	10.8% (4)	13.5% (5)	29.7% (11)	16.2% (6)
Pharmacy Information System	8.1% (3)	29.7% (11)	16.2% (6)	2.7% (1)	29.7% (11)	13.5% (5)
Physician documentation	7.9% (3)	34.2% (13)	15.8% (6)	5.3% (2)	21.1% (8)	15.8% (6)
Physician portal for remote access	10.8% (4)	27.0% (10)	8.1% (3)	10.8% (4)	21.6% (8)	21.6% (8)
Single sign-on	14.7% (5)	29.4% (10)	8.8% (3)	2.9% (1)	23.5% (8)	20.6% (7)
Electronic signature	16.7% (6)	27.8% (10)	11.1% (4)	5.6% (2)	25.0% (9)	13.9% (5)
Data capture from devices	14.7% (5)	29.4% (10)	11.8% (4)	2.9% (1)	20.6% (7)	20.6% (7)
Other	0.0% (0)	0.0% (0)	25.0% (1)	25.0% (1)	0.0% (0)	50.0% (2)

Other: eChart, eMAR next biennium

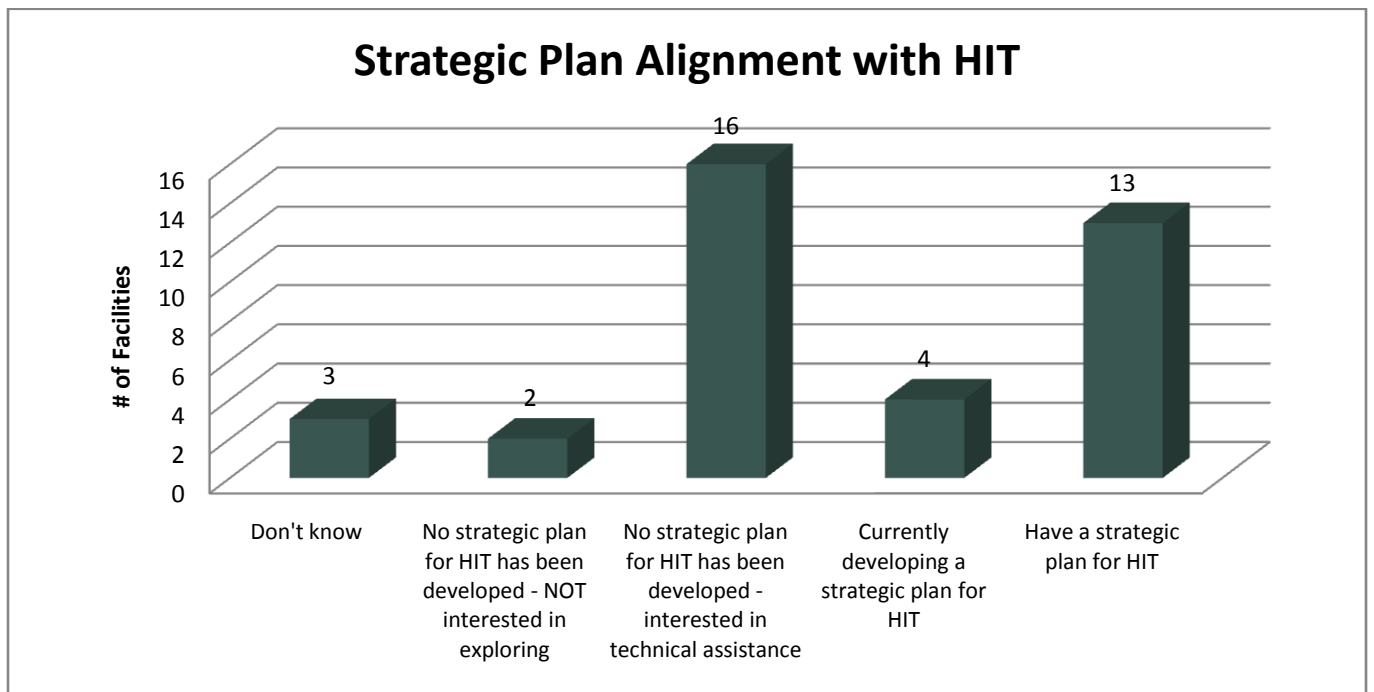
55. How would the LTC facilities best describe plans for utilizing telemedicine at their facility? (Telemedicine is the use of telecommunications and IT to deliver health services and transmit health information over distance.)

	Already in place	Within 0-2 years	In 3-4 years	5 years or more	No plan at this time (but interested in exploring)	No plan at this time (NOT interested in exploring)	Not applicable
Tele-Dermatology (e.g. wound care)	5.4% (2)	8.1% (3)	5.4% (2)	10.8% (4)	35.1% (13)	18.9% (7)	16.2% (6)
Tele-Dialysis(consults)	0.0% (0)	2.7% (1)	2.7% (1)	8.1% (3)	27.0% (10)	32.4% (12)	27.0% (10)
Tele-Mental/behavioral health	13.9% (5)	8.3% (3)	2.8% (1)	8.3% (3)	30.6% (11)	19.4% (7)	16.7% (6)
Tele-Pharmacy	10.8% (4)	8.1% (3)	5.4% (2)	2.7% (1)	27.0% (10)	27.0% (10)	18.9% (7)
Tele-Stroke	2.7% (1)	8.1% (3)	2.7% (1)	8.1% (3)	29.7% (11)	27.0% (10)	21.6% (8)
Homehealth monitors-non-video	2.8% (1)	2.8% (1)	2.8% (1)	5.6% (2)	30.6% (11)	27.8% (10)	27.8% (10)
Homehealth monitors-video	2.9% (1)	2.9% (1)	2.9% (1)	5.7% (2)	28.6% (10)	25.7% (9)	31.4% (11)
Resident/tenant education	3.0% (1)	0.0% (0)	3.0% (1)	12.1% (4)	51.5% (17)	18.2% (6)	12.1% (4)
Provider education	17.6% (6)	2.9% (1)	8.8% (3)	5.9% (2)	35.3% (12)	14.7% (5)	14.7% (5)
Videoconferencing	38.9% (14)	5.6% (2)	5.6% (2)	0.0% (0)	27.8% (10)	16.7% (6)	5.6% (2)
Resident/tenant-provider consultation	5.7% (2)	2.9% (1)	11.4% (4)	5.7% (2)	42.9% (15)	22.9% (8)	8.6% (3)
Provider-provider consultation	8.3% (3)	11.1% (4)	11.1% (4)	2.8% (1)	41.7% (15)	13.9% (5)	11.1% (4)
Other clinical services via telemedicine	7.4% (2)	3.7% (1)	11.1% (3)	3.7% (1)	40.7% (11)	18.5% (5)	14.8% (4)

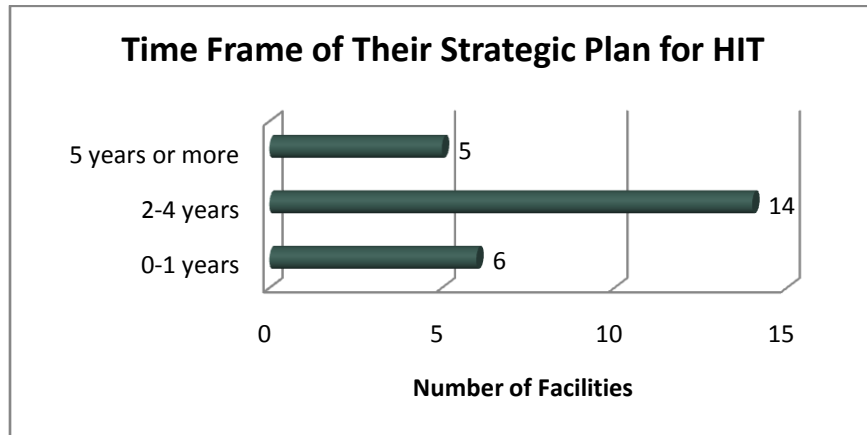
56. For the LTC facilities that indicated that they are utilizing telemedicine, is there an individual designated to manage the overall telemedicine system?



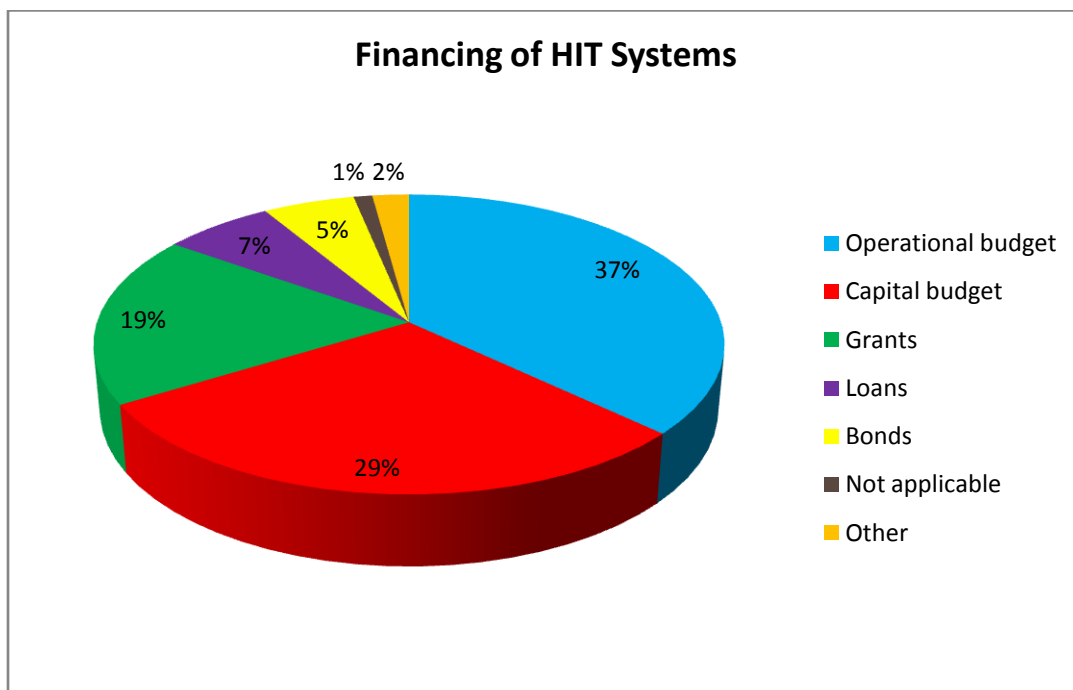
57. Do the LTC facilities have a strategic plan that aligns plans for technology enhancements, and operational support with the organization's mission and goals across a timeline that reflects interdependence?



What is the time frame of each of their strategic plans for HIT?

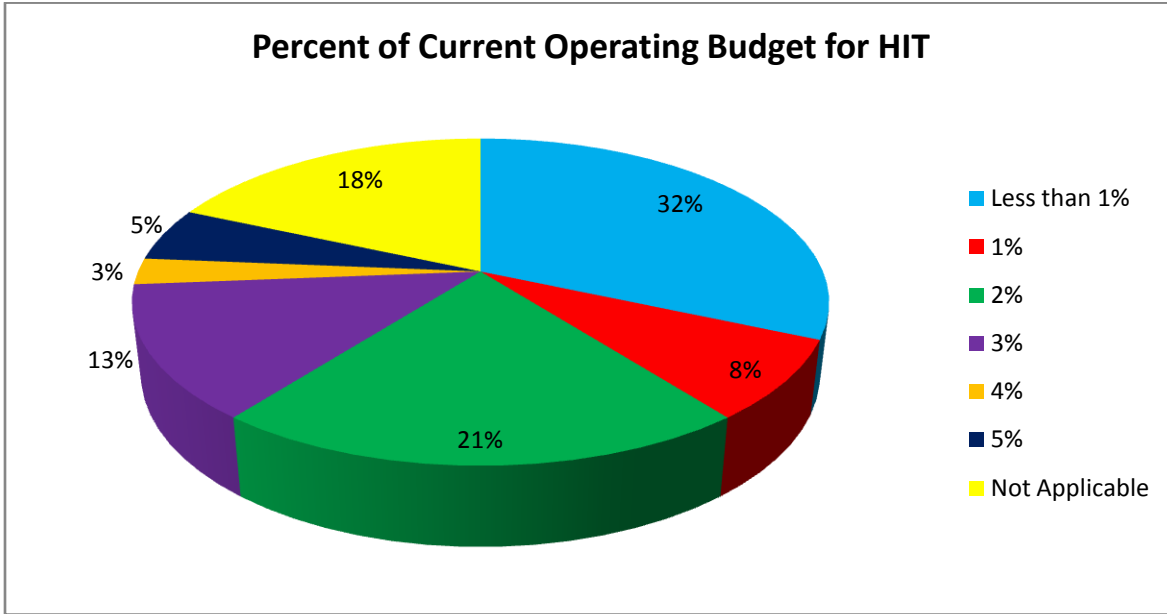


58. How do the LTC facilities finance their HIT systems? (Check all that apply.)



Other: Donations and fundraise; public support

59. What are the LTC facilities current operating budgets for HIT as a percentage of the overall operating revenue?



60. Which of the following describes the projected spending on HIT in the upcoming years for each of the LTC facilities?

	Substantial increase (more than 5%)	Slight increase (up to 5%)	Remain about the same	Slight decrease (5% or less)	Substantial decrease (more than 5%)	Don't know at this time
In two years	34.2% (13)	18.4% (7)	26.3% (10)	0.0% (0)	0.0% (0)	21.1% (8)
In five years	34.3% (12)	25.7% (9)	17.1% (6)	0.0% (0)	0.0% (0)	22.9% (8)

APPENDIX E – SUMMARY REPORT: ND HIT ENVIRONMENTAL SCAN OF HEALTH PROFESSIONS PROGRAMS (AUGUST 2008)

HIT'S ROLE IN EMPLOYMENT SELECTION – A SURVEY OF HEALTH PROFESSIONAL STUDENTS

The ND Health Information Technology (HIT) Steering Committee explored how the availability of health information technology impacts decisions on employment options for new health care professionals, (radiology technologist/medical radiographer, clinical laboratory science, physician assistant, and physician). The surveys were distributed electronically by department chairs or designee from each of the disciplines to students in their final year and, when possible, recent program graduates.

Once the data was submitted through Survey Monkey, it was immediately sent via secure communications to a private and secure server at the Center for Rural Health, thereby protecting the anonymity of the student's responses. Survey Monkey is an ad-free, web-based tool designed for creating and administering surveys on the net that allows participant to respond by clicking on a web link that has been given to them.

PROFESSION: Radiology Technologist/Medical Radiographer

Students surveyed: (18 Students)

- 61.1% (11) In final year of the Radiology Technologist/Medical Radiographer program.
- 38.9% (7) A recent graduate (2008) of the Radiology Technologist/Medical Radiographer program.

During the Radiology Technologist/Medical Radiographer clinical experience, nearly all of the students had the opportunity to utilize computed radiography (CR) and picture archiving communication systems (PACS), and two-third had the opportunity to use an electronic medical record (EMR).

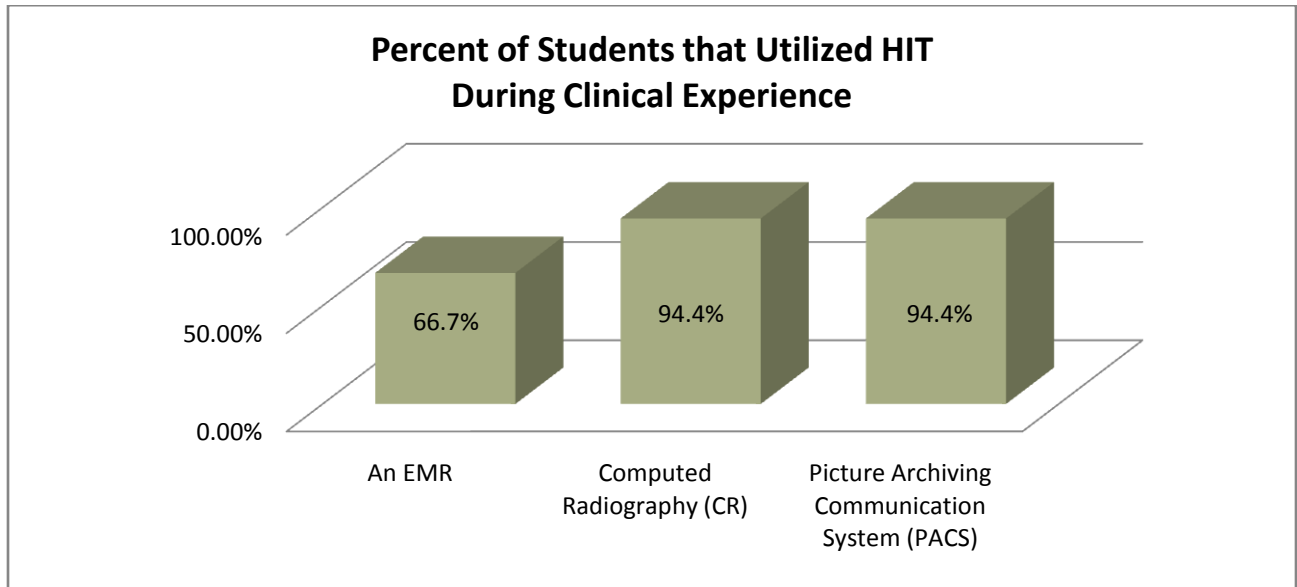


Figure 25. EMR, CR, and PACS utilization during the Radiology Technologist/Medical Radiographers clinical experience.

As the students begin their new career practicing as a Radiology Technologist/Medical Radiographer and are considering a health care facility/practice to work in, they were asked *how important* is it to their decision that the health care facility/practice has an EMR, CR and/or PACS in place?

	Extremely important	Very important	Moderately important	Slightly important	Not at all important
<i>EMR</i>	22.2%	22.2%	22.2%	16.7%	22.2%
<i>Computed Radiography (CR)</i>	33.3%	44.4%	5.6%	5.6%	16.7%
<i>Pictured Archiving Communication System (PACS)</i>	38.9%	22.2%	16.7%	5.6%	16.7%

If the facility/program that they are considering does not currently have an EMR, CR, or PACS, *how important* is it to their decision that the health care facility/practice has a firm plan to purchase and implement one within the next 2 years?

	Extremely important	Very important	Moderately important	Slightly important	Not at all important
<i>EMR</i>	27.8%	33.3%	0.0%	33.3%	5.6%
<i>Computed Radiography (CR)</i>	38.9%	33.3%	11.1%	11.1%	5.6%
<i>Picture Archiving Communication System (PACS)</i>	33.3%	38.9%	11.1%	11.1%	5.6%

If they already had secured a position, does the facility they chose have an EMR, CR, and/or PACS?

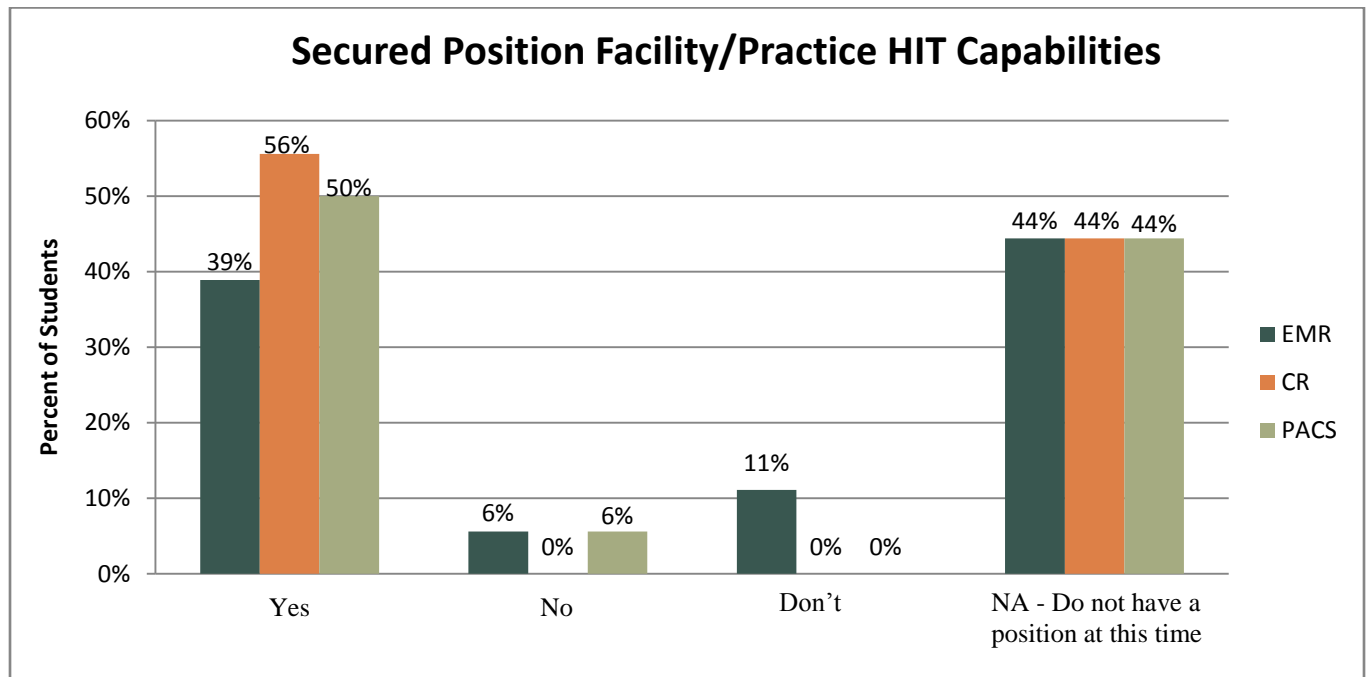


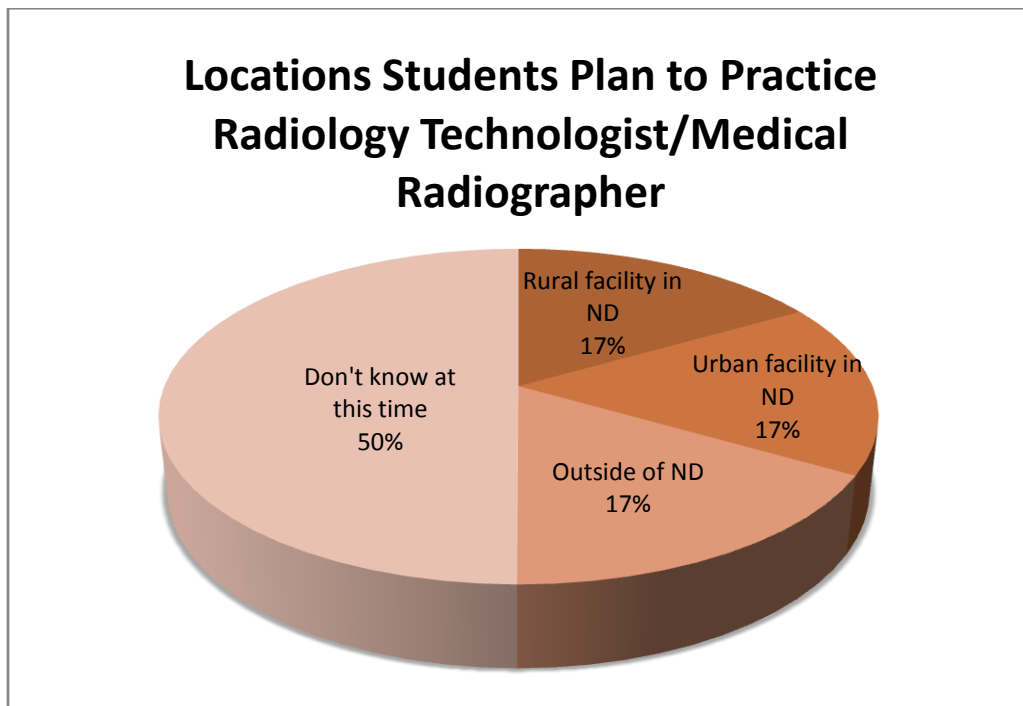
Figure 26. For those with a secured Radiology Technologist/Medical Radiographer position, is there an EMR, CR, and PACS available in the facility they have chosen to work.

TELEMEDICINE

During their clinical experience, the vast majority of the students did not have an opportunity to use telemedicine.

	Yes	No
<i>Clinician to Clinician consult</i>	16.7%	83.3%
<i>Clinician to Patient/LTC resident consult</i>	5.6%	94.4%
<i>Clinician education</i>	5.6%	94.4%

For those that have decided where they will be practicing after receiving their degree, students are evenly divided over practicing in a rural facility in North Dakota, an urban facility in North Dakota, and outside of North Dakota.



PROFESSION: Physician Assistants

Students surveyed:

31 Physician Assistant program students in their final year.

As these students begin their new career as Physician Assistants, and are considering a health care facility/practice to work in, they were asked *how important* is it to their decision that the health care facility/practice have an electronic medical record (EMR) in place?

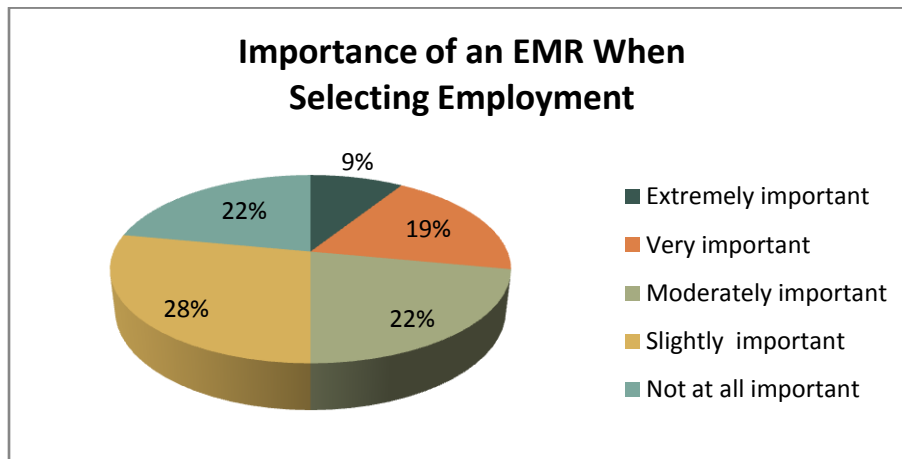


Figure 27. Importance of a facility/practice having an EMR when selecting employment.

If the facility/program that they are considering does not currently have an operating EMR, *how important* is it that they have a firm plan to purchase and implement an EMR in the next two years?

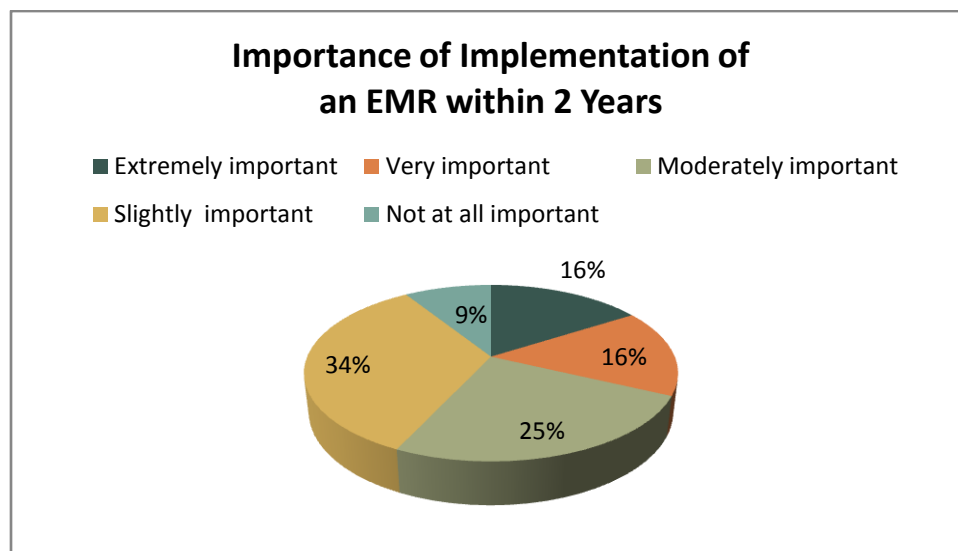


Figure 28. Importance of a facility/practice having a plan for EMR implementation within 2 years when selecting employment.

If the Physician Assistant students already have secured a position, does the facility they chose have an EMR?

34%	Yes
19%	No
9%	Don't know
38%	NA - Do not have a position at this time

For those that have decided where they will be practicing after receiving their degree, the students are overwhelmingly choosing to practice outside of North Dakota.

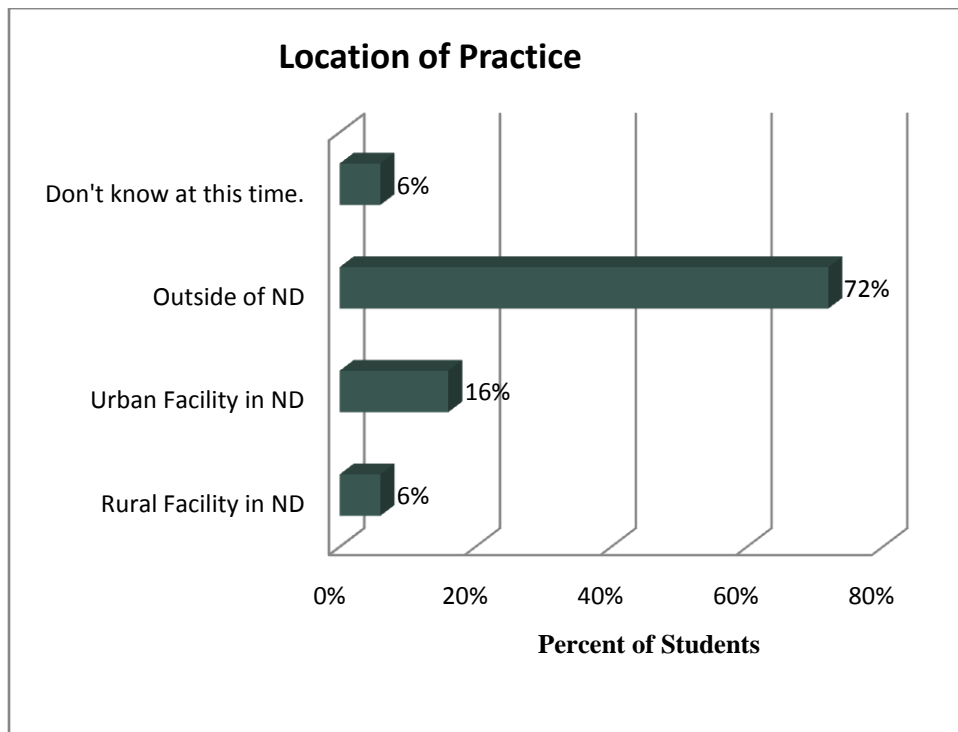


Figure 29. Location where Physician Assistant students plan to practice after graduation.

PROFESSION: Clinical Laboratory Science

Students surveyed: (15 students)

49.2% In final year of the Clinical Laboratory Science program.

57.1 % A recent graduate (2008) of the Clinical Laboratory Science program.

During the Clinical Laboratory Science clinical experience, the majority, and an equal amount of the students, had the opportunity to utilize an electronic medical record (EMR) and Laboratory Information System (LIS) integrated with an EMR.

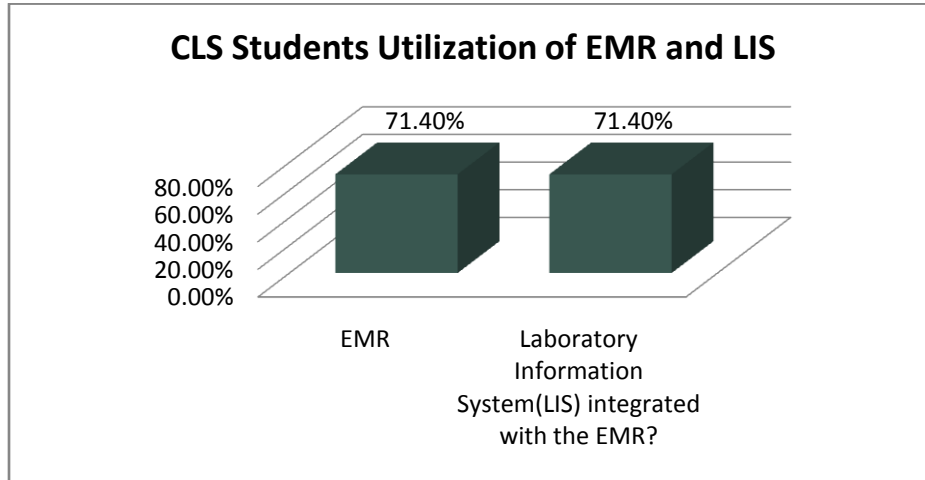


Figure 30. Clinical Laboratory Science student use of EMR and LIS integrated with an EMR during clinicals.

As the students begin their new career practicing Clinical Laboratory Science and are considering a health care facility/practice to work in, they were asked *how important* is it to their decision that the health care facility/practice has an EMR and/or a LIS integrated with the EMR in place?

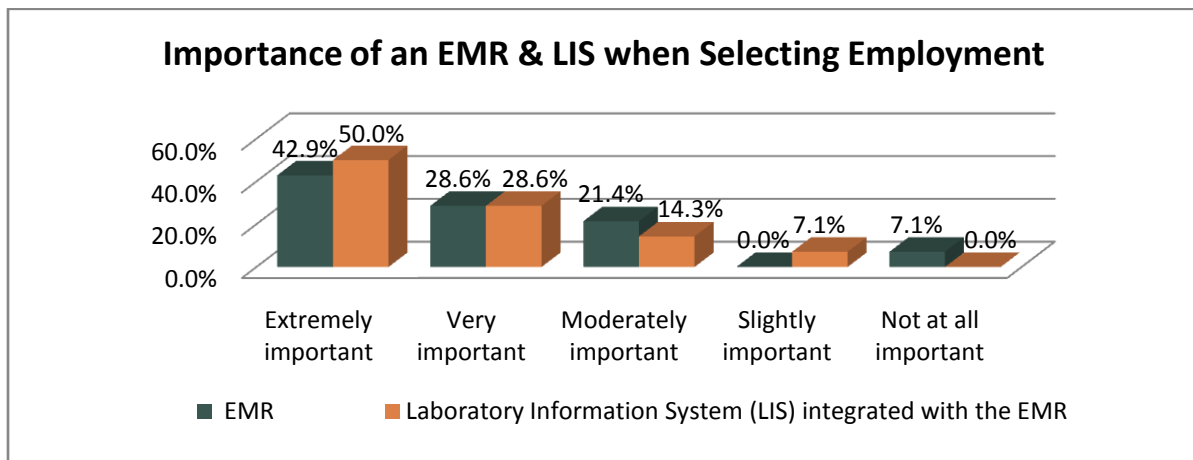


Figure 31. Importance of the facility that the Clinical Laboratory Science student will be practicing at having an EMR and LIS integrated with the EMR.

If the facility/program that they are considering does not currently have an operating EMR and/or a LIS integrated with the EMR in place *how important* is it to their decision that the health care facility/practice has a firm plan to purchase and implement one within the next 2 years?

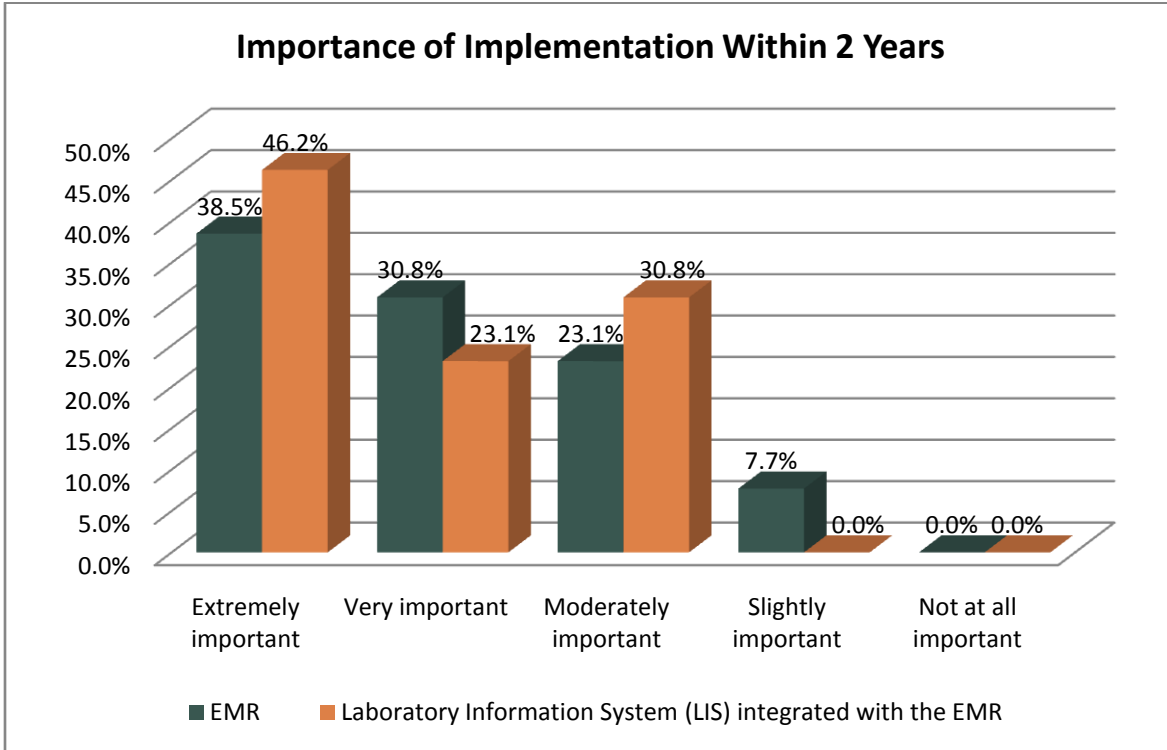


Figure 32. Importance of the facility that the Clinical Laboratory Science student will be practicing at having a plan to implement an EMR and LIS integrated with the EMR within 2 years.

If they already had secured a position, does the facility they chose have an EMR and/or an LIS integrated with the EMR in place?

EMR	
57.1%	Yes
0.0%	No
7.1%	Don't know
35.7%	NA - Do not have a position at this time

LIS integrated with EMR	
50.0%	Yes
7.1%	No
7.1%	Don't know
35.7%	NA - Do not have a position at this time

TELEMEDICINE

During their clinical experience, most of the students did not have an opportunity to use telemedicine.

Use of Telemedicine in...

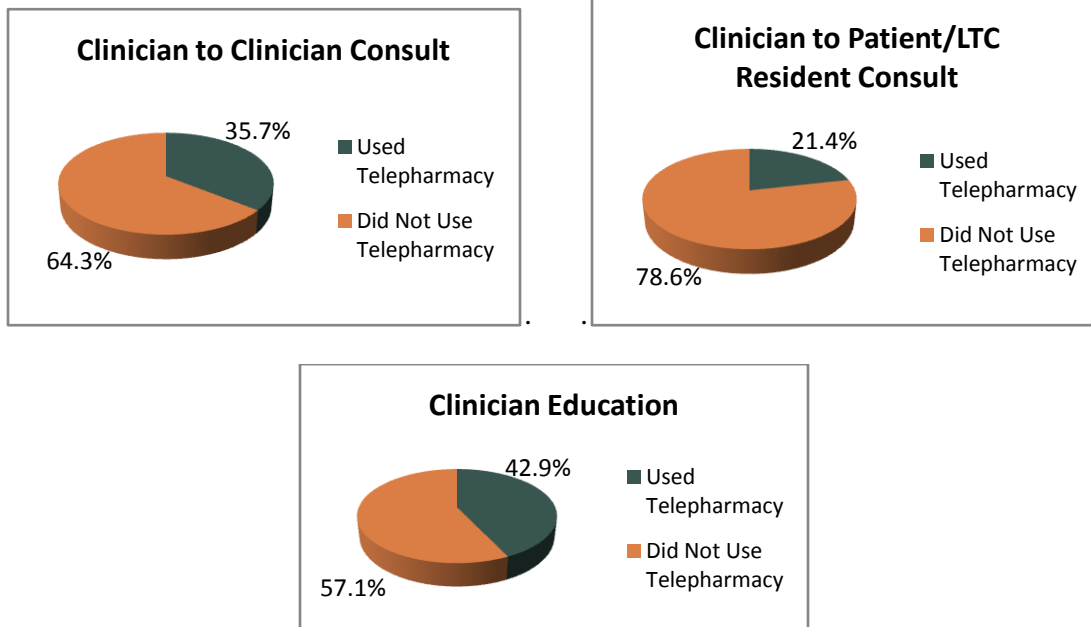


Figure 33. Clinical Laboratory Science student use of telemedicine through 1) Clinician to Clinician; 2) Clinician to Patient/LTC Resident Consult; 3) Clinical Education.

For those that have decided where they will be practicing after receiving their degree, very few students will remain in North Dakota, and of those, all of them plan to practice in an urban facility.

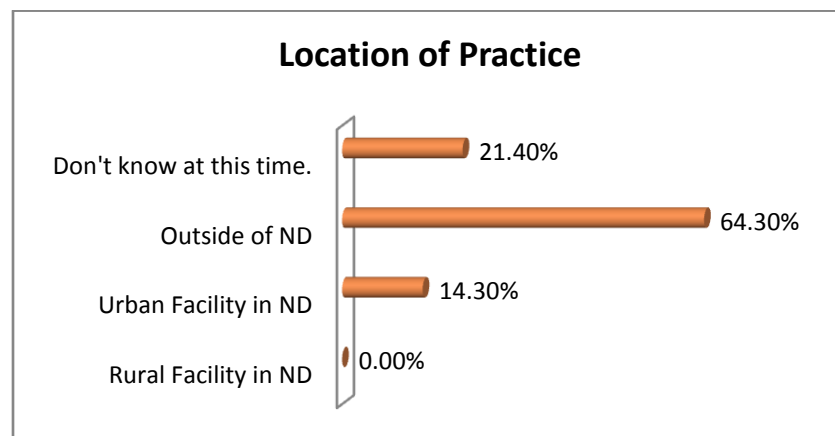


Figure 34. Location where Clinical Laboratory Science students plan to practice after graduation.

PROFESSION: Medicine

Students surveyed:

21 recent graduates (2008) of the UND Medicine program.

During the clinical experience, over 90% of the students had the opportunity to utilize an electronic medical record (EMR), a laboratory information system (LIS), and computed radiography (CR), and over half of the students had the opportunity to use a e-prescribing.

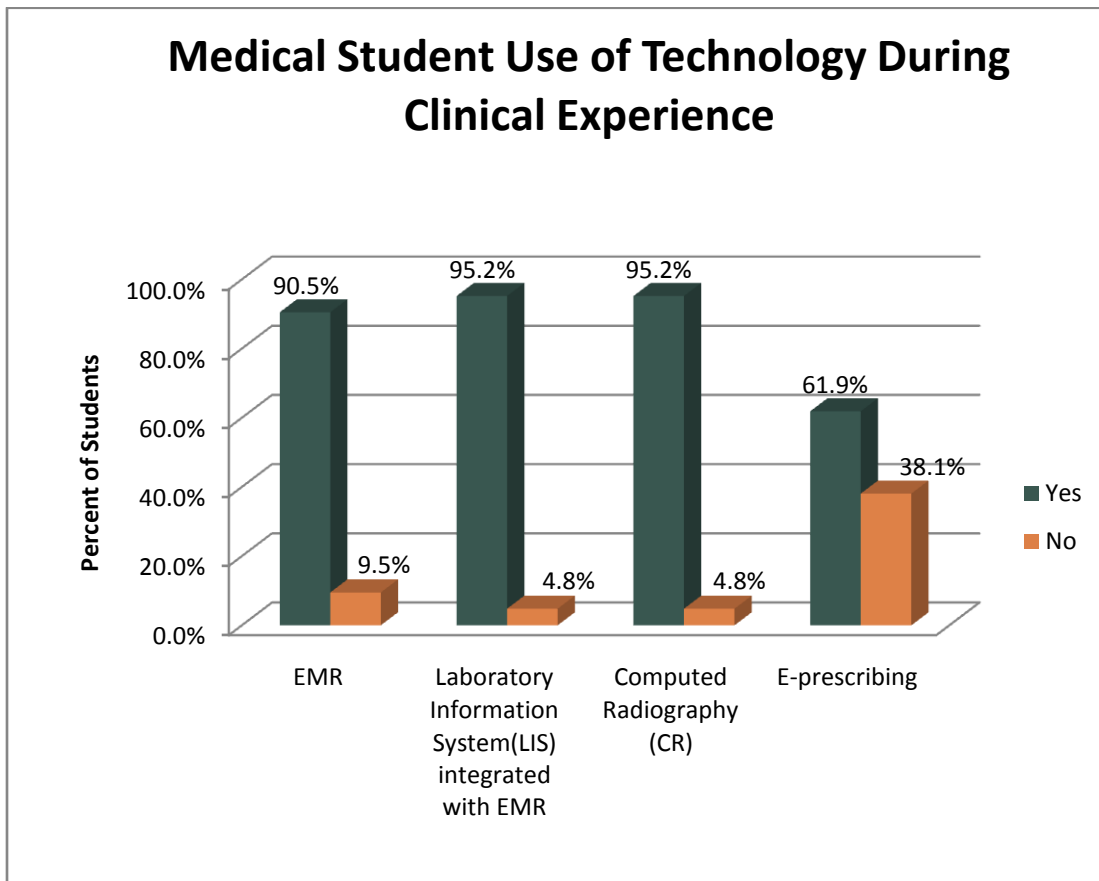


Figure 35. Medicine student use of EMR, LIS integrated with an EMR, Computed Radiography, and e-prescribing during clinicals.

As the students begin their new career practicing medicine and are considering a health care facility/practice to work in, they were asked *how important* is it to their decision that the health care facility/practice has an EMR, CR, LIS, and/or e-prescribing in place?

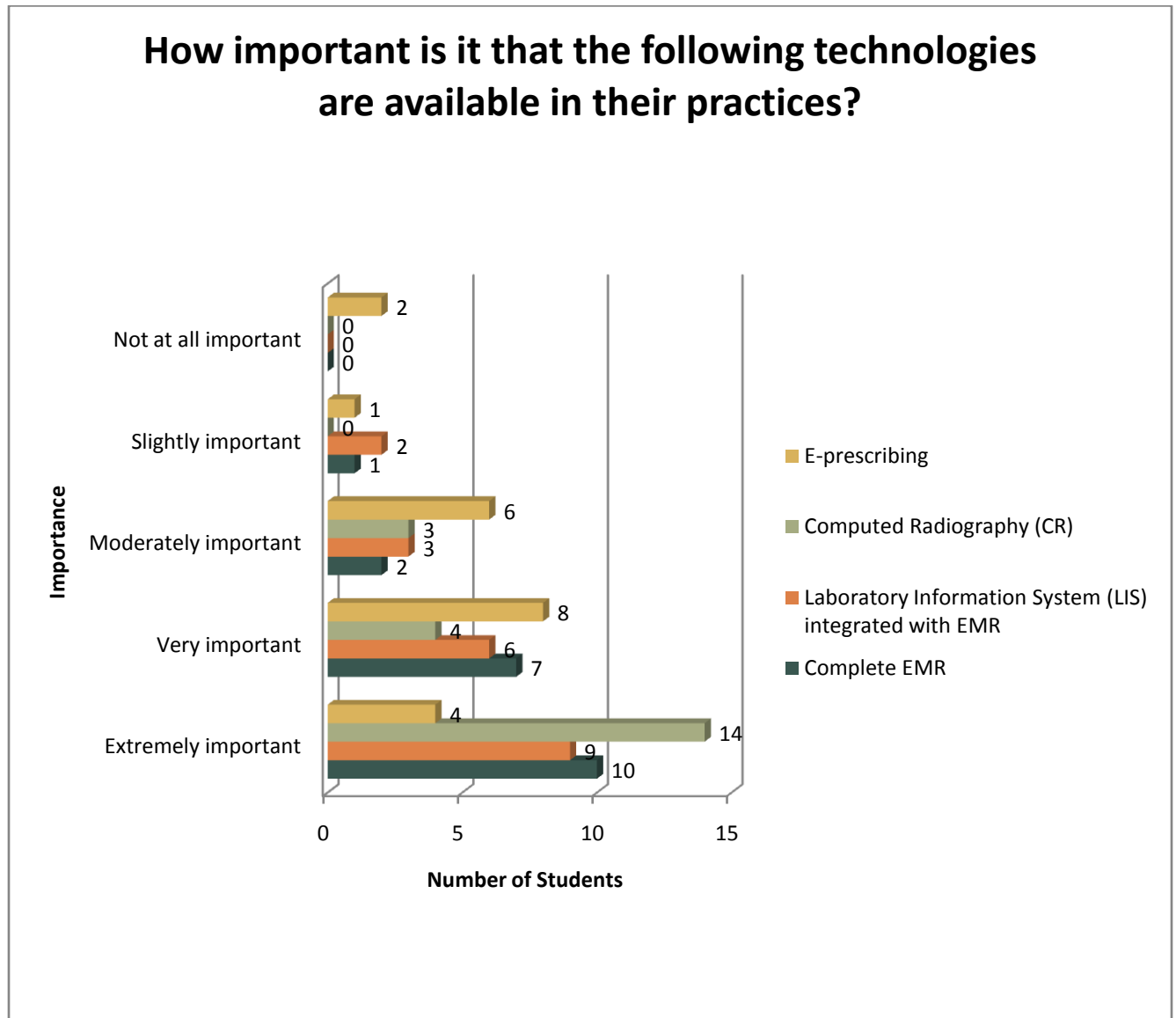


Figure 36. Importance of technology in the workplace.

If the facility/program that they are considering does not currently have an operating EMR, CR, LIS, and e-prescribing, *how important* is it to their decision that the health care facility/practice has a firm plan to purchase and implement one within the next 2 years?

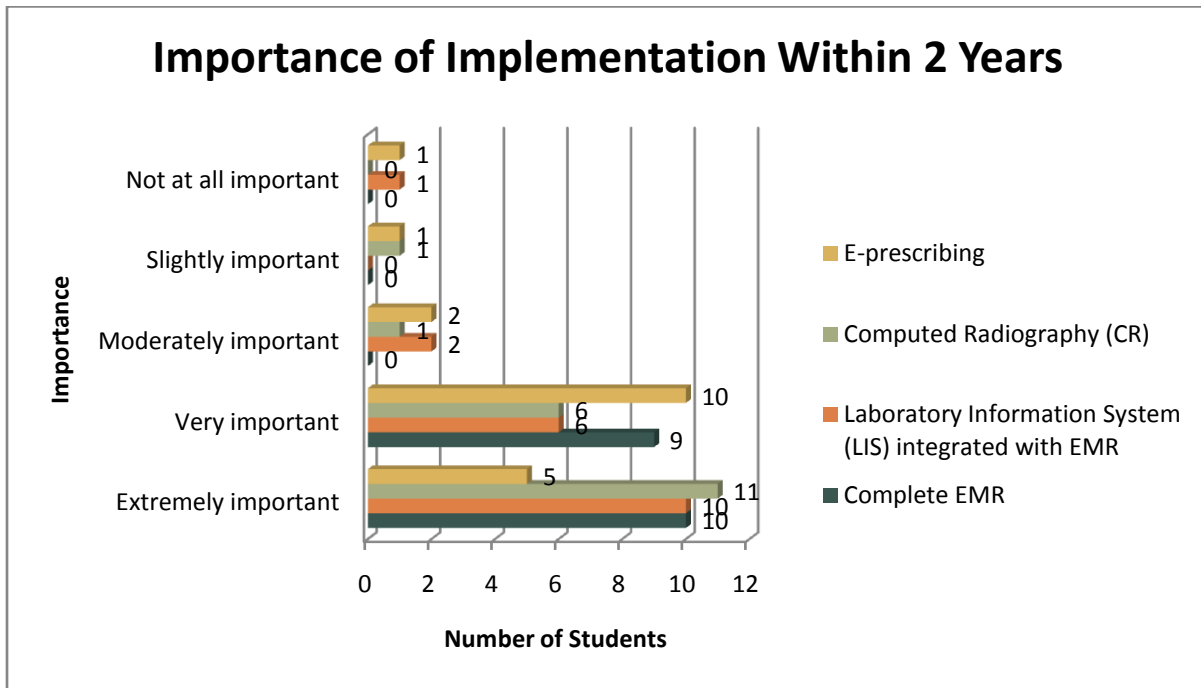


Figure 37. Importance of technology being implemented in the workplace within 2 years.

If they already had secured a position, does the facility they chose have an EMR, CR, LIS, and/or e-prescribing?

EMR	
33.3%	Yes
9.5%	No
4.8%	Don't know
52.4%	NA - Do not have a position at this time

LIS integrated with EMR	
47.6%	Yes
0.0%	No
0.0%	Don't know
52.4%	NA - Do not have a position at this time

CR integrated with EMR	
42.9%	Yes
0.0%	No
4.8%	Don't know
52.4%	NA - Do not have a position at this time

E-prescribing	
19.0%	Yes
9.5%	No
19.0%	Don't know
52.4%	NA - Do not have a position at this time

TELEMEDICINE

During their clinical experience, many of the students did have an opportunity to use telemedicine in some form.

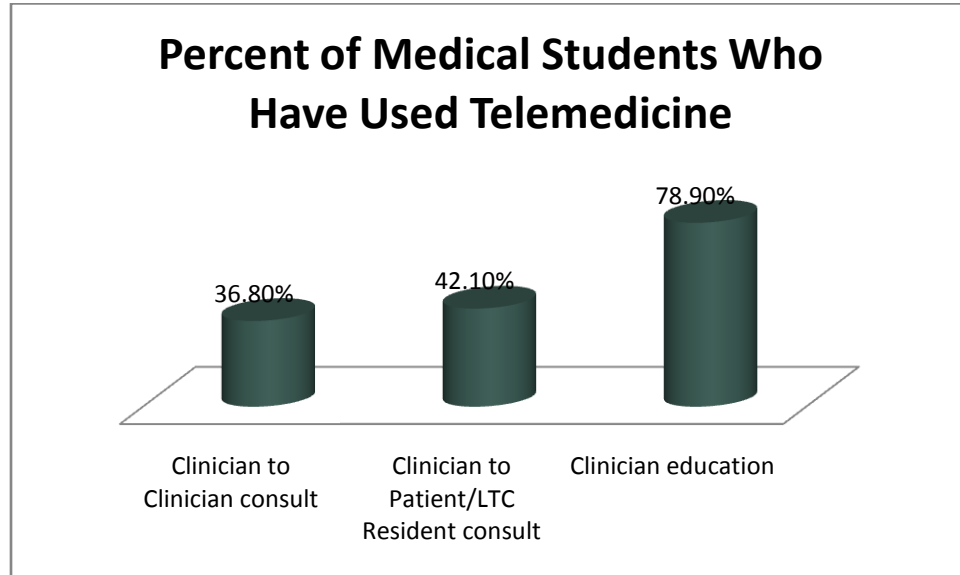


Figure 38. Medical student use of telemedicine through Clinician to Clinician consult; Clinician to patient/LTC Resident consult; and Clinical education.

For the eight students that have decided where they will be practicing after receiving their degree, all of the students have chosen to practice in North Dakota, with 75% choosing an urban facility over a rural facility.

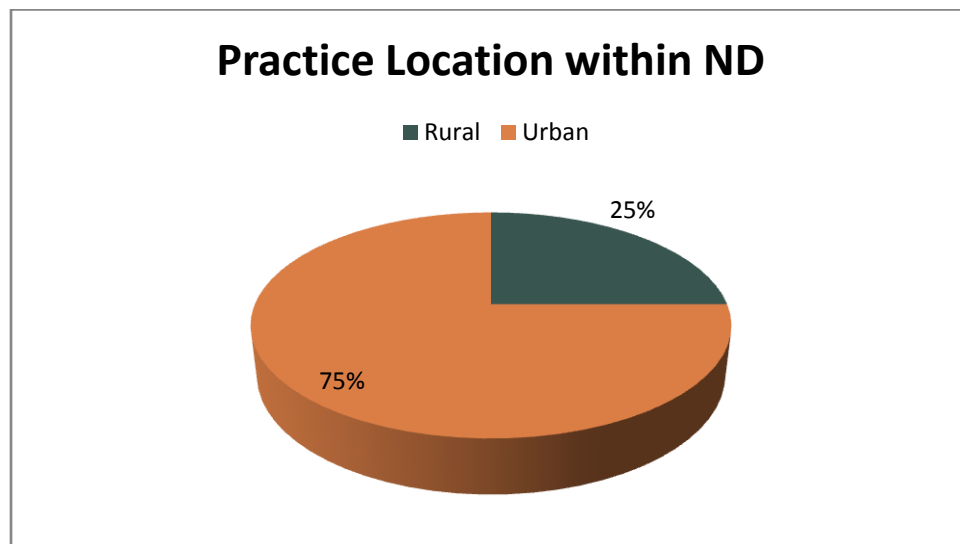


Figure 39. Location where Medical students plan to practice in North Dakota after graduation.

Statements from recent Medical School graduates:

“It is becoming more and more challenging to practice without EMR/technology. The old traditional paper format is a thing of the past that is full of potential for medical errors.”

“Though it is expensive to implement and often outdated by the time it is fully functioning, I believe EMR to be the future of healthcare and nearly a necessity for standardized patient information. Understanding that is not financially feasible for smaller communities, it ultimately will be of more patient and physician benefit in the end in my opinion if all records could be accessed electronically.”

“I feel that EMR makes finding pt information quicker and more efficient. It also reduces the waste of paper. The only downside is if the system crashes or the power is out. When there is such a problem though it definitely shows how much quicker we can work with EMR.”

APPENDIX F – SUMMARY REPORT: ND HIT ENVIRONMENTAL SCAN OF LOCAL PUBLIC HEALTH UNITS (OCTOBER 2008)

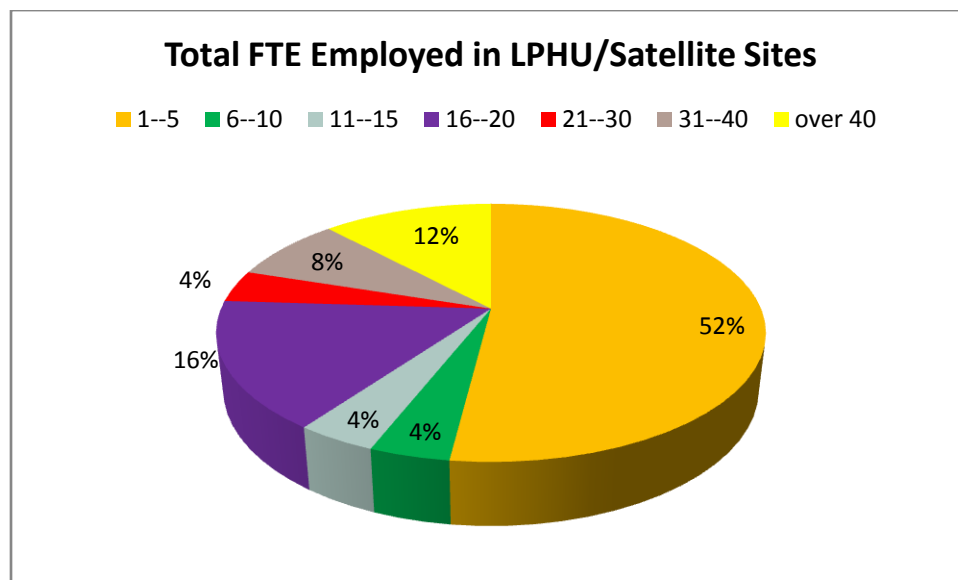
Results – North Dakota Health Information Technology Survey of Local Public Health Units

The ND Local Public Health Units (LPHU) were surveyed using an instrument developed by the Center for Rural Health in collaboration with the ND Department of Health and the LPHU-Public Health liaison. This survey was also distributed electronically (linked to Survey Monkey), in August through the LPHU-Public Health liaison. Survey Monkey is an ad-free, web-based tool designed for creating and administering surveys on the net that allows participant to respond by clicking on a web link that has been given to them. North Dakota's 28 local public health units were asked to complete a survey and 25 (or 89%) did so.

Response rate: 25 local public health units (89.3%) responded, out of a total of 28 North Dakota public health units.

LOCAL PUBLIC HEALTH UNIT DEMOGRAPHICS

1. Number of total FTE employed with your local public health unit (LPHU) and satellite sites? (25 sites)

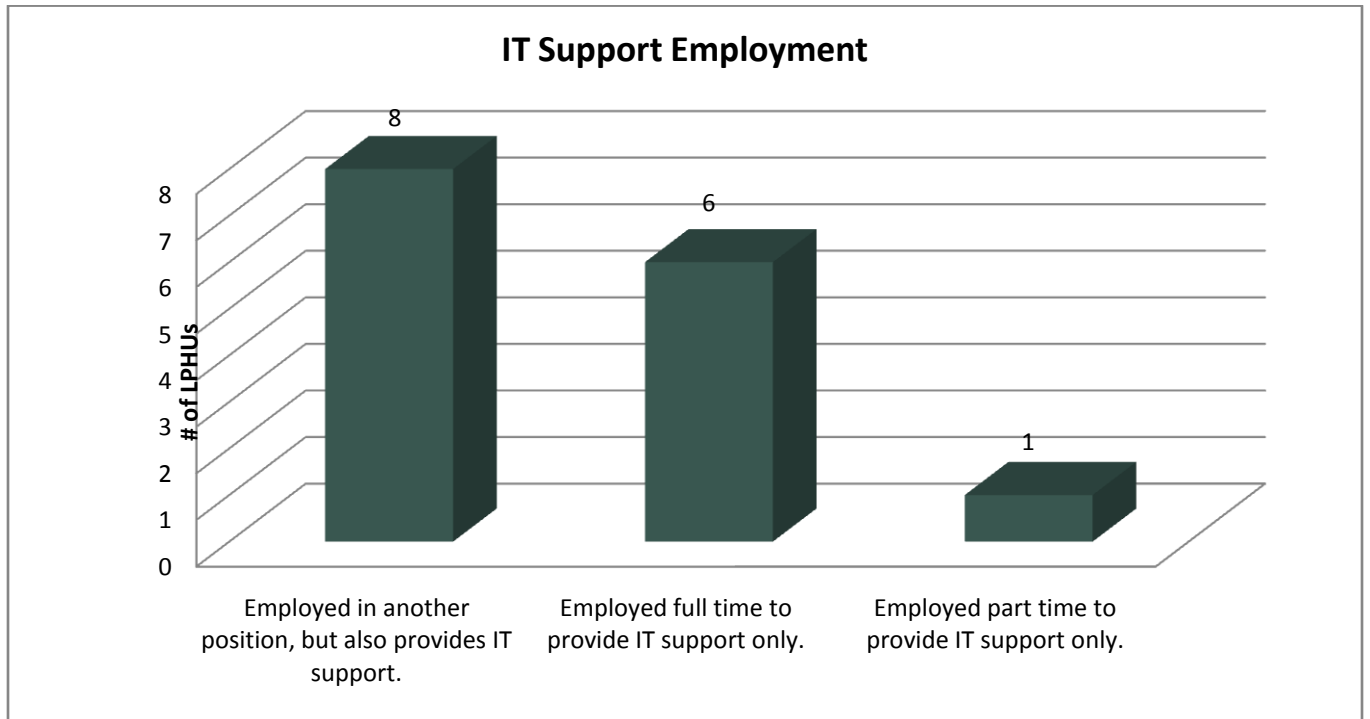


HEALTH INFORMATION TECHNOLOGY

2. Do you have an individual designated to oversee the information technology for your facility? (e.g. Chief Information Officer (CIO), information technology (IT) manager, computer technician)? (24 sites)

Yes 14 Local Public Health Units (58.3%)
No 10 Local Public Health Units (41.7%)

3. Is the person designated to provide IT support? (15 sites)



4. Which best describes how you see the number of IT staff at your facility changing over the next five years? (21 sites)

Employment of IT Staff	% of Respondents	# of Respondents
Will Increase	33.3%	7
Will decrease	0.0%	0
Will stay the same	66.7%	14

5. Does your facility have a formal HIT/HIE steering committee or work group? (21 sites)

Yes 0%
No 100%

6. Does your facility currently own/use a patient/client management system? (24 sites)

Yes 4 Local Public Health Units (16.7%)
No 20 Local Public Health Units (83.3%)

Name of patient/client management system Vendor	How many years you have been using this system?
Sage	5 years
Ahlers system	6 years
KIPHS, Inc.	12 years
Ahlers (family planning)	7 years

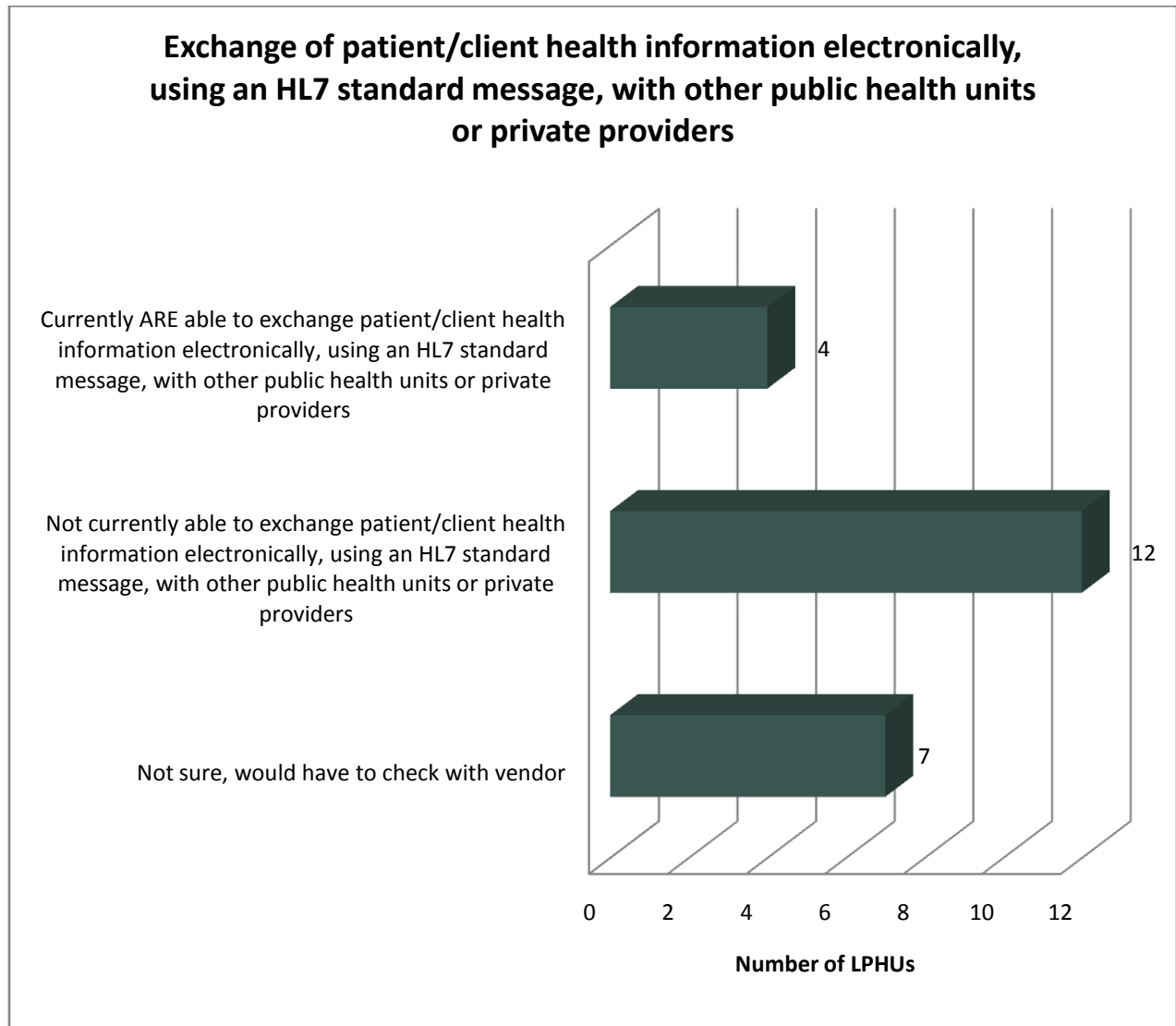
7. Does your facility currently own/use any other information management systems that collect patient information? (25 sites)

Yes 52.0% Local Public Health Units
No 48.0% Local Public Health Units

Description from those that are currently using a different type of information management systems that collect patient information:

- State-wide Immunization Tracking System – NDIIS/THOR (9 responses)
- CVR (clinic visit record for family planning)
- WIC - ND Department of Health DataBase (4 responses)
- All those required by NDDoH programs
- Use - Client Visit Record database for Family Planning Program, Use - "CAST" for a WomensWay program, Use - PC-ACE for reimbursement of 3rd party ins.
- SAMS - Aging Services DataBase
- Our Certified Home Care Side uses a scan health system called Home Solutions; through a company called Sansio
- name, address, insurance information, phone contacts, demographic data only

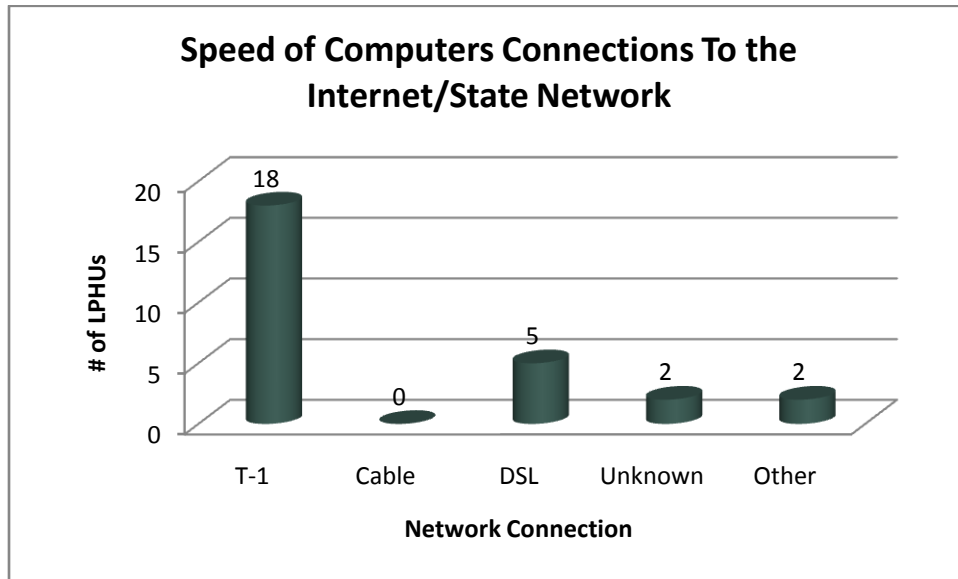
8. Would your current patient/client management system allow you to exchange patient/client health information electronically, using an HL7 standard message, with other public health units or private providers? (23 sites)



9. Does your health unit have a need to exchange health information electronically with other public health units or private providers? (25 sites)

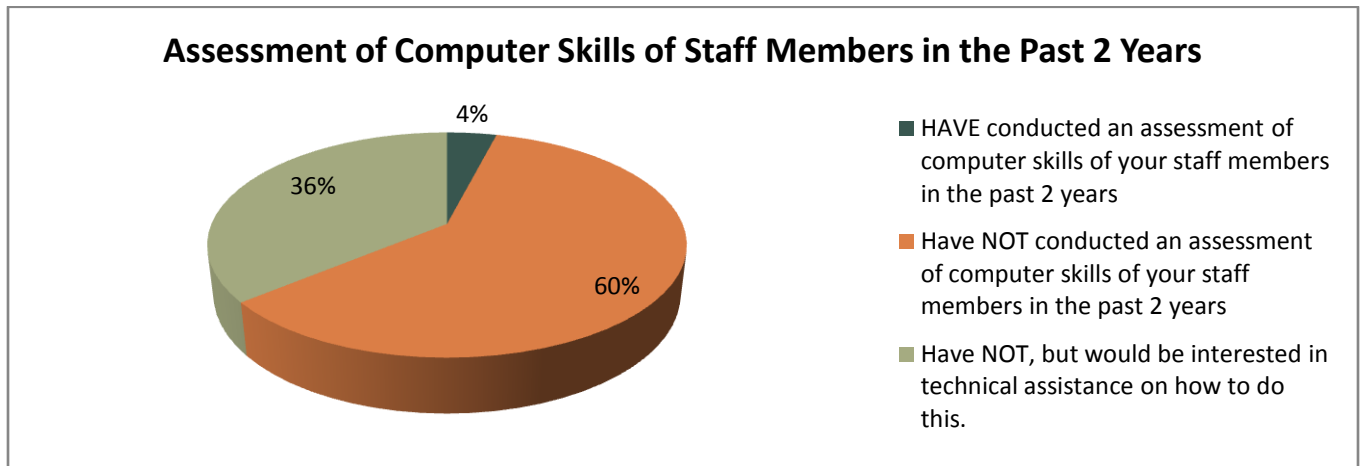
<i>Yes</i>	48.0%
<i>No</i>	24.0%
<i>Not Sure</i>	28.0%

10. At what speed are your computers connected to the Internet/State Network? (24 sites)

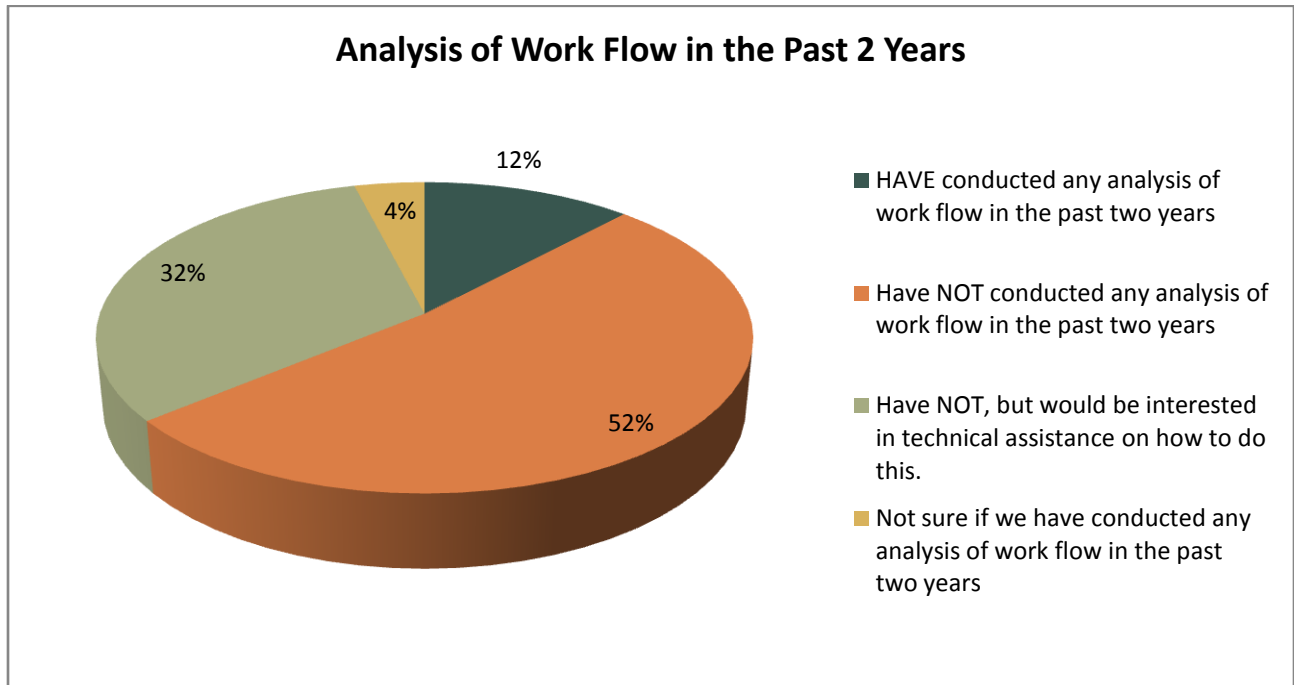


Other: Not sure of this; our server is connected via fiber-optic through-out Williston and integrates with the state's "backbone" as they call it

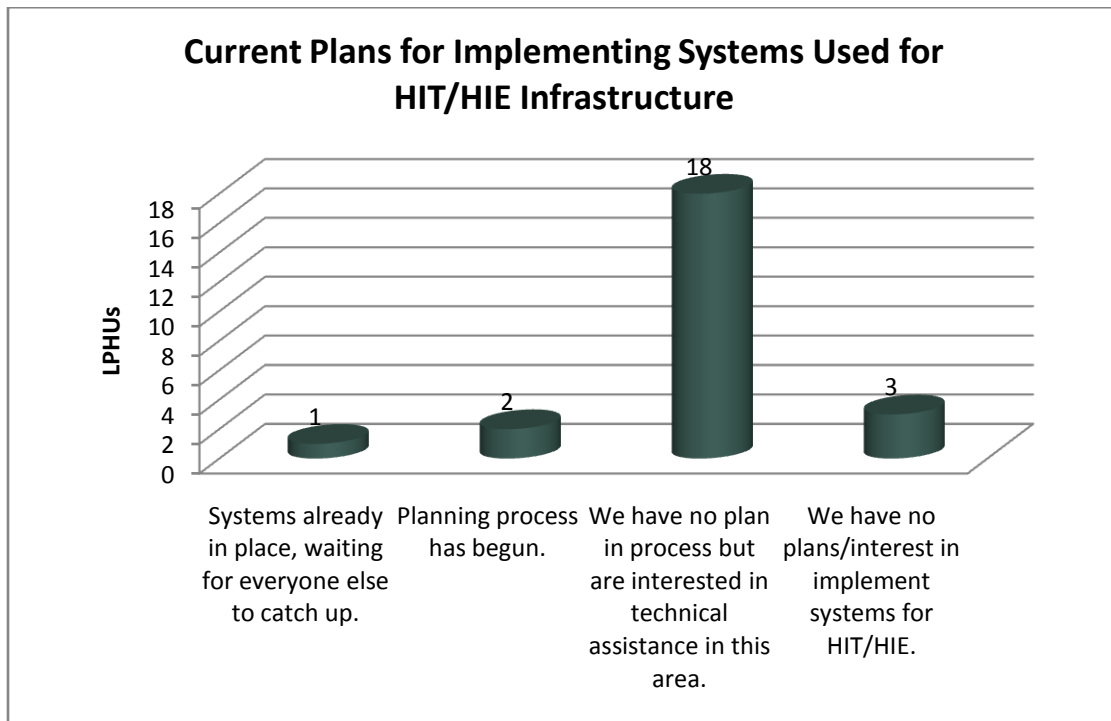
11. Has your facility conducted an assessment of computer skills of your staff members in the past 2 years? (25 sites)



12. Has your facility conducted any analysis of work flow in the past two years? (25 sites)



13. How would you best describe plans for implementing systems used for HIT/HIE infrastructure. (24 sites)



If you have already implemented systems or are in the planning process, how would you best describe the funds required for implementing systems used for HIT/HIE infrastructure? (22 sites)

Funds Required for Implementing Systems Used for HIT/HIE Infrastructure	LPHUs
Less than \$100,000	2
Between \$100,000-\$500,000	1
Between \$500,000-\$1,000,000	0
More than \$1,000,000	0
We are not in the planning process, so I do not have an idea about the cost.	18
We will not be implementing an HIT/HIE solution, so the funds needed will be \$0	1

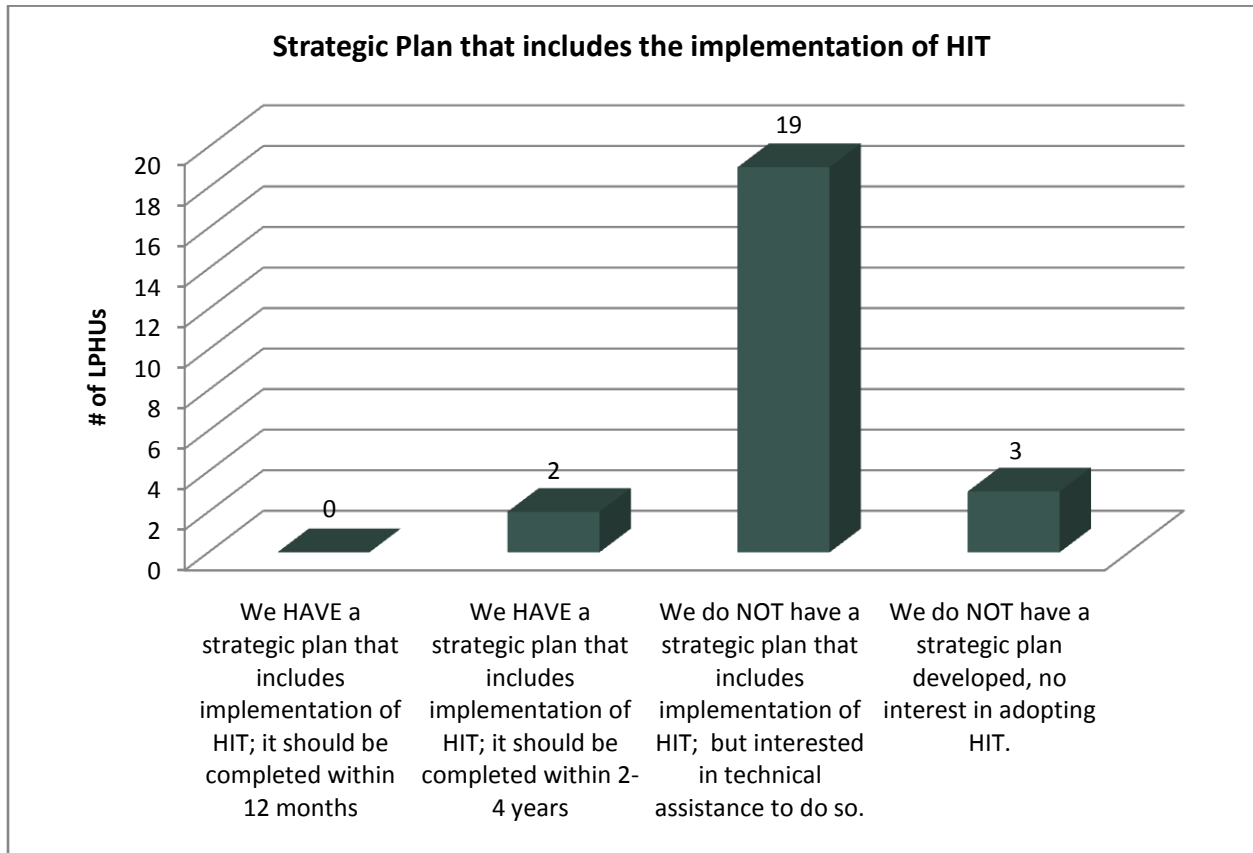
14. Does your facility maintain its own web site? If yes, please provide the web address. (24 sites)

Yes 58.3%
No 41.7%

Websites

- www.cityoffargo.com/health
- <http://www.peminacountynd.gov>
- www.rcphd.com
- www.centralvalleyhealth.org
- www.fdhdu.org
- www.umdhu.org
- www.ransomph.homestead.com
- www.richlandcountyhealth.org
- www.swhdu.org
- http://www.co.morton.nd.us/index.asp?Type=B_BASIC&SEC={0969BF21-3993-451A-8FD7-D72D4FA5BF3D}
- www.grandforksgov.com/publichealth
- we are in the process of getting a web site

15. Does your facility have a Strategic Plan that includes the implementation of HIT, if yes what is the time frame? (24 sites)



16. Does your facility have satellite locations? (24 sites)

Yes 7
No 17

Do your satellite locations use the same patient/client management software as your main location? If no, please explain why they do not. (9 sites)

Yes 3
No 6

Explanation: No need too - not enough client usage; Most of the time ... sometimes the satellite offices do not since certain programs are only accessed by Program Managers in the Williston office; THOR Immunization Registry; we don't have an overall patient management system. Only family planning has one.

Do your satellite locations have broadband Internet access? If yes, what types of access? If no, please explain why they do not. (8 sites)

All have access **6**
Some have access **1**
None have access **1**

Type of access: Two have T-1 and two have DSL; Laptops are available for immunizations - with wireless accessibility; fiber (courthouses ... one location has a modified broadband connection due to being a private office building.); t1, DSL

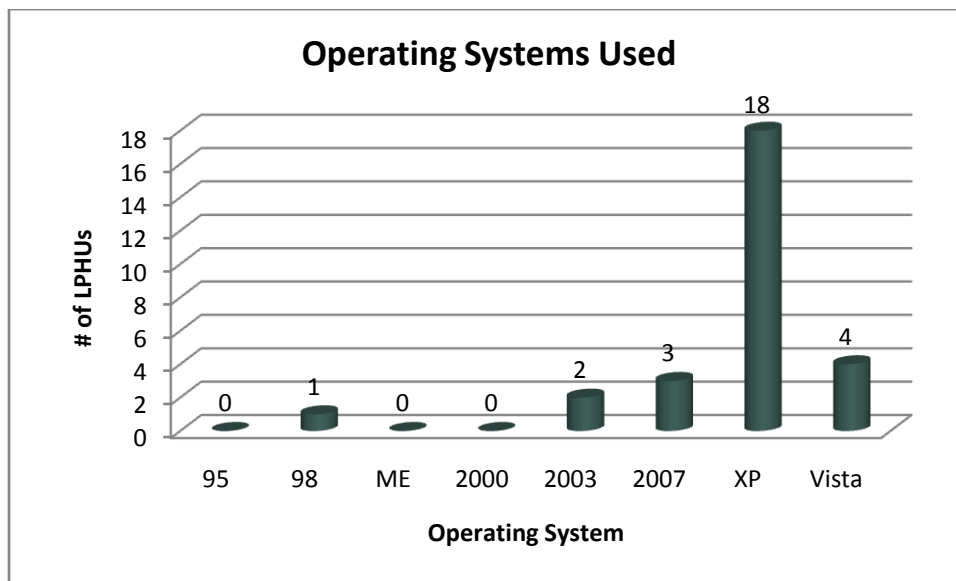
17. Are the computers within your LPHU networked? (17 sites)

	Peer to Peer	Client to Server
Yes	41.7% (5)	58.3% (7)
No	60.0 (3)	40.0% (2)

18. Are the computers between the LPHU and the satellite sites networked to each other? (8 sites)

Yes 3
No 5

19. Which Windows operating systems are used on your computers? (20 sites)



20. Please indicate how significant each item below is or has been as a driver for implementing/planning for an electronic patient/client management system? (18 sites)

	Most significant	Moderately significant	Least significant	Not at all significant
Improving quality of healthcare	50.0% (9)	50.0% (9)	0.0% (0)	0.0% (0)
Improving patient safety	55.6% (10)	27.8% (5)	16.7% (3)	0.0% (0)
Inefficiencies experienced by providers	38.9% (7)	55.6% (10)	5.6% (1)	0.0% (0)
Rising healthcare costs	33.3% (6)	44.4% (8)	22.2% (4)	0.0% (0)
Availability of grant funds	58.8% (10)	23.5% (4)	17.6% (3)	0.0% (0)
Increased public attention to HIT	11.1% (2)	27.8% (5)	50.0% (9)	11.1% (2)
Public health surveillance needs	44.4% (8)	44.4% (8)	11.1% (2)	0.0% (0)
Clinical staff advocates for an electronic system	27.8% (5)	38.9% (7)	27.8% (5)	5.6% (1)
Administrator advocates for an electronic system	22.2% (4)	50.0% (9)	22.2% (4)	5.6% (1)
Other	0.0% (0)	50.0% (1)	50.0% (1)	0.0% (0)

Other: Local Public Health Units have significantly limited budgets as compared to private sector providers; have not done planning for an electronic data base.

21. Please rate, on a scale of 1-4, to what degree the following barriers have slowed or prevented implementation of an electronic patient/client management system in your facility? (19 sites)

	1-Great Impact	2-Moderate Impact	3-Little Impact	4-No Impact
Current reimbursement system	52.6% (10)	42.1% (8)	5.3% (1)	0.0% (0)
Concern about patient privacy-security (e.g.HIPAA)	0.0% (0)	42.1% (8)	31.6% (6)	26.3% (5)
Concern over completeness and accuracy of records	0.0% (0)	42.1% (8)	31.6% (6)	26.3% (5)
Difficulty changing workflow patterns	10.5% (2)	36.8% (7)	36.8% (7)	15.8% (3)
Difficulty achieving health professional acceptance	0.0% (0)	42.1% (8)	31.6% (6)	26.3% (5)
Development of sustainable business model	21.1% (4)	31.6% (6)	36.8% (7)	10.5% (2)
Difficulty in justifying expense or return on investment	73.7% (14)	15.8% (3)	5.3% (1)	5.3% (1)
Finding a vendor that is approved by CCHIT	15.8% (3)	26.3% (5)	31.6% (6)	26.3% (5)
Inability of technology to meet your needs	10.5% (2)	36.8% (7)	42.1% (8)	10.5% (2)
Lack of financial resources-initial cost of IT investment	89.5% (17)	5.3% (1)	5.3% (1)	0.0% (0)
Lack of financial resources-ongoing costs of hardware/software	84.2% (16)	15.8% (3)	0.0% (0)	0.0% (0)
Lack of data recovery/disaster planning	10.5% (2)	42.1% (8)	15.8% (3)	31.6% (6)
Legal barriers to investment and development	5.3% (1)	21.1% (4)	42.1% (8)	31.6% (6)
Not enough time for training	21.1% (4)	36.8% (7)	26.3% (5)	15.8% (3)
Obsolescence issues-hardware	21.1% (4)	42.1% (8)	26.3% (5)	10.5% (2)
Poor availability of well-trained IT staff	22.2% (4)	44.4% (8)	16.7% (3)	16.7% (3)
Unable to rely on other practices and people to maintain patient data	10.5% (2)	36.8% (7)	36.8% (7)	15.8% (3)
Other	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

Other: Lack of leadership and support from State Health Dept. This is so very timely and I thank you for including us. We need to stop operating our programs in silos.

Glossary of Health Information Technology Definitions

NAHIT, ONCHIT Announce Health Information Technology Definitions

The National Alliance for Health Information Technology (NAHIT) has finalized definitions for six critical health information technology terms, according to an announcement on the NAHIT website.

HHS' Office of the National Coordinator for Health Information Technology (ONCHIT) sponsored the definitions project.

Project participants determined that dual interpretations of health information exchange (HIE) as both a process and an entity created the need for a sixth term—health information organization (HIO). The additional term clarifies the difference between the process of information exchange and the oversight and accountability functions necessary to support it.

The finalized definitions include

- **Electronic medical record:** An electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization.
- **Electronic health record:** An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization.
- **Personal health record:** An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual.
- **Health information exchange:** The electronic movement of health-related information among organizations according to nationally recognized standards.
- **Health information organization:** An organization that oversees and governs the exchange of health-related information among organizations according to nationally recognized standards.
- **Regional health information organization:** A health information organization that brings together health care stakeholders within a defined geographic area and governs health information exchange among them for the purpose of improving health and care in that community.

To read NAHIT's report to ONCHIT, including the definitions, visit http://www.nahit.org/images/pdfs/HITTermsFinalReport_051508.pdf.

To read the NAHIT announcement go to <http://www.nahit.org/>.



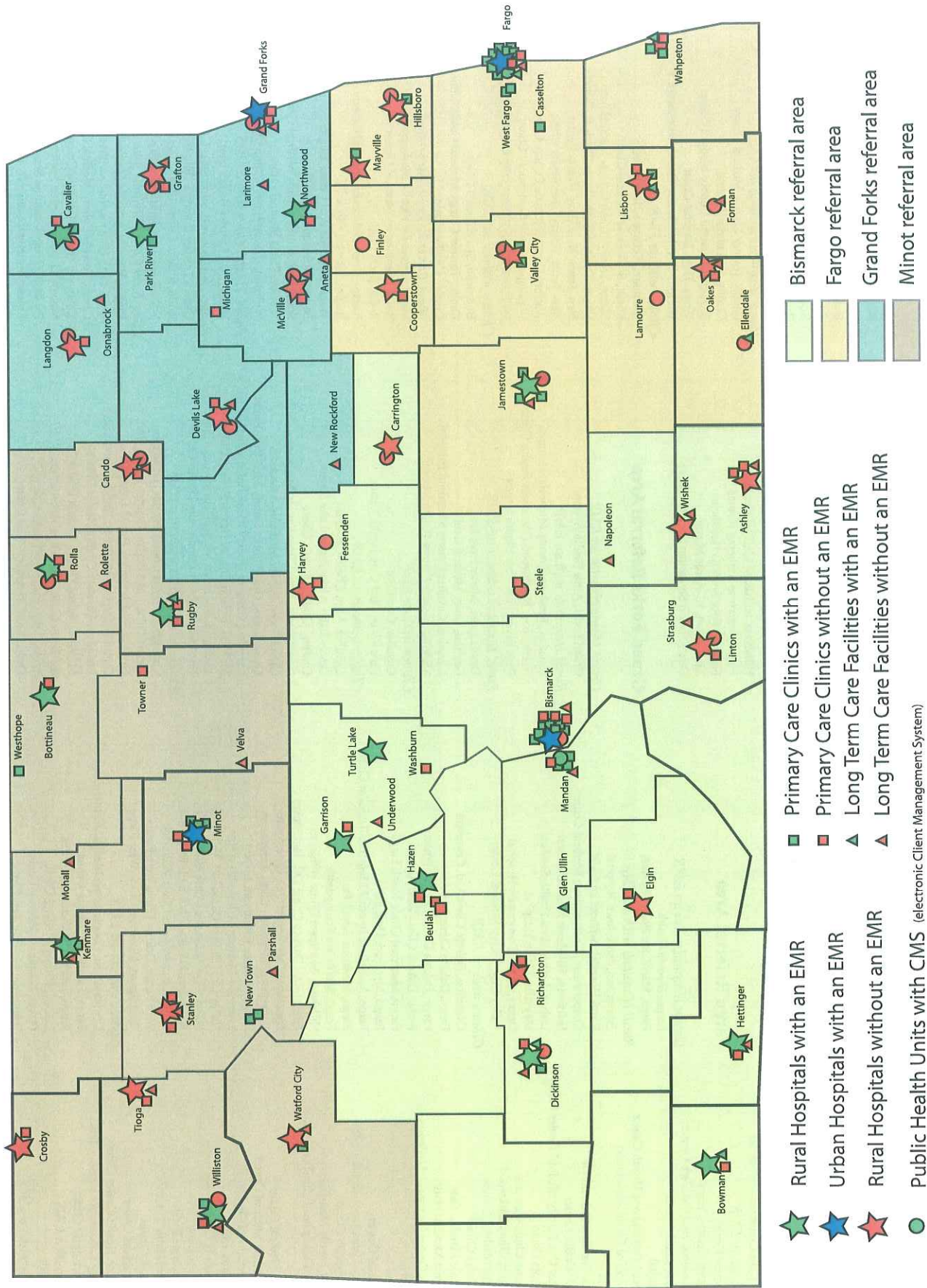
Center for
Rural Health

University of North Dakota
School of Medicine and Health Sciences

Electronic Medical Records (EMR) in North Dakota

August 2008

Connecting North Dakota for a Healthier Future (December 2008)
http://ruralhealth.und.edu/projects/sorh/pdf/state_hit_report.pdf



Bismarck Referral Area

Urban Hospitals with an EMR

Bismarck, MedCenter One
Bismarck, St. Alexius Medical Center

Rural Hospitals with an EMR

Bowman, Southwest Healthcare Services
Dickinson, St. Joseph's Hospital
Garrison, Garrison Memorial
Hazen, Sakakawea Medical Center
Hettinger, West River Regional Medical Center
Turtle Lake, Turtle Lake Community Hospital

Rural Hospital without an EMR

Ashley, Ashley Medical Center
Carrington, Carrington Health Center
Elgin, Jacobson Memorial Hospital Care Center
Harvey, St. Aloisius Medical Center
Linton, Linton Hospital

Richardton, Memorial Hospital and Health Center
Wishek, Wishek Hospital Clinic Association

Clinics with an EMR

Bismarck, Bismarck Family Clinic South
Bismarck, Bismarck Health Center
Bismarck, Medcenter One Family Medical Center North
Bismarck, Mid Dakota Clinic
Bismarck, Mid Dakota Clinic Gateway
Bismarck, Mid Dakota Clinic Kirkwood
Bismarck, St. Alexius Medical Center
Dickinson, Great Plains Clinic
Mandan, Q & R Clinic Mandan East
Mandan, Q & R Clinic Mandan North
Mandan, St. Alexius Center for Family Medicine
Clinics without an EMR

Ashley, Ashley Clinic
Ashley, Ashley Medical Center
Beulah, Coal Country Community Health Center
Beulah, Sakakawea Beulah Clinic
Bismarck, Center for Family Med-Bismarck
Bismarck, Center for Family Medicine-Bismarck
Bismarck, Jay R Huber DO PC

Bowman, Southwest Medical Clinic

Carrington, Foster County Medical Center

Dickinson, Adult Medicine of Dickinson

Elgin, Elgin Community Clinic

Garrison, Garrison Family Clinic

Harvey, Central Dakota Clinic

Hazen, Sakakawea Hazen Clinic

Hettinger, West River Health Clinics

Linton, Linton Medical Center

Mandan, Regional Medical Center

Richardton, Richardson Health Center Clinic

Steele, Kidder Community Health Clinic

Washburn, Washburn Family Clinic

Public Health Units with a CMS

Mandan, Custer Health

Public Health Units without a CMS

Bismarck, Bismarck Burleigh Public Health
Carrington, Foster County District Health
Dickinson, Southwestern District Health Unit
Fessenden, Wells County District Health Unit
Linton, Emmons County Public Health
Steele, Kidder County District Health Unit
Long Term Care Facilities with an EMR
Bowman, Southwest Healthcare Services

Dickinson, St. Benedict's Health Center

Glen Ullin, Marian Manor Healthcare Center

Long Term Care Facilities without an EMR

Ashley, Ashley Medical Center

Bismarck, Missouri Slope Lutheran Care Center, Inc

Dickinson, St. Luke's Home

Hettinger, Western Horizons Living Center

Mandan, Dakota Alpha

Napoleon, Napoleon Care Center

Strasburg, Strasburg Care Center

Underwood, Medcenter One Prairieview

Wishek, Wishek Home for the Aged

Fargo Referral Area

Urban Hospitals with an EMR

Fargo, Innovis Health

Fargo, MeriCare Health System

Rural Hospitals with an EMR

Jamestown, Jamestown Hospital
Rural Hospitals without an EMR
Cooperstown, Cooperstown Medical Center
Hillsboro, Hillsboro Medical Center
Lisbon, Lisbon Area Health Services
Mayville, Union Hospital
Oakes, Oakes Community Hospital
Valley City, Mercy Medical Center
Clinics with an EMR

Casselton, Dakota Clinic Ltd. Casselton

Fargo, Dakota Clinic Ltd.

Fargo, Dakota Clinic Ltd. Northport

Fargo, Dakota Clinic West Acres

Fargo, MeriCare Clinic North Fargo

Fargo, MeriCare Hospital

Fargo, MeriCare Internal Medicine Resident Clinic

Fargo, MeriCare Island Park

Fargo, MeriCare Southpointe

Hillsboro, MeriCare Clinic Hillsboro

Jamestown, Dakota Clinic Ltd. Jamestown

Jamestown, Medcenter One Jamestown

Jamestown, MeriCare Clinic Jamestown

Lisbon, Dakota Clinic Ltd. Lisbon

Mayville, MeriCare Clinic Mayville

Valley City, Dakota Clinic Ltd. Valley City

Wahpeton, Dakota Clinic Ltd. Wahpeton

Wahpeton, MeriCare Clinic Wahpeton

West Fargo, Dakota Clinic West Fargo

West Fargo, MeriCare Clinic West Fargo

Clinics without an EMR

Cooperstown, Cooperstown Medical Center Clinic

Fargo, Family Healthcare Center

Fargo, Internal Medicine Assoc Ltd.

Lisbon, Family Medical Clinic

Oakes, Southeast Medical Center

Wahpeton, Medical Arts Clinic

Public Health Units with a CMS

Fargo, Fargo Cass Public Health

Jamestown, Central Valley Health District

Public Health Units without a CMS

Ashley, McIntosh District Health Unit
Ellendale, Dickey County Health District
Finley, Steele County Public Health Department

Forman, Sargent County District Health Department

Hillsboro, Trail District Health Unit

LaMoure, LaMoure County Public Health Department

Lisbon, Ransom County Public Health Department

Valley City, City-County Health Department

Wahpeton, Richland Counties Health Department

Long Term Care Facilities with an EMR

Ellendale, Prince of Peace Care Center

Fargo, Elim - A Caring Community

Lisbon, ND Veterans Home

Wahpeton, St. Catherine's Living Center

Long Term Care Facilities without an EMR

Hillsboro, Hillsboro Medical Center

Fargo, American Lutheran Homes

Forman, Four Seasons Healthcare

Jamestown, Hi-Acres Manor

Oakes, Good Samaritan Society Oakes

Grand Forks Referral Area

Urban Hospitals with an EMR

Grand Forks, Altru Health System

Rural Hospitals with an EMR

Cavalier, Pembina County Memorial Hospital
Northwood, Northwood Deaconess Health Center
Park River, First Care Health Center

Rural Hospital without an EMR

Devils Lake, Mercy Hospital
Grafton, Unity Medical Center
Langdon, Cavalier County Memorial Hospital
McVille, Nelson County Health System
Clinics with an EMR

Cavalier, ClineCare

Park River, First Care Health Center

Clinics without an EMR

Cavalier, Altru Clinic-Cavalier

Devils Lake, Altru Clinic-Lake Region

Grafton, Grafton Family Clinic

Grand Forks, Altru Clinic Family Medicine Center

Grand Forks, Family Medicine Associates

Grand Forks, Grand Forks Family Med-Residency

Langdon, Cavalier County Memorial Hospital Clinic

McVille, Nelson County Health System Clinic

Michigan, Michigan Medical Community Clinic

Northwood, Valley Community Health Centers

Public Health Units without a CMS

Cavalier, Pembina County Health Department

Devils Lake, Lake Region District Health Unit

Grafton, Walsh County Health District

Langdon, County Public Health Department

Langdon, Cavalier County Health District

McVille, Nelson/Griggs District Health Unit

Long Term Care Facilities without an EMR

Aneta, Aneta Parkway Health Center

Devils Lake, Heartland Care Center

Grafton, Lutheran Sunset Home

Grand Forks, Valley Memorial Homes

Grand Forks, Woodside Village

Larimore, Good Samaritan Society Larimore

McVille, Nelson County Health System

New Rockford, Lutheran Home of the Good Shepherd

Northwood, Northwood Deaconess Health Center

Minot Referral Area

Urban Hospitals with an EMR

Minot, Trinity Health

Rural Hospitals with an EMR

Botineau, St. Andrew's Health Center
Kenmare, Trinity Kenmare Community Hospital
Rolla, Presentation Medical Center
Rugby, Heart of America Medical Center
Williston, Mercy Medical Center

Rural Hospitals without an EMR

Cando, Towner County Medical Center
Crosby, St. Luke's Hospital
Stanley, Mountrail County Medical Center
Tioga, Tioga Medical Center
Waford City, McKenzie County Healthcare System

Clinics with an EMR

Kenmare, Kenmare Health Center
Minot, St. Alexius Medical Clinic
Minot, Trinity Health Center- Medical Arts
Minot, Trinity Health Center-Town & Country
New Town, New Town Health Center
New Town, Trinity Community Clinic
Waford City, McKenzie County Clinic
Westhope, Trinity Community Clinic
Williston, Trinity Community Clinic

Clinics without an EMR

Botineau, St. Andrew's Clinic
Cando, Towner County Medical Center Clinic
Crosby, Crosby Clinic
Minot, Center for Family Med- Minot
Minot, Center for Family Medicine-Minot
Rolla, Presentation Medical Center
Rolla, Rolla Clinic PC
Rugby, Heart of America Medical Center
Rugby, Johnson Clinic PC
Tioga, Tioga Medical Center Clinic
Towner, Johnson Clinic PC
Stanley, Mountrail County Medical Center Clinic
Stanley, Patels Medical Clinic
Williston, Craven Hagan Clinic Ltd.

Public Health Units with a CMS

Minot, First District Health Unit

Public Health Units without a CMS

Cando, Towner County Public Health District
Rolla, Rolette County Public Health District
Williston, Upper Missouri District Health Unit
Long Term Care Facilities with an EMR

Rugby, Heart of America Medical Center

Long Term Care Facilities without an EMR

Cando, Towner County Medical Center

Kenmare, Trinity Kenmare Community Hospital

Mohall, Good Samaritan Society-Mohall

Parshall, Good Samaritan Society, Rook View at Parshall

Rolette, Rolette Community Care Center

Stanley, Mountrail Bethel Home

Tioga, Tioga Medical Center

Velva, Souris Valley Care Center

Waford City, McKenzie County Healthcare Systems, Inc

Williston, Bethel Lutheran Home