Minnesota e-Health Initiative

MINNESOTA DEPARTMENT OF HEALTH

REPORT TO THE MINNESOTA LEGISLATURE 2017

Minnesota e-Health Initiative

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March 28, 2017

The Honorable Michelle Benson
Chair, Health and Human Services Finance and
Policy Committee
Minnesota Senate
3109 Minnesota Senate Building
95 University Ave. W.
Saint Paul, MN 55155-1606

The Honorable Matt Dean
Chair, Health and Human Services Finance Committee
Minnesota House of Representatives 401
State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd. Saint
Paul, MN 55155

The Honorable Jim Abeler
Chair, Health, Human Services Reform Finance and Policy
Committee
Minnesota Senate
3215 Minnesota Senate Building
95 University Ave. W.
Saint Paul, MN 55155-1206

The Honorable Joe Schomacker
Chair, Health and Human Services Reform Committee
Minnesota House of Representatives 509
State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd.
Saint Paul, MN 55155

To the Honorable Chairs:

As required by Minnesota Statutes, sections 62J.495 and 62J.498-4982, this Minnesota e-Health Initiative report outlines progress toward Minnesota's goals for health information technology.

Minnesota is a continued leader in e-health; all hospitals and nearly all clinics in the state are using electronic health records (EHRs). This was accomplished through a combination of statewide and community collaboration, policy initiatives and legislative requirements, funding, and advances in technology.

Despite the success of hospitals and clinics in Minnesota, there is more work to do in support of settings such as behavioral health, long-term and post-acute care, dentistry, state and local public health, and social services. These settings have largely been left out of federal meaningful use programs and incentives, but are critical to Minnesota's goals of achieving a statewide network of secure information exchange that includes the full continuum of care. The Minnesota e-Health Initiative is ensuring that these and many other activities in the public-private sector across the state are occurring in a coordinated and focused way.

Sincerely,

Edward P. Ehlinger, MD, MSPH
Commissioner
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Executive Summary

What is e-Health?

E-health is the adoption and use of electronic health record (EHR) systems and other health information technology (HIT) to manage patient information and move needed information securely among providers based on patient needs and privacy preferences. E-health is a critical foundational element for changing our healthcare system from one that is based upon payment for services to one that is driven by payment for value and health outcomes. Today's accountable care and accountable health models in Minnesota and across the country are emerging to support the coordination of care, using powerful health information gained through e-health, between care team members and patients. E-health also supports health equity by promoting equitable access to essential information to both patients and providers to reduce persistent health disparities, and provides, in one source through the EHR, the information on determinants of health that can influence outcomes.

Minnesota: An e-Health Leader

Minnesota has been an e-health leader for well over a decade; all hospitals and nearly all clinics in the state have adopted and are using electronic health records (EHRs). This was accomplished through a combination of statewide and community collaboration, policy initiatives and legislative requirements, funding, and advances in technology. Despite the success of hospitals and clinics in Minnesota, there is more work to do in support of settings such as behavioral health, long-term and post-acute care, dentistry, state and local public health, and social services. Without ongoing support for these settings, and for small providers more generally, Minnesota will leave certain patients and communities behind, without access to a statewide network of secure information exchange that includes the full continuum of care.

Private-Public Collaboration on Shared Goals

As required under Minnesota Statutes, section 62J.495, this report includes MDH's recommendations for action to advance the adoption and effective use of health information technology. The recommendations in this report have been developed in collaboration with the e-Health Advisory Committee and their workgroups, and through consultation with stakeholders and subject matter experts. They address e-health gaps needed to:

- Enable secure sharing of patient health information to support care coordination and population health.

- Implement e-health for providers across the care continuum and develop workforce skills to harness the potential of e-health.
- Use e-health to advance health equity and address public health threats such as opioid abuse and infectious diseases, and support rapid response to these threats.
- Advance the discovery and use of new knowledge in support of new preventions and cures.

These recommendations are based on Minnesota's history as a leader in e-health resulting from strong public-private collaboration and leadership that recognizes that we will all go further if we go together.

Recommendations

1. Clarify and/or streamline the Minnesota Health Records Act to support patient consent to share their health information when that information is necessary for the care of the patient or for appropriate public health purposes.
2. Establish health informatics roles and position classifications and series, including for state and local government.
3. Encourage integration of access to Minnesota's Prescription Monitoring Program database in appropriate EHR and pharmacy systems so that the workflow does not require extra log-ins and managing multiple page views.
4. Establish a plan across all of Minnesota's government agencies to implement coordinated and standardized information exchange with government programs, including a plan to connect to state-certified Health Information Organizations (HIO) for secure data exchange.
5. Maximize federal matching funds for e-health including the Centers for Medicare and Medicaid Services (CMS) 90% federal to 10% state funds (90/10) program now available in collaboration with the Minnesota Department of Human Services (DHS).
6. Train and educate Minnesota's health and healthcare workforce to optimize health information technology and informatics, understand how to use standards for health and social determinants of health, and to understand and implement the requirements of federal and state e-health laws.
7. Establish regional informatics advisors to provide local public health technical assistance and workforce skills development.
8. Implement the recommendations in the Minnesota e-Health Roadmap for Behavioral Health, Local Public Health, Long-Term and Post-Acute Care, and Social Services.

Planning for the Future

MDH and the e-Health Initiative Advisory Committee recognize that the future needs of e-health are accelerating, dynamic, and likely to continue to be complex. Our health ecosystem is rapidly changing with value-based reimbursement, increased awareness of individual and community factors that drive health and a focus on the secure collection, use, and sharing of information from and for providers across the care continuum, payers, individuals and families, communities, and others. The rapid pace of technological change is likely to increase. As such, the e-Health Initiative Advisory Committee has started to prepare for Minnesota's needs for "e-health 2030" by engaging stakeholders and subject matter experts in conversations to help anticipate future possibilities and develop action plans to address e-health's role in those scenarios.

Community Story: "My patients like it"

In 2009, Mayo Clinic started the process for patients to access their own medical records through a secure portal. The goal was to make all finalized laboratory reports and clinic notes available via a Patient Online Services system. I remember when this was announced that many of us had two thoughts shared simultaneously: 1) This really makes sense, and 2) This may make a lot of new work for me. Patient centered care had a legacy at Mayo, so there was no argument about why patients should have improved access to their records.

My fear that this would make a lot of work for me was unwarranted. What I did not see was what a powerful tool the patient portal is. My practice and patients benefit because we settle questions via secure messages quickly and directly. I make it a point to encourage my patients to register for the portal. Patients find it very convenient to review their care, and to communicate with local healthcare providers. Gone are the phone-tag sessions, the uneasiness on leaving a message (privacy concerns), and delays. The learning lesson is that while there is tremendous power in having the record of care organized around the patient in the form of one integrated EHR, there is even MORE power in having the patient be part of the EHR team.

My patients like it. I like it.

Timothy I. Morgenthaler, MD
Mayo Clinic Patient Safety Officer | Co-Director Center for Sleep Medicine | Consultant Pulmonary, Critical Care, and Sleep Medicine | Professor of Medicine, Mayo Clinic College of Medicine

Introduction

E-health is the adoption and use of electronic health record (EHR) systems and other health information technology (HIT) to manage patient information and move needed information securely among providers based on patient needs and preferences. Across the nation, e-health is proving to be a powerful strategy to transform the health system and improve the health of individuals and communities. It is an essential tool to improve health care quality, increase patient safety and reduce health care costs. It also and enables individuals and communities to make the best possible health decisions.

E-health has the ability to connect providers in a timely and efficient manner to ensure that patients receive the care they need. Because Minnesota's health system is fragmented, it is a challenge to coordinate care across the continuum. E-health is a tool that can help to get patients, providers and health systems to work in tandem.

As Minnesotans face an ever-evolving health system and continued advances in technology related to their healthcare, they want to see the results of our investment in health system transformation as well as our progress toward the triple aim of better health, better care, and lower costs. These advances in technology offer the opportunity to use health information for improved health outcomes. At the same time, the health of our population is continually changing. Minnesotans are experiencing increasing costs associated with aging and chronic diseases and less access to healthcare providers that can meet their needs.

Added to the mix, there is an increasing shift toward value-based reimbursement and an understanding that, in order to effectively improve health for all Minnesotans, health care providers need to partner with, and coordinate care with, a wider range of community, social services, and other health-related organizations. Effective, secure movement of and access to comprehensive health information is essential to ensure all providers have the information they need for patients to receive the care they need when they need it. E-health provides a critical tool to support these needs.

E-health provides a foundation for healthcare transformation in Minnesota. E-health supports advanced and efficient patient care, and the information in electronic systems supports care coordination and individual decision-making. Turning electronic data into useful knowledge to improve health care and outcomes is the ultimate value of e-health. Taking data and making it useful to providers and patients not only greatly improves the flow of information, it also provides a continuous cycle of learning and improvements to care delivery and understanding of disease and treatment. Underutilizing e-health tools and information can result in missed opportunities to advance population health.

Community Story: E-health builds relationships

Public health departments routinely conduct community health assessments to identify, quantify, and describe **community health assets and challenges** *in order to improve health across populations. Non-profit hospitals are now mandated to complete community health needs assessments (CHNA), which creates a unique opportunity for public-private partnerships to share data and information that includes aggregated electronic health record data.*

In 2015, HealthEast conducted its most recent CHNA and introduced the use of patient data to better understand root causes of obesity. HealthEast mapped BMI data for patients from its primary care clinics by zip codes, and then over-laid additional demographic information from public health departments that included race, ethnicity and language spoken. This revealed a better picture of the geographic concentrations of patients with high BMI and HealthEast was better able to consider root causes of obesity at a neighborhood level.

The results from this collective effort has been validated by community partners and has prompted more informed discussions on how best to address this pervasive health challenge. For more information about hospital and public health partnerships in the Twin Cities metro area that also involve the health plans, please visit the website for Center for Community Health mnmetrocch.org.

Joan Pennington, System Director, Community Benefit, Policy & Measurement, HealthEast

E-health is a Foundation for Healthy Communities

According to the U.S. Department of Health and Human Services *Healthy People 2010*[1] report, a healthy community is described as being one that continuously creates and improves both its physical and social environments, helping people to support one another in aspects of daily life and to develop to their fullest potential. People's environments – where they live and work, how they travel, what they eat and where and when they play, socialize and are physically active – have a major impact on their health and well-being.

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[1] U.S. Department of Health and Human Services. Healthy People 2010. Part 7: Educational and community based programs. Washington, DC: U.S. Government Printing Office 2000 Nov. Available from URL: http://healthypeople.gov/2020/topicsobjectives2020/DataDetails.aspx?topicId=11

E-health plays a role in supporting community health in several ways. E-health supports improved care through the use of automated decision support tools, provider feedback reports, patient registries, and research. It also supports care coordination across providers through the use of secure health information exchange (HIE), according to the patient's preferences, to support optimal transitions of care and minimize repeat testing and imaging. E-health also supports referrals and assistance for patients to access resources such as housing, food, transportation and other services. This integration of health care with the broader community is particularly important because these non-clinical factors are weighty contributors to a person's health. The expansion of e-health is improving the use of information to understand and improve the health in our communities, which in turn helps to better understand and improve the health of individuals. In part through effective use of e-health, Minnesota can strive towards creating healthy communities for its citizens.

E-health Supports Complex Care

Roughly, one-third of Minnesotans were treated for a chronic disease in 2012; of those, more than half were treated for multiple chronic diseases[2]. Approximately twenty percent of Minnesotans live with a mental illness. For all of these individuals, their families and the teams of health care professionals who work to help them live healthy lives, the lack of coordination between mental/behavioral health providers and primary and specialty care providers results in fragmented care and difficulty addressing co-morbidities.

In order to effectively manage care and improve health for complex patients, health and health care providers across the continuum of care must have the ability to securely exchange information with other providers within the health care system and have comprehensive access to patient information, in compliance with patients' preferences.

E-health is Foundational to Accountable Health

The Minnesota Department of Health (MDH) and the Minnesota e-Health Initiative have developed a framework that provides guidance to professionals, organizations, and leaders on what capabilities are needed to be successful in value-based purchasing or accountable care/accountable health models and effectively improve coordination of care for complex patients. E-health plays a foundational role in these critical components of the framework:

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[2] "Chronic Conditions Prevalence and Spending for Minnesotans with Health Insurance Coverage, 2012." Minnesota Department of Health, January 2016

- **Engaging and activating individuals and caregivers** through electronic communication with their providers and information to support the individual's engagement in their own health.

- **Engaging and activating all health providers** through automated decision support rules and access to comprehensive information such as medication histories, communicating with patients electronically, and receiving timely public health alerts.

- **Extending care coordination into the community** by enabling care coordinators to have access to individual health information to provide better care, improve referral coordination, and support successful transitions between settings.

- **Monitoring cohorts and attributed populations** by analyzing aggregated data on specific populations to identify gaps in care and ways to improve their health.

- **Managing population health** with timely access to community population-based data, enabling community-wide improvements in population health.

E-health is Necessary to Advance Health Equity

E-health is necessary to assure that providers, individuals, and their caregivers are able to make timely and informed decisions based on accurate and complete health information. E-health provides the tools and information needed to identify gaps and outcomes. Due to the complexity, cost, and rapid evolution of e-health capabilities, there are disparities in the distribution of e-health technology, workforce skills, and access to health information across the state. Smaller provider organizations, as well as those outside of clinics and hospitals, are less prepared to effectively use e-health.

Minnesota's E-health Accomplishments and Continued Efforts

Minnesota is an e-health leader for the nation, with high rates of adoption and a strong history of community support and engagement. This was accomplished through a combination of statewide and community collaboration, policy initiatives and legislative requirements, state and federal funding, and advances in technology.

Having a strong legal framework for e-health, along with ongoing state and federal financial commitments to supporting healthcare providers in achieving statewide e-health goals, has been critical to Minnesota's success. Figure 1 shows the state and federal legal and funding infrastructure that has developed over the years to help advance e-health.

Figure 1: Key Milestones for the Minnesota e-Health Initiative

Key Milestones
Minnesota e-Health Initiative 2004 – 2016

Minnesota Legislation		Federal Legislation	
MN e-Health Initiative established Minn. Stat. §62J.495	2004	$890 M Federal meaningful use incentives to hospitals and providers	2004 - Current
Health Records Act recodified/privacy enhanced Minn. Stat. §62J.495 (updated in 2010 & 2015)	2007	$2+ Billion national estimate for private investments in EHRs	2004 - Current
2015 Mandate for Interoperable EHRs Minn. Stat. §62J.495 (updated in 2010 & 2015)	2007	Congress passes the Health Information Technology for Economic and Clinical Health Act (HITECH Act)	2009
2011 Mandate for e-Prescribing passed Minn. Stat. §62J.497	2008	Medicare Access and CHIP Reauthorization ACT (MACRA), Quality Payment Program is passed.	2015
HIE Oversight Law passed Minn. Stat. §62J.498 – 62J.4982 (updated 2015)	2010		

As a result of this ongoing commitment, all of Minnesota's hospitals and nearly all clinics, clinical labs, local health departments and nursing homes in the state have adopted and are using EHRs (see Figure 2). However, not all health care providers, nor public health, have

received equal attention in these efforts. Federal financial incentive opportunities have been limited to clinics and hospitals and some dentists, excluding many other important care providers who often serve some of the most vulnerable and complex patients in the health care system. Nonetheless, all of Minnesota's providers, as well as public health, are making significant e-health progress (Figure 2).

Figure 2: Percent of Minnesota Providers Using Electronic Health Records
Clinical Labs use lab information systems rather than EHRs
Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016 (except where noted)

Percent of Providers with EHRs
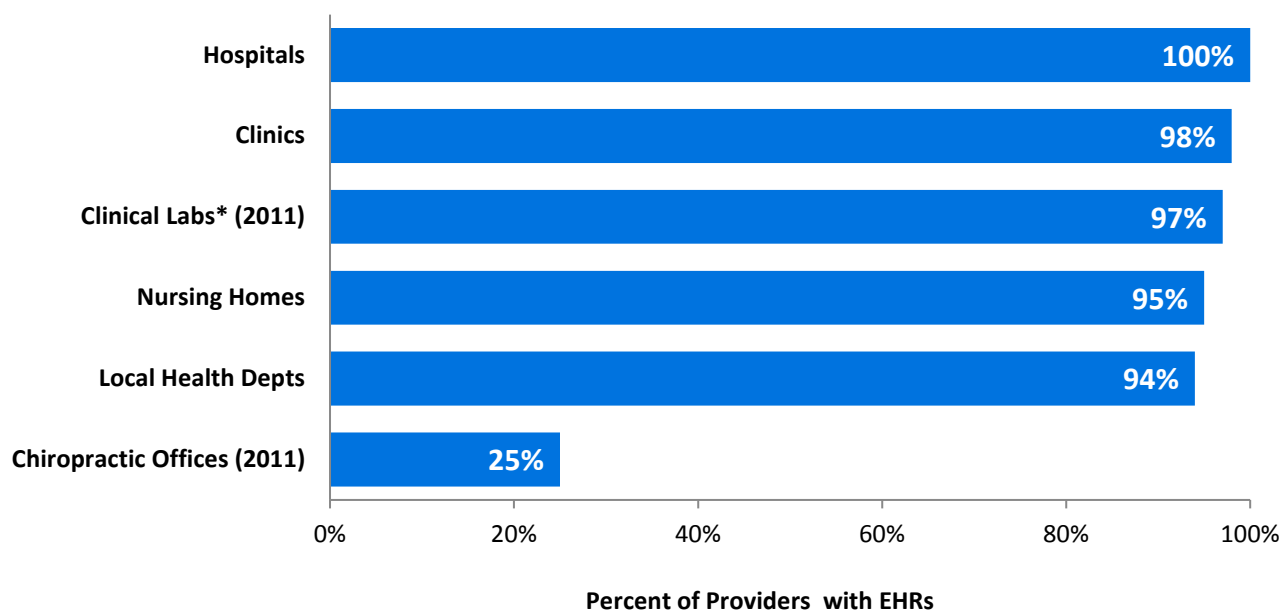
As a core part of its work, MDH's Office of Health Information Technology (OHIT) conducts regular assessments of EHR adoption and effective use by Minnesota health and health care providers. Appendix A provides a summary of data on e-health adoption, use and electronic exchange of health information in Minnesota. The data clearly reflect how settings have adopted EHR capabilities that are nation leading. Yet, the rates for effectively using the EHR systems, easily exchanging information and achieving interoperability are lower in certain settings and represent a gap in achieving the potential of EHR investments. Figures 3 and 4 demonstrate this disparity for nursing homes, showing lower use of EHR tools and lower rates of HIE. Other community providers have anecdotally indicated that they also struggle to optimize e-health.

Figure 3: Use of Clinical Decision Support Tools among Providers with EHR Systems

Legend: ■ Clinics ■ Hospitals □ Nursing Homes

Medication guides or alerts
- Clinics: 97%
- Hospitals: 91%
- Nursing Homes: 65%

Care services reminders/ alerts
- Clinics: 84%
- Hospitals: 78%
- Nursing Homes: 39%

Clinical guidelines
- Clinics: 86%
- Hospitals: 76%
- Nursing Homes: 17%

X-axis: 0%, 20%, 40%, 60%, 80%, 100%

Percent of Facilities Using CDS Tools

Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016

15
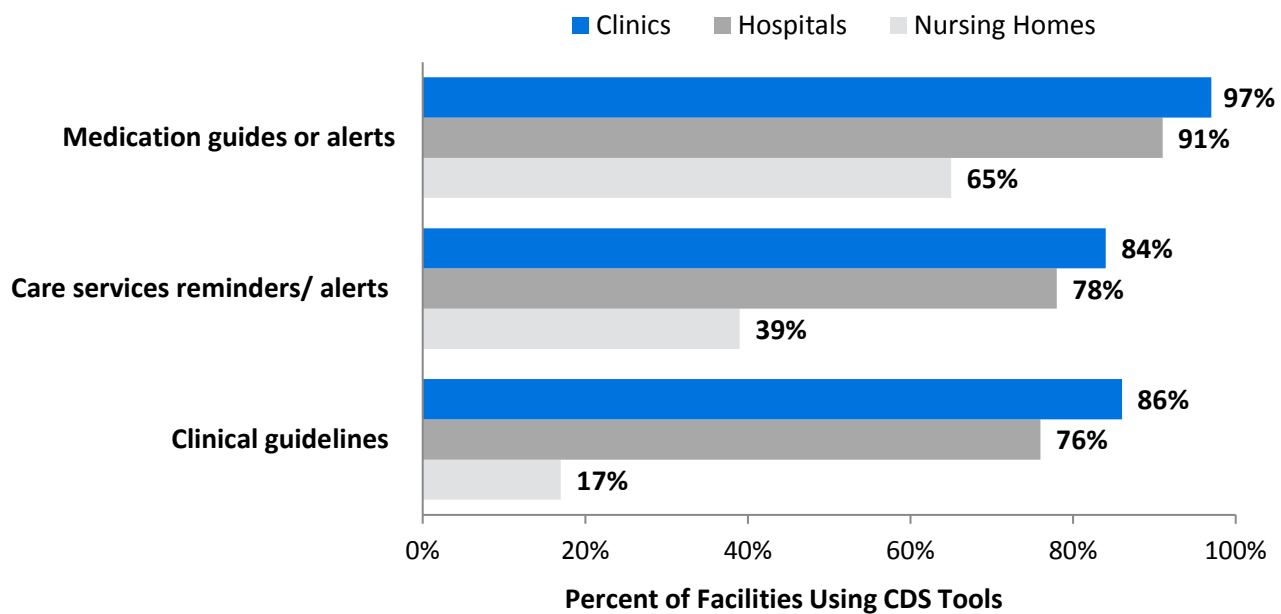
Figure 4: Electronic Health Information Exchange

Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016.

■ Clinics ■ Hospitals ■ Nursing Homes

Exchanging with unaffiliated hospitals and clinics
- 69%
- 72%

Routinely sending electronic summary of care records
- 40%
- 74%
- 4%

Integrating summary of care records into EHR
- 12%
- 19%
- 6%

0%   20%   40%   60%   80%   100%
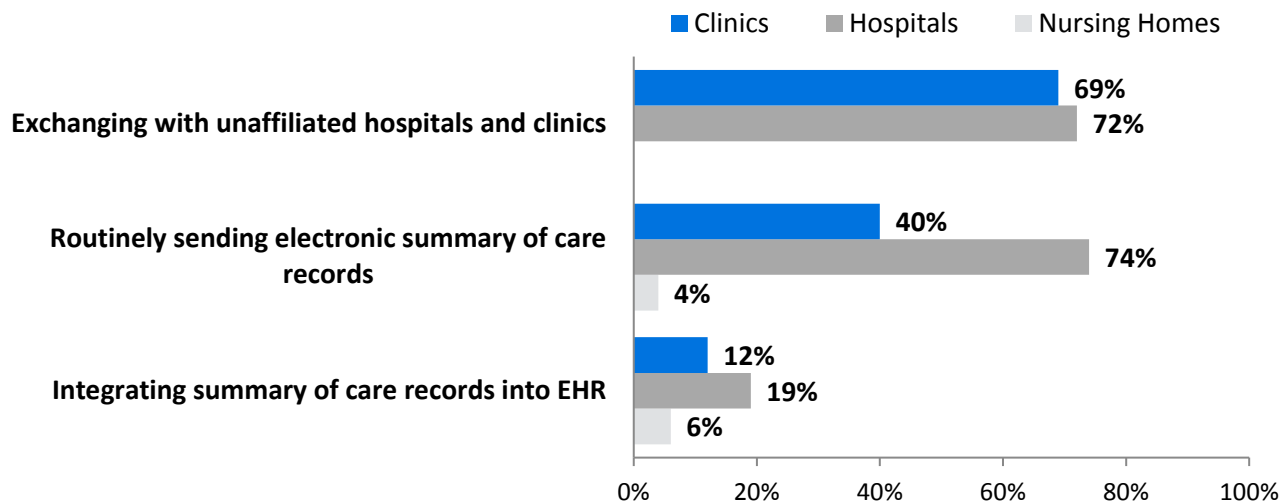
Achieving the vision of the Initiative requires a collaborative effort among the intersecting domains of clinical care, policy/research, public health, and consumer engagement. This work is accomplished through workgroups led by the Minnesota e-Health Advisory Committee members and supported by OHIT staff. OHIT also has statutory responsibility for Health Information Exchange Oversight, and supports the informatics needs of the agency.

Supporting E-health Across the Continuum of Care to achieve Population Health

In 2016, MDH released the Minnesota e-Health Roadmap for Behavioral Health, Local Public Health, Long-Term and Post-Acute Care, and Social Services providers to support these care settings as they implement and optimize e-health. With the growing recognition that improving health outcomes will require strong partnerships between health care providers and a broad range of community partners, and with payment rapidly moving away from payment for services and toward payment for value and outcomes, these settings will be critical for success. The Roadmap, funded by Minnesota's federal State Innovation Model grant, serves as an important guide for moving them towards greater use and secure exchange of data with care partners and patients, to improve coordination and integration of care.

The Roadmap was developed through a structured, iterative process, engaging over 100 stakeholders and subject matter experts. One of the key results of this project was the

development of 10 recommendations for providers within the priority settings to follow. Figure 5 shows the recommendations for adopting and using e-health to support healthier individuals and communities within a framework of collecting, sharing and using information. The recommendations are applicable for any type of health provider and setting. Further information is in Appendix E.

In 2017 and beyond, MDH will seek opportunities to educate providers in these settings about the Roadmap, and develop guidance to support the recommendations, enabling these types of providers – and others – to develop capacity to optimize e-health and prepare to participate in accountable health.

Figure 5: Minnesota e-Health Roadmap Recommendations

Collect
Collect and integrate information needed for care of the individual.

Use
Use information and automated tools to enhance care and outcomes.

Share
Share information to support care coordination and population health.

LEADERSHIP commits to e-health

ASSESS readiness for e-health adoption and optimization

Increase an **INDIVIDUALS' ACCESS** to health information

Comply with **PRIVACY, SECURITY AND CONSENT** laws and other requirements

Develop staff **E-HEALTH SKILLS** and knowledge

Use nationally recognized **STANDARDS** to ensure information can be used and shared

Optimize **WORKFLOW** for effective use of e-health

Toward Healthier Individuals & Communities

June 2016
For more information about the Minnesota e-Health Roadmap visit http://www.health.state.mn.us/e-health/roadmaps.html

Advancing Health Information Exchange

Health information exchange (HIE) is the secure, electronic transmission of health-related information between organizations according to nationally recognized standards. This means

each time information is sent electronically from one provider to another, it is done in a uniformly accepted way that meets specific standards to ensure protection of the data and privacy of the patient. It also means the information will be received in a way that is useful for the recipient. The Initiative has a workgroup dedicated to this topic in order to stay up to date with Minnesota's community needs and key national HIE activities.

Market-based strategy

Minnesota's approach to HIE has been to support a market-based strategy that allows for private sector innovation and initiative, yet uses government oversight to ensure fair practices, availability of HIE options and compliance with state and federal requirements, including privacy, security and consent protections. As such, Minnesota does not have one centralized organization that facilitates health information exchange. Rather, this strategy has resulted in a network of organizations, driven by regional and local community needs, to coordinate care and support population health. Minnesota's HIE oversight law (Minn. Stat. §§62J.498-4982), enacted in 2010 and updated in 2015, establishes a framework of limited state government oversight to:

- Ensure standards-based exchange requirements are being met
- Create a level playing field to ensure access for all communities and providers and provide a transparent process to the certification of HIE service providers
- Facilitate coordination and collaboration among HIE service providers
- Allow market-driven innovation, connectivity and services
- Assess and report on the state and progress of HIE

HIE certification and oversight

The MDH Office of Health Information Technology manages this oversight role by:

- Monitoring national and state HIE activities
- Certifying HIE service providers that provide HIE product and/or services in Minnesota
- Providing education and technical assistance to applicants on the certification process and requirements
- Convening State-Certified HIE Service Providers to ensure coordination between entities and services, with establishment of Minnesota Health Information Network (MNHIN).
- Providing education to providers on implementation of Minnesota's HIE Oversight law

The certification process is intended to promote public trust in HIE activities, decrease fragmentation of health information in the state, and provide a state strategy for community-based HIE through the use of State-Certified HIE Service Providers. See Figure 6 to see how the number of State-Certified HIE Service Providers have grown since the program began.

Figure 6: Number of HIE Service Providers Certified in Minnesota, 2011-2016
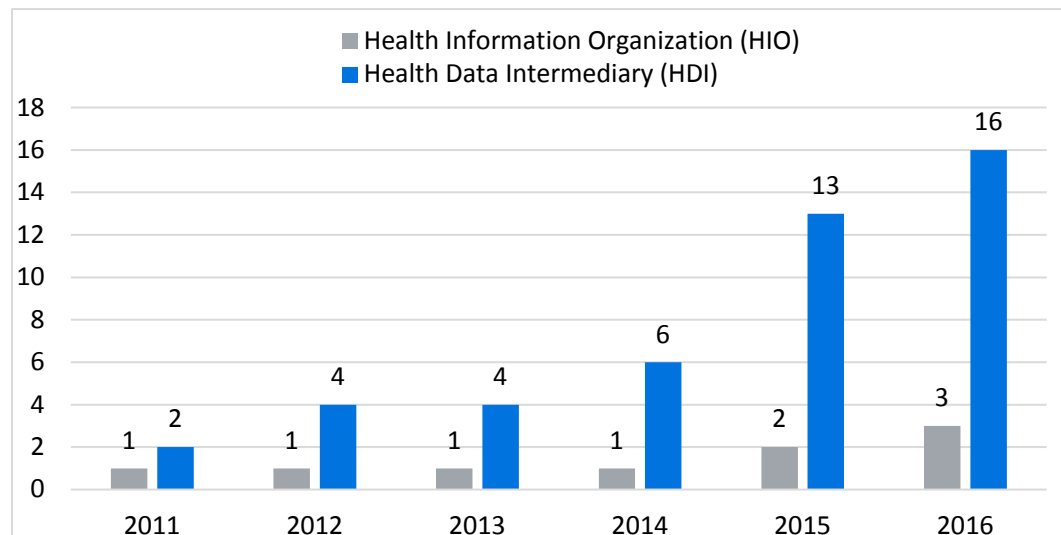
Counts as of December 31 in each year.

As of January 2017, the following entities are certified as either a Health Information Organization or Health Data Intermediary.

Health Information Organizations (organizations that govern, oversee and facilitate HIE across provider organizations)

- Allina Health
- Koble-MN
- Southern Prairie Community Care

Health Data Intermediaries (organizations that provide the technical capabilities or products and services to enable HIE)

- CenterX
- Cerner
- CIOX Health
- Simply Connect
- Healthcare Solutions
- Epic Systems Corporation
- Inpriva
- NextGen Healthcare Information Systems
- MaxMD
- MedAllies
- Medicity
- Relay Health
- Secure Exchange Solutions
- South Dakota Health Link
- Surescripts
- Wisconsin State Health Information Network

Addressing HIE challenges

HIE is very complex and the landscape is changing locally and nationwide, and there are both advantages and limitations to Minnesota's approach to HIE. In 2016, the Minnesota e-Health Advisory Committee endorsed the HIE workgroup's Working Action Plan to Address HIE Barriers in April 2016. The barriers include:

- The Minnesota HIE approach is not fully implemented
- Key transactions need to be prioritized and supported statewide. These include transactions such as Admission, Discharge, and Transfer Notifications between hospitals and primary care and Care Summary Exchange (with consolidated patient health history).
- Selecting an HIE Service Provider is complicated by a rapidly evolving market
- There are challenges to HIE implementation (e.g., process workflow)
- It is difficult to understand and execute legal and policy requirements (e.g., Minnesota privacy and consent requirements)
- Establishing partner relationships/agreements is often difficult, time-consuming and costly
- There are many competing organizational priorities

The recommended actions to address these barriers focus on:

- Increasing the number of health providers participating in statewide HIE (through State-Certified Health Information Organizations).
- Increasing the number of providers implementing priority HIE transactions (e.g., notification and alerting, care summaries)
- Identifying policy levers that will incentivize, enable, and support the use of statewide HIE.

Further details on the endorsed action plan are in Appendix D.

In addition to the above challenges and proposed actions, there is increasing attention nationally, in particular, to the notion of "information blocking" as a barrier to HIE. Information blocking occurs when persons or entities knowingly and unreasonably interfere with the exchange or use of electronic health information. Recent reports by the Office of the National Coordinator for Health Information Technology to Congress highlight this as a top priority for Health and Human Services moving forward. In Minnesota, there have been anecdotal reports to MDH about instances of information blocking as one reason why statewide HIE is not happening as expected. The notion of information blocking will be examined in a study directed by the legislature on HIE.   See Appendix D for more information on the HIE study.

HIE framework to support accountable health

The Minnesota Health Information Exchange Framework and Guidance to Support Accountable Health (Minnesota HIE Framework), developed by OHIT and the e-Health Initiative's HIE Workgroup, describes the HIE capabilities necessary for making progress in an accountable

health environment. The Minnesota HIE Framework has five key elements that apply across the health care continuum. These elements include:

- Engage and activate individuals and caregivers
- Engage and activate all health providers
- Extend care coordination into the community
- Monitor cohorts and attributed populations (including risk stratification)
- Manage population health (well-being of populations)

The framework includes a checklist tool for organizations to identify the functions and capabilities they and their partners use. Gaps in functions and capabilities across the organization(s) present opportunities to strategize with partners to close gaps to support accountable care and health.

The Minnesota e-Health Advisory Committee endorsed the 2016 edition in September 2016. The Minnesota HIE Framework report is available online http://www.health.state.mn.us/e-health/hie.html.

E-health grants

As part of Minnesota's State Innovation Model (SIM) grant, OHIT provided grants to support the secure exchange of medical or health-related information between organizations participating in an accountable care models. The grants are designed to help care team members from clinical, community, and social service settings use HIE and health information technology to better meet the health needs of patients and community members. The grants help supports establishing and implementing HIE so that it occurs in a seamless and real-time way among settings.

MDH awarded two rounds of e-health grants in 2014 and 2015 for 12-month development or 18-month implementation grants to support:

- Expanded HIE to SIM-Minnesota priority settings (long-term and post-acute care, behavioral health, local public health and social services);
- Effective HIE use to improve care coordination, health care and population health; and
- Readiness to advance the Minnesota Accountable Health Model and accountable communities for health.

In 2016, MDH and the Department of Human Services selected six organizations to receive just over $1 million for the Health Information Exchange (HIE) and Data Analytics Grant. The grant funding will support the secure exchange of health information and data analytics efforts to effectively identify opportunities to improve health care and population health. The awards range from $110,000 - $200,000 per award for an estimated nine-month period. The organizations selected to receive grant awards are Integrity Health Network; Lakewood Health System; Lutheran Social Service of Minnesota; Minnesota Community Health Network; Northwestern Mental Health Center and Southern Prairie Community Care.
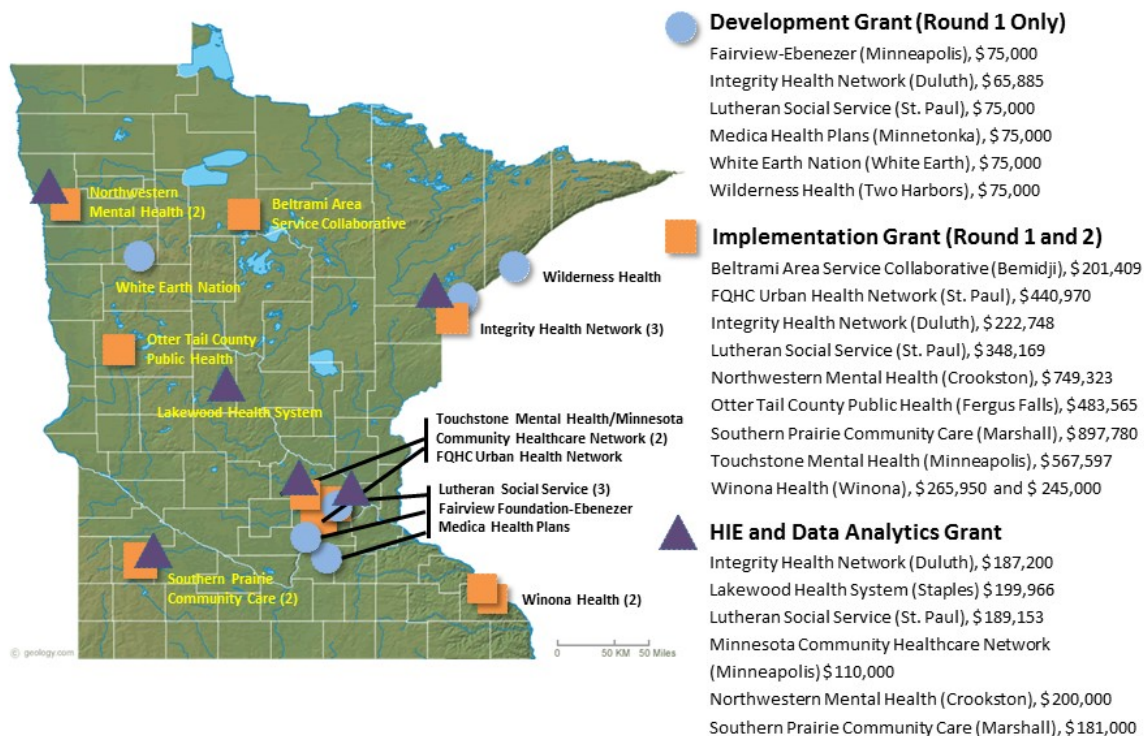
Privacy, security and consent management for health information exchange

In 2016, the law firm Gray Plant Mooty continued its work under an MDH SIM grant awarded in 2015 to assist providers with understanding Minnesota and Federal privacy, security, and consent laws. Through the summer of 2016 the firm completed a legal analysis of 11 health use case stories and scenarios including four identified by the Minnesota e-Health Roadmap project, reviewing approximately 50,000 pages of laws, regulations, commentary and other guidance. Tension between Minnesota and federal law is a consistent barrier as well as different standards applying to different types of records [e.g., mental health records (Minnesota Health Records Act); Psychotherapy notes (HIPAA); Alcohol and drug abuse records (42 CFR Part 2); student education records (FERPA)]. A summary of the 11 use cases identified which laws apply to whom and when in each scenario, and a total of 15 reoccurring legal challenges and barriers to health information exchange were specified throughout the use cases.

In the fall of 2016 the firm began drafting a Foundations in Privacy Toolkit containing tools, checklists, template legal agreements and other resources that are intended to help Minnesota providers overcome the 15 identified reoccurring legal challenges to the proper flow and

exchange of health information. Work on this grant has been extended through 2017, with the focus shifting to widespread dissemination of the information to providers through education forums, training sessions and webinars.

E-health Standards for Interoperability

Interoperability can be defined as "the ability of a system to exchange electronic health information with and the ability to use electronic health information from other systems without special effort on the part of the user."[3] Interoperability allows providers, communities, individuals and their families to collect, use, and share health information accurately, securely, and in a timely way to support health and shared decision-making. The fast-changing needs and expectations of individuals and their families, communities, and providers are significant drivers in achieving interoperability.

E-health standards are essential to achieve interoperability by ensuring that all providers use consistent data terminology and structures. The Interoperability Standards Advisory (ISA)[4], released annually by the Office of the National Coordinator is an inventory of standards necessary to getting the right information to where it is needed and in a form that is useful and can assist in decision-making and to improve health outcomes, advance health equity, and lower health care costs.

MDH is responsible under Minnesota Statutes, section 62J.495, to monitor and recommend e-health standards. This activity is coordinated with the Minnesota e-Health Initiative, through its Standards and Interoperability Workgroup and OHIT, using a structured process that builds on and aligns with work of national and federal organizations and partners. In addition to recommendations and guidance, this process supports identification, development, and sharing of tools and resources for standards adoption and use. In recent years, recommendations and guidance have focused in four areas 1) social determinants of health and health equity; 2) nursing documentation terminology; 3) providers across the care continuum; and 4) accountable care and value-based payment.

Supporting Informatics in MDH Programs

Some programs at MDH need to be able to electronically accept clinical, individual-level health data, as well as manage and share that data electronically with health providers for follow-up and action, as part of their statutory responsibilities. MDH programs also often need to be able to share data internally with other MDH programs, based on business need and legal authority.

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[3] The Office of the National Coordinator for Health Information Technology. Connect Health and Care for the National. A Shared Nationwide Interoperability Roadmap. FINAL Version 1.0. Accessed October 24, 2016. https://www.healthit.gov/sites/default/files/hie-interoperability/nationwide-interoperability-roadmap-final-version-1.0.pdf

[4] The Office of the National Coordinator for Health Information Technology. Interoperability Standards Advisory (ISA). https://www.healthit.gov/standards-advisory. Accessed October 28, 2016.

Our external stakeholders, including health care providers and local public health partners, increasingly expect MDH to be able to consistently and efficiently accept their data electronically. MDH programs have expressed a desire and willingness to meet the needs of our external stakeholders and have consistent, reliable means of both accepting and sharing data to support statutory requirements and public health goals. In 2016, OHIT assessed 21 MDH programs to determine how ready those programs are to begin to move forward on these issues, and what needs to happen in order to do so.

This assessment found a wide variation in programs' system size, staffing numbers, budgets and other factors that impact readiness to move towards a consistent, agency-wide, standards based electronic system for data submission. Despite these variations, OHIT found strong similarities in what programs identified as needs and issues related to achieving interoperability. These are broadly described as:

- Management and IT support to make interoperability a priority, including a strategy and governance structure for managing HIE, and department-wide coordination, and information sharing.
- Economies of scale achieved by investing in and using/accessing shared processes, workflows, applications, tools and other resources. This may also include new funding strategies to optimize resources across program silos, and data sharing strategies for efficient data management.
- Building workforce skills to manage data and information systems is a growing need. Creation of an informatician classification, in addition to use of an option on existing classifications, would help standardize the knowledge and skillsets being hired.

MDH has recently had the opportunity, in partnership with the Department of Human Services, to receive 90 percent federal share funding (with state funding match of 10 percent) to support necessary work to improve electronic data submission for two programs – immunization program and electronic laboratory reporting (for reportable diseases). As part of a five-year plan, MDH will be working with providers and hospitals to improve data submission efforts in a way that complies with national standards.

Outreach and Education

OHIT staff have increasingly been asked to provide informatics education and technical assistance both within the agency and among our external stakeholders, as well as national audiences. These activities range from presentations at conferences, stakeholder meetings, and individual consultation with MDH programs or organizations external to MDH. Common interests include:

- Minnesota e-health environment, the role of the e-Health Advisory Committee and Minnesota e-health accomplishments
- Minnesota interoperability requirements

- Health information exchange, including Minnesota's model for health information exchange, current status and opportunities for participating
- Resources for understanding Minnesota and federal privacy and security requirements
- Using e-health to improve population health
- Specific actions programs and organizations can take to improve their electronic use of information

Minnesota's 12th Annual e-Health Summit

The Initiative's annual summit "Closing the Gaps to Achieve Healthy Communities," held June 7, 2016, shared experiences of Minnesota's communities in optimizing e-health to transform health care and advance population health. More than 300 attendees participated in three plenary sessions, 13 breakout sessions and three rapid-fire sessions with some 60 speakers highlighting practical information, insights, tools, and resources to connect communities and transform health and health care through EHRs and other health information technology. The summit provides an annual opportunity for professionals statewide who are working on e-health related efforts to share their stories, lessons learned and network with colleagues. The presentation slides and other materials provide a library for education and training available to everyone throughout the year.

Throughout the 2016 Summit, participants were encouraged to text words that stood out to them as relevant to their e-health priorities. The associated word-cloud in Figure 8 gives a clue to the types of issues on the minds of people as they participated in the Summit: equity, interoperability, collaboration, community.

Figure 8: Minnesota e-Health Summit Word Cloud

Recommendations

The legislature, in Minnesota Statutes, Section 62J.495, has directed the Commissioner of Health to provide "recommended actions on policy and necessary resources to continue the promotion of adoption and effective use of health information technology" in order to improve the health of all persons in Minnesota, and to include those recommendations as part of an annual report.

The recommendations in this report are based on the premise that e-health is a foundational element of Minnesota's health care and public health ecosystem. This ecosystem includes a wide array of health providers and health-related services that need to operate in synchronicity to support the health and wellbeing of individuals and our communities. In the high-tech digital era of today and the future, this ecosystem relies on uniform standards and procedures to communicate information and allow that information to be timely feedback that supports improved quality of care, understanding of disease and treatment, and individual engagement in health.

Private-Public Collaboration on Shared Goals

The recommendations have been developed in collaboration with the e-Health Advisory Committee and their workgroups, and consultation with stakeholders and subject matter experts. They address e-health gaps needed to:

- Enable secure sharing of patient health information to support care coordination and population health.
- Implement e-health for providers across the care continuum and develop workforce skills to harness the potential of e-health.
- Use e-health to advance health equity and address public health threats such as opioid abuse and infectious diseases, and support rapid response to these threats.
- Advance the discovery and use of new knowledge in support of new preventions and cures.

These recommendations are based on Minnesota's history as a leader in e-health resulting from strong public-private collaboration and leadership that recognizes that we will all go further if we go together.

Recommendations

1. Clarify and/or streamline the Minnesota Health Records Act to support patient consent to share their health information when that information is necessary for the care of the patient or for appropriate public health purposes.
2. Establish health informatics roles and position classifications and series, including for state and local government.

3. Encourage integration of access to Minnesota's Prescription Monitoring Program database in appropriate EHR and pharmacy systems so that the workflow does not require extra log-ins and managing multiple page views.
4. Establish a plan across all of Minnesota's government agencies to implement coordinated and standardized information exchange with government programs, including a plan to connect to state-certified Health Information Organizations (HIO) for secure data exchange.
5. Maximize federal matching funds for e-health including the Centers for Medicare and Medicaid Services (CMS) 90% federal to 10% state funds (90/10) program now available in collaboration with the Minnesota Department of Human Services (DHS).
6. Train and educate Minnesota's health and healthcare workforce to optimize health information technology and informatics, understand how to use standards for health and social determinants of health, and to understand and implement the requirements of federal and state e-health laws.
7. Establish regional informatics advisors to provide local public health technical assistance and workforce skills development.
8. Implement the recommendations in the Minnesota e-Health Roadmap for Behavioral Health, Local Public Health, Long-Term and Post-Acute Care, and Social Services.

MDH and the e-Health Initiative Advisory Committee recognize that the future needs of e-health are accelerating, dynamic, and likely to continue to be complex. Our health ecosystem is rapidly changing with value-based reimbursement, increased awareness of individual and community factors that drive health and a focus on the secure collection, use, and sharing of information from and for providers across the care continuum, payers, individuals and families, communities, and others. These recommendations are designed to support providers and patients in meeting these challenges.

But we also know that the rapid pace of technological change is likely to increase. As such, the Initiative has started to prepare for Minnesota's needs for "e-health 2030" by engaging stakeholders and subject matter experts in conversations to help anticipate future possibilities and develop action plans to address e-health's role in those scenarios. Findings and recommendations that emerge from that work will be included in future reports to the Legislature.

Appendices

Appendix A: e-Health Profile of EHR Adoption, Use and Health Information Exchange

The Minnesota e-Health Profile is a series of studies of health care facilities that uniformly collects and shares the progress of Minnesota's health care providers in adopting, implementing and electronically sharing health information with a patient's other providers.

These assessments are designed to measure Minnesota's status on achieving state and national goals relating to e-health; identify gaps and barriers; help develop programs and inform decisions at the local, state and federal levels of government; and support community collaboration efforts. Minnesota is the only state in the nation to have a consistent methodology to measure e-health progress.

Since 2010, OHIT has conducted annual HIT assessment studies among Minnesota's hospitals, ambulatory clinics, community health boards, and nursing homes. Data for other health settings is provided from previous years' surveys. These studies show that Minnesota continues to make great strides in advancing e-health in many settings and evidence continues to grow regarding the positive impact of EHRs for Minnesota consumers, health care providers and communities.

Adoption of electronic health records

Minnesota has some of the highest EHR adoption rates in the country[5]. Exhibit A-1 shows adoption rates across health and health care settings in the state.

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[5] U.S Department of Health and Human Services, Office of the National Coordinator for Health IT, Health IT Dashboard. Accessed 11/16/2012

Exhibit A-1: Percent of Minnesota Providers Using Electronic Health Records
* Clinical Labs use lab information systems rather than EHRs
Source: Minnesota e-Health Profile, MDH Office of Health IT, 2011-2016

Provider	Percent
Hospitals	100%
Clinics	98%
Clinical Labs* (2011)	97%
Local Health Depts	94%
Nursing Homes	94%
Chiropractic Offices (2011)	25%

Percent of Providers with EHRs
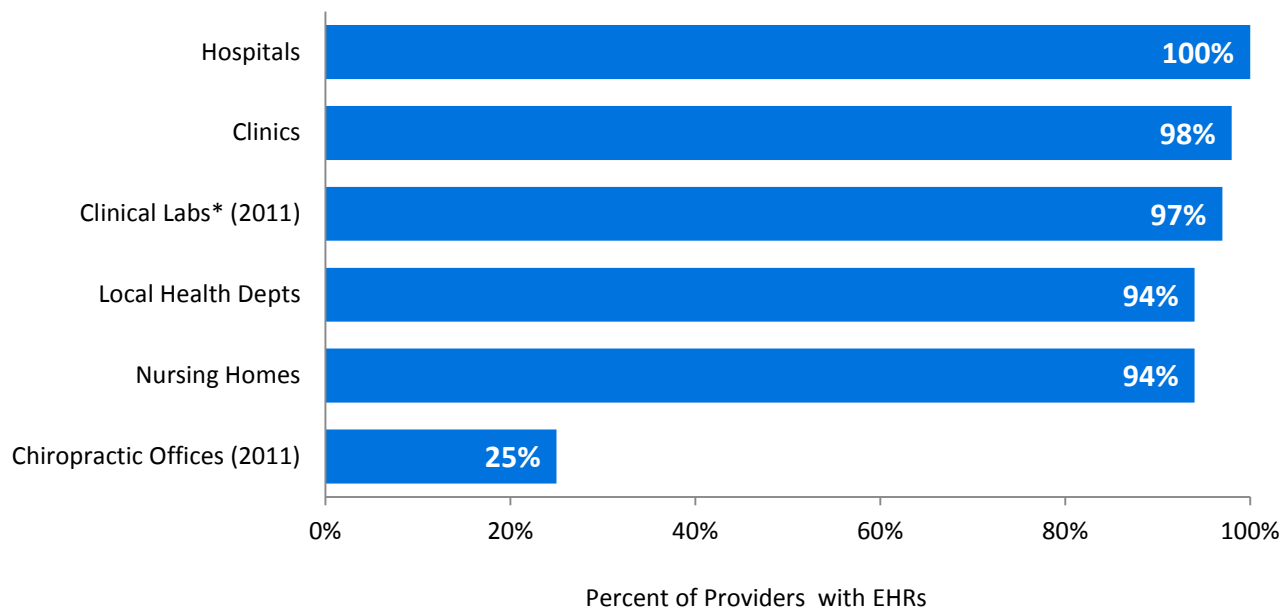
It should be noted that EHR systems are not a "one size fits all" type of product. For example, a system that works for primary care clinics does not necessarily work well for behavioral health or long-term care due to the nature of care provided. Federal funding incentives from the HITECH Act of 2009 drove vendors to develop EHR solutions for clinics and hospitals, but not for other settings. As such, EHR options for providers across the full spectrum of care, and standards to support them, have developed more slowly and these providers have not had the same funding incentives. Despite these barriers, the Initiative recognizes the need for all providers to use e-health in support of patient safety, accountable care models, and community health.

The adoption rate is very strong among hospitals, clinics and pharmacies (Exhibit A-2). While the rate of adoption is leveling off as it approaches 100%, there was tremendous progress in adoption over the past decade.

Exhibit A-2: Trends in EHR Adoption: Hospitals, Clinics, Pharmacies
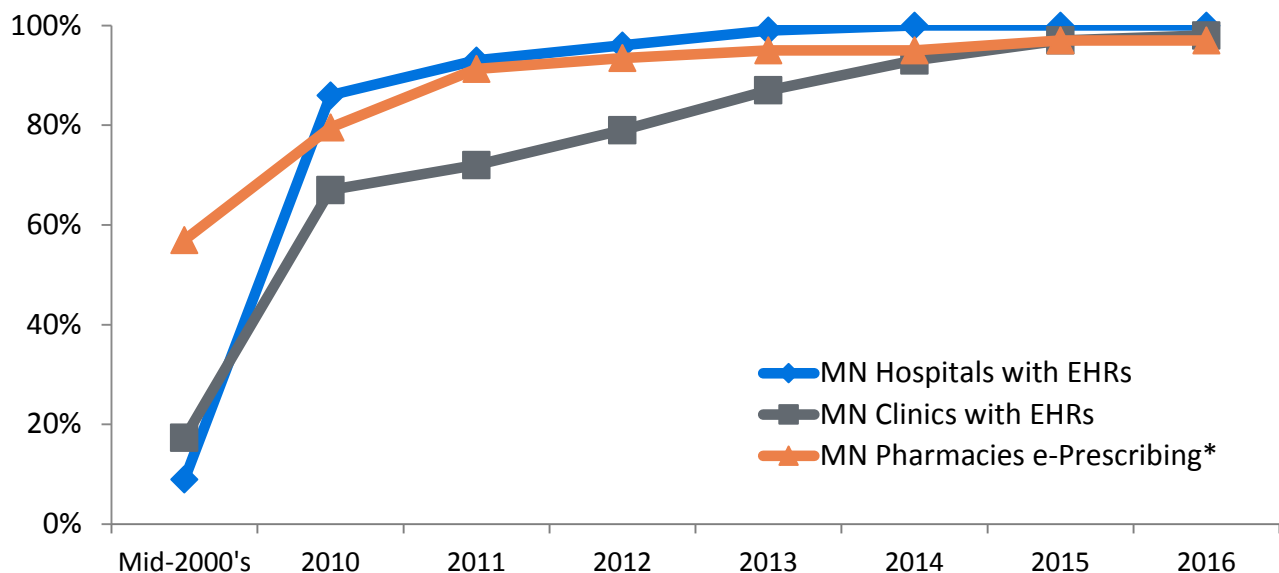
Source: Minnesota e-Health Profile, MDH Office of Health IT, 2004-2016; Office of the National Coordinator, Surescripts
*Excludes pharmacies with the pharmacy class of medical device manufacturer

Effective use of electronic health records

The real value from investing in and implementing an EHR system is optimizing how it can be used to support efficient workflows and effective clinical decisions. Effective use means that the EHR has tools such as computerized provider order entry (CPOE), clinical decision support (CDS) tools, and electronic prescribing, and there are processes in place to use these tools for improving health care. Achieving effective use is complex and is impacted by user behavior, organizational processes and practices, and EHR functionality.

Clinical decision support is defined broadly as providing clinicians or patients with clinical knowledge and patient-related information, intelligently filtered or presented at appropriate times, to enhance patient care. Exhibit A-3 shows key clinical decision support tool indicators in clinics and hospitals. The number of clinics and hospitals using these tools has increased over time, and earlier gaps between urban and rural rates of implementation have declined.

Exhibit A-3: Use of Clinical Decision Support Tools among Providers with EHR Systems

■ Clinics　■ Hospitals

Medication guides or alerts
- Clinics: 97%
- Hospitals: 91%

Care services reminders/ alerts
- Clinics: 84%
- Hospitals: 78%

Clinical guidelines
- Clinics: 86%
- Hospitals: 76%

Percent of Minnesota Hospitals and Clinics
Using CDS Tools
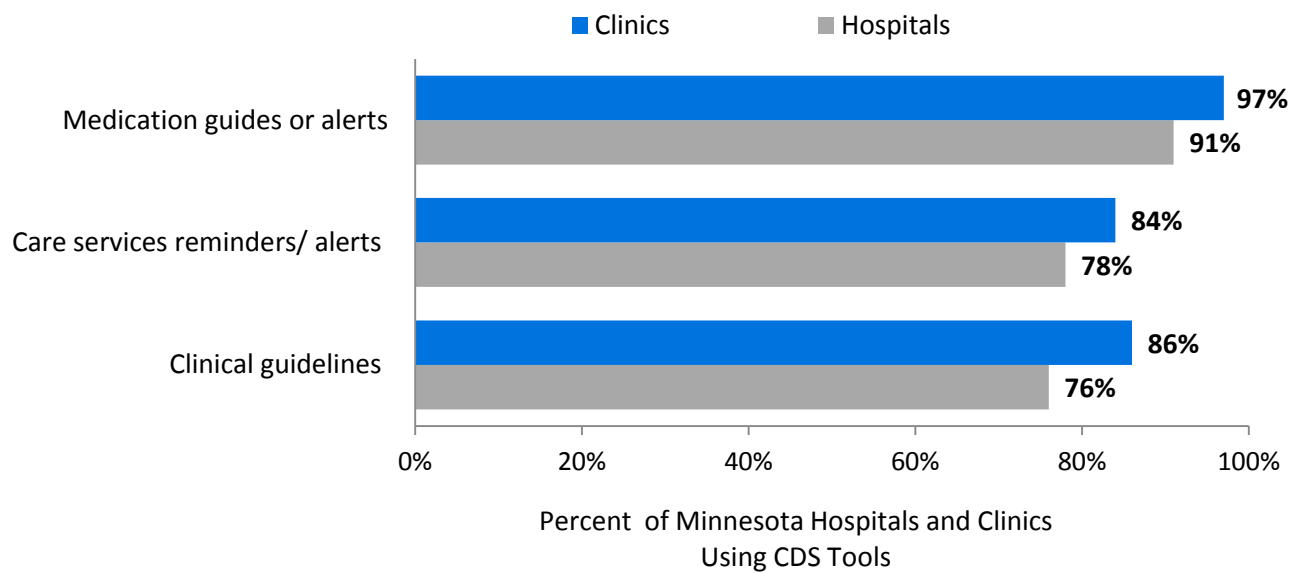
Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016

Impact of EHRs on clinical practice

The clinic HIT study includes some opinion questions regarding the impact EHRs have had on the clinic's practice. There is strong agreement on the positive impact of EHRs, particularly on two important measures: more than nine in ten clinics agree that the EHRs have alerted their providers to potential medication errors, and that they have enhanced patient care. Furthermore, agreement is strong on all of the items shown in Exhibit A-4.

Exhibit A-4: Impact of EHRs on Clinic Practice

Legend: ■ Agree   ■ Agree Somewhat

Measure	Agree	Agree Somewhat
Be alerted to potential medication errors	73%	23%
Be alerted to critical lab values	71%	19%
Be reminded to provide preventive care	59%	22%
Enhance patient care in your clinic	57%	38%
Order more on-formulary drugs	57%	31%
Provide care that meets clinical guidelines for patients with chronic disease	57%	29%
Identify needed lab tests	52%	28%
Order fewer tests due to better availability of other lab results	36%	40%

Percent of Clinics with EHRs

Clinic N = 1,257 MN primary and specialty care clinics with EHRs
Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016

E-prescribing

Electronic prescribing, or "e-prescribing," means secure bi-directional electronic information exchange between prescribing providers, pharmacists and pharmacies, and payers or pharmacy benefit managers. E-prescribing can improve the quality of patient care because it enables a provider to electronically send an accurate and understandable prescription directly from the point-of-care to a pharmacy. E-prescribing is a way to:

- Improve the quality, safety and cost-effectiveness of the entire prescribing and medication management process.
- Reduce potential adverse drug events and related costs.
- Reduce burden of callbacks and rework needed to address possible errors and clarify prescriptions.
- Increase efficiency of the prescription process and convenience for the patient/consumer.

As a result of the e-prescribing mandate enacted in 2011, Minnesota has seen a dramatic increase in the rate of pharmacies e-prescribing, from 57% in December of 2008 to 97% in 2015 (more recent data are not available). Minnesota measures the status of e-prescribing in several ways, including pharmacy and provider e-prescribing practices. Exhibit A-5 shows high rates of adoption among pharmacies (97%), clinics (88%), and hospitals (89%). Despite these high rates of e-prescribing, many clinics and hospitals struggle with barriers to e-prescribing due to systems that do not provide appropriate security functionality for e-prescribing of controlled substances. These barriers are expected to diminish over time.

Exhibit A-5: Use of E-Prescribing Among Minnesota Pharmacies, Hospitals and Clinics
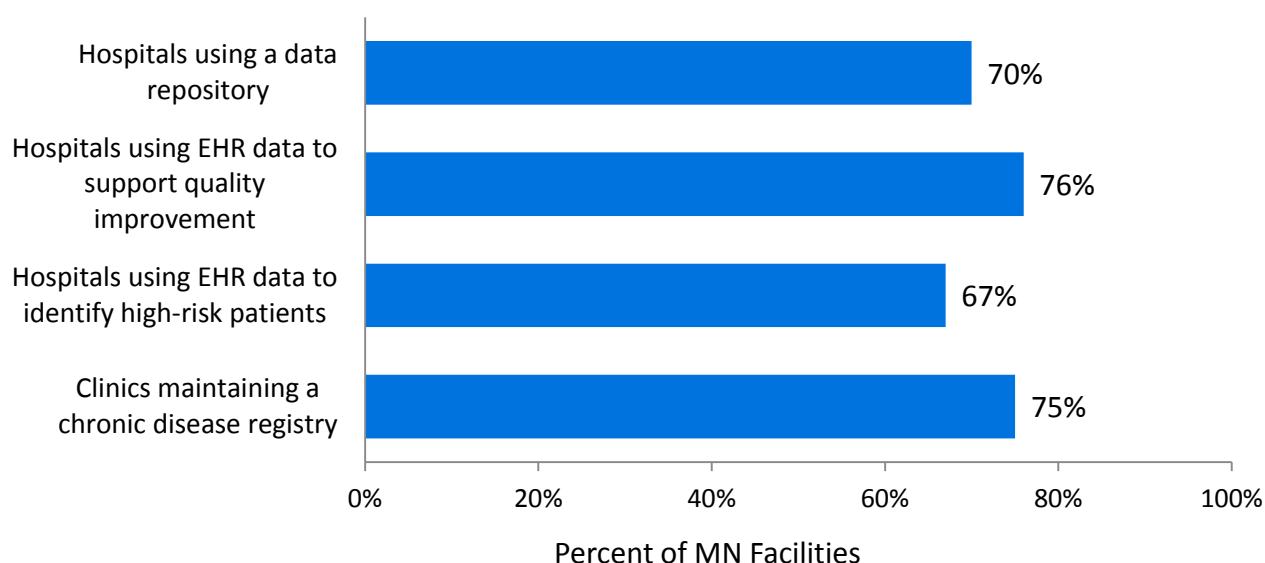

Percent of MN Facilities
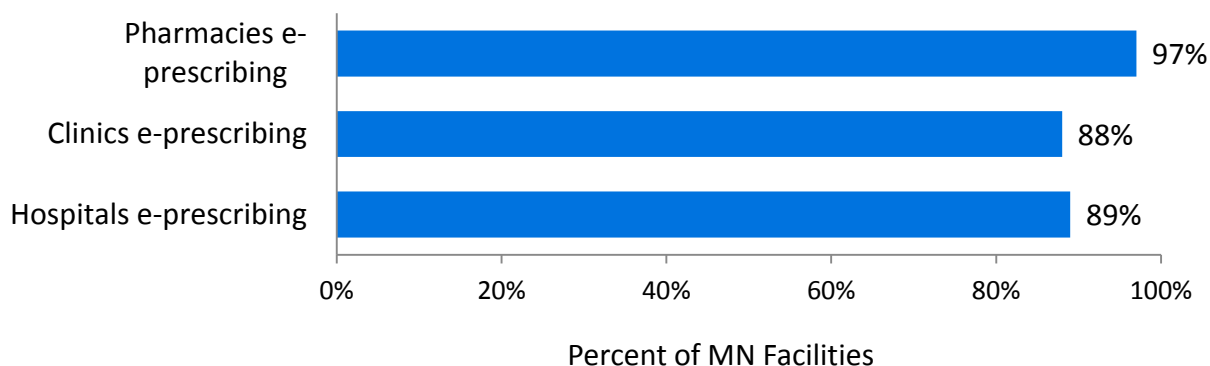
Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016; Surescripts 2015.

Data utilization

A secondary benefit of EHRs is that they provide clinical data that can be used to coordinate care, monitor and improve quality and outcomes, and conduct research. Exhibit A-6 shows that three in four hospitals (72%), or their associated health system, maintain a clinical data repository to support patient care management, population health, and/or research; 76% of hospitals use EHR data to support quality improvement; and 67% use EHR data to identify high-risk patients. Seventy-five percent of clinics, including 90% of primary care clinics, use EHR data to maintain a chronic disease registry.

Exhibit A-6: Use of EHR Data to Advance Population Health

Bar chart showing:
- Hospitals using a data repository: 70%
- Hospitals using EHR data to support quality improvement: 76%
- Hospitals using EHR data to identify high-risk patients: 67%
- Clinics maintaining a chronic disease registry: 75%

X-axis: Percent of MN Facilities (0% to 100%)

Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016

Patient access to information

With the implementation of EHRs, health care providers have the opportunity to provide patients with their health information in an electronic format. These tools can help patients take responsibility for their own health and aid in keeping the health records updated with current information. One way in which this is accomplished is by allowing patients to electronically view, download, and/or transmit their personal health information.

Exhibit A-7 shows that 90% of clinics and 97% of hospitals provided patients with the option to view their patient health information online (Exhibit 19). Fewer clinics (66%) and hospitals (87%) offered the option to download that information to a physical electronic media, and even fewer clinics (46%) and hospitals (77%) offered the option to electronically transmit their patient health information. These results have increased in recent years, but continue to reflect interoperability challenges for patients to share data between providers. On a positive note,

primary care clinics offer view options (97%), download (76%), and transmit (53%) compared to specialty clinics (83%, 55%, and 38%, respectively).

For the most part, the amount of information available to the patient is limited to fairly basic content such as medications, lab results, and visit summaries. An emerging trend is an option referred to as "Open Notes", whereby the provider allows patients to see their full health record, including provider notes. In Minnesota, 30% of clinics allow patients access to the provider notes. More information on Open Note is at http://www.opennotes.org/.

Exhibit A-7: Patient's Electronic Access to Their Personal Health Information
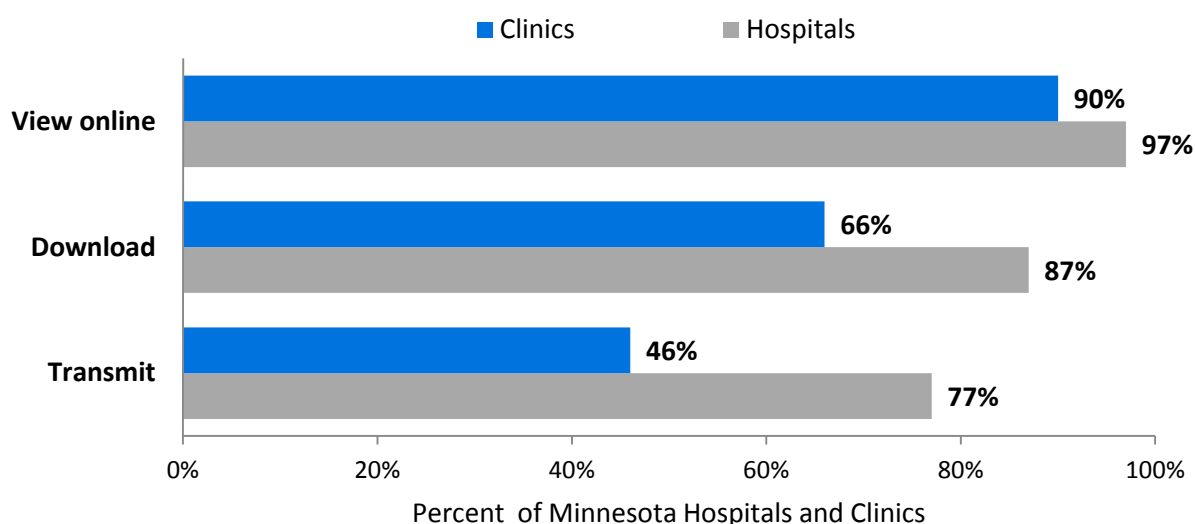
Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016

## Providers electronically sharing health information

Health information exchange (HIE) is the secure electronic exchange of clinical information between organizations using nationally recognized standards. HIE is an essential tool to support care coordination so that the right information is available to the right provider at the right time. There are many types of information that can be shared, ranging from simple notices when a patient is admitted to the hospital, to complex sets of conditions and treatments. Preparing to exchange information can be a complex process of establishing legal and technical readiness, and providers across the country are challenged to implement these processes.

The number of Minnesota hospitals and clinics sharing health information electronically is slowly increasing, with 69% of clinics and 72% percent of hospitals electronically exchanging any type of health information with unaffiliated clinics and/or hospitals. However, electronic exchange of key clinical care information is not common. Exhibit A-8 shows that 40% of clinics and 74% of hospitals were routinely electronically sending or receiving summary of care records for patients who require transition to/from another facility or referral to/from another provider. This type of record provides a summary of the patient's information in a standardized

format, and is especially important for managing transitions of care.

An important aspect of HIE is for the receiving party to automatically integrate the clinical data into their own EHR, also known as interoperability. Less than one in five of Minnesota's hospitals and clinics integrates summary of care records into the EHR as data. In most cases, this information is integrated as a PDF or scanned document; as such, it does not become active information in the file.

**Exhibit A-8: Electronic Health Information Exchange**
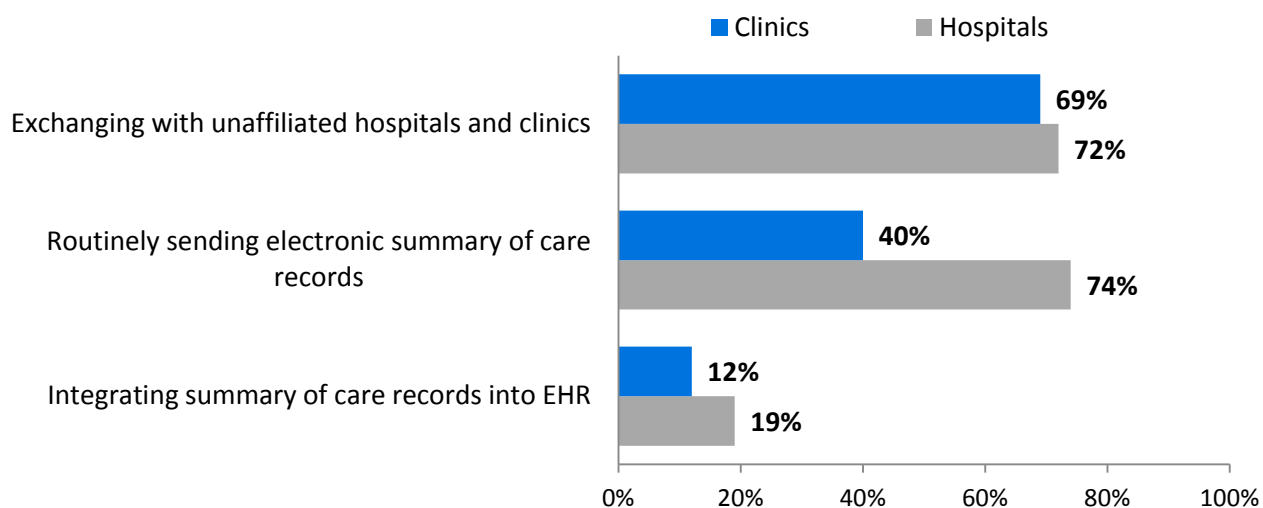
Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016.

Some EHR systems facilitate HIE more easily among users of the same system than providers not using the same EHR system. For example, Epic users have an option to join their Care Everywhere Network, enabling information sharing among all network members. Half of Minnesota's hospitals and clinics use Epic. Nine of our major health systems are also using Epic, plus three additional systems headquartered in neighboring states with operations in Minnesota. (https://www.epic.com/careeverywhere/). As such, these health systems are able to share patient information for an estimated two-thirds of Minnesota's population.

Despite this success, there continues to be a disparity in the ability to share information across EHR platforms and through the care continuum. For example, a specialty clinic that does not use Epic is much more challenged to share information with a health system that uses Epic. The same is true for long-term care facilities, behavioral health, local public health and other providers that care for patients. More work needs to happen to get providers who are connected via EHR-facilitated networks, such as the one provided by Epic, exchanging data with providers using other EHRs.

Evidence of this disparity is shown in Exhibit A-9. About two in three hospitals (62%) indicated that providers at their hospital routinely have necessary clinical information available electronically from outside providers or sources when treating a patient that was seen by another health care provider. This is much higher for hospitals using Epic (87%) compared to hospitals using another EHR system (28%).

Exhibit A-9: Disparities in HIE Based on EHR Vendor

"Providers at our hospital have necessary clinical information available electronically from outside providers"

| Category	Percent
All hospitals	62%
Hospitals using Epic	86%
Hospitals not using Epic	28%

Percent of MN hospitals
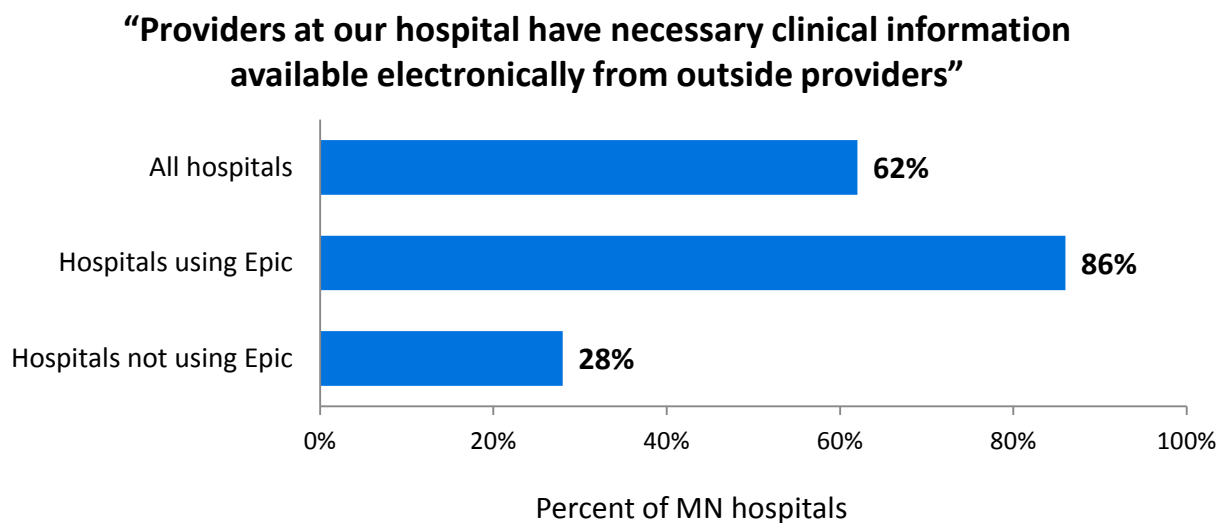
Source: Minnesota e-Health Profile, MDH Office of Health IT, 2016; 76 hospitals use Epic and 53 use another EHR system

Appendix B: Minnesota e-Health Advisory Committee

The Minnesota e-Health Advisory Committee is a 25-member legislatively authorized committee appointed by the Commissioner of Health to build consensus and advise on policy and collaborative action needed to advance the adoption and effective use of EHRs and HIE needed to advance Minnesota e-Health vision. The committee is comprised of key stakeholders who represent the spectrum of Minnesota's health community. This includes providers, payers, public health, researchers, vendors, consumer, and more. Exhibit B-1 shows how the Advisory Committee is organized.

Exhibit B-1: The Path to Policy
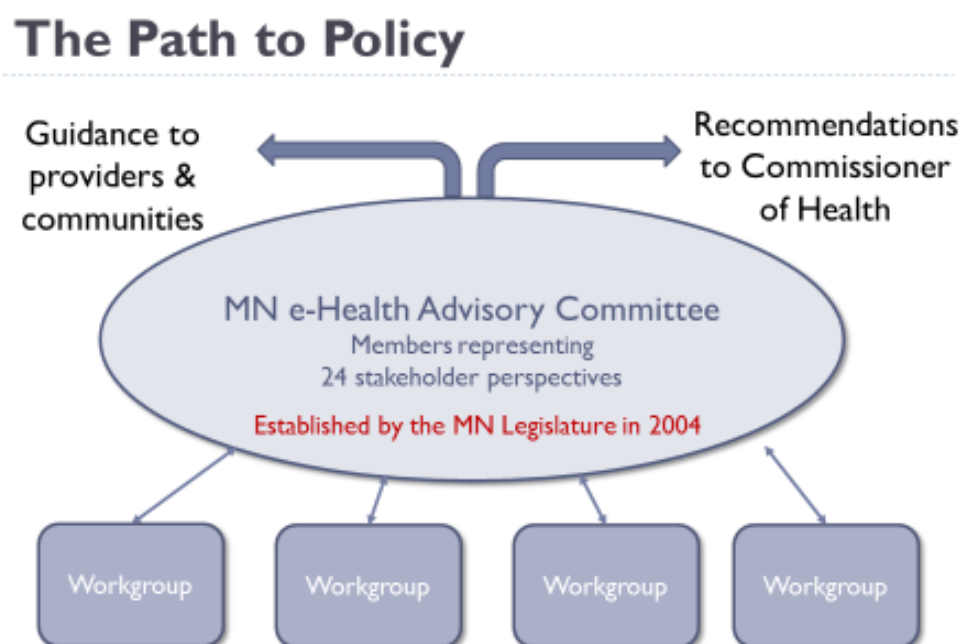
For the past twelve years the e-Health Initiative, led by the Minnesota e-Health Advisory Committee and the MDH Office of Health Information Technology (OHIT), has pushed for and supported e-health across the continuum of care. Each year, the Advisory Committee charters workgroups on timely e-health topics comprised of subject matter experts, providers and patients to inform policy recommendations to the Commissioner of Health. The workgroups will also develop and endorse guidance to providers and communities of health. Because of collaboration and forward-thinking problem solving, Minnesota is a national leader in implementation and effective use of e-health.

Minnesota e-Health Advisory Committee Members, 2016-17

Alan Abramson, PhD, *Advisory Committee Co-Chair*, Senior Vice President, IS&T and Chief Information Officer HealthPartners Medical Group and Clinics
Representing Health System CIOs

Sunny Ainley, Associate Dean, Center for Applied Learning Normandale Community College
Representing: HIT Education and Training

Constantin Aliferis, MD, MS, PhD, FACMI, Chief Research Informatics Officer, University of Minnesota Academic Health Center
Representing: Academics and Clinical Research

Jeff Benning, MBA, President and CEO, Lab Interoperability Collaborative
Representing: Expert in HIT

Laurie Beyer-Kropuenske, JD, Director Community Services Divisions
Representing: Minnesota Department of Administration

Lynn Choromanski, PhD, RN-BC Nursing Informatics Specialist, MVNA
Representing: Nurses

Cathy Gagne, RN, BSN, PHN, St. Paul-Ramsey Department of Public Health
Representing: Local Public Health

Maureen Ideker, MBA, RN Director of Telehealth Essentia Health
Representing: Small and Critical Access Hospitals

Mark Jurkovich, DDS, MBA, Dentist, Gateway North Family Dental
Representing: Dentists

Paul Kleeberg, MD, *Advisory Committee Co-Chair*, Medical Director, Aledade
Representing: Physicians

Ruth Knapp, Manager, Health Data Quality, Minnesota Department of Human Services
Representing: Minnesota Department of Human Services

Marty LaVenture, PhD, MPH, FACMI, Director Office of Health IT and e-Health, Minnesota Department of Health
Representing: Minnesota Department of Health

Jennifer Lundblad, PhD, President and Chief Executive Officer, Stratis Health
Representing: Quality Improvement

Bobbie McAdam, Senior Director, Business Integration Medica
Representing: Health Plans

Kevin Peterson, MD Family Physician Phalen Village Clinic
Representing: Community Clinics and FQHCs

Peter Schuna, Director of Strategic Initiatives, Pathway Health Services
Representing: Long Term Care

Jonathan Shoemaker, Information Services Director of Clinical Application, Allina Health
Representing: Large Hospitals

Trisha Stark, PhD, LP, MPA, Licensed Psychologist
Representing: Behavioral Health

Meyrick Vaz, Vice President, Healthcare Solutions Optum Global Solutions
Representing Vendors

Cally Vinz, RN, Vice President, Health Care Improvement Institute For Clinical Systems
Improvement
Representing: Clinical Guideline Development

Donna Watz, JD, Deputy General Counsel, Minnesota Department of Commerce
Representing: MN Department of Commerce

John Whittington, South Country Health Alliance
Representing: Health Care Purchasers and Employers

Ken Zaiken, Consumer Advocate
Representing: Consumers

Designated Alternates

Sarah Cooley, MD, MS, Assistant Professor of Medicine, Division of Hematology, Oncology and
Transplantations, University of Minnesota
Alternate Representing: Clinical Research

Kris Dudziak, CHCE, Senior Manager Business Operations, Home Care, Hospice, and Geriatric
Services, HealthPartners Medical Group and Clinics
Alternate Representing: Experts in HIT

Nancy Garrett, PhD, Chief Analytics Officer, Hennepin County Medical Center
Alternate Representing: Large Hospitals

Mark Sonneborn, Vice President, Information Services, Minnesota Hospital Association
Alternate Representing: Hospitals

Susan Severson, Director, Health IT Services, Stratis Health
Alternate Representing: Quality Improvement

Steve Simenson, BPharm, FAPhA, President and Managing Partner Goodrich Pharmacy
Alternate Representing: Pharmacists

Kathy Zwieg, Associate Publisher & Editor-in-Chief, Inside Dental Assisting Magazine
Alternate Representing: Clinic Managers

Workgroups

Committee members participate in workgroups to dive into detailed topics such as privacy and security, and health information exchange. The workgroups are the primary vehicle for receiving public input and investigating specific e-health topics through discussion and consensus building. Each workgroup has a charter declaring the purpose, schedule, deliverables and co-chairs that guide the process. The co-chairs and workgroup participants contribute subject matter expertise in discussions, research and analyses through hundreds of hours of volunteer time. OHIT staff facilitate, analyze and interpret data, and summarize findings that will contribute to e-health policy development. Workgroup participants are recruited statewide and are open to the public via in-person meetings and dial-in options.

Minnesota e-Health Initiative milestones

2004   Convened the Minnesota e-Health Initiative Steering Committee, a public-private collaboration with representatives from representatives from hospitals, health plans, physicians, nurses, other healthcare providers, academic institutions, state government purchasers, local and state public health agencies, citizens, and others with expert e-health knowledge. This committee developed a roadmap and preliminary recommendations to address the many challenges, gaps and opportunities for Minnesota.

2005   Minnesota e-Health Initiative is formally established in Minnesota Statutes, section 62J.495. At this time, approximately 17% of clinics and 9% of hospitals in Minnesota had adopted EHRs.

2007   Governor Pawlenty declares, "Comprehensive reform this year should move Minnesota toward an interoperable electronic health record system." (State of the State Address, January 17, 2007). Minnesota's Interoperable EHR mandate is passed into law (§62J.495), requiring providers in Minnesota to adopt an interoperable EHR by January 1, 2015.

2008   The Minnesota Legislature enacted the electronic prescribing mandate, requiring all prescribers, pharmacies and payers to participate in electronic transmission of prescriptions by January 1, 2011. The Minnesota e-Health Initiative developed and published the "Statewide Plan to Achieve the EHR Mandate".

2009   On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA). A portion of the law creates the Health Information Technology for Economic and Clinical Health Act, or the HITECH Act. The objective is to ensure that the adoption and use of health IT contributes to a more efficient, effective and safe health care system that achieves improved health outcomes.

2010   Minnesota received federal $65 million in HITECH funding under the State HIE Cooperative Agreement Program and four other programs in the state. This was the highest single-state award in the nation. CMS's EHR incentive program also began this year.

2011   Minnesota's electronic prescribing mandate took effect on January 1. By end of year, Minnesota received the National Safe Rx Award. By end of this year Minnesota's hospitals and clinics also led the country in EHR adoption rates.

Glacial Ridge Health System in Glenwood is the first Minnesota hospital to attest for meaningful use.

2013   Minnesota was awarded a $45 million as part of the State Innovation Model program of the Center for Medicare & Medicaid Innovation.

2014   The Minnesota e-Health Initiative celebrated its 10-year anniversary.

2015   The Minnesota Legislature updated three key components of the Minnesota e-Health Initiative, including: 1) extension of the e-Health Advisory Committee until June 30, 2021, 2) exemption from the Interoperable EHR Mandate for individual healthcare providers in a solo, private practice, and for those who do not accept reimbursement from a group purchaser; and 3) updates to the Minnesota HIE Oversight Law to streamline the certification process, fee structure, and update statutory definitions.

2016   The Minnesota e-Health Initiative developed the Minnesota HIE Framework to Support Accountable Health, guidance for professionals, organizations and leaders on what is needed to achieve accountable care and health. The Minnesota e-Health Advisory Committee also endorsed a Health Information Exchange Strategy Roadmap, aimed at advancing HIE in Minnesota, as well as the Minnesota e-Health Roadmap for SIM Priority Settings.

Appendix C: Minnesota e-Health Initiative Priority Activities for 2017

OHIT and the Initiative's activities address a variety of topics. Most of the activities and topics are identified during the Initiative's August planning meeting. These activities, listed below, will be addressed with a focus on:

- Leveraging the lessons learned from and creating sustainability for the SIM-Minnesota projects that support accountable care and health transformation
- Engaging providers across the care continuum and throughout the state to advance e-health and health equity
- Measuring the value of e-health investments for providers, individuals and their families, and community and population health

Advance health information exchange and interoperability through the Minnesota e-Health Health Information Exchange Workgroup

In 2017, the Health Information Exchange Workgroup will produce the following deliverables:

- Summary report of recommended "Expectations for Statewide HIE Capabilities in Minnesota" that align with federal and state initiatives and include, but are not limited to, the value proposition for implementation of specific transactions.
- A summary of recommended actions (e.g., guidance, best practices or policy actions) to address key barriers to implementing HIE and achieving interoperability.
- Review and validate the Minnesota HIE Framework and Guidance to Support Accountable Health.

Support patient preferences and providers in protecting patient privacy and security through the Minnesota e-Health Privacy and Security Workgroup

In 2017, the Privacy and Security Workgroup will be providing the following deliverables:

- Review MDH Request for Information (RFI) on consent management practices related to the Minnesota Health Records Act.
- Provide feedback on the analysis and foundations of privacy toolkit provided by Gray Plant Mooty for the Minnesota Privacy, Security and Consent Management for Health Information Exchange Project.
- Recommend to providers and health care stakeholders activities that support the implementation of sound privacy and security practices for health information.
- Ensure that the needs of consumers, providers, and health care stakeholders are fully considered in the development of educational resources and tools.

Advance knowledge and understanding of e-Health capabilities and challenges

As the adoption and use of e-health changes, it is necessary to measure and understand the implications of these changes. The Initiative has systematically measured e-health adoption and

utilization among Minnesota's hospitals, clinics, and local health departments annually since 2010. Additional health care settings have been assessed periodically. While some e-health concepts are well-established and measured with confidence, other concepts are constantly evolving and are difficult to measure; e.g., health information exchange and interoperability.

OHIT will continue to assess e-health in Minnesota, including assessment across additional heath care settings, alternative measures for interoperability, and identifying advance uses of e-health. One example is a project to understand how health providers are using their clinical EHR data for purposes other than direct clinical care. Some of these uses include research, quality measurement, care coordination, community health assessment, and fiscal reporting.

Support MDH and public health interoperability

Programs at MDH are experiencing an increasing demand from health care providers to stay current with the private sector trends of electronically moving health information using national standards and in a more coordinated and efficient way. Demands for fast access to health information to address public health needs are rising rapidly. Local public health and other health care providers are calling for greater access to electronic public health data to improve response to health threats, support quality and safety, reduce costs, and more effectively target public health interventions to improve health. More broadly, MDH customers are quickly moving towards electronic means of communication and are demanding to conduct business electronically for other core functions - including grants, licensing, and health education - through electronic, easy-to-access, uniform, and transparent tools and systems.

Minnesota's Interoperable EHR mandate requires all health care providers to have an interoperable EHR and be connected to a State-Certified Health Information Exchange (HIE) entity. The mandate applies to public health, both as a provider of health care and as a receiver of client-based information from health care providers. This impacts MDH, the Minnesota Department of Human Services (DHS) and local governments, which provide public health services in all 87 of Minnesota's counties and in four metropolitan cities.

Current state law also requires the reporting of public health data to MDH including, but not limited to, notifiable conditions laboratory reporting, infectious diseases, and immunizations. MDH's collection, reporting, and public health action on information gained through its public health reporting systems are the foundation for meeting its mission and its statutory role.

Despite these requirements, MDH's information systems are in varying states of readiness to accept, process, and exchange data with providers interested in reporting electronically and to do so in a coordinated way with our customers. To ensure that providers are able to effectively and securely exchange public health data with MDH, many of the department's systems must be updated or replaced. In 2017, MDH will continue clarifying its strategic vision and strategy to adopt the e-health standards, processes, and information systems to meet the current public health needs.

Appendix D: Health Information Exchange Oversight

Health information exchange (HIE) is the electronic transmission of health-related information between organizations according to nationally recognized standards (Minn. Stat. §62J.498 sub. 1(f)). The goal of HIE is to help make health information available, when and where it is needed, to improve the quality and safety of health and health care. In Minnesota, many efforts are underway to help achieve the secure electronic exchange of health information between organizations using nationally recognized standards (see section on HIE/pages X-X). This section of the report specifically addresses implementation of Minnesota Health Information Oversight law (Minn. Stat. §§62J.498-4982).

HIE landscape in Minnesota: a market-based strategy with government oversight

Minnesota's approach to HIE has been to support a market-based strategy that allows for private sector innovation and initiative, yet uses government oversight to ensure fair practices, availability of HIE options and compliance with state and federal requirements, including privacy, security and consent protections.

Minnesota's HIE oversight law (Minn. Stat. §§62J.498-4982), enacted in 2010, and updated in 2015, provides a limited state government oversight to:

- Ensure standards-based exchange requirements are being met
- Create a level playing field to ensure access for all communities and providers and provide a transparent process to the certification of HIE service providers
- Facilitate coordination and collaboration among HIE service providers
- Allow market-driven innovation, connectivity and services
- Assess and report on the state and progress of HIE

The MDH Office of Health Information Technology manages this oversight role by:

- Monitoring national and state HIE activities
- Certifying HIE service providers that provide HIE product and/or services in Minnesota
- Providing education and technical assistance to applicants on the certification process and requirements
- Convening State-Certified HIE Service Providers to ensure coordination between entities and services, with establishment of Minnesota Health Information Network (MNHIN).
- Providing education to providers on implementation of Minnesota's HIE Oversight law

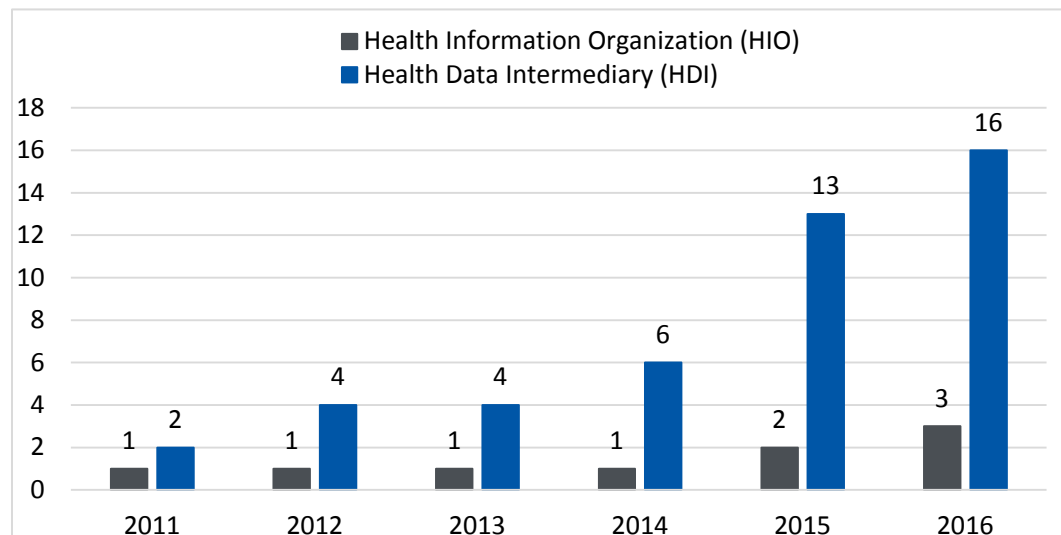The certification process is intended to promote public trust in HIE activities, decrease fragmentation of health information in the state, and provide a state strategy for community-based HIE through the use of State-Certified HIE Service Providers.

In 2016, one HDI left the market, four new HDIs and one new HIO were certified, and 2 HIOs and 12 HDIs were recertified. Currently, there are 3 HIOs and 16 HDIs for providers to choose

from for HIE Products and Services in meeting the Interoperable Electronic Health Record Mandate (Minnesota Statute §62J.495) http://www.health.state.mn.us/e-health/hitimp/index.html.

For a progressive total count of HIOs and HDIs, see Exhibit D-1. Specific information on each state-certified entity can be found at: http://www.health.state.mn.us/divs/hpsc/ohit/certified.html.

Exhibit D-1: Number of HIE Service Providers Certified in Minnesota, 2011-2016

Counts as of December 31 in each year.

As of January 2017, the following entities are certified as either a Health Information Organization or Health Data Intermediary.

Health Information Organizations

▪ Allina Health
▪ Koble-MN
▪ Southern Prairie Community Care

Health Data Intermediaries

▪ CenterX
▪ Cerner
▪ CIOX Health
▪ Simply Connect
▪ Healthcare Solutions
▪ Epic Systems Corporation
▪ Inpriva

▪ NextGen Healthcare Information Systems
▪ MaxMD
▪ MedAllies
▪ Medicity
▪ Relay Health
▪ Secure Exchange Solutions (SES)
▪ South Dakota Health Link

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- Surescripts
- Wisconsin State Health Information Network (WISHIN)

Minnesota Health Information Network (MNHIN)

As the network of State-Certified HIE Service Providers grows, new strategies for connecting providers and using health information must be created to assure a more coordinated, cohesive, and streamlined HIE infrastructure in Minnesota. This is an ongoing and evolving process, extending toward a learning health system to ensure HIE is happening in the most cost-effective, quality focused, and person-centered manner. This collaboration will reduce costly HIE implementations across Minnesota, and help meet the requirements of the Minnesota laws related to HIE (http://www.health.state.mn.us/e-health/lawsmn.html).

The Minnesota Health Information Network (MNHIN) is a network of Minnesota State-Certified Health Information Exchange (HIE) Service Providers collaborating, with input from HIE stakeholders, on infrastructure, design and implementation to improve interoperability in Minnesota and support implementation of HIE services under Minnesota statutes §§ 62J.498 – 4981.

Recommendations to continue advancing Minnesota HIE market

When Minnesota's HIE oversight law was established, HIE was in its infancy and it was not clear how the market would evolve to meet the demands of providers for different types of exchange. Over the last six years, demand has grown, and as new mechanisms for HIE have developed to support the growth and demand. Updates to Minnesota's HIE oversight law in 2015 addressed the wide variation of exchange models that exist and have helped to keep pace with market demand and the rapidly changing needs of providers. Even with the changes enacted in 2015, there continues to be concern by many Minnesota stakeholders that more attention needs to be given to HIE to ensure that Minnesota does achieve its goal of ensuring the right information is available about the right patient at the right time. The concerns by stakeholders arise around a complex array of issues, ranging from the evolution of Minnesota HIE market, how HIE is financed, to the legal framework for HIE (including Minnesota laws that do not equally support the goal of HIE) – just to name a few. As such, the 2016 Legislature charged MDH to evaluate Minnesota's progress and make additional recommendations to continue to advance HIE in Minnesota. Specifically, the legislature charged MDH to assess:

> "…Minnesota's legal, financial, and regulatory framework for health information exchange…and make recommendations that would strengthen the ability of Minnesota health care providers to securely exchange data in compliance with patient preferences and in a way that is efficient and financially sustainable."

> Laws of Minnesota 2016, Chapter 189, Article 20, section 5.

That study is underway and the subsequent report will be due to the legislature in 2018. The study will address topics such as:

- The goals and principles for HIE
- Improvements needed on Minnesota's HIE approach
- Laws that impact on HIE, including HIE oversight, Minnesota's mandate for interoperable electronic health records, and privacy / consent requirements
- Role of government and others in advancing HIE
- Core HIE services needed in MN
- Costs associated and financing mechanisms for HIE
- Rules of the road for HIE service providers and exchange partners
- Governance and legal framework for HIE
- Provider's needs, readiness, and commitment to participate in HIE

It is expected that the study information will be collected in winter and spring 2017, with recommendations development and endorsement by stakeholders in summer and fall 2017, with the report to the legislature due March 1, 2018.

In addition to the HIE Study, the Minnesota e-Health HIE Workgroup developed a Working Action Plan (in order of priority recommended action) to address challenges associated with HIE in 2017-2018. Priorities in this action plan include the following and will be coordinated by OHIT.

- Increase the number of health and health care providers participating in a State-Certified Health Information Organization (HIO). This action will address the barrier that Minnesota's HIE approach is not fully implemented.
- From a list of core Minnesota e-Health HIE transactions that support accountable care organizations and meaningful use, increase the number of providers implementing (testing or in production) top ranked transactions. This action will address the barrier that key transactions need to be prioritized [e.g., notification and alerting, care summaries] and supported statewide.
- Increase the number of providers, who are not currently connected, to identify how they will connect to statewide HIE. This action will address the barrier that selecting an HIE service provider is complicated by rapidly evolving market.
- Increase the number of providers and provider types who achieve integrated HIE for meaningful use transactions (organizational policy to connect vs. technical ability to integrate health information for use). This action will address the barrier that there are challenges to HIE implementation (e.g., workflow).
- Using assessment data from prior studies and environmental scans, update and publish information on Minnesota privacy and security status, needs, and resources. This action will address the barrier that it is difficult to understand and execute legal and policy requirements (e.g., Minnesota privacy & consent).
- Increase the number of providers with established agreements to: 1) share health information electronically with care partners and/or 2) establish an agreement with an HIO/HDI. This action will address the barrier that establishing partner relationships/agreements is often difficult, time-consuming and costly.
- Identify policy levers and implementation options to increase the use of statewide HIE in Minnesota. This action will address the barrier that there are competing organizational priorities.

Appendix E: E-health Standards for Interoperability

Introduction

Interoperability is the capability of individuals and their families, communities, and providers to collect, use and share health information accurately, securely, and timely to support health and shared-decision making.[6] Interoperability, defined as "the ability of a system to exchange electronic health information with and the ability to use electronic health information from other systems without special effort on the part of the user"[7], provides value not only in the exchange of health information but also in the collection and use of the health information. The fast-changing needs and expectations of individuals and their families, communities, and providers are significant drivers in achieving interoperability. Another driver is the learning health system; getting knowledge to practice faster requires interoperability. The requirements of accountable care organizations and the information needed to achieve health equity are also drivers to achieving interoperability.

E-health standards are essential to achieve interoperability. A set of standards versus a single standard is necessary to achieve interoperability for a particular healthcare transaction such as a referral or e-prescribing. The Interoperability Standards Advisory (ISA)[8], released annually by the Office of the National Coordinator, provides clarity, consistency, and predictability for e-health standards. The ISA identifies three high level types of standards and over 50 interoperability needs including:

- **Vocabulary/Code Sets/Terminology Standards and Implementation Specifications** with 22 interoperability needs including allergies, medications, immunizations, social determinants of health, vital signs, and lab tests
- **Content/Structure Standards and Implementation Specifications** with 22 interoperability needs including care plan, electronic prescribing, public health reporting and clinical decision support
- **Standards and Implementation Specifications for Services** with 8 interoperability needs including "push" exchange, query, image exchange, and health care/provider directory.

Each interoperability need can include numerous standards or sets of standards and implementation specifications necessary to collect, use and share one piece of information. This

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[6] Derived from The Office of the National Coordinator for Health Information Technology definition in Connect Health and Care for the National. A Shared Nationwide Interoperability Roadmap. FINAL Version 1.0. Accessed October 24, 2016. https://www.healthit.gov/sites/default/files/hie-interoperability/nationwide-interoperability-roadmap-final-version-1.0.pdf

[7] The Office of the National Coordinator for Health Information Technology. Connect Health and Care for the National. A Shared Nationwide Interoperability Roadmap. FINAL Version 1.0. Accessed October 24, 2016. https://www.healthit.gov/sites/default/files/hie-interoperability/nationwide-interoperability-roadmap-final-version-1.0.pdf

[8] The Office of the National Coordinator for Health Information Technology. Interoperability Standards Advisory (ISA). https://www.healthit.gov/standards-advisory. Accessed October 28, 2016.

results in the ISA containing hundreds of standards that represent tens of thousands of concepts and hundreds of thousands of value sets.

In addition, the ISA identified 25 key sources of security standards and security patterns commonly associated with the health data interoperability. These are supplemental to the three types of standards described above. The ISA does not include administrative standards. More information on the ISA can be found at https://www.healthit.gov/policy-researchers-implementers/interoperability.

Why are E-health standards important?

Standards are necessary to getting the right information to where it is need and in a form that is useful and can assist decision-making and to improve health outcomes, advance health equity, and lower health care costs.

Specific examples are:

- Clinical decision support to alert a prescriber, pharmacist and individual to potential adverse drug-to-drug interactions.
- Lab test and results shared between providers, with consent, to reduce the need to redo tests and assure decisions are made on most recent information.
- Complete immunization history information for a child is available to parent and provider to recommend the needed shots and summary information is available to the community and schools to the prevent outbreaks and reduce missed days of school.
- Timely and actionable referrals for individual and family are made for services to address social determinants of health including financial strain, access to reliable transportation, and safe home environment.

Minnesota e-health standards accomplishments

The MDH is responsible under Minnesota Statutes, section 62J.495, to monitor and recommend health data standards. This activity is coordinated with the Minnesota e-Health Initiative, through the Standards and Interoperability Workgroup and OHIT. This is achieved through a structured process with five key steps:

1. **Identification and analysis** of e-health standards through the monitoring of federal and national activities, standards development organizations, industry trends and needs, and community input.
2. **Evaluation and classification** of e-health standards to assess applicability or use within Minnesota and to align with national use.
3. **Validation and consensus** of e-health standards from within the community and leveraging subject matter expert input.
4. **Recommendations** to the Minnesota e-Health Advisory Committee for guidance to the Commissioner and the Minnesota e-health community.
5. **Feedback to national organizations and agencies** including the Office of the National Coordinator for Health Information Technology (ONC), CMS, CDC and others.

This process accelerates the adoption and use of e-health standards by building on and aligning with the national work of the ONC, including the ISA and the Shared Nationwide Interoperability Roadmap, and other standards development organizations partners. In addition to recommendations and guidance, this process results in the identification, development, and sharing of tools and resources for standards adoption and use.

In recent years, available resources and community needs and interests have focused e-health standards work in four areas 1) social determinants of health and health equity; 2) nursing documentation terminology; 3) providers across the care continuum; and 4) accountable care and value-based payment.

1. The need for **social determinants of health and health equity** standards were identified and prioritized during the Minnesota e-Health Initiative's Standards and Interoperability Workgroup (2014-2015). This prioritization was used to provide feedback to the ONC to update the ISA with necessary social determinants of health interoperability needs and standards. This work was revisited as part of the Minnesota e-Health Roadmap development (2015-2016), identifying additional social determinants of health. The 2017 Draft ISA has been updated to include most of the social determinants of health identified by the workgroup including financial resource strain, level of education, and exposure to violence. Additional social determinants of health discovered through the Roadmap will be included in the current (2016) round of feedback to the ONC.
2. The Minnesota e-Health Initiative's Standards and Interoperability Workgroup (2013-2014) addressed the need for **nursing documentation terminology** standards in Minnesota through the development of e-health standards recommendations. During this process, at least ten competing nursing documentation terminology standards were identified with no national consensus. Subject matter expert input was used to develop the recommendations. These recommendations were approved by the Commissioner of Health and provided as guidance to the Minnesota community. In addition, the recommendations were provided as feedback to the ISA and the national nursing organizations. The Minnesota recommendations have been adopted in large part as the recommend standards by national nursing organizations and are part of the ISA.
3. The adoption and use of e-health standards by **providers across the care continuum** differs. The Minnesota e-Health Roadmap focused on some of the e-health standards needed by the settings of behavioral health, local public health, long-term and post-acute care, and social services. Recognition and identification of some of these needs will direct future work by the Minnesota e-Health Initiative and the community at-large and have been shared with national and federal partners including the ISA.
4. **Accountable care and value-base payment** is emerging as an area that will require identification and support for the adoption and use of e-health standards. The work of the Minnesota e-Health Roadmap, along with the other the SIM projects, the HIE Legislative Study, and implementation of the HIE Framework for Accountable Care will continue to provide information to the Minnesota e-Health Initiative on preparing for the future.

E-health standards gaps and opportunities

The Minnesota collaborative approach and structured process for supporting e-health standards continues to be successful and has significantly advanced the use of standards statewide. However, significant needs still exist for standards adoption, consensus on which standards to use, and guidance and tools to support implementation, operations and maintenance. With these needs come opportunities for improvement, these gaps and opportunities fall into three categories.

Improve the adoption and use of the nationally accepted standards published in the Interoperability Standards Advisory (ISA). Gaps exist statewide and by type of transaction and setting for the adoption and use of the ISA. Opportunities for improvement include:

- Identifying settings and areas lacking ISA implementation.
- Providing implementation incentives, guidance and policy levers to increase the adoption and use of the ISA.
- Identifying or developing resources and best practices for providers to maintain and update adoption and use of the ISA.
- Leveraging the 90% federal match with the 10% state match funds for e-health standards.

Address the needs of settings and emerging areas lacking e-health standards, guidance, and national consensus. Gaps exist with an estimated 100 emerging transactions that do not have a national consensus on standards and settings including long-term and post-acute care, behavioral health, public health, social services, dental, and other. Numerous opportunities for improvement include:

- Identifying the greatest standards needs and gaps.
- Using the five-step e-health standards process to provide recommendations and guidance to meet needs and gaps.
- Identifying or developing resources and best practices for providers to implement recommendation and guidance.
- Expanding the e-health standards skills and knowledge of the workforce to meet the current and emerging needs.
- Leveraging the 90% federal match with the 10% state match funds for e-health standards and interoperability.

Advance the statewide leadership and coordination of e-health standards to achieve interoperability with a focus on e-health standards for health equity, accountable care and value-based payment, and providers across the care continuum. Gaps to address include the fast-pace standards development, the growing body of knowledge of using e-health standards for e-health equity, and the number and type of settings and providers from across the continuum to engage. Opportunities for improvement include:

- Updating the Minnesota e-Health Initiative's Standards Recommended to Achieve Interoperability in Minnesota Guide, the approach for recommending e-health standards, and other tools to align with the ONC's ISA and the recent work on social determinants of health and nursing terminology.

- Expanding technical assistance, educations and information to include national e-health standards trends, the ISA, and other standards development issues.
- Compiling and sharing e-health standard lessons learned from the SIM projects and other activities to inform state and national activities.
- Expanding the assessment metrics for the adoption and use of e-health standards to inform funding and progress activities.
- Leveraging the 90% federal match with the 10% state match funds for standards.

Appendix E: State Innovation Model E-health Activities

E-health Roadmap for Behavioral Health, Local Public Health, Long-Term and Post-Acute Care and Social Services

The Minnesota e-Health Roadmap for Behavioral Health, Local Public Health, Long-Term and Post-Acute Care, and Social Services providers includes use cases, a person-centered view, recommendations, and actions to support and accelerate the adoption and use of e-health. These four settings, referred to as priority settings, are key for Minnesota's health care delivery and payment transformation work, moving from payment for services to payment for value and outcomes, and more coordinated and integrated care.

The Roadmap was developed through a structured process that integrated the diverse issues of the priority settings. The steering team and workgroups identified over 70 use cases, each an individual's story that shows challenges in care coordination and collecting, using, and sharing information. Eight use cases were selected for deeper analysis and discussion. These eight priority use cases are the foundation of the Roadmap.

The analysis and discussion of the priority use cases identified two key themes – 1) person-centered view of e-health, and 2) collecting, sharing, and using information. The connection of these two themes is shown in Figure E-1. The person is encompassed by choices and social determinants of health, illustrating the many factors that influence health. These factors also impact how the person engages in e-health and the continuum of collect, use, and share. The continuum, supported by the functions of e-health, ensures the right information is available to the right person, at the right time, to make the right decision. Also important to the person, is that information is collected, used, and shared according to privacy, security, and consent laws – which ensures the person's privacy and preferences. Each use case can be illustrated using the figure, showing the opportunity for e-health to improve the outcomes of the individual.
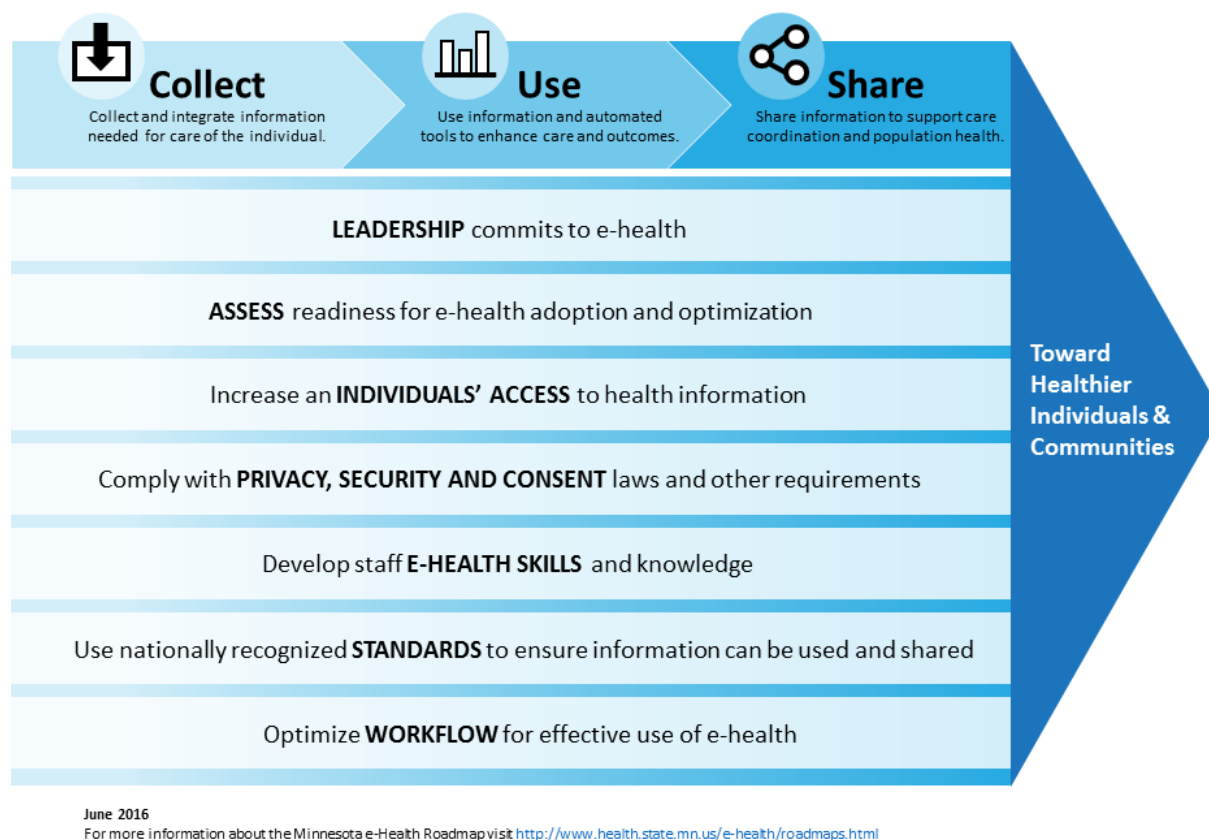
Figure E-1 Person Centered View of e-Health
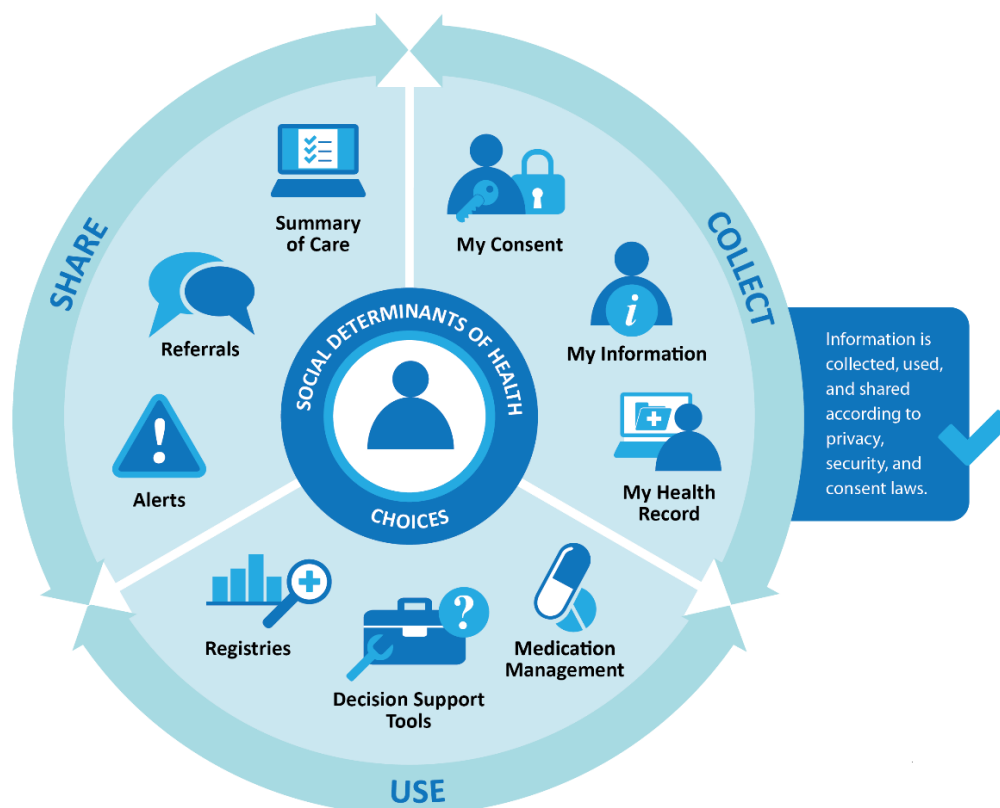
The priority use cases identified similar e-health related challenges for care coordination and collecting, using, and sharing information. These challenges were similar across the priority settings and confirmed that one roadmap would meet the needs of the priority settings. The e-health related challenges and the two key themes, led to the development of 10 recommendations for providers within the priority settings.

The 10 recommendations, summarized below in Figure E-2, are for the priority settings and support the adoption and use of e-health to support healthier individuals and communities. The 10 recommendations support the adoption and use of e-health to support healthier individuals and communities. The collect, use, and share recommendations are emphasized at the top of the figure to show their importance and connection to person-center view of e-health. The remaining seven recommendations are also important and contribute to a provider's ability to achieve collect, use, and share of information.

Figure E-2: Minnesota e-Health Roadmap Recommendations

Collect — Collect and integrate information needed for care of the individual.

Use — Use information and automated tools to enhance care and outcomes.

Share — Share information to support care coordination and population health.

LEADERSHIP commits to e-health

ASSESS readiness for e-health adoption and optimization

Increase an INDIVIDUALS' ACCESS to health information

Comply with PRIVACY, SECURITY AND CONSENT laws and other requirements

Develop staff E-HEALTH SKILLS and knowledge

Use nationally recognized STANDARDS to ensure information can be used and shared

Optimize WORKFLOW for effective use of e-health

Toward Healthier Individuals & Communities

June 2016
For more information about the Minnesota e-Health Roadmap visit http://www.health.state.mn.us/e-health/roadmaps.html

The Roadmap also includes over 40 actions with resources and considerations that support the recommendations. The Roadmap recognizes that the priority setting recommendations require additional actions by other providers and partners such as professional and trade associations, policymakers, and state agencies. These actions are compiled into a Call for Action. These actions are necessary for the adoption and use of e-health by the priority settings. The Roadmap is available at http://www.health.state.mn.us/e-health/roadmap.html

The Minnesota e-Health Roadmap in action

In 2017, MDH and the Minnesota e-Health Initiative will focus on the implementation of the Minnesota e-Health Roadmap in three areas 1) monitor and share progress; 2) support priority settings and key partners; and 3) implement MDH call to action. This work will require engagement of the priority settings, the key partners, the Minnesota e-Health Initiative and others. Current activities that support these three areas include:

- Leverage the Minnesota e-Health Profile and current assessment activities to monitor and share the progress of the priority settings in the adoption and use of e-health.

- Actively seek the engagement of the priority settings in the work of the Minnesota e-Health Initiative including the advisory committee and workgroups
- Continue communication with the community of interest, which includes the steering team and workgroup members, to educate, inform and activate the priority settings and key partners.
- Keep current the Roadmap tools and resources, including filling identified gaps and needs.
- Incorporate findings into national activities including the call for comments on the 2017 Draft Interoperability Standards Advisory which provides the industry with a single, public list of the standards and implementation specifications that can best be used to fulfill needs to collect, use, and share health information.
- Develop a relationship with school health and school nurses to understand how data collection, use and sharing effects student and student's family health.
- Share the Roadmap at local, state and national venues and discussions including the National Association of City and County Health Officials and the Public Health Informatics Conference.
- Develop training opportunities for county attorneys to assure more informed and timely decisions on e-health, topics include Health Insurance Portability and Accountability Act (HIPAA), Family Educational Rights and Privacy Act (FERPA) and HIE.

Appendix F: Glossary of Selected Terms

The full Minnesota e-Health Glossary is available online at http://www.health.state.mn.us/e-health/glossary.html.

Accountable Care

The terms "accountable care" or "Accountable Care Organization," or "ACO" are being used to reflect the concept of a group of diverse health care providers that have collective responsibility for patient care and that coordinate services. This term is meant to include the broad range of health and health care providers that are not formally part of an existing ACO as defined by the Centers for Medicare and Medicaid Services (CMS) or other payers, but that are also moving towards greater accountability for the quality and cost of care they provide to their patients.

Accountable Care Organization (ACO)

An Accountable Care Organization is a group of health care providers with collective responsibility for patient care that helps providers coordinate services—delivering high- quality care while holding down costs. **Source:** Robert Wood Johnson Foundation, www.rwjf.org/en/topics/search-topics/A/accountable-care-organizations-acos.html.

Care Coordination

Care coordination is a function that supports information-sharing across providers, patients, types and levels of service, sites and time frames. The goal of coordination is to ensure that patients' needs and preferences are achieved and that care is efficient and of high quality. Care coordination is most needed by persons who have multiple needs that cannot be met by a single clinician or by a single clinical organization, and which are ongoing, with their mix and intensity subject to change over time. **Source**: U.S. Department of Health and Human Services or http://www.ncvhs.hhs.gov/wp-content/uploads/2014/05/091013p9.pdf.

E-health

E-health is the adoption and effective use of electronic health record (EHR) systems and other health information technology (HIT) including health information exchange to improve health care quality, increase patient safety, reduce health care costs, and enable individuals and communities to make the best possible health decisions. **Source:** Minnesota Department of Health, http://www.health.state.mn.us/e-health/

Electronic Health Record (EHR) Systems

EHR is a real-time patient health record with access to evidence-based decision support tools that can be used to aid clinicians in decision-making. The EHR can automate and streamline a clinician's workflow, ensuring that all clinical information is communicated. It can also prevent delays in response that result in gaps in care. The EHR can also support the collection of data for

uses other than clinical care, such as billing, quality management, outcome reporting, and public health disease surveillance and reporting. EHR is considered more comprehensive than the concept of an Electronic Medical Record (EMR). **Source:** Office of the National Coordinator for HIT Health IT Glossary, http://www.hhs.gov/healthit/glossary.html

e-Prescribing

E-prescribing means secure bidirectional electronic information exchange between prescribers (providers), dispensers (pharmacies), Pharmacy Benefits Managers, or health plans, directly or through an intermediary network. E-prescribing encompasses exchanging prescriptions, checking the prescribed drug against the patient's health plan formulary of eligible drugs, checking for any patient allergy to drug or drug-drug interactions, access to patient medication history, and sending or receiving an acknowledgement that the prescription was filled. **Source**: http://www.health.state.mn.us/e-health/glossary/e.html

Health Equity

Exists when every person has the opportunity to realize their health potential — the highest level of health possible for that person — without limits imposed by structural inequities. Health equity means achieving the conditions in which all people have the opportunity to attain their highest possible level of health. **Source:** Minnesota Department of Health, Minnesota: Report to the Legislature, http://www.health.state.mn.us/divs/chs/healthequity/

Health Information Exchange (HIE)

Health information exchange or HIE means the electronic transmission of health related information between organizations according to nationally recognized standards. **Source**: Minnesota Statutes §62J.498 sub. 1(f), https://www.revisor.mn.gov/statutes/?id=62J.498

Health Information Technology (HIT)

HIT is 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. **Source***: Office of the National Coordinator for HIT Glossary, http://www.healthit.gov/policy-researchers-implementers/glossary

Health Informatics

The use of the principles and the practices of computer science in addressing the problems of health and health care. An interdisciplinary field of scholarship that applies computer, information, management and cognitive sciences to promote the effective and efficient use and analysis of information to improve the health of individuals, the community and society. **Source:** Adapted from the University of Minnesota, Health Informatics program: http://www.hinfgrad.umn.edu/mhi/background.html and http://www.amia.org

Interoperability

The ability of two or more information systems or components to exchange information with limited human intervention and to use the information that has been exchanged accurately, securely, and verifiably,   when and where needed. **Source***: adapted from* Office of the National Coordinator for HIT, http://www.hhs.gov/healthit/glossary.html

Learning Health System

A health system in which science, informatics, patient-provider partnerships, public health, incentives, and culture are aligned to promote and enable continuous and real-time improvement in patient care and population health. (Adapted from http://www.iom.edu/Reports/2012/Best-Care-at-Lower-Cost-The-Path-to-Continuously-Learning-Health-Care-in-America.aspx

Meaningful Use

The use of electronic health record technology that includes e-prescribing, and is connected in a manner that provides for the electronic exchange of health information and used for the submission of clinical quality measures as established by the Center for Medicare and Medicaid Services and the Minnesota Department of Human Services pursuant to sections 4101, 4102, and 4201 of the HITECH Act including subsequent regulations, rules and guidance issued pursuant to the HITECH Act. [Minn. Stat. §62J.498 sub. 1(k)]. **Source:** https://revisor.mn.gov/statutes/?id=62J.498

Minnesota e-Health Initiative

The Minnesota e-Health Initiative is a public-private collaborative whose vision is to accelerate the adoption and use of health information technology in order to improve health care quality, increase patient safety, reduce health care costs and improve public health. **Source***:* MN Department of Health, www.health.state.mn.us/e-health/abouthome.html

Social Determinants of Health

The complex, integrated, and overlapping social structures and economic systems that are responsible for most health inequities. These social structures and economic systems include the social environment, physical environment, health services, and structural and societal factors. Social determinants of health are shaped by the distribution of money, power, and resources throughout local communities, nations, and the world. (Commission on Social Determinants of Health (CSDH), Closing the gap in a generation: health equity through action on the social determinants of health.   Final report of the Commission on Social Determinants of Health. 2008, World Health Organization: Geneva.)

Standards

Health data standards are consistent, uniform ways to capture, record and exchange data. Standards are a necessary component to achieve interoperability (see above). The various types of standards include Terminology (how data such as lab results and diagnosis are coded in uniform ways), Messaging (how data are sent in ways that the receiving system can understand

what's coming in), Transactions/claims (to receive payment), and Data Content (common definitions and codes, such as for race and ethnicity).

Triple Aim

Improving care, improving population health and reducing costs of health care. **Source***: http://www.ihi.org/engage/initiatives/tripleaim/Pages/default.aspx