

**Environmental Scan
of
Adoption and Use of Electronic Health Records
and Health Information Exchange
in Minnesota Skilled Nursing Facilities**

01/08/13 FINAL REPORT

**Submitted by
Stratis Health
for
CMS Special Innovation Project
Health Information Technology For Post Acute Care (HITPAC)**



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EXECUTIVE SUMMARY

Health information technology (HIT) offers the health care industry strategies for improving health care across the nation. Minnesota has been a leader in pursuing bold e-health policies to accelerate the adoption and use of electronic health records (EHRs) and related HIT. In 2010, Minnesota became the first state to implement a certification process for health information exchange (HIE) service providers. Minnesota has also passed mandates for e-prescribing in 2011 and mandates for interoperable health records by 2015.(1)

Minnesota continues to lead the nation in the adoption and use of the electronic health record with 61% of hospitals and clinics reporting use of an EHR.(2) Millions of dollars in financial incentives have been made available mainly to eligible professionals and hospitals to develop the infrastructure to support increased EHR adoption and achieving Meaningful Use.(3)

Long term post acute care (LTPAC) settings have not been eligible to receive the financial incentives that hospitals and other eligible professionals have available to them. The lack of financial incentives reduces the business case for investing in health information technology and working towards health information exchange and enhanced care transitions. Substantial gains in health care quality, efficiency, and outcomes potentially will be delayed if LTPAC providers do not adopt and use HIT and health information exchange capabilities.(3)

EHR certification has not been a key selling point for LTPAC vendors to modify their existing products to facilitate HIE. Also, the major software vendors who support Minnesota nursing homes and hospitals have not, to date, been able to see the business case for the development of a bi-directional electronic health information exchange. The focus of LTPAC vendors has been on developing software modules that address the internal needs of LTPAC facilities, e.g., medication records, Minimum Data Set (MDS) assessments, financials, billing, scheduling – and getting these modules to share information seamlessly. Given the miniscule operating margins of LTPAC facilities and their ineligibility for Meaningful Use incentives under Medicare and

Medicaid, many of the LTPAC vendors have viewed certification as a luxury that will be addressed at some point in the future. The vendors certified by the Certification Commission for Healthcare Information Technology (CCHIT) are Health MEDX, AOD Software (Answers on Demand), and Optimus EMR. PointClickCare and MDI Achieve account for almost 70% of EHRs in nursing home settings. Recently, MDI Achieve received certification of its modular EHR. PointClickCare does not offer any certified EHR product at this time. The other certifying agencies recognized by the Office of the National Coordinator (ONC) do not list any products certified for LTPAC.

Table 1. Common EHR Vendors Used by Minnesota Nursing Homes

EHR Vendor	Percent (Number)
PointClickCare	43% (93)
MDI Achieve	21% (45)
Momentum Healthware	9% (20)
Keane Care Inc	6% (12)
American Healthtech	5% (10)
American Data	4% (9)
Meditech	4% (8)
Health Medx	2% (5)
Melyx Corporation	2% (5)
Optimus EMR	2% (5)

In spite of these issues, Minnesota LTPAC facilities have made progress in enhancing HIT use. Skilled nursing facilities report an EHR adoption and use rate increase from 31% in 2007 to 69% in 2011.(4,5) (Figure 1) The data reflects that Minnesota providers understand the need to increase the functionality in their EHR systems as well as the importance of moving towards exchanging health information across health care settings.(4) Nursing facilities plan to continue to increase EHR adoption and use, and to work towards health information exchange.

Minnesota nursing homes report that they lack the resources needed to overcome the barriers to adopting EHR. While the Minnesota e-Health Initiative has played a significant role in

advancing Minnesota's e-health strategies, LTPAC facilities such as nursing homes continue to lack the resources to advance their EHR adoption and use.

The nursing homes are knowledgeable about the resources needed to continue to advance EHR adoption. They understand how EHR and HIE can improve transitions of care and medication management activities. They understand that using technology can assist nursing homes to support quality improvement activities. Minnesota nursing home providers do not yet fully understand how health information exchange can be achieved.(4)

Minnesota has many initiatives in place which may help nursing homes and other LTPAC facilities move forward with EHR adoption and use and health information exchange in spite of the lack of devoted resources to LTPAC facilities. These initiatives will, at a minimum, help Minnesota articulate what is needed to continue the current momentum.

NURSING HOME READINESS

Nursing home readiness is the awareness and knowledge of the use of technology in nursing homes and how that technology can be used to coordinate and improve health care. This includes awareness of health information exchange – the exchange of standardized patient assessment content in the form of structured data elements across care settings.

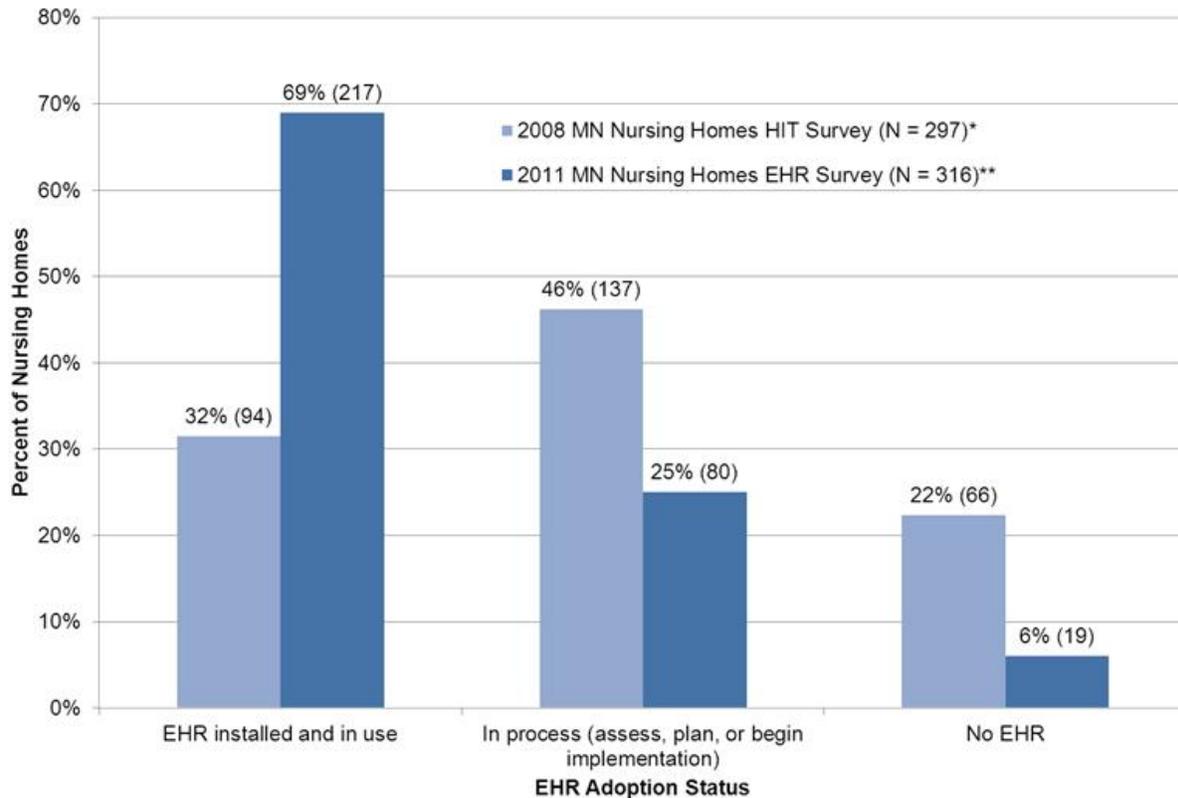
Standardized patient assessment content is especially important in transitions of care, when resident health information must pass across settings. A major challenge for complete transition of resident health records is the lack of standardized computer language and/or data elements.

Stratis Health designed and implemented an extensive survey in 2007 and again in 2011, under contract with the Minnesota Department of Health, to measure nursing home readiness for EHR adoption and use and the ability to perform HIE. In 2007, 73% (297 of 380) of Minnesota nursing homes responded.(2) The response in 2011 was 83% (316 of 382).(4)

Rates of Nursing Home EHR Adoption and Use

A comparison of the 2007 and 2011 surveys shows that from 2007 to 2011, the EHR adoption rate increased by 103% (Figure 1). (32% (N = 94) to 69% (N = 271)).

Figure 1. Comparison of EHR Adoption Status Between 2008 and 2011



*Stratis Health, Minnesota Nursing Homes Health Information Technology Survey Results (2008), Response Rate: 78% (297/380)
 **Minnesota Department of Health, Office of Health Information Technology, MN EHR Nursing Home Survey (2011) Response Rate: 83% (316/382)

According to the 2011 survey, 69% of nursing homes had an EHR installed and in use, and 25% were in process of obtaining an EHR (assessing, planning, or beginning implementation).

Nursing homes who reported no EHR decreased from 22% in 2007 to 6% in 2011.(4,5)
 Rates of current EHR adoption and use varied demographically. Demographic characteristics included affiliation of facility, location, number of beds, etc. Those with integrated hospitals had the highest rate of adoption and use (88%), and the lowest rates were for standalone facilities

(59%). However, the percentage of facilities who reported planning or in process was highest in standalone facilities (29%).

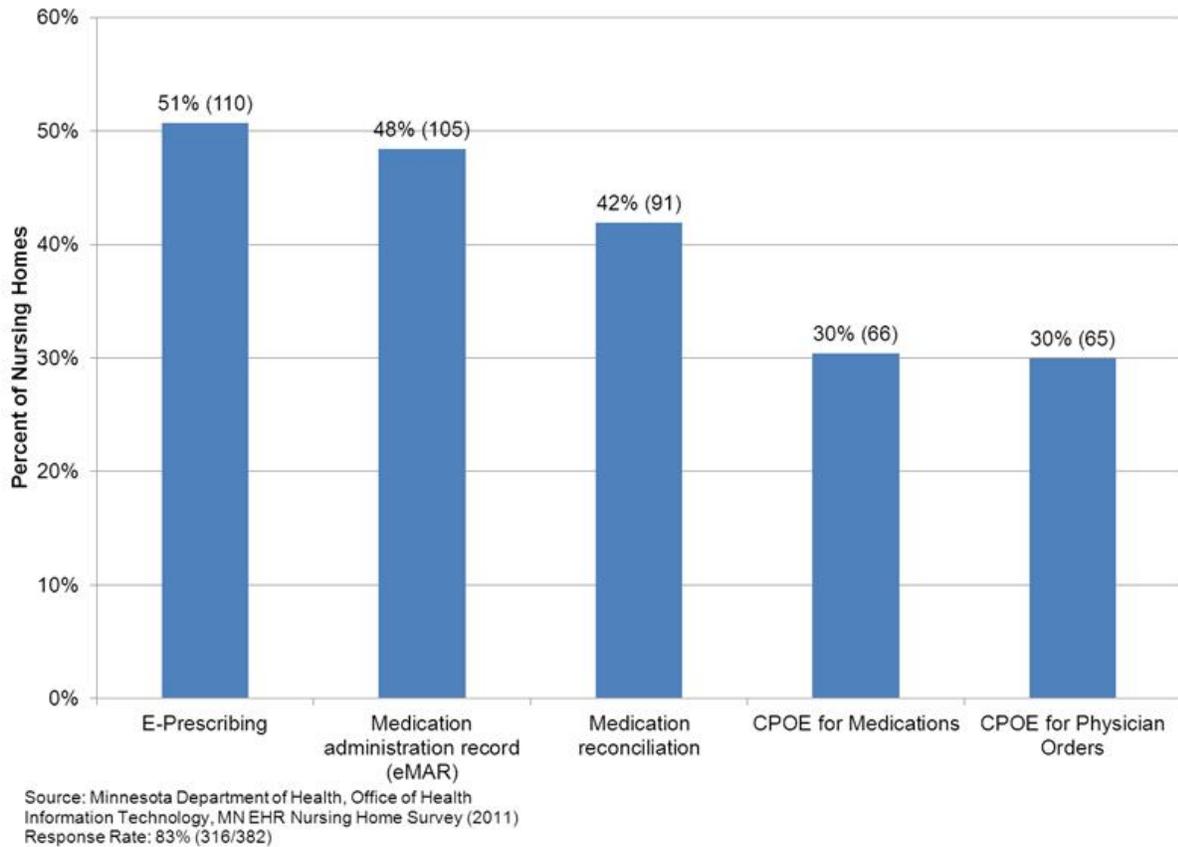
The rate for having an installed EHR was higher in urban (74%) than rural (64%) facilities. The rate of having no EHR (excludes those in the process of adoption) was higher in rural facilities (7%) vs. urban facilities (5%). The rate of adoption was lowest for small rural facilities and isolated facilities. The median bed number was highest in the facilities with current EHR installation, and was lowest in the facilities with no EHRs.

The increase in percentages of providers who report currently using an EHR and those who report they are in process between 2007 and 2011 would indicate that overall nursing homes are ready and/or planning to move towards an electronic health record and health information exchange to support health care in nursing homes and between nursing homes and other health care settings.

Plans For the Next 18 months

The nursing homes that participated in the 2011 survey were asked about their plan for EHR use and HIE in the next 18 months. For those with an existing EHR, 62% indicated plans to increase EHR functionality and capability, 40% plan to exchange data electronically, and 34% to develop the capacity to electronically exchange with another system. For nursing homes planning to increase EHR use in the next 18 months, four of the five top EHR planned uses were related to medication (Figure 2).

Figure 2. EHR Uses Planned in Next 18 Months by Nursing Homes



For those in the process of obtaining an EHR, 66% indicated plans to increase EHR functionality, 59% plan to select and implement a system, and 58% plan to develop capacity of the system to electronically exchange data with another system.

For those without an EHR, 32% had no plans to adopt an EHR in the next 18 months, but 21% reported they were going to assess and plan for an EHR system.

Nursing Home Awareness of EHR Technology to Support Quality and Coordination of Care

While the nursing home surveys did not specifically ask about “awareness,” the increase in EHR adoption and use and the percentage of nursing homes in process lead us to believe that Minnesota nursing homes are aware of the role of EHRs in supporting quality and coordination of care.

Minnesota's two nursing home trade associations – Aging Services of Minnesota and Care Providers of Minnesota – offer regularly scheduled education and ongoing resources that support increased knowledge regarding EHR technology to support quality and coordination of care. The trade associations report that 99% of nursing facilities in Minnesota belong to one of the two associations, providing for enhanced EHR awareness.

Workforce Needs

Successful implementation and use of EHRs requires dedicated commitment by leadership towards training and development of a workforce specific to health information technology. This can be accomplished by assigning an HIT project manager to implement an EHR. The Minnesota Regional Extension Assistance Center for HIT (REACH) program has found that small health care organizations do not have the resources for an HIT project manager. More often, a non-HIT program manager or other champion will be assigned HIT project management in addition to the other assigned duties. This has not proven to be a successful model.

In the 2011 nursing home HIT survey, for nursing homes with EHRs, the greatest workforce need reported was people to manage and process the data, information, and knowledge for the EHR (57%).⁽⁴⁾ Of nursing homes in process of getting EHRs, the greatest workforce needs were qualified people to train staff on EHR use (73%), and people to prepare the EHR for use (entering orders, patient information, etc) (69%). For those with no EHR, the greatest workforce need was a person to lead the implementation of the EHR (68%).

Performance Gaps

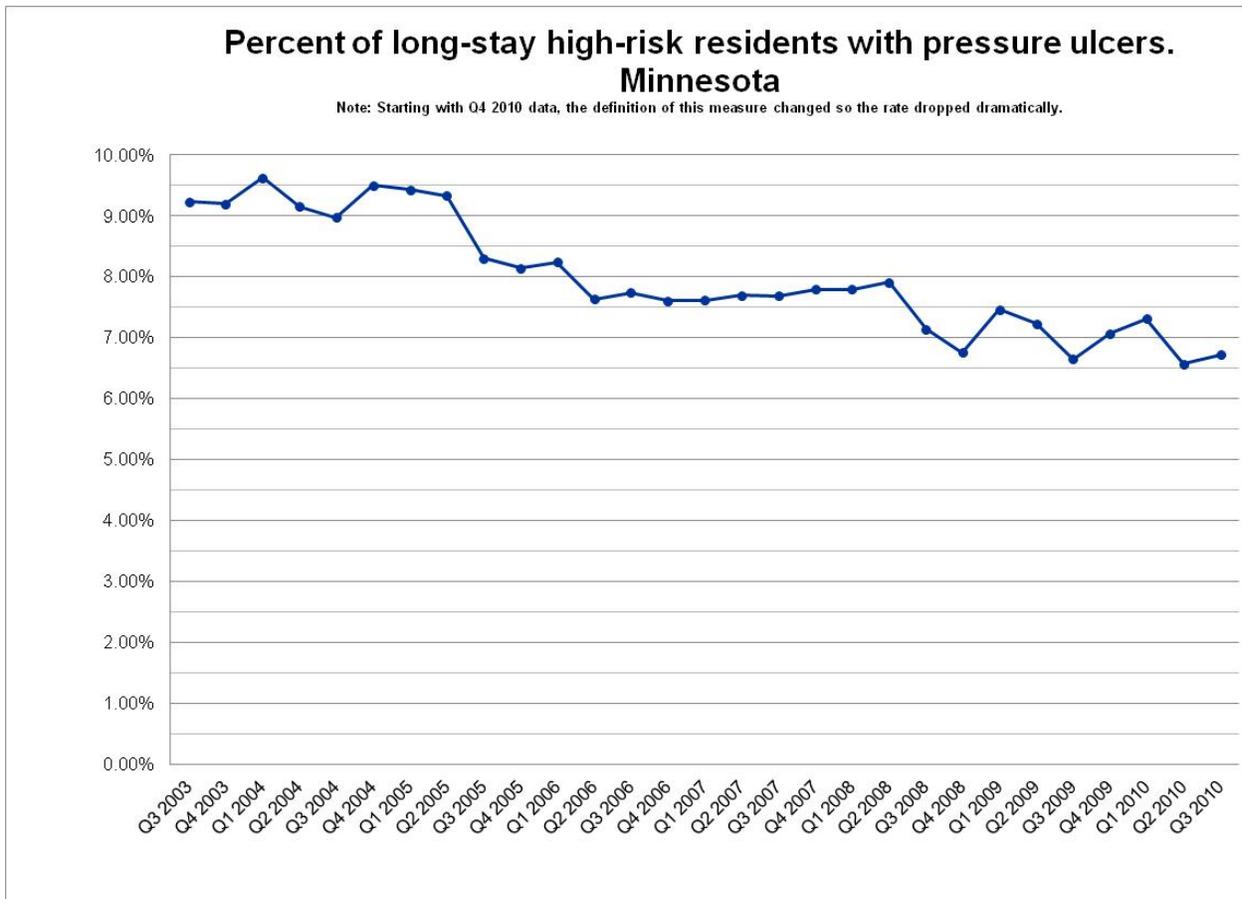
Long term post acute care settings, such as nursing homes, have a significant need to improve health care quality. About one in four Medicare beneficiaries discharged from a hospital to a skilled nursing facility is readmitted within 30 days.⁽⁶⁾ Preventable re-hospitalizations and other sub-optimal health care outcomes are detrimental to LTPAC patients and costly for federal and state governments as Medicare and Medicaid programs are the primary payers of LTPAC services. ⁽⁷⁾

HIT can be used to report progress from performance gaps using publically reported data from the MDS 3.0.

The following process and quality measures which are part of Nursing Home Compare could show improvements with HIT interventions implemented:

- Pressure ulcer incidence
- Cognitive status (using BIMS data from MDS 3.0)
- Functional status
- Depression
- Pain
- Falls

Nursing Home Compare data September 2003-September 2010



Quality Improvement

Improving long term post acute care transitions is a priority in Minnesota. The Minnesota e-Health Advisory Committee, a state appointed body which has existed since 2004, has prioritized long-term care as a setting needing special focus and resources to ensure that technology supports care quality, patient safety, and efficiency across the full continuum of health care.(1)

Further, Meaningful Use objectives will continue to have an impact on EHR progress in LTC/PAC facilities. Many of the quality measures to verify Meaningful Use for incentives requires interoperability with LTPAC providers (Ref: #6). They will require key clinical information to be electronically exchanged, including transitions of care data, and require that HIT is used to perform medication reconciliation activities and e-prescribing.(1)

A subset of publically reported quality measures apply across multiple health care settings. The Accountable Care Organization (ACO) quality measures align with those used in other CMS programs. Quality measures reported in MDS 3.0 and OASIS datasets could be mapped and used in health information exchange to improve quality across LTPAC settings.

In the work Stratis Health has done in its REC role, they have found that in order for health care organizations to use technology to advance quality, they must address the following process and system changes in order to improve care and communication at the transfer of care in an electronic exchange environment:

- Organizational support and needs
- Workflow issues
- Privacy and security issues
- Technical infrastructure

Use of Technology in Nursing Homes to Support Quality Improvement

Leveraging HIT to support quality improvement activities in nursing homes includes activities such as:

- Medication reconciliation activities
- Reporting medication errors
- Clinical decision support tools
- e-Prescribing
- Computerized physician order entry (CPOE)
- Health information exchange
- Ability to analyze data

The most common current use of EHRs in nursing homes is to document activities such as MDS assessment (99%), resident demographics (98%) and a diagnosis or condition list (96%). Other uses include alerts/reminders for medications (62%), preventive care services alerts/reminders (47%), reminders for missing labs (21%), and electronic prescribing (3%).(4)

Use of Technology to Support Medication Reconciliation Activities

Minnesota nursing homes with EHRs reported a relatively low use of technology to support medication reconciliation activities.

- 14% used EHRs for medication reconciliation
- 62% used alerts for medications, 48% for specific condition activities, 47% for preventative services reminders, 29% for reminders of medical or dental visits, and 21% for reminders of missing lab or test results
- 36% used an electronic medication activity record (e-MAR), while an additional 48% reported planning to use their EHR for e-MAR
- Only 3% used e-prescribing. However, 51% planned to use EHR for e-prescribing MAR in the next 18 months. 6% of nursing homes reported using EHRs for barcode medication administration.(4)

Most nursing home software vendors produce separate software modules (from the base purchase) for medication management, which is an extra expense to providers. A medication management module may be defined as software used for medication management activities such as medication reconciliation or e-prescribing. It is also used to describe, for example,

administrative modules for the purpose of producing dashboards to report e-prescribing activities. While data that shows specific percentages are not available at this time, Stratis Health believes that many current EHR users may have purchased medication modules for medication reconciliation, but they may not have turned those modules on or are not using them to their full capability. The upcoming readiness assessments for nursing home participants in the Health Information Technology for Post Acute Care (HITPAC) project will provide further information. REACH experience indicates that many workflow redesigns are needed to incorporate the modules into nursing home workflows to perform effective medication reconciliation activities.

Use of Technology to Report Medication Errors

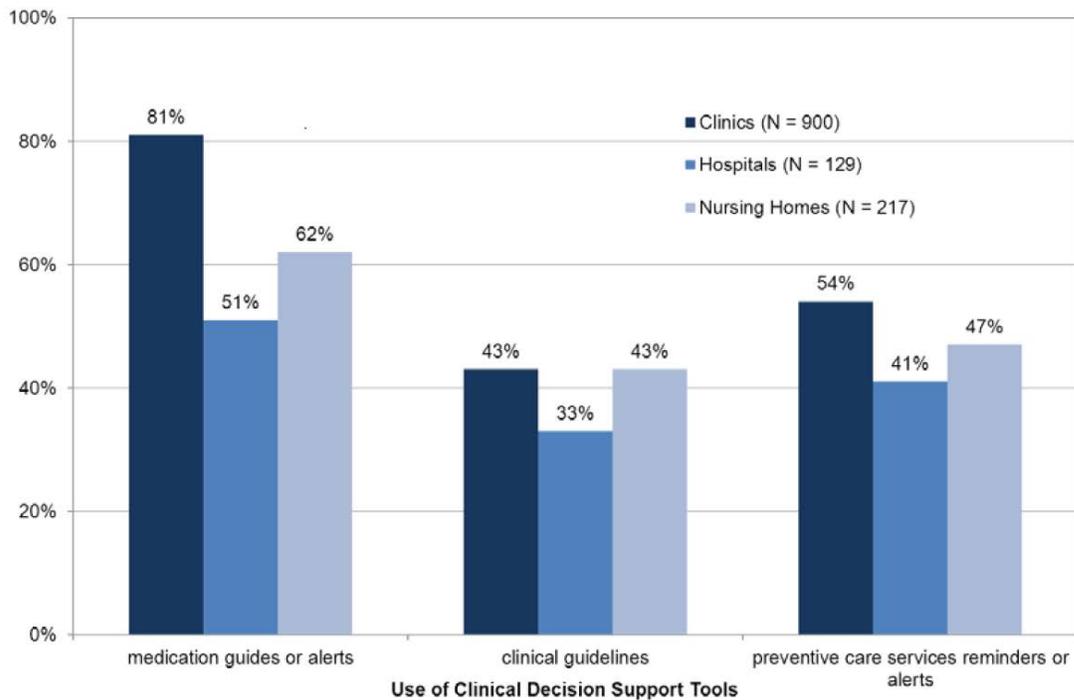
Medication errors involve provision of the wrong medication or dosage, and can occur in the prescribing, dispensing, and administration phases of medication management.(8) These errors are difficult to estimate accurately and vary by care setting, patient population, and provider.(9) Baseline data cannot be established unless the type of medication error is standardized. Such standardization currently does not exist in for public pay nursing homes in Minnesota.

Also, nursing homes have no requirement to report medication error data except in instances of adverse events. No medication error rates are publically reported. While nursing homes are required to have internal policies and procedures regarding medication errors, a standardized process for reporting does not exist. If/when standardized reporting of medication errors is implemented, the number of reports of medication errors is likely to spike well beyond the adverse event numbers while the standardization is realized. Increased awareness leads to greater reporting.

Clinical decision support (CDS) tools in electronic health records have been identified as a method for supporting quality improvement. CDS includes tools such as alerts and reminders that can impact clinical decisions on many provider levels. CDS can influence preventive practices such as immunizations or mammograms. It can be useful in medication management, such as providing alerts for drug-drug interactions or allergies. CDS also can be used to provide analytics tools such as dashboards for reporting performance.

In the 2007 survey, 23.2% of skilled nursing facilities reported using CDS tools.(5) The 2011 survey did not specifically ask about the use of CDS tools.(4) (Figure 3)

Figure 3. Use of Clinical Decision Support Tools by Minnesota Clinics, Hospitals and Nursing Homes (2011)



Source: Minnesota Department of Health, Office of Health Information Technology, www.health.state.mn.us/e-health/assessment.html

Ability to Analyze Data for Quality Improvement Purposes

Of the 22 nursing home software vendors surveyed in the LeadingAge/CAST EHR Selection Matrix, 12 reported having CDS system tools embedded in their software product.(10) Many of the vendors surveyed reported their EHRs' ability to assess quality elements such as pressure ulcers risk, fall risk status, and cognitive/functional status. The April 2012 revisions in MDS 3.0 improved cognitive status assessment and measurement, using the BIMS (Brief Interview for Mental Status) for cognitive status. This revision established a distinction between incorrect and unremarkable responses. The key distinction is that the incorrect response still bears a relation to the question or topic, reflecting a comprehension of the question/topic even though the answer is

not correct. LeadingAge/CAST is in the process of repeating its EHR Selection Matrix survey and adding over 25 questions that include more information about the use of CDS support tools and transitions of care standards. They also are working on a list of quality measures for their 2014 update.

In addition to the Health Information Technology for Post Acute Care (HITPAC) initiative, Stratis Health's QIO 10th Scope of Work initiatives for nursing homes are involved in reducing adverse drug events, improving patient assessment processes during transitions of care, and increasing the use of HIE during transitions of care, leading to a reduction of readmissions. These quality initiatives will add to the statistical data available for improving care going forward.

Many sources of data to support quality improvement processes are not currently available and no standardized method for obtaining this data is available at this time. These data sources include percentages of:

- Patient discharges for which standardized patient assessment documents were exchanged by nursing facilities
- Transitions and referrals in care on behalf of post acute care patients accompanied by an electronic discharge summary document
- Transitions of care involving patients discharged from post acute care providers who are accompanied by electronic discharge summary documents

Data is not available on the percentage of patient discharges for which standardized patient assessment documents were exchanged by hospitals. This is a burdensome data element to track given the current infrastructure.

A precursor to measuring data that is exchanged in transitions of care is achieving electronic exchange of the data to be measured.

STATE HIT/HIE ENVIRONMENT

Minnesota leads the nation in EHR adoption and recognizes the need for continued efforts to further harness the full capability of HIT to support effective use of an EHR, and, ultimately, progress towards health information exchange. As a result of 2007 legislation, the Minnesota e-Health Initiative developed its first Health Information Technology Statewide Implementation Plan. The 2008 plan articulates long term care needs:

The sheer number and complexity of admissions and discharges highlights the needs for timely, accurate and complete health record exchange, compounded by detailed federal and state documentation requirements.(11)

Several significant state mandates have since been enacted, including a requirement that all health care providers and payers establish and use an e-prescribing system by January 1, 2011, and a mandate that all health care providers and hospitals have an interoperable EHR system by 2015 (MN Statute 62J.495). In addition, Minnesota has enacted an HIE oversight law (MN Statute 62J.498-4982).(1) This law requires that any HIE service provider offering HIE services for clinical meaningful transactions must obtain a Certificate of Authority from the Minnesota Department of Health.(12)

Minnesota's approach to health information exchange is to support a market-based strategy for secure HIE that allows for private sector innovation and initiative, yet uses government oversight to ensure fair practices and compliance with state privacy protections.(12)

Health information exchange can occur in a variety of ways:

- Bi-directional: In Minnesota, two types of bi-directional HIE Service Providers were being certified as of May, 2012:
 - 1) The Health Information Organization (HIO) is a nonprofit entity that offers a robust set of HIE Options which meet all of the criteria for Meaningful Use. The Community Health Information Collaborative (CHIC) is the only

certified HIO in Minnesota. A user must pay annual bed and unit type fees for this HIE.

- 2) Health Data Intermediary (HDI) is a for-profit entity that may offer a more limited set of HIE options. The certified HDIs in Minnesota are ABILITY Network, Inc., Emdeon, ApeniMED, and Surescripts.(12)

Table 2: Capabilities of the State-Certified Health Information Exchange Service Providers: Self-Reported HIE Services/Offerings as of June 5, 2012

	State-Certified HIE Service Provider	ABILITY Network	ApeniMED	CHIC	Emdeon	Surescripts
Electronic Prescribing						
1	Transmit*		Push (send)	Push (send) and Pull (query/response)***	Push (send) and Pull (query/response)***	Push (send)
2	Exchange of eligibility details		Push (send)	Push (send) and Pull (query/response)***	Push (send) and Pull (query/response)***	Pull (query/response)***
3	Drug formulary checks*			Push (send) and Pull (query/response)***	Push (send) and Pull (query/response)***	Pull (query/response)
Public Health Transactions** An answer in this section does not imply the HIE Service Provider is submitting these transactions to the Minnesota Department of Health						
4	Electronic reporting of immunizations to MN Immunization Information Connection (MIIC)*	Push (send)	Push (send)	Push (send)	Push (send)	Push (send)
5	Electronic submission of reportable lab results to MN Electronic Disease Surveillance System (MEDSS)*		Push (send)		Push (send)	
Laboratory Data Transactions						
6	Electronic clinical laboratory test ordering		Push (send)	Push (send)	Push (send) and Pull (query/response)***	
7	Electronic laboratory results delivery		Push (send)	Push (send)	Push (send) and Pull (query/response)***	Push (send)
Quality Reporting Transactions						

8	Reporting of clinical quality measures (ambulatory or hospital)*		Push (send)	Push (send)	Push (send) and Pull (query/response)***	
Care Summary (CDA, CCD, CCR)						
9	Clinical data exchange*		Push (send) and Pull (query/response)***	Push (send) and Pull (query/response)***	Push (send) and Pull (query/response)***	Push (send)
Radiology Transactions						
10	Radiology results (reports)		Push (send)		Push (send) and Pull (query/response)***	Push (send)

* Notes Stage 1 Meaningful Use transactions

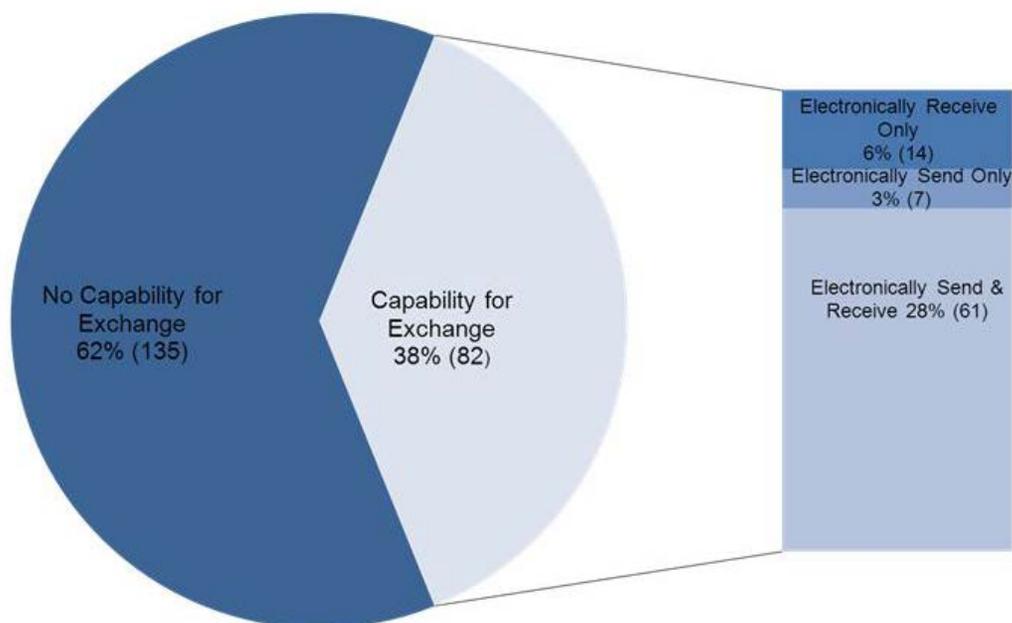
There are also many community based alternative methods which are being used for health information exchange in Minnesota.

Nursing homes indicate that they plan on exchanging data electronically in the future.(4) The software vendors that provide most (70%) nursing home software, PointClickCare and MDI Achieve, do not currently possess the ability to perform health information exchange. How nursing home providers will choose to perform health information exchange will depend on their resources as well as the capability of their software, as well as the capabilities available to their provider partners (hospitals, and/or other long-term or post-acute care providers). To date, most nursing home software vendors do not see business value in developing a continuity of care document (CCD) which could be used across settings for HIE. As technology continues to progress and initiatives reveal real time solutions, some vendors report they are beginning to see the business value of CCDs and have plans to develop them.

Interoperable Standards and Applications

In the 2011 survey, of the nursing homes with EHRs, 38% reported having capabilities for electronic exchange, with 28% having the capability to both send and receive data (Figure 4).(4)

Figure 4. Capability for Electronic Exchange of Minnesota Nursing Homes with EHRs



Source: Minnesota Department of Health, Office of Health Information Technology, MN EHR Nursing Home Survey (2011)
Response Rate: 83% (316/382)

For those nursing homes with an EHR, 40% plan to exchange data electronically with another system, and 34% to develop the capacity to electronically exchange with another system. For those in process of obtaining an EHR, 59% plan to select and implement a system, and 58% plan to develop capacity of the system to electronically exchange data with another system.(4)

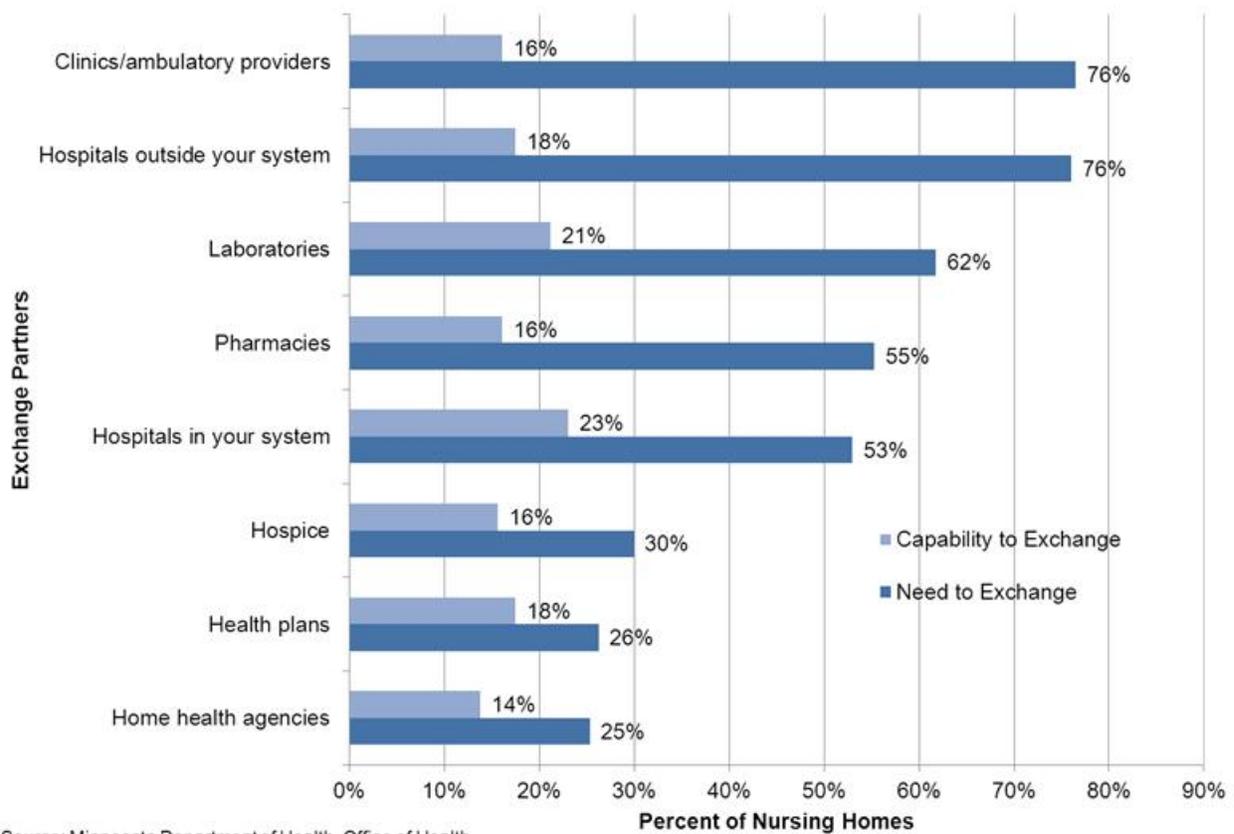
Interoperability of electronic health record systems in Minnesota means the ability of two or more EHR systems or components of EHR systems to exchange information electronically, securely, accurately and verifiably, when and where needed. The Minnesota vision for exchange is to electronically move health information securely between disparate systems in order to improve health care quality, increase patient safety, reduce health care costs, and improve public health, consistent with Minnesota’s principles of health reform.(1)

Nursing homes are required to use the standardized MDS 3.0 to complete and electronically exchange specific patient assessment documents. In the post acute care setting of home health care, Medicare-certified agencies are required to use the Outcome and Assessment Information

Set (OASIS-C). Each has core data elements (such as demographic, clinical, and other patient data) that could be used in health information exchange. Their current formats, however, were designed for reporting and their transmission formats are not interoperable.

In addition, nursing homes with existing EHRs indicated large gaps between their capability to exchange data electronically and their need to exchange (Figure 5). The largest gaps occurred for exchange with clinics (76% need vs. 16% capability) and hospitals (76% need vs. 18% capability).(4) Clearly, nursing homes recognize their need to improve information exchange.

Figure 5. Minnesota Nursing Homes’ Current Capability and Need to Electronically Exchange



Source: Minnesota Department of Health, Office of Health Information Technology, MN EHR Nursing Home Survey (2011)
Response Rate: 83% (316/382)

Minnesota hospitals report low percentages of exchange of patient data with LTPAC facilities. A 2011 survey (93% response rate) asked: Does your hospital electronically exchange any of the following patient data with any of the providers listed below? (Electronic exchange is defined as either including web-based interface with human action required (FTP file uploads) or machine-

to-machine exchanges of data (structured messages, standardized content) including HL7 messages. Electronic exchange does not include, paper, mail, phone, fax, or email exchange of information). (14)

	Nursing Homes	Home Health	Assisted Living
Patient Demographics	6% (8)	14% (18)	2% (2)
Clinical Care Record	6% (8)	4% (5)	2% (2)
Lab Results	5% (7)	4% (5)	2% (2)
Medication History	6% (8)	4% (5)	2% (2)
Radiology Results	6% (8)	4% (5)	2% (2)

Significant work has been done at the state and national levels to identify and map interoperable standards for transitions of care. ONC has brought together health care providers, HIT vendors, states, federal partners, government agencies, the standards community, and the research community to identify and prioritize core clinical elements for exchange that can be used across health care settings in transitions of care. In their Transitions of Care Initiative, they developed a Standards and Interoperability Framework that lays out implementation guidance to vendors in health information exchange design.(14)

Initiatives Under Way to Advance the Use of EHRs by Nursing Homes

Minnesota is currently involved in several initiatives through Minnesota e-Health:

1. Coordination with the Minnesota Health Care Reform Initiatives – MDH has been working to coordinate e-health and health reform efforts, particularly as it relates to the assessment of the status of EHR adoption and use
2. Coordination with REACH – Key Health Alliance, a partnership between Stratis Health, the National Rural Health Resource Center, and The College of St. Scholastica, which operates REACH for Minnesota and is receiving HITECH Act funding to provide technical assistance to health care providers and hospitals in the implementation and meaningful use of EHRs
3. Coordination with the Minnesota Department of Human Services (DHS) – DHS and MDH have worked collaboratively to produce an implementation strategy for the Medicaid EHR Incentive Program (MEIP) payments that leverages expertise from both agencies

4. Coordination with MDH Office of Rural Health and Primary Care (ORHPC) – Regular coordination with the ORHPC programs and activities helps ensure that resources effectively support providers in rural and underserved communities to achieve Meaningful Use and capacity for health information exchange
5. Minnesota EHR Revolving Loan Program – Minnesota legislation was amended in 2012 to include nursing homes in receiving loans for adopting interoperable EHRs, HIT or health information exchange. Loans are required to be paid in six years at zero percent interest.
6. Minnesota e-Health Connectivity Grants for Health Information Exchange – In 2011, Minnesota began its Minnesota e-Health Connectivity Grant Program for Health Information Exchange by providing modest resources for costs associated with planning for health information exchange and/or establishing connectivity with a state-certified health information exchange provider.

The Minnesota e-Health initiatives are focused on increasing e-health across all health care settings in Minnesota, including nursing homes and other LTPAC settings.(1)

Initiatives Under Way to Coordinate Care Through the Exchange of Health Information Between Nursing Homes and Acute Care Hospitals

1. Health Information Technology for Post Acute Care (HITPAC) CMS Special Innovation Project – In September of 2012, Stratis Health was awarded a one-year contract to help nursing homes further adopt EHRs as well as work towards health information exchange in transitions of care and medication management. This contract is designed to form two to three communities, each comprised of one referral hospital and five or more nursing homes that agree to work towards identifying patient assessment content in discharge summary documents that can be shared across a health information exchange.
2. Reducing Avoidable Readmissions Effectively (RARE) Campaign – Minnesota began a unique initiative in July 2011, to reduce avoidable re-hospitalizations. The RARE Campaign was established by Stratis Health, MHA, and the Institute for Clinical Systems Improvement (ICSI) to focus efforts across the state to improve the quality of care for patients transitioning across care settings and to reduce avoidable readmissions by 20% by the end of 2012.(15)

3. The Southeast Minnesota Beacon Grant – This Beacon program includes 11 counties, their public health offices, many health care providers, and school districts. Principal collaborating institutions and recipients include Austin Medical Center, Mayo Health System, Mayo Clinic, Olmsted Medical Center, and Winona Health Services. In southeastern Minnesota, Beacon will focus on two health conditions: childhood asthma and adult Type II diabetes. A major effort is to use information technology to create a communication system for coordinating and improving care.(16)
4. CHIC Part C Initiative – This initiative funds outreach efforts which will integrate HIE-Bridge with the long-term care facilities’ electronic health records to improve patient care by providing more timely and complete information during transition of care between acute care and long-term care facilities and from one long-term care facility to another.
5. 2012 Minnesota e-Health Connectivity Grant Program – The program is designed to expand community-based collaborative HIE efforts by providing funding to: a) Assist health care providers to meet requirements for federal incentives for meaningful use of an EHR, and/or b) Expand health information exchange capability among health care providers and other trading partners to support care and/or public health, and/or c) Increase the number of Minnesota pharmacies able to accept electronic prescriptions.(17)
6. Minnesota LTPAC Leadership – This initiative, started in 2012, aims to explore with Minnesota post-acute care leaders their interest, energy, commitment, and capacity to launch a community forum to develop post-acute care community vision and standards. They have identified three key areas:
 - Engage in joint policy advocacy, including payment reform
 - Address workforce development needs
 - Increase awareness and understanding of post acute care

CHALLENGES TO EHR ADOPTION AND USE AND HIE

Minnesota’s percentage of nursing home providers who report using an EHR has increased significantly from 2007. However, many challenges exist that are unique to the nursing home industry. Overall, nursing homes recognize and acknowledge the need for improved processes and outcomes for their residents, especially in transitions of care and medication management. Getting to an environment or culture of health information exchange is a progressive process that

involves not only leadership and workflow redesign at its inception. It also involves all parties involved in the exchange keeping pace with the speed at which technology is changing and acquiring knowledge to understand the benefit of those changes. Nursing homes frequently lack the resources for these activities.

Challenges to EHR Adoption, Implementation, and Upgrades

The 2011 survey asked nursing homes about their challenges to EHR adoption, implementation, and upgrades. For nursing homes with an existing EHR, the greatest challenge was staff education (58%).⁽⁴⁾ For those in the process of obtaining an EHR, the greatest challenges were effects on workflow (59%) and staff education and training (55%) of respondents.⁽⁴⁾ For nursing homes with no EHR adoption, the greatest challenge was the cost to acquire, update, and maintain a system (95%).

Challenges to Health Information Exchange

Of nursing homes with current EHRs, the greatest challenges to health information exchange reported were the unknown capabilities of others to send and receive electronic data (62%) and the inability of their system to generate/receive/send electronic messages in a standardized format (44%).⁽⁴⁾

Another challenge to health information exchange between nursing homes and hospitals is getting hospitals to invest HIT resources for a bi-directional exchange with nursing homes. In Minnesota, a challenge is that many Minnesota hospitals use EPIC as their software vendor. Epic has produced a product called Care Everywhere in which hospitals can grant view-only access to hospital health records to other entities who are also using Epic and Care Everywhere. Epic also has a product called Care Elsewhere that allows similar functionality but to entities using other EHRs. While this produces the ability for the nursing homes to see parts of Epic user hospital health records, without true interoperability, the nursing home must print off the data from the hospital system and re-enter it into their software system. This approach does not facilitate getting key health information from LTPAC facilities to hospitals. We do not know the current implementation of Care Elsewhere within our geographic area but we will be assessing and gathering that information.

Table 2. EHR Systems Used by Minnesota Ambulatory Clinics

EHR System	Percent and Number
Epic	32% (288)
Allscripts	13% (120)
NextGen	7% (64)
Cerner	7% (61)
GE Healthcare	7% (60)
LSS Data Systems	6% (56)
Last Word	5% (48)
Greenway Medical Tech	4% (32)
Other	19% (171)

MILESTONES and POLICIES

Minnesota has accomplished many milestones in e-health, with the latest focused on interoperable EHRs.(18) E-health activities in Minnesota are coordinated by MDH through the Minnesota e-Health Initiative, a public-private collaborative that represents the Minnesota health and health care communities' commitment to prioritize resources and to achieve Minnesota's mandates.(18) In addition, Minnesota is participating on LTPAC CoP, an ONC sponsored advisory group, which convenes state health information exchange representatives and other grantees interested in working on LTPAC care coordination and transition of care problems that can be addressed through HIE.

HHS and non-government agencies have established these milestone targets for nursing home HIT:

- Nursing home leadership for EHR use/adoption established in Minnesota
- Nursing home leadership on HITPAC established in Minnesota and moving towards HIE
- The percentage increase of nursing homes that report on planning to use their EHR for e-prescribing activities in the next 18 months

Policy Changes Needed to Facilitate EHR/HIE Adoption in Nursing Homes

Minnesota's e-Health Initiative has many policy recommendations to accomplish its goals to further adopt and use EHRs and expand health information exchange possibilities statewide.

These policy recommendations apply across health care settings, including LTPAC:

1. Electronic Health Record Effective Use Policy Considerations

- More applied research and distribution of best practices regarding effective use, including understanding the limitations of current technology
- Expanded consumer engagement and support for patients use of “summary of care” or “after visit summary” documents and through personal health records (PHR) so patients can have access to their health information
- Resources and commitment devoted to ensure the coordination and open distribution of knowledge, practical tools, tips, and templates for the effective use of EHRs
- Continue to clarify the knowledge gaps and needs of hospitals, providers, and consumers relating to the Minnesota 2015 Interoperable EHR Mandate and federal Meaningful Use

2. e-Prescribing Policy Considerations

- Encourage prescribing providers to adopt certified EHR systems that incorporate e-prescribing functionality to maximize their technology investments
- Encourage prescribing providers to meet Meaningful Use requirements in order to qualify for incentive payments to offset implementation costs
- Deploy federal funding to help pharmacies adopt and implement e-prescribing through the Minnesota e-Health Connectivity Grant Program

3. Workforce Policy Considerations

- Align efforts with national initiatives in order to leverage resources and build capacity in Minnesota
- Align workforce competencies and educational preparation with the needs of clinics, hospitals, and other settings
- Develop informational and educational opportunities for existing workforce especially in the areas of EHR implementation, health information exchange, and organizational change

As is described in the Minnesota policy recommendations for e-health, additional work is needed to increase health information exchange in all settings. The recommendations include:

- Develop guidance materials designed to fill the knowledge deficit
- Coordinate among statewide programs as well as national partners to ensure consistency of information resources
- Develop resources to support patients in understanding their secure health information options and benefits to participating in health information exchange
- Develop recommendations on specific instances where HIE should be routinely implemented in order to increase patient safety and improve patient outcomes
- Document the evidence of value and cost savings related to effective use of electronic health records and health information exchange (1)

In addition, Stratis Health would recommend:

- Leverage ONC funding to include nursing homes and other LTPAC settings for incentive payments to offset implementation costs
- Leverage ONC funding to support state health information exchange
- Leverage ONC funding to support regional extension center infrastructure and expertise in assisting nursing homes to adopt and use
- Leverage ONC funding to develop a unified transition of care/shared care document to facilitate the documentation, coordination and tracking of care across settings (e.g. reconciliation of medications)
- Focus concerted effort to motivate major hospital EHR vendors to work on standards-based machine-readable health information exchange solutions that allow bi-directional connectivity to EHRs used in nursing homes as well as other long-term post-acute care settings
- Increase Medicare/Medicaid reimbursement for providers who have adopted and are using EHR/HIE

Other Barriers and Challenges

LTPAC settings encompass care setting far beyond skilled nursing. Efforts should be expanded to include other relevant post acute care settings such as home health and assisted living if the aim is seamless exchange of information to improve patient care across post acute settings. In addition, future innovation projects involving EHR adoption and use and health information exchange need to allow adequate time to ensure their success. Hospitals and other LTPAC settings have limited resources and competing priorities. This environmental scan shows their desire to achieve electronic health information exchange, but doing so in an effective, efficient manner takes time.

CONCLUSION

Minnesota continues to increase EHR adoption and use in skilled nursing facilities. Nursing home providers who have not implemented or are not planning on health information exchange activities in the future need to be informed of the benefits of increased use of EHR functionality and HIE in transitions of care and medication management. Yet, awareness is not enough to facilitate adoption and effective use. Long term post acute care settings need resources, including financial incentives, in order for EHR adoption and use including HIE to advance efficiently and cost effectively.

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