Minnesota e-Health Initiative

Report to the Minnesota Legislature 2009

Minnesota Department of Health

January 2009

Office of the Commissioner
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MINNESOTA MDH DEPARTMENT OF HEALTH

Protecting, maintaining and improving the health of all Minnesotans

January 21, 2009

The Honorable Linda Berglin
Chair, Health and Human Services
Budget Division
Minnesota Senate
Room 309, State Capitol
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Saint Paul, MN 55155-1606

The Honorable Thomas Huntley
Chair, Health Care and Human Services
Finance Division
Minnesota House of Representatives
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The Honorable John Marty
Chair, Health, Housing, and
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The Honorable Paul Thissen
Chair, Health and Human Services Committee
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To the Honorable Chairs:

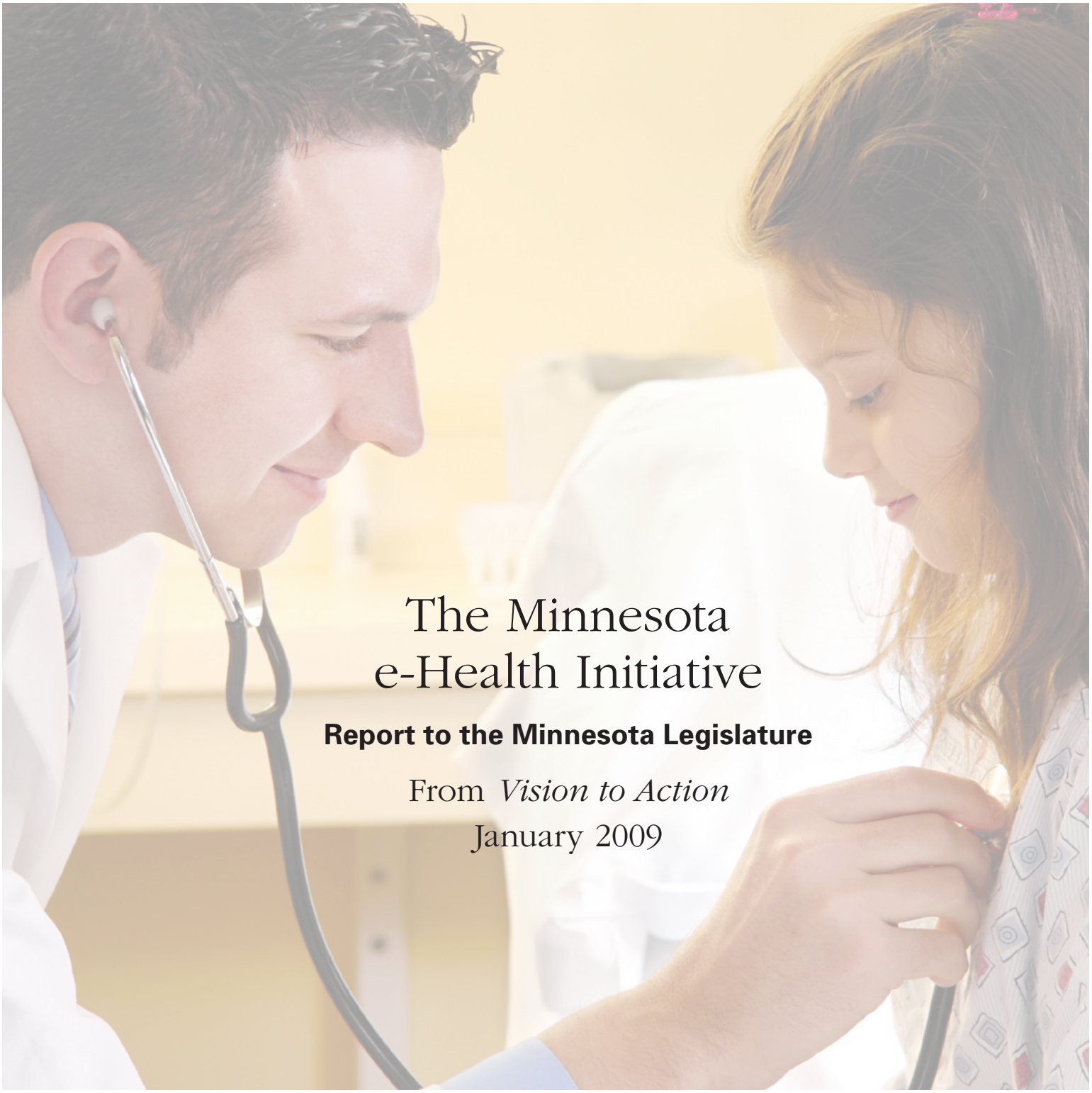
As required by Minnesota Statutes, section 62J.495, this Minnesota e-Health Initiative report outlines progress toward the goals set in statute for health information technology. Significant advances for 2008 include:

- Releasing a statewide plan for all providers in Minnesota to establish an interoperable electronic health records by 2015 as required by Minnesota Statutes, section 62J.495.
- Advancing adoption of electronic health records (EHRs) across the state.
- Distributing e-Health grants and loans that begin to address the great need for financial and technical support in rural and community clinics and Critical Access Hospitals.
- Jumpstarting e-prescribing by setting a 2011 deadline and standards in statute.
- Launching the first service through the Minnesota Health Information Exchange (HIE) to provide consolidated patient medication histories to the point of care.
- Recommending sets of standards in three areas to the Commissioner of Health for statewide use.

The Minnesota e-Health Initiative is ensuring that these and many other activities in the public-private sectors across the state are occurring in a coordinated and focused way. If there are questions, or for further information, please contact Martin LaVenture at 651-201-5950 or martin.laventure@state.mn.us.

Sincerely,

Sanne Magnan, M.D., Ph.D.
Commissioner
P.O. Box 64975
St. Paul, MN 55164-0975



The Minnesota e-Health Initiative

Report to the Minnesota Legislature

From *Vision to Action*

January 2009

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As required by Minnesota Statutes, Section 3.197, this report cost approximately $7,475 to prepare, including staff time, printing and mailing expenses.

Upon request, this material will be made available in an alternative format such as large print, Braille, or cassette tape.

Printed on recycled paper.

"Comprehensive reform this year should move Minnesota toward an interoperable electronic health record system."

GOVERNOR TIM PAWLENTY
STATE OF THE STATE ADDRESS
JANUARY, 2007

MINNESOTA'S MANDATE FOR INTEROPERABLE EHRs BY 2015

Minnesota Statutes 2007, section 62J.495

"By January 1, 2015, all hospitals and health care providers must have in place an interoperable electronic health records system within their hospital system or clinical practice setting. The commissioner of health, in consultation with the Health Information Technology and Infrastructure Advisory Committee, shall develop a statewide plan to meet this goal, including uniform standards to be used for the interoperable system for sharing and synchronizing patient data across systems. The standards must be compatible with federal efforts. The uniform standards must be developed by January 1, 2009..."

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e-Health is the adoption and effective use of electronic health record (EHR) systems and health information technology (HIT).

Executive Summary

e-Health is the adoption and effective use of interoperable electronic health record (EHR) systems and health information technology (HIT) to improve health care quality, increase patient safety, reduce health care costs, and enable individuals and communities to make the best possible health decisions. e-Health can contribute to:

- Improved safety and quality,
- Cost savings through both administrative and clinical efficiencies,
- Improved continuity and coordination of care through electronic health information exchange (eHIE),
- Increased opportunities to engage patients in their own health and care,
- Improved disease management and research capabilities,
- Improved public health, primary prevention and community preparedness, and
- Stronger privacy protections.

Minnesota has been a leader in pursuing bold e-health policies and applying statutory mandates and governmental funding to accelerate the adoption of HIT, electronic health records and health data standards.

e-Health activities in Minnesota are coordinated by the Minnesota Department of Health (MDH) through the Minnesota e-Health Initiative, a public-private collaborative that represents the Minnesota health care community's commitment to prioritize resources and achieve Minnesota's mandates. The initiative fulfills the statutory role of the Health Information Technology and Infrastructure Advisory Committee and sets the gold standard for a national model of public-private partnership.

Minnesota e-Health achievements in 2008 include:

- Releasing a statewide plan for all providers and hospitals in Minnesota to establish "an interoperable electronic health records system within their hospital system or clinical practice setting" by 2015 as required by Minnesota Statutes, section 62J.495.
- Advancing the adoption of interoperable electronic health record systems (EHRs) across the state.
- Distributing e-Health grants and EHR loans that begin to address the great need for financial and technical support in rural and community clinics and Critical Access Hospitals.
- Jumpstarting e-prescribing by setting a 2011 deadline and standards in statute.
- Recommending sets of standards in three areas to the Commissioner of Health for statewide adoption using a newly established process.
- Providing a combined Minnesota e-Health stakeholder response to selected national standard-setting activities to help ensure those efforts support Minnesota's needs.

These mandates apply to all providers who deliver health services in the state of Minnesota, as well as the settings in which they practice, ensuring that the benefits of e-health apply across the entire continuum of care.

An important milestone for Minnesota was that the Minnesota Health Information Exchange (MN HIE) launched its first service to provide consolidated patient medication histories to the point of care.

Priorities for 2009 include:

- Supporting the adoption and effective use of EHRs to improve quality of care and population health, especially for those with chronic conditions.
- Promoting the full use of e-prescribing as required in Minnesota law.
- Advancing interoperability between EHR systems to enable community electronic health information exchange to improve continuity and coordination of care.
- Increasing widespread adoption of standards based on Minnesota e-Health recommendations and Minnesota statute.
- Providing support for community clinics and rural provider collaboratives.

"Policymakers from all spheres have demonstrated a strong interest in using HIT and eHIE as a means of shaping a health care system that is efficient, effective, safe, accessible, transparent, and affordable for all Americans."

Accelerating Progress: Using Health Information Technology and Electronic Health Information Exchange to Improve Care,
State Alliance for e-Health, September 2008

OVERVIEW

What is e-health?

e-Health is the adoption and effective use of Electronic Health Record (EHR) systems and other health information technology (HIT) to improve health care quality, increase patient safety, reduce health care costs, and enable individuals and communities to make the best possible health decisions. Across the nation, e-health is emerging as a powerful strategy to transform our ailing health care system. Minnesota is a leader in pursuing bold e-health policies to accelerate the adoption of EHRs and related HIT.

Why is e-health important?

When EHR's and other HIT are used effectively and health information is securely exchanged so it is available to the physician and patient at the point of care, **e-health is important because** it can provide:

- Improved safety and quality,
- Cost savings through both administrative and clinical efficiencies,
- Improved continuity and coordination of care through electronic health information exchange (eHIE),
- Increased opportunities to engage patients in their own health and care,
- Improved disease management and research capabilities, and
- Stronger privacy protections.

All of these benefits and others add up to healthier communities with healthier citizens and workers.

Current Status in Minnesota

e-Health activities in Minnesota are coordinated by the Minnesota Department of Health (MDH) through the Minnesota e-Health Initiative, a public-private collaborative that has broad support from health care providers, payers, and professional associations. Guided by a 26-member advisory committee, the Initiative represents stakeholders' commitment to work together to identify and address barriers of common interest, prioritize resources, and achieve Minnesota's mandates. The initiative fulfills the statutory role of the Health Information Technology and Infrastructure Advisory Committee and sets the gold standard nationally for a model public-private partnership.

A central metric for the success of e-health activities in a state is the number of health care providers that have adopted **Electronic Health Records (EHRs).** Minnesota's larger hospitals and primary care clinics rank among the nation's highest in adoption. Yet our Critical Access Hospitals and community clinics, both urban and rural, lag behind other Minnesota providers largely because they are in greater need of financial and technical support.

Another rapidly emerging metric of e-health success is the level of adoption and use of e-prescribing. Minnesota is the only state to have an e-prescribing mandate (Minnesota Statutes, section 62J.497). The mandate aims to improve medication safety, reduce costs and improve health outcomes. The mandate should also dramatically improve Minnesota's ranking in terms of the percentage of prescriptions routed electronically (see Table 1).

Table 1. Electronic Prescriptions in Minnesota and Rank Compared to Other States

History	Current	Target
2005	2007	2011
0.02%	1.20%	80.00%
Rank 42	Rank 26	Rank in Top 10 States

Source: SureScripts/RXHub and MDH

The continued growth of the **Minnesota Health Information Exchange (MN HIE)** was significant in 2008. This partnership of payers, provider systems and state government was formed in 2007 to connect doctors, hospitals and clinics across the state. MN HIE will enable physicians and other health care providers to access electronic medical information with patient consent quickly and securely . MN HIE's initial service offers providers access to patient medication history, a critical component for e-prescribing that can help

prevent serious medication errors and improve practice efficiency. Future services will focus on administrative simplification (e.g., eligibility verification), electronically-delivered lab, and electronically-delivered radiology test results.

E-HEALTH AND HEALTH CARE REFORM

When used effectively, EHRs and HIT are powerful tools to increase quality of care, improve population health indicators, save money, enhance coordination and continuity of care, reduce repeated tests, and drive down adverse medical events. In a January 2008 report, the Minnesota Health Care Transformation Task Force estimated the potential net long-term savings from implementing a fully interoperable electronic health record system in Minnesota at $2.467 billion (or 4.3%) of total health care spending in the state. About one-third of the projected savings are from reduced medical costs (e.g., fewer duplicative tests and fewer adverse drug interactions), and two-thirds from increased productivity of health care professionals and lower administrative costs.

The State Alliance for e-Health, an initiative created by the National Governor's Association's Center for Best Practices, states the case unequivocally: "Health information technology and electronic health information exchange are critical tools in … efforts to transform health care in this country." [1]

e-Health is also consumer focused, seeking to engage individuals in their health and the health care choices they make. An increasingly popular tool to support individuals in their health and care is a Personal Health Record or PHR. PHRs enable individuals to more easily participate in the management and oversight of their health and care by compiling a patient's health history information along with links to prevention and other informational resources. Often, PHRs offered by employers also provide access to benefits information. The status of PHRs in Minnesota can be found in the section on standards.

[1] *Accelerating Progress: Using Health Information Technology and Electronic Health Information Exchange to Improve Care,* State Alliance for e-Health, September 2008, www.nga.org/Files/pdf/0809EHEALTHREPORT.PDF

STATEWIDE PLAN FOR IMPLEMENTING THE 2015 INTEROPERABLE EHR MANDATE

Minnesota Statutes, section 62J.495, required the Commissioner of Health to develop a plan for the state to achieve the statutory mandate that all providers and hospitals have in place "an interoperable electronic health records system within their hospital system or clinical practice setting." The plan, *A Prescription for Meeting Minnesota's 2015 Interoperable Electronic Health Record Mandate—A Statewide Implementation Plan, 2008 Edition*, was

developed through the Minnesota e-Health Initiative and released in June 2008.

The plan represents broad consensus for advancing interoperable EHR system adoption in all settings across the state. Its purposes are to:

- Accelerate the adoption and effective use of interoperable EHRs in order to improve health and health care in Minnesota.
- Identify a model and strategy for achieving the 2015 interoperable EHR mandate.
- Provide practical guidance to providers and provider organizations on what they can do now to overcome barriers and accelerate progress in adopting interoperable EHRs.
- Provide links to tested planning and implementation tools.

Key sections of the plan include: background on e-health nationally and in Minnesota; information on Minnesota's e-Health mandates, recommendations for various groups such as providers, payers, policy makers, long term care and public health agencies, action steps to address barriers to adopting electronic health records, and standards recommended for use in Minnesota (as of June 2008).

An industry as complex and competitive as health care does not naturally collaborate for the greater good without a neutral venue in which to make policy for the collective good. *The creation of this plan, and especially its policy recommendations and calls to action, demonstrate the value that the Minnesota Department of Health's e-Health Initiative brings to these transformative discussions as a neutral convener that can bring together the collective wisdom of many for the greater good of all.*

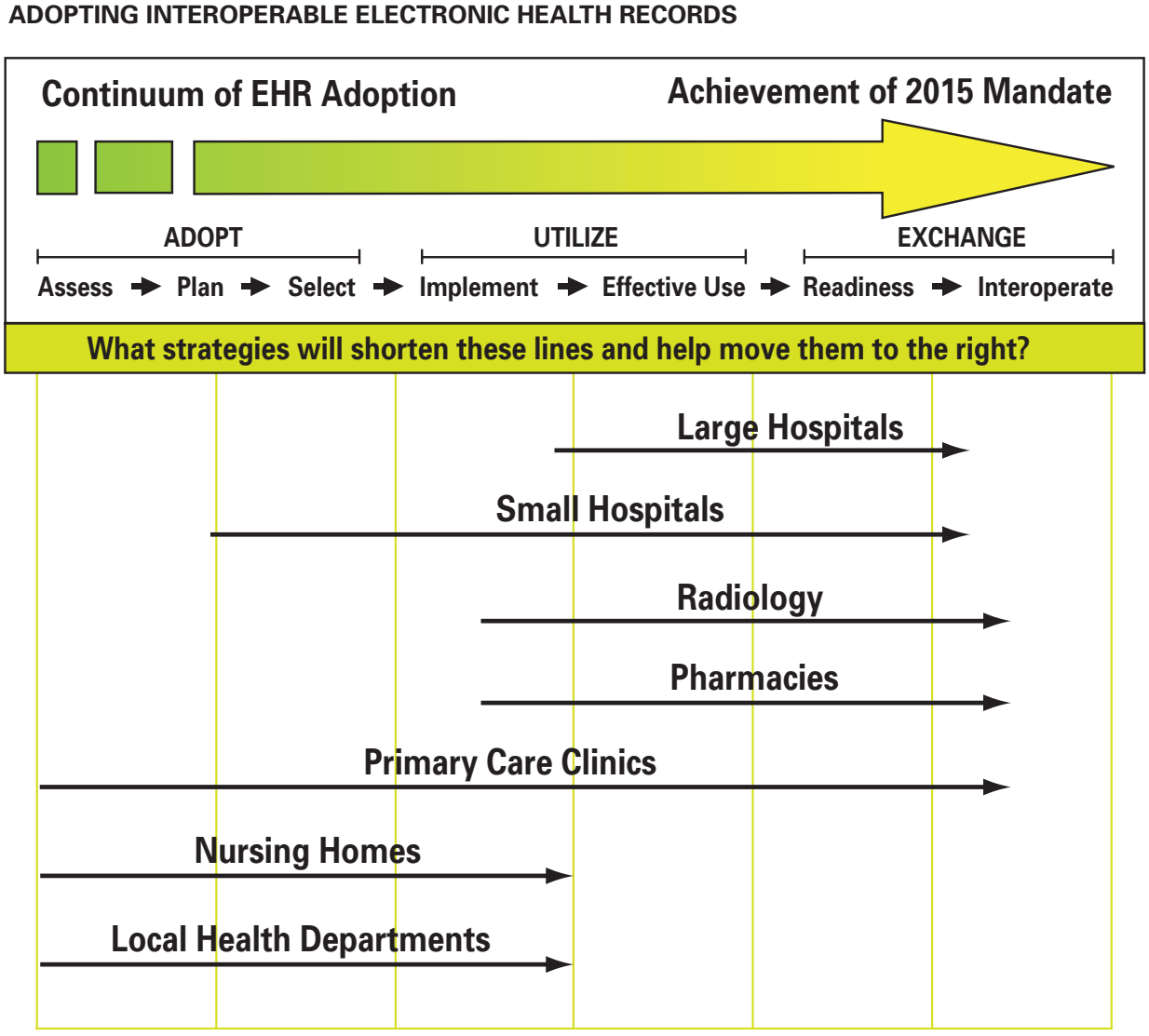
The plan introduces the Minnesota model in the form of a continuum from needs assessment to interoperability. The Minnesota model is a visual way to graphically communicate three categories or stages for achieving the 2015 mandate and to demonstrate the level of EHR adoption by various health settings (see Figure 1). The stages and activities in the continuum do not always occur in a linear fashion, since some can occur concurrently.

There are three major stages or categories to the model, which in turn contain seven steps to adopting, implementing and effectively using an interoperable EHR system:

- **Adopt:** includes the sequential steps of Assess, Plan and Select.
- **Utilize:** involves implementing an EHR system and learning how to use it effectively.
- **Exchange:** includes readiness to exchange electronically with other partners, and implementing regular, ongoing exchange between interoperable EHR systems.

This model and the complete statewide plan are available on-line at: www.health.state.mn.us/e-health/ehrplan.html. The plan was released at the Minnesota e-Health Summit in June 2008 in hard copy and electronically to over 400 thought leaders from Minnesota's health industry. The plan was highlighted throughout the Summit with featured breakout sessions that focused on key sections of the plan.

Figure 1. Minnesota Model for Adopting Interoperable EHRs Statewide



Achieving interoperability requires the use of multiple health data standards. Health data standards are an agreed-upon, common and consistent way to record, use and exchange health information. They allow data to not only be exchanged among different information systems, but for that data to have consistent *meaning* from system to system, from organization to organization, and from state to state. In other words, standards are a necessary component for computers to "talk to each other."

The absence of universally-adopted standards is one reason that more health information is currently not used or exchanged to improve care. Not having standards means that data must be "translated" from how one organization/system records it to how another records it—a very expensive and error-prone process.

Because health information needs to occasionally cross state lines, Minnesota cannot enact its own set of standards but must stay synchronized with nationwide, industry-accepted efforts.

National standards-setting activities

An unprecedented level and scope of coordinated public-private action is occurring under the auspices of the Office of the National Coordinator for Health Information Technology (ONC, www.dhhs.gov/healthit/). Rapid progress is being made in establishing health data standards, with broad and very active industry participation that includes payers, providers, and vendors.

Inter-related public-private committees and commissions are working in a coordinated way to advance the adoption of electronic health records and health information technology. These include:

- American Health Information Community (AHIC): Identifies the high priority "use cases" (scenarios) for information exchange that represent the greatest value in terms of improved health and care.
- Health Information Technology Standards Panel (HITSP): Specifies which standards are needed to exchange information for those use cases.
- Certification Commission for Healthcare IT (CCHIT): Incorporates those standards into functional and interoperability criteria for certifying EHR systems.

These public-private committees and commissions work with Standards Development Organizations (SDOs) to harmonize and recommend standards. For example, the National Council for Prescription Drug Programs (NCPDP), a not-for-profit ANSI-accredited Standards Development Organization, establishes national standards for e-prescribing, including the NCPDP SCRIPT Standard to facilitate the transfer of prescription data between pharmacies and prescribers. This is one of the standards recommended nationally and in Minnesota for transactions related to electronic prescribing.

All of this national activity on standards is historic in its rapid pace, scope, broad participation, level of acceptance, and practical implications. Minnesota is actively engaged in many aspects of this national movement.

Minnesota standards activity

The Minnesota Department of Health coordinates the Minnesota e-Health Initiative Standards Workgroup, which is charged with identifying, monitoring and recommending specific standards for sharing and synchronizing patient data across interoperable electronic health record systems and across the continuum of care. The workgroup consists of industry experts who follow a detailed process for recommending statewide adoption and use of specific types and versions of standards based on Minnesota needs and industry readiness (see Appendix A): The workgroup process has five related activities. The activities include:

- Identification and Analysis:
  - Analyze existing standards in context of priority topic areas,
  - Focus on consensus standards recommended by HITSP, and
  - Identify standards used in EHR product certification by CCHIT.
- Evaluation and Classification:
  - Evaluate standards' applicability to Minnesota in terms of industry readiness and current adoption status,
  - Classify standards that are tested, in varying stages of adoption and ready for statewide use, and
  - Classify standards that are in testing, with limited adoption and to be monitored further.
- Validation:
  - Validate proposed recommendations on standards with subject matter experts.
- Recommendations to Advisory Committee and Commissioner of Health:

- Propose recommendations for statewide adoption of specific standards,
- Propose recommendations on standards to monitor, and
- Identify resources to support implementation.

- Feedback to National Organizations:
  - Review relevant standards and certification-related documents proposed at a national level and provide a state-level collaborative response.

This process is a constant cycle as standards are continually improved and new versions ar released to meet user needs. Even as standards are recommended and adopted, successive versions are already under development. This does not preclude adoption of standards. Rather, it reflects the reality that standards need to be constantly monitored for revisions and appropriate versions recommended for statewide use.

Through the standards workgroup, Minnesota's industry representatives actively review relevant standards materials and offer suggested improvements based on Minnesota's experience and needs. In 2008, Minnesota was the only state to submit coordinated, statewide, industry-wide responses to federal requests for comments on standards for certifying EHRs. In 2008, work group members and MDH staff reviewed over 1,400 criteria in six areas (ambulatory, inpatient, emergency department, cardiovascular, child health, and network), providing specific feedback on 77 criteria and proposing an additional 40 new ones. Many of Minnesota's suggestions were adopted nationally in the final set of EHR certification criteria.

This is of particular significance since only **nationally certified EHRs** may be acquired in Minnesota since passage of Minnesota Statutes, section 62J.495. This requirement ensures that EHRs have adopted national standards for information exchange and functionality — two critical components for achieving interoperability and improving quality. It also helps to ensure that the considerable financial investment a provider makes in an EHR system will bring value in the long run.

Minnesota Statutes, section 62J.495, also established **e-prescribing standards** to govern key transactions potentially involved in ordering and filling prescriptions in Minnesota, including:

- get message transaction
- status response transaction
- error response transaction

- new prescription transaction
- prescription change request transaction
- prescription change response transaction
- refill prescription request transaction
- refill prescription response transaction
- verification transaction
- password change transaction
- cancel prescription request transaction
- cancel prescription response transaction

The standards for exchange of eligibility information during the process of electronic prescribing are identical to those required under Minnesota Statutes, section 62J.536. The standards adopted into Minnesota law were those recommended by the Centers for Medicare and Medicaid Services (CMS). Because e-prescribing services are provided and supported by several national organizations, it is vitally important for Minnesota's standards to be in synch with nationwide standards and practice.

The priority transactions in Minnesota as identified by the Minnesota e-Health Advisory Committee are electronic prescribing and medication management, laboratory results reporting, and immunization information exchange. Selected standards related to these transactions have been recommended by the Minnesota e-Health Initiative to the Commissioner of Health. See Appendix A for the list of all e-health standards recommended for statewide adoption and use in Minnesota.

Ongoing and upcoming activity

Standard setting and adoption is an iterative, ongoing process. Existing standards are continually refined and updated, and new standards will continue to emerge. In short, the work of standards setting, adoption and use will never be done.

In 2008-2009, the e-Health Initiative Standards Workgroup is focusing on defining the key elements that determine "interoperability" for Minnesota and creating a Roadmap for Standards and Interoperability. The former is needed to understand the various concepts that are part of health care interoperability and assessing progress toward the 2015 mandate for interoperable EHRs. The roadmap is essential to guide, focus and coordinate Minnesota's efforts in a complex and rapidly-evolving arena.

In the area of emerging needs, the priority standards for Minnesota are related to the exchange of clinical summaries and disease reporting.

Considerable experience in these areas exists in Minnesota but the national work to solidify these standards is not yet complete.

Another area of interest to Minnesotans is **Personal Health Records (PHRs)**. Interest in PHRs continues to grow in many sectors but standards have yet to emerge nationally. The most common models in use today are: employer-and plan-based for access to benefit information, provider-based for patient access to select EHR information, and individual-based as a free-standing, patient-controlled tool, including high-profile offerings from Microsoft and Google. In Minnesota, most PHRs are either offered through health care providers or large employers, such as members of the Buyers Health Care Action Group. The effectiveness of PHRs as a health education tool varies widely. PHRs do have potential as a tool to engage patients in their own health and care, but current models and products do not yet live up to their potential, although national efforts are underway to address PHR standards and product certification in 2009.

No issue better represents the challenges with PHRs than how patient data gets loaded into them. Many PHRs are populated with claims data, which have limitations compared to clinical data. (For instance, claims data will show that a person's cholesterol was checked on a certain date, but will not include the actual cholesterol level and whether it is low, normal or high.) Clinical data are clearly the most meaningful data for a patient to access, but there are no incentives or reimbursements for providers to go through the expensive process of building interfaces between their EHRs and the myriad of PHR products. In addition, concerns about appropriate privacy protections will continue to be highly relevant. In response to the lack of standards for PHRs, the Minnesota e-Health Initiative developed principles to guide the development of PHRs in the state (see Appendix B).

In July 2008, Governor Pawlenty announced a proposal to give all Minnesotans access to an online personal health portfolio by 2011. As the first step, the Governor directed the Department of Finance and Employee Relations (DFER) to seek proposals for a secure and portable online personal health portfolio for each of the state's approximately 50,000 employees in 2009. The RFP and successful bidder will determine what the portfolio will offer.

MDH and the Minnesota e-Health Initiative continue to monitor the evolution of PHRs and provide input to national developments and standards.

E-HEALTH GRANTS AND EHR LOANS

The e-health grant and EHR loan programs have been very popular and highly successful each year they have been offered. Beginning in 2006, the State of Minnesota appropriated funding to support the planning or implementation of interoperable EHR systems, related applications, and health information exchange. Eligible applicants for competitive grants include community e-health collaboratives, community clinics, and regional or community-based health information exchange organizations. Funding is targeted to rural and medically underserved areas. Eligible applicants for EHR loans include small rural hospitals, community clinics, primary care clinics in towns with population under 50,000, nursing facilities and other health care providers.

The e-Health Grant Program made two types of grants available to eligible providers. Both types require a one-to-three match:

- **Planning grants** of up to $50,000 to: assess business and clinical needs for an EHR system, define requirements, re-engineer clinical and administrative workflows to gain efficiencies, determine how it will be paid for and sustained, review candidate EHR software systems, and select a system. These grants are aimed at supporting providers and hospitals in the "Adopt" phase of the continuum shown in Figure 1.
- **Implementation grants** of up to $750,000 to: Implement an EHR to maximize clinical and administrative value, optimize clinical decision support tools to improve quality, and prepare for and engage in electronic health information exchange (eHIE). Implementation grants can support activity across the EHR adoption continuum, in the Adoption, Effective Use and Exchange phases of Figure 1.

A primary goal of the program is to support EHR adoption in community health clinics and Federally Qualified Health Centers. If a clinic has neither of these designations, it must be part of a community e-health collaborative that was formed with the ultimate goal of eHIE in mind. A remarkable finding through this program is that clinics, that want to access funds for EHRs are willing to do the hard work of forming community collaboratives with organizations that are often competitors for providing services in the community.

The considerable need for these grants in rural and inner city areas was demonstrated by the requests from years 2007-2009 as shown in Table 2. In this current biennium alone (i.e., fiscal years 2008 and 2009), in

which MDH received $25 million in requests for the $7 million available to be awarded. The organizations and collaboratives awarded funding in 2008 are listed in Appendix C.

Table 2. Minnesota e-Health Grants, 2007-2009

	Requests	Requested Amount	Awards	Awarded Amount
Planning	29	$1,276,411	25	$821,000
Implementation	64	$25,946,031	24	$7,479,000
Totals	**93**	**$27,222,442**	**49**	**$8,300,000**

NOTE: Overall, approximately 30% of grant requests were funded.

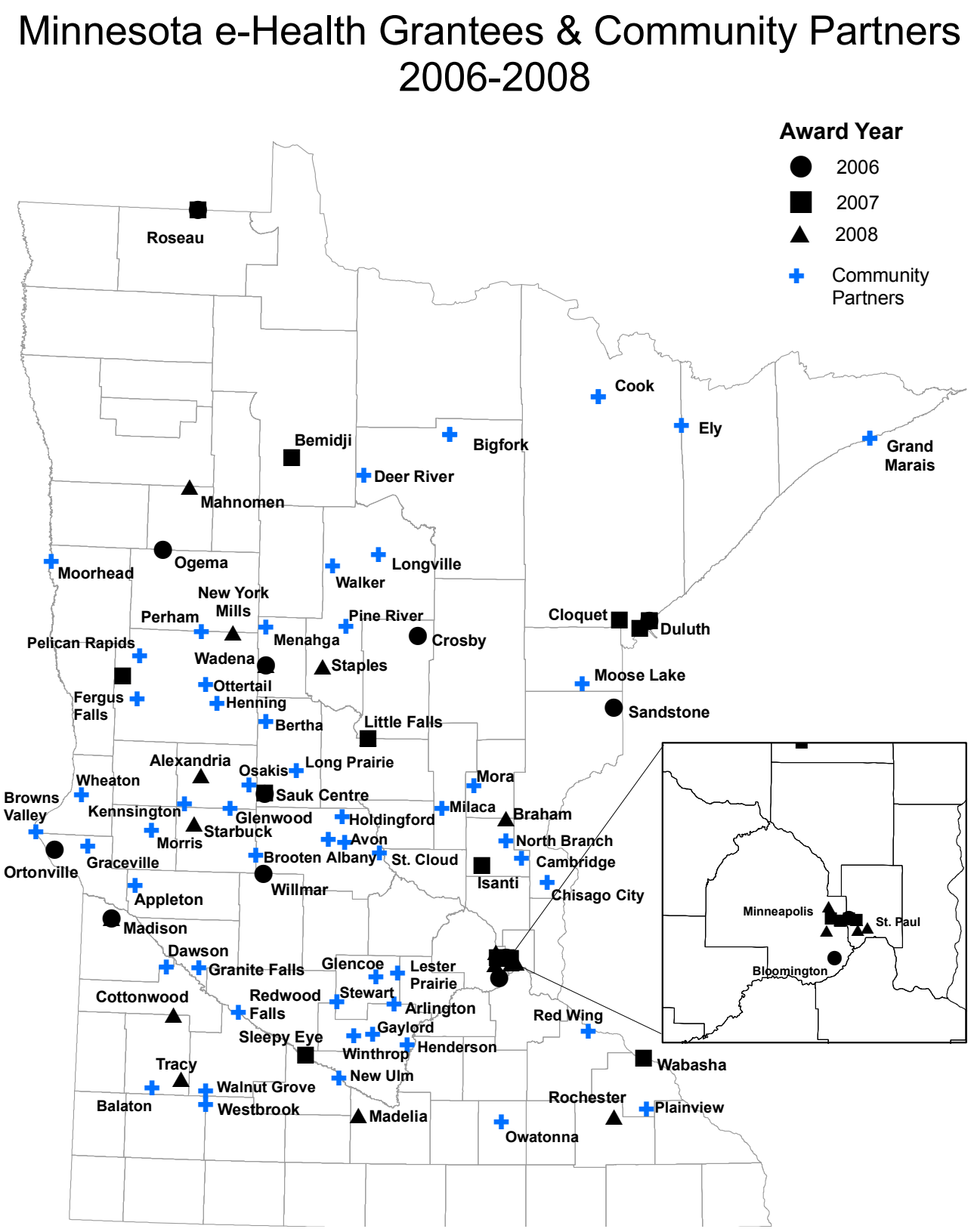
In 2008, three organizations were awarded grant funds for implementation projects that had previously received planning grants from the Minnesota e-Health Grant Program in 2006 or 2007. These three organizations are: Cedar Riverside People's Center, Minneapolis, St. Gabriel's Hospital, Little Falls, and Lac qui Parle Health Network, Madison.

Cedar Riverside People's Center, a community clinic, serves twelve neighborhoods in southeast Minneapolis. Specifically, the geographic community served by this clinic is a gateway for immigrants, refugees and low-income migrants. The clinic's patient population shifts frequently and an interoperable EHR system will help support this population. The clinic completed a broad assessment and planning process in September and will begin implementation in January 2009.

St. Gabriel's Hospital and Family Medical Center, Little Falls, and Albany Area Hospital and Clinic, Albany, have expanded existing collaborative relationships to implement an EHR system and the infrastructure for health information exchange between and among their organizations. Eventually the exchange will include their larger referral network as well. The completion of a comprehensive planning process provided the necessary tools to move forward with this community-based project.

Figure 2. Minnesota e-Health Grantees and Community Partners

2006-2008 Awards, By Year



Lac qui Parle Health Network is a network of three integrated health systems in southwest Minnesota. These organizations came together several years ago to coordinate health information technology investments and share health information technology resources. In 2006, they received a planning grant from the e-Health Grant Program. After an extensive planning and selection process, they are beginning EHR implementation in early 2009.

All of these organizations completed solid planning and readiness assessments. This is a reflection of the importance of proper planning, a significant predictor of EHR implementation success.

In addition to the e-Health Grant Program, MDH administers a **six-year no-interest EHR revolving loan program** to assist in financing the installation or support of interoperable electronic health record systems. Total funding of 6.3 million for fiscal years 2008-09 is available on a first-come, first-served basis to eligible applicants, including community clinics, rural hospitals, medical clinics in towns with population under 50,000, nursing facilities, and other health care providers or services. As with grants, loan applicants must clearly state their plans for achieving interoperability with other providers.

In the past year, MDH received a total of 26 loan pre-applications, a preliminary step to ensure the applicant is eligible before they undertake the more extensive application process. As of December 2008, a total of 3.9 million of the 6.3 million appropriation has been approved or disbursed. The remaining 2.4 million will be approved and disbursed by early 2009. Currently 5.7 million EHR loan requests are in process; this represents an additional need of at least 3.3 million.

A fact sheet on the lessons learned from the completed 2006-2007 grant projects is available at www.health.state.mn.us/divs/orhpc/funding/grants/pdf/ehrlessons.pdf. Among the lessons are that:

- Thorough and systematic planning is critical for success,
- It takes time to do it right; it almost always takes longer than anticipated, especially when working in a collaborative,
- Comprehensive needs assessments are crucial for successful product selections,
- Funding EHR/HIT in addition to other capital expenditures is a major financial strain for rural and inner city providers,

- Budgeting time and staff for EHR implementation is challenging; staff usually have both management and direct patient care responsibilities,
- Few EHR products are comprehensive and affordable enough to meet the clinical and administrative needs of rural health care settings where the hospital, clinic and long term care facility are often a single entity,
- Numerous legal requirements and possible interfaces may need to be considered when creating a truly interoperable health record,
- Health Information Exchange strategies need to involve legal and HIPAA compliance staff to address the complex patient privacy and consent issues, and
- Collaboration is essential among providers who share health information within a community.

WHAT'S NEXT?

e-Prescribing

E-prescribing has emerged as a leading e-health activity because of its clear value. E-prescribing makes it possible for a physician to have access to a patient's medication history, safety alerts and preferred drug formularies *before* sending the prescription to the pharmacy. This information is necessary to realize improved medication safety, enhanced health care quality, lowered medication costs, and increased practice efficiency.

Moving to e-prescribing transactions statewide will:

- Enhance patient safety by transferring prescriptions between providers and pharmacies electronically. Illegible handwriting will be a thing of the past; fewer medication errors and adverse drug events will occur.
- Improve quality by enabling providers to more thoroughly examine medication history while prescribing.
- Reduce costs by incenting providers to review and use patients' health plan formularies before prescribing non-covered medications. Having providers review health plan formularies prior to prescribing can save payers an average of $2 - $7 per prescription. Greater adherence to a formulary means greater use of lower-cost generics and fewer call-backs to verify prescriptions, a timesaver that leads to greater efficiencies.

e-Prescribing can be done through full-featured EHRs (over 50 EHRs have e-prescribing capabilities) or through stand-alone systems. For many smaller practices, e-prescribing systems can provide an effective pathway to full EHR adoption at a later time. While at least one e-prescribing system is provided at no cost, others run $500 – $2,500/year. By comparison, EHRs can cost $25,000 - $45,000 per physician just to purchase the software, with an additional $3,000 – $9,000/year for maintenance and upgrades.

About 1.47 billion new prescriptions and renewals were eligible for electronic routing in 2007 in the U.S., according to Wolters Kluwer Health Source® Pharmaceutical Audit Suite. This does not include prescriptions for controlled substances, which are not currently eligible for e-prescribing under federal law.

E-prescribing has emerged as a leading e-health activity because of its clear value in improved medication safety, enhanced health care quality, lower medication costs, and increased practice efficiency.

Current status of e-Prescribing in Minnesota

In 2007, only an estimated 1.2% of prescriptions in Minnesota were transmitted electronically. This is a significant increase from previous years, but it is still a small proportion of the total number (see Table 3). This may seem discouragingly low, however only a few states (Massachusetts, Rhode Island and Nevada) are above 5%. The number of prescribers and pharmacies using e-prescribing is also growing in Minnesota (see Figures 3 and 4).

While Minnesota currently ranks 26th in the country, it is the only state to mandate e-prescribing (Minnesota Statutes, section 62J.497). The standards necessary to conduct e-prescribing were also established in that statute.

MN HIE chose e-prescribing as its first data exchange initiative because of its clear value in reducing costs, improving quality and supporting Minnesota's health care community.

Table 3: Status of Electronic Prescribing Use and Need in Minnesota estimated for 2008.

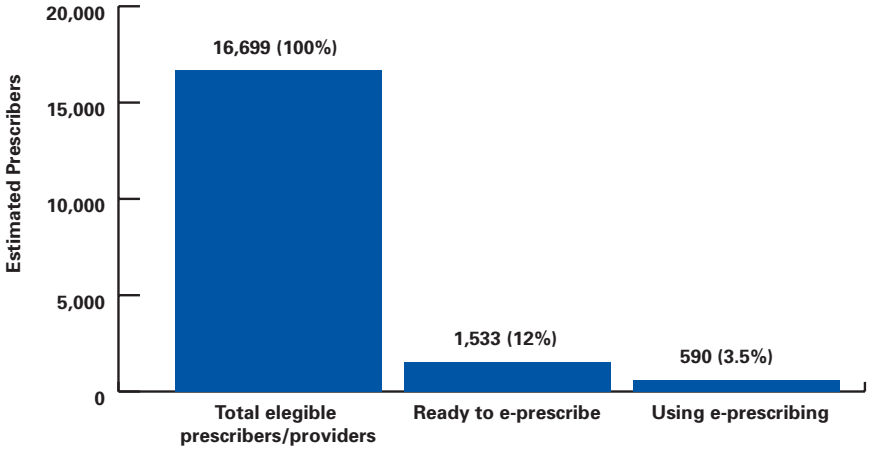
Estimate of Prescriptions Eligible for Electronic Prescribing in Minnesota

2007 Total Prescriptions [1]	52,991,429
Estimated Preauthorized Refills [2]	(21,388,079)
Estimated Potential e-Prescriptions New and Renewal [3]	24,714,464
Estimated DEA Controlled [4]	(3,212,880)
Estimated Prescriptions Eligible for Electronic Prescribing	21,501,584

Status of Electronic Prescribing Use in Minnesota

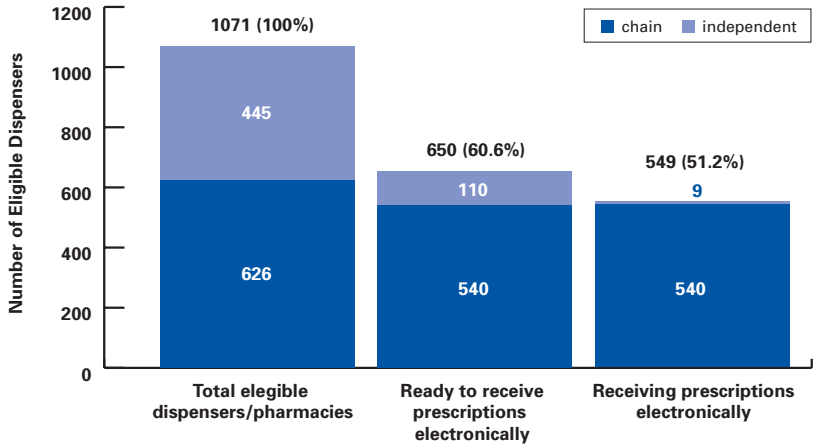
Estimated Prescriptions Eligible for Electronic Prescribing	21,501,584
Electronically Filled Prescriptions[5]	258,019
Percent Electronically Filled	1.2%
Gap/Need	98.8%

Figure 3. Estimated eligible prescribers (providers) in Minnesota; number and percent ready and using e-prescribing



Sources: SureScripts-RxHub and MDH sources: see www.health.state.mn.us/ehealth/

Figure 4. Estimated eligible community dispensers (pharmacies) in Minnesota; number and percent ready to receive, and receiving electronic prescriptions



Sources: SureScripts-RxHub and MDH sources: see www.health.state.mn.us/ehealth/

[1] Source: Source: Data shown here are for calendar year 2007 and include the total number of prescription drugs filled at retail pharmacies only.

Data are based on Vector One(TM):National by Verispan, L.L.C., which collects data from a panel of retail pharmacies, third party payers, and data providers.

Retail pharmacies include independent pharmacies, chain pharmacies, food stores, and mass merchandisers found in 814 defined regional zones.

These data include prescriptions filled at retail pharmacies only and exclude those filled by mail order.

[2] Preauthorized refills on existing prescriptions are not included because they do not require communication between a physician and pharmacist.

[3] Data from the National Association of Chain Drug Stores for calendar year 2007. Data represent new and renewal prescriptions only.

Renewal prescriptions are either 1) prescriptions with all refills used or 2) expired prescriptions.

[4] Estimate of DEA controlled prescriptions, 13% of total prescriptions (National estimates range from 10-20%).

[5] Source: SureScripts-RxHub, 2008. Includes new and renewal prescriptions.

Section 132 of the Medicare Improvements for Patients and Providers Act of 2008 (MIPPA) authorizes a new incentive program for eligible providers who are successful electronic prescribers. Electronic prescribers receive payment bonuses on allowed charges for covered services: 2% in 2009-2010, 1% in 2011-2012, and .5% in 2013. In addition, CMS reduces reimbursements to providers who do not e-prescribe by 1% in 2012, 1.5% in 2013, and 2% in 2014 and each subsequent year.

"Among the strategies proposed, the State Alliance believes that, at this time, the highest priority should be given to e-prescribing and the privacy and security of health information."

Accelerating Progress: Using Health Information Technology and Electronic Health Information Exchange to Improve Care, State Alliance for e-Health, September 2008

Challenges and prescription for action

Achieving statewide adoption of e-prescribing by 2011 requires an accelerated effort to provide technical, informatics and fiscal support and incentives for stakeholders — especially those providers in small urban and rural settings and independent dispensers (pharmacies).

Many prescribers and dispensers still rely on faxing for some parts of the e-prescribing process. These prescribers and dispensers need to move to full electronic exchange in order to reap the benefits from the medication history, formulary, and benefits checks.

Other steps necessary for statewide adoption and use include:

- Staff training, technical support, re-engineering workflows.
- Certification of providers and dispensers by intermediaries or other appropriate groups.
- Certification and readiness to receive electronic messages by both independent pharmacies as well as chain pharmacies.
- Adoption of standards for special settings such as long term care facilities.

Possible actions that payers, providers, trade associations, state and federal government and other stakeholders can take to address these challenges include:

- Incenting providers financially, so that the cost of implementing e-prescribing capabilities is reduced or removed as a barrier to adoption,
- Providing professional education on how to maximize the value of e-prescribing in a hospital or clinical setting, and
- Emphasizing community-based, collaborative approaches to implementing e-prescribing so that the benefits that are available are clear and understood by all citizens in a community.

2008-2009 e-Health Initiative Priorities

Priorities for the Minnesota e-Health Initiative are:

- Advancing adoption and use of e-prescribing technologies and standards,
- Supporting the effective use of EHRs to improve quality of care and population health, especially for those with chronic conditions,
- Defining interoperability between EHR systems to enable community eHIE to improve continuity and coordination of care,
- Supporting widespread adoption and use of standards based on national recommendations and Minnesota law,
- Supporting community clinics and rural provider collaboratives, and
- Assessing the progress on adoption and use of EHRs, identifying gaps and barriers to success, and developing pragmatic guidance and resources for organizations to address them.

Minnesota e-Health Initiative workgroups, which comprise industry leaders, are actively addressing these priorities:

- ***Standards:*** Identify, monitor and recommend specific standards for sharing and synchronizing patient data across interoperable electronic health record systems and across the continuum of care.
- ***E-Prescribing:*** Identify practical guidance and actions for health care providers, prescribers, dispensers, payers and pharmacy benefit managers (PBMs) to support the adoption and effective use of electronic prescribing including standards and standard transactions in order to help improve the quality and safety of health care and improve the health of communities.
- ***Effective Use of EHRs:*** Identify practical guidance for health care providers on how to address some of the most commonly perceived barriers to effective use of electronic health records (EHRs) in order to help improve the quality and safety of health care and

improve the health of communities. This includes but is not limited to organizational issues (i.e. governance, leadership, and adequately trained staff), clinical decision support systems, and quality improvement/population health.

- *Communications and Collaboration:* Working with health professional and trade associations to disseminate consistent, effective, consensus-driven messages around the mandates and e-health priorities.
- *Fifth Annual Minnesota e-Health Summit on June 25, 2009:* A statewide venue to disseminate e-Health Initiative policy recommendations, lessons learned from early adopters, and national perspective/activities. Each past summit has attracted over 400 thought leaders in the area of HIT.

What remains to be done?

- Develop metrics and benchmarks for regularly assessing progress toward achieving the adoption, effective use and interoperability of EHR systems and other HIT.
- Continue to identify priority data exchange scenarios that require uniform adoption of standards, evaluate any national recommendations, and recommend standards for adoption in Minnesota.
- Support current exchange and interoperability priorities by implementing the recommended standards for e-prescribing, laboratory reporting and immunizations.
- Identify and address the unique challenges to HIT adoption in special settings such as long term care, public health, and alternative care providers.
- Develop implementation and other use guides to ensure consistent implementation of recommended standards.
- Apply research and evaluation to e-health activities to measure the value of EHR systems and other HIT in improving quality and population health.

CONCLUSION

Health information technology and health information exchange offer transformative opportunities to improve the health and care of citizens. Minnesota has been a leader in pursuing bold e-health policies to accelerate the adoption of EHRs and other HIT, including the use of statutory mandates and governmental funding to accelerate adoption of electronic health records and health data standards. It has also provided a model for effective public-private collaboration to advance e-health goals. While much of the foundation has been laid through the Minnesota e-Health Initiative, considerable work remains to ensure all providers and all Minnesotans can share in the benefits of e-health.

The State e-Health Alliance noted that "…the high costs, avoidable deaths, poor quality, and inefficiency of the current system drive urgency for transformation. But … if not smartly coordinated, it may only result in an electronic version of the "siloed", inefficient system we have today." Ensuring the smart and coordinated implementation of HIT and eHIE to improve the health and care of Minnesotans will continue to be the vision and focus of the Minnesota e-Health Initiative and the Minnesota Department of Health.

[2] *Accelerating Progress: Using Health Information Technology and Electronic Health Information Exchange to Improve Care,* State Alliance for e-Health, September 2008

Selected Glossary of Terms

e-Health

E-health is the adoption and effective use of Electronic Health Record (EHR) systems and other health information technology (HIT) to improve health care quality, increase patient safety, reduce health care costs, and enable individuals and communities to make the best possible health decisions. Across the nation, e-health is emerging as a powerful strategy to transform the health care system and improve the health of communities.

Electronic Health Record (EHR) Systems

An Electronic Health Record is a computerized record of a person's health history over time, typically within and for a single health organization. EHR systems increasingly include tools that assist in the care of the patient or result in greater efficiency, such as e-prescribing, appointments, billing, clinical decision support systems, and reports. Because of such tools, EHR systems are much more than just computerized versions of the paper medical chart. Proper planning and implementation of an EHR system can typically take 6-24 months in clinics, and three years or more in a hospital.

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.

Health Information Exchange (HIE)

Health Information Exchange is the electronic, secure exchange of health information between organizations/information systems. The term can also be used to represent a regional or statewide organization whose purpose is to facilitate and support information exchange between member organizations.

Health Information Technology (HIT)

Health Information Technology means tools designed to automate and support the capture, recording, use, analysis and exchange of health information in order to improve quality at the point of care. HIT is a broad term that includes EHR systems (see above), e-prescribing, Personal Health Records, digital radiologic images, tele-health technologies, and many others.

Health Informatics

Health informatics is the science and art of ensuring that health information systems are designed and used in ways that truly support health professionals in improving the quality and safety of care, and of improving the health of populations.

Interoperability

Interoperability is the ability of information systems to exchange data electronically, such that each system "understands" what the data are, the meaning of that data, and what to do with it. In everyday terms, interoperability is what is meant by the phrase, "computers can talk to each other."

Minnesota e-Health Initiative

The Minnesota e-Health Initiative is a public-private collaborative that represents the Minnesota health and health care community's commitment to prioritize resources and to achieve Minnesota's mandates. The initiative is legislatively authorized and has set the gold standard nationally for a model public-private partnership.

Personal Health Record (PHR)

Personal Health Record typically refers to a computerized application that stores health information on an individual over time. It can be initiated and maintained by the individual, the individual's health care provider, the individual's health plan, or by a third party. The individual can usually input health information themselves. The various models for PHRs and the lack of standards currently make this a confusing area.

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).

OTHER ACRONYMS USED IN THIS REPORT

AHIC: American Health Information Community is the national public-private body that establishes priority "use cases" (that is, scenarios) for electronic exchange that have the greatest potential to improve quality, safety and/or population health.

CCHIT: Certification Commission for Healthcare Information Technology is the national body that establishes criteria for certifying EHR systems, conducts the evaluation, and issues the certification. www.cchit.org. CCHIT incorporates many of the standards recommended by HITSP (see below) based on AHIC priority use cases (see above).

HITSP: Health Information Technology Standards Panel is the national body tasked with identifying the optimal standards to be adopted nationwide in order to implement the use cases identified by AHIC (see above) and to achieve interoperability across systems and organizations.

MN HIE: Minnesota Health Information Exchange is a statewide partnership of payers, provider systems and state government, formed in 2007 to connect doctors, hospitals and clinics across the state. MN HIE will enable physicians and other health providers to quickly and securely access electronic medical information. MN HIE's initial service offers providers access to patient medication history, a critical component for e-prescribing. MN-HIE is a type of HIE as described above.

ONC : Office of the National Coordinator is a part of the federal Department of Health and Human Services, and is responsible for coordination of national activity relating to EHR's and HIT. The "The ONC-Coordinated Federal Health IT Strategic Plan: 2008-2012" was released in June 2008 and can be found at www.hhs.gov/healthit/resources/HITStrategicPlan.pdf

APPENDICES

Appendix A

Standards Recommended for Use
in Minnesota - updated December 2008

Appendix B

Personal Health Records in Minnesota

Appendix C

Minnesota e-Health Grant
and EHR Loan Recipients

Appendix D

Selected Bibliography
of e-Health Resources

Appendix E

Minnesota e-Health Initiative
Advisory Committee Members

Appendix A:

Standards Recommended for Use in Minnesota - updated December 2008

Minnesota Statutes 2007, Section 62J.495

"By January 1, 2015, all hospitals and health care providers must have in place an interoperable electronic health records system within their hospital system or clinical practice setting. The commissioner of health, in consultation with the [Minnesota e-Health Initiative] Advisory Committee, shall develop a statewide plan to meet this goal, *including uniform standards to be used for the interoperable system for sharing and synchronizing patient data across systems. The standards must be compatible with federal efforts. The uniform standards must be developed by January 1, 2009..."*

APPENDIX A

Standards Recommended for Use in Minnesota - updated December 2008

The following standards have been recommended by the Minnesota e-Health Initiative to the Commissioner of Health. Standards #1 and #2 below have been enacted into law by the 2008 Minnesota Legislature and Governor Pawlenty. The adoption of all the standards listed here applies to all providers covered by the 2015 interoperable EHR mandate (see Appendix B of the statewide implementation plan).

See Figure 1 on page G2-7 for a graphic showing Minnesota's Approach for Recommending e-Health Standards.

To support providers in understanding and effectively adopting this complex array of health data standards, MDH has developed an extensive series of Web pages that provide background and educational information, report on progress of the Minnesota Standards Workgroup, and report on and summarize the extensive work being conducted nationally (see www.health.state.mn.us/ehealth).

The two national bodies that serve as the basis for much of the standards activities in Minnesota are:

- Certification Commission for Health Information Technology (CCHIT): Certifies electronic health record software products for functionality and the ability to exchange information (www.cchit.org).
- Health Information Technology Standards Panel (HITSP): Harmonizes the actual data standards to be used for capturing and exchanging information (www.hitsp.org).

1. Certified EHRs

Minnesota Statutes 2008, Section 62J.495, Subd. 3. Interoperable Electronic Health Record Requirements:

(a) To meet the requirements of [the 2015 interoperable electronic health records (EHR) mandate], hospitals and health care providers must meet the following criteria when implementing an interoperable EHR system within their hospital system or clinical practice setting.

(b) The electronic health record must be certified by the Certification Commission for Healthcare Information Technology (CCHIT), or its successor. This criterion only applies to hospitals and health care providers whose practice setting is a practice setting covered by CCHIT certifications. This criterion shall be considered met if a hospital or health care provider is using an electronic health records system that has been certified within the last three years,

even if a more current version of the system has been certified within the three-year period.

(c) A health care provider who is a prescriber or dispenser of controlled substances must have an electronic health record system that meets the requirements of section 62J.497.

2. Medication Management

Minnesota Statutes 2008, Section 62J.497

Subd. 2. Requirements for Electronic Prescribing.

(a) Effective January 1, 2011, all providers, group purchasers, prescribers and dispensers must establish and maintain an electronic prescription drug program that complies with the applicable standards in this section for transmitting, directly or through an intermediary, prescriptions and prescription-related information using electronic media.

(b) Nothing in this section requires providers, group purchasers, prescribers or dispensers to conduct the transactions described in this section. If transactions described in this section are conducted, they must be done electronically using the standards described in this section. Nothing in this section requires providers, group purchasers, prescribers or dispensers to electronically conduct transactions that are expressly prohibited by other sections or federal law.

(c) Providers, group purchasers, prescribers and dispensers must use either HL7 messages or the National Council for Prescription Drug Programs (NCPDP) SCRIPT Standard to transmit prescriptions or prescription-related information internally when the sender and the recipient are part of the same legal entity. If an entity sends prescriptions outside the entity, it must use the NCPDP SCRIPT Standard or other applicable standards required by this section. Any pharmacy within an entity must be able to receive electronic prescription transmittals from outside the entity using the adopted NCPDP SCRIPT Standard. This exemption does not supersede any Health Insurance Portability and Accountability Act (HIPAA) requirement that may require the use of a HIPAA transaction standard within an organization.

(d) Entities transmitting prescriptions or prescription-related information where the prescriber is required by law to issue a prescription for a patient to a nonprescribing provider that in turn forwards the prescription to a dispenser are exempt from the requirement to use the NCPDP SCRIPT Standard when transmitting prescriptions or prescription-related information.

Subd. 3. Standards for electronic prescribing.

(a) Prescribers and dispensers must use the NCPDP SCRIPT Standard for the communication of a prescription or prescription-related information. The NCPDP SCRIPT Standard shall be used to conduct the following transactions:

(1) get message transaction;

(2) status response transaction;

(3) error response transaction;

(4) new prescription transaction;

(5) prescription change request transaction;

(6) prescription change response transaction;

(7) refill prescription request transaction;

(8) refill prescription response transaction;

(9) verification transaction;

(10) password change transaction;

(11) cancel prescription request transaction; and

(12) cancel prescription response transaction.

(b) Providers, group purchasers, prescribers and dispensers must use the NCPDP SCRIPT Standard for communicating and transmitting medication history information.

(c) Providers, group purchasers, prescribers and dispensers must use the NCPDP Formulary and Benefits Standard for communicating and transmitting formulary and benefit information.

(d) Providers, group purchasers, prescribers and dispensers must use the national provider identifier to identify a health care provider in e-prescribing or prescription-related transactions when a health care provider's identifier is required.

(e) Providers, group purchasers, prescribers and dispensers must communicate eligibility information and conduct health care eligibility benefit inquiry and response transactions according to the requirements of section 62J.536.

Recommendation on standards to monitor: All Minnesota health care organizations should prepare for implementation of the following four standards and should implement them when they are approved as part of CCHIT or a comparable national certification process.

(a) Ability to send, store and receive coded medication information:
Federal Medication Terminologies (FMT): NDC, RxNorm, UNII, SNOMED CT and HITSP C32 v.2.0.

(b) Send text or coded allergy information with new electronic prescriptions to Pharmacy (directly), PBM (directly) or via intermediary network (e.g. SureScripts, RxHub):
NCPDP SCRIPT 8.1 (NEWRX) using the free text field of the message drug segment (DRU 090).

(c) Receive medication fulfillment history:
NCPDP SCRIPT 8.1 (RXFILL)

(d) Send electronic prescription to pharmacy including structured and

coded SIG instructions:
NCPDP SCRIPT 10.5

3. Laboratory Results Reporting

Recommendation for immediate action: All Minnesota health care organizations should use the following three standards for laboratory results reporting.

(a) For laboratory results reporting between laboratory and providers: HL7 v 2.5.1 message.

(b) For representation of laboratory tests in orders and results: LOINC (Logical Observations Identifiers, Names, Codes).

(c) For representation of laboratory result contents: SNOMED CT (Systematized Nomenclature of Medicine Clinical Terms).

Recommendation on standards to monitor: All Minnesota health care organizations should prepare for implementation of the following three standards and should implement them when they are approved as part of CCHIT or a comparable national certification process.

(d) For reporting of Toxicology Screens:
RxNorm
(www.nlm.nih.gov/research/umls/rxnorm/index.html)

(e) For coding of units in laboratory results:
UCUM (HL7 code set)
(www.aurora.regenstrief.org/UCUM/ucum.html)

(f) Laboratory Results Reporting using Document method:
HL7 CDA R2

4. Immunization Information Exchange

Recommendation for immediate action: All Minnesota health care organizations should use the following two standards for electronic communications of immunization data.

(a) Reporting of immunization data to an immunization information system:

For immunization data exchange between provider EHRs and immunization information system: HL7 v 2.5 message

For representation of immunization data: CVX (Vaccine Code Set) + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number
or
CPT (Current Procedural Terminology) code set + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number

(b) Query and retrieve immunization status and history

For immunization data exchange between provider EHRs and

immunization information systems: HL7 v 2.5 message

For representation of immunization data: CVX (Vaccine Code Set) + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number
or
CPT (Current Procedural Terminology) code set + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number

Recommendation on standards to monitor: All Minnesota health care organizations should prepare for implementation of the following standards and should implement them when they are approved as part of CCHIT or a comparable national certification process.

(c) Interface Requirements between EHRs and Registries and sharing of decision support and immunization schedules: Revised HL7 standards (underway) / TBD

(d) Population specific reports and alerts from immunization information system to EHRs: Standards TBD

(e) For representation of allergy and adverse reactions to immunizations: Codes (TBD based on national recommendations)

ONLINE RESOURCES RELATED TO STANDARDS

Health Information Technology Standards Panel (HITSP)

The mission of the Healthcare Information Technology Standards Panel (HITSP) is to serve as a cooperative partnership between the public and private sectors for the purpose of achieving a widely accepted and useful set of standards specifically to enable and support widespread interoperability among health care software applications, as they will interact in a local, regional and national health information network for the United States (www.hitsp.org/).

Resources from HITSP:

- Interoperability Specifications
- Security and Privacy Documents
- Requirements, Design and Standards Selection

Certification Commission for Healthcare Information Technology (CCHIT)

The national body that certifies EHRs based on objective, verifiable criteria for functionality and interoperability (www.cchit.org).

- List of CCHIT-certified EHR products:
  - Ambulatory EHR 2007: (www.cchit.org/choose/ambulatory/2007/index.asp)
  - Inpatient EHR 2007:

(www.cchit.org/choose/inpatient/2007/index.asp)

- Ambulatory EHR 2006:
  (www.cchit.org/choose/ambulatory/2006/index.asp)

Minnesota e-Health Initiative Web Page on Standards, provides information on both the Minnesota mandates and recommendations around standards, as well as background information on health data standards generally, including EHR certification (www.health.state.mn.us/e-health/standards/index.html).

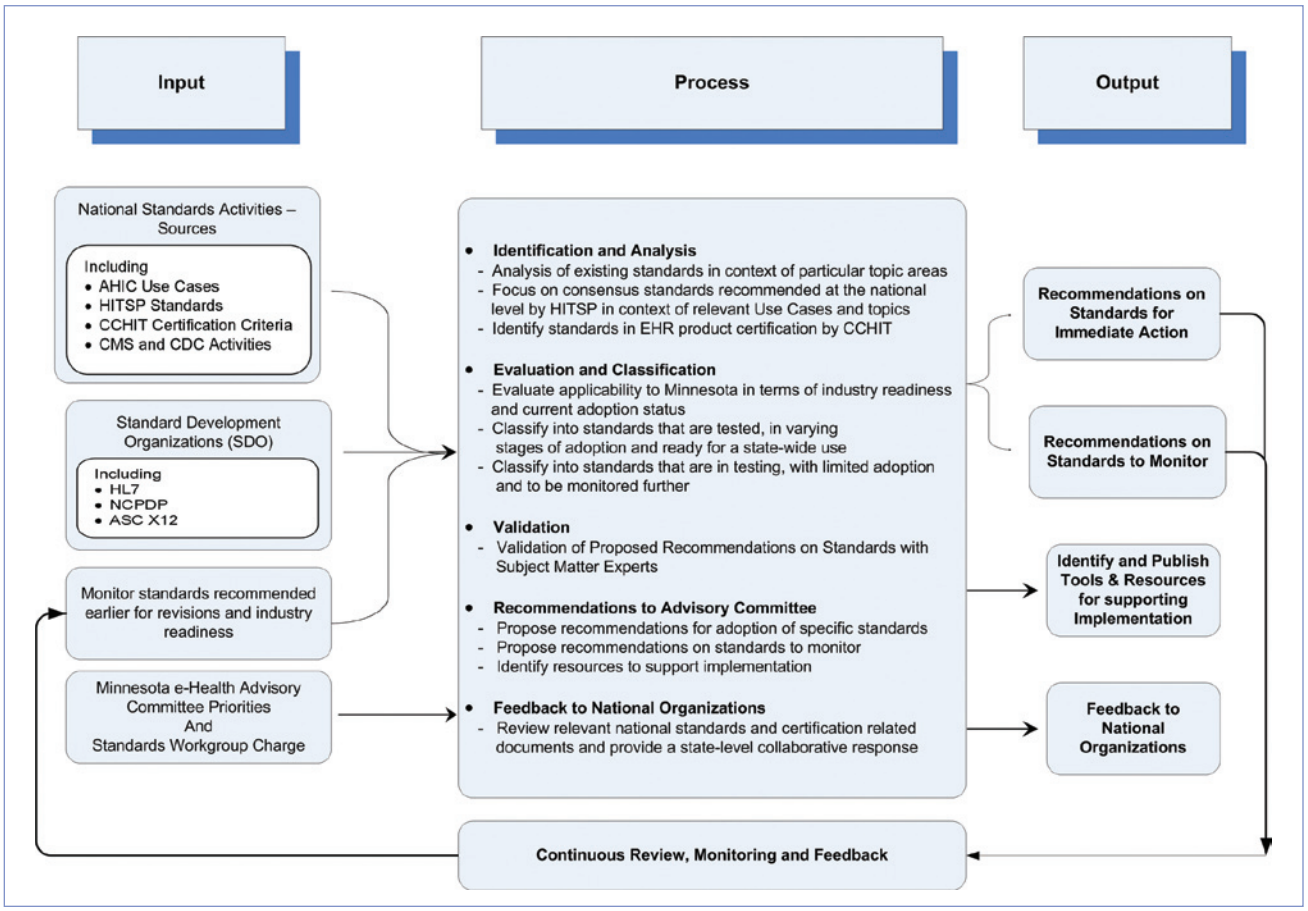
Health Information Management Systems Society (HIMSS) Tutorial: Standards 101

(www.himss.org/content/files/standards101/Standards_101.pdf)

HL7 organization, tutorial on HL7
(www.hl7.org/library/committees/education/Intro%20To%20HL7.zip)

More information resources on standards can be found at:
(www.heath.state.mn.us/ehealth), under Standards.

Figure 1. Minnesota Approach for Recommending e-Health Standards



Minnesota Department of Health, January 2009

TABLE 1: Summary of e-Health Standards Recommended in Minnesota - Updated December 2008

Transactions	Standards Recommended	Comments
e-Prescribing (Medication Management)		
• Eligibility and benefits inquiries & responses between prescribers and Plan sponsors	Accredited Standards Committee (ASC) X12N 270/271 4010A	• ASC X12 http://www.disa.org/x12org/index.cfm • AUC (Administrative Uniformity Committee) http://www.health.state.mn.us/auc/index.html
• Eligibility and benefits inquiries & responses between dispensers and Plan sponsors	NCPDP Telecommunication Standard Specification, Version 5.1	• Implementation Guide Proprietary and available to members at http://www.ncpdp.org • NCPDP Basic Guide to Standards http://www.ncpdp.org/PDF/Basic_guide_to_standards.pdf
• Transactions between prescribers and dispensers	NCPDP SCRIPT 8.1	• Implementation guide Proprietary and available to members at http://www.ncpdp.org
• Exchange of medication history	NCPDP SCRIPT 8.1	• Implementation guide available (see above)
• Formulary & benefit information	NCPDP Formulary and Benefits Standards 1.0	• Implementation guide available (see above)
Laboratory Results Reporting		
• Laboratory results reporting between laboratory and providers	HL7 v 2.5.1	• HL7 Standards http://www.hl7.org • Implementation guide proprietary and available to members at http://www.hl7.org
• Representation of laboratory test in orders and results	LOINC (Logical Observations Identifiers, Names, Codes)	• LOINC http://www.regenstrief.org/medinformatics/loinc/
• Representation of laboratory result contents	SNOMED CT (Systematized Nomenclature of Medicine Clinical Terms)	• SNOMED CT http://www.ihtsdo.org/our-standards/

#	Transactions	Standards Recommended	Comments
Immunization Information Exchange			
•	Reporting of immunization data to an immunization information system		Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the HL7 Standard Protocol http://www.cdc.gov/vaccines/programs/iis/stds/downloads/hl7guide.pdf
	Immunization data exchange between provider EHRs and immunization information system	HL7 v 2.5 message	An implementation guide using HL7 v 2.5 for immunization data transactions is currently in process of development
	Representation of immunization data	CVX (Vaccine Code Set) + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number or CPT (Current Procedural Terminology) code set + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number	• CVX codes http://www.cdc.gov/vaccines/programs/iis/stds/cvx.htm • MVX Codes http://www.cdc.gov/vaccines/programs/iis/stds/mvx.htm • CPT Codes for Vaccines http://www.cdc.gov/vaccines/programs/iis/stds/cpt.htm • Current Procedural Terminology (CPT) Codes Mapped to CVX Codes http://www.cdc.gov/vaccines/programs/iis/stds/cpt.htm • Vaccine Lot Number http://www.cdc.gov/vaccines/programs/iis/stds/coredata.htm
•	Query and retrieve immunization status and history	HL7 v 2.5 message	See above for comments on HL7 v 2.5 message related to immunization information exchange
	Immunization data exchange between provider EHRs and immunization information system	CVX (Vaccine Code Set) + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number or CPT (Current Procedural Terminology) code set + MVX (Vaccine Manufacturer / Distributor code set) + Vaccine Lot Number	See above for codes related to immunization information exchange
	Representation of immunization data		

Minnesota e-Health Initiative Advisory Committee June 28, 2007

Personal Health Records in Minnesota

Introduction

A growing number of Minnesotans are using a Personal Health Record or PHR to monitor and take charge of their health. A PHR gives people the ability to collect—electronically or on paper—all their important health history in one place, so that a complete and accurate health history and medication list is available to them when they need it. Links to prevention and other important health information are often included. Many people create a PHR for their children and aging parents as well.

PHR Goal for Minnesota

"All Minnesotans will have access to a personal health record by 2015 that is secure, portable, standards-based, and consumer controlled."

MN e-Health Definition of PHR[1]

"The personal health record (PHR) is a universally available, lifelong resource of health or health related information needed by individuals to make health decisions. Individuals manage the information in the PHR, which comes from health care providers and the individual. The PHR is maintained in a secure and private environment, with the individual determining rights of access. The PHR is separate from and does not replace the medical record of any provider."

Background Information

PHRs can take different forms.

- **"Patient portal" or "tethered" model:** A PHR may be part of their healthcare provider's Electronic Health Record (EHR). This type of PHR enables the person to directly view relevant portions of their medical record within their provider's EHR.
- **Internet based service model:** Individuals create a PHR on-line, then enter and manage their own information. Some services allow the person to authorize their doctor to view or securely download the information from the PHR. The information can be printed and in some cases even loaded on to a portable device such as a "thumb drive." Some services charge a fee but many do not.
- **Free standing or portable PHR model:** This model is just like the internet-based model except that the PHR software and information is on a person's personal computer.

Consumer Benefits

PHRs can assist an individual in managing their own health and health care by:

- Providing convenient and secure access to their health information, whenever it is needed, to help them make health decisions.
- Helping an individual to ask good questions and make better healthcare decisions for themselves, their children, or their elderly parents.
- Having automatic reminders to help monitor and manage chronic disease or other health conditions.
- Making test results directly available.
- Alerting a person to potential drug interactions between medications they are taking.
- Facilitating secure e-mail communications between patients and physicians.

Learn More about e-Health

There are three main aspects of e-Health that are important to you as a consumer:

- Electronic Health Records
- Personal Health Records
- Secure electronic health information sharing between healthcare providers.

To learn more, visit the following web sites:
www.health.state.mn.us/e-health or
www.myphr.org

1 Adapted from The Role of the Personal Health Record in the EHR, October 2003. The American Health Information Management Association (AHIMA). Available at: http://library.ahima.org/

Minnesota e-Health

"The Minnesota e-Health Initiative will accelerate the adoption and use of Health Information Technology to improve healthcare quality, increase patient safety, reduce healthcare costs and enable individuals and communities to make the best possible health decisions."
Vision statement - 2005
www.health.state.mn.us/e-health

Minnesota Principles for Personal Health Records[2]

PHR Principles	Description
1. PHRs are readily available, affordable, and convenient to consumers.	Minnesotans need the option of having a PHR that can securely contain their health information in a way that is available to them at convenient times and locations. PHRs offered by a health system and/or health plan PHR to their patients should be at no-charge.; PHRs offered by others should be affordable.
2. Each person controls the access and use of their own PHR.	Controlling of the use and content of a PHR needs to be under the direction of the individual. PHRs are transparent, meaning individuals and their designee can decide how their PHR information can be used—who has access to it and how it can be shared—and when.
3. PHRs are cumulative and contain a core set of health information and functions based on and supported by emerging national standards.	A PHR needs to be able to retain a person's health history over time. It needs to contain a core set of health information and perform a core set of functions based on national standards. At a minimum this includes a health history for medications, immunization, allergies, lab test results, and diagnostic and treatment procedures. Other features may be added as national standards continue to evolve. The PHR should record an ongoing history of health information.
4. PHRs are portable.	A PHR will not be an effective tool unless it is actually used. A PHR can only help with managing chronic conditions, supporting preventive behaviors, or contributing to knowledge—in other words, help with improving quality and reducing costs—if the consumer is engaged.
5. Consumers are encouraged to use the PHR as a tool to be active participants in the management of their own health and health care.	Portability means that a person's health data in PHR can follow them as she or he switches to a new health care provider, health plan or employer.
6. PHRs are covered by a comprehensive legal framework of data privacy and security laws.	The privacy of health information in PHRs must be protected with the same rigor as other health information. This principle also requires that PHRs be implemented in a way that the personal information is confidential and secure.
7. PHRs contain information from all health care providers across the continuum of care.	To support the continuity and safety of care, PHRs need to include health information from all providers across the continuum of care, such as primary care, specialists, hospitals, home health care, public health and long term care.
8. PHRs enable exchange of health information based on national standards.	This principle addresses the concept of ensuring interoperability between different PHRs, and between PHRs and EHRs, based on national standards.

[2]These principles were developed by the Minnesota e-Health Advisory Committee (www.health.state.mn.us/e-health)

Web: www.health.state.mn.us/e-health
E-mail: MN.eHealth@state.mn.us

Minnesota e-Health

APPENDIX C:

2008 e-Health Grant Program Awards

$3,500,000 awarded for 21 projects

Community Clinics

Organization	Partners	City	Award	Project Description
Five County Mental Health Centers	- Additional clinic sites in Sandstone, North Branch, Chisago City, Cambridge, and Milaca	Braham	$280,000	Interoperable EHR implementation at seven clinics
Cedar Riverside People's Center	- Hennepin County Medical Center, Minneapolis	Minneapolis	$350,000	Interoperable EHR implementation
Child Guidance Center Wilder Foundation		St. Paul	$50,000	EHR planning and selection
Children's Dental Services		Minneapolis	$50,000	EHR and e-prescribing planning
Hennepin County Medical Center, Dentistry Clinic	- Hennepin Faculty Associates, Minneapolis - NorthPoint Health, Minneapolis	Minneapolis	$28,000	Interoperable EHR planning for dental and medical
Open Cities Health Center		St. Paul	$250,000	Complete EHR implementation for medical and dental
Otter Tail-Wadena Community Action Council	- Additional clinic sites in Fergus Falls, Perham, Pelican Rapids, Morris, Wheaton, Brown's Valley, Menahga, Wadena, Pine River, Walker, and Long Prairie	New York Mills	$33,000	EHR readiness assessment and planning for eleven clinic network
Southside Community Health Services		Minneapolis	$35,000	Complete EHR implementation for medical and dental
St. Mary's Health Clinics		St. Paul	$40,000	EHR readiness assessment and planning for nine clinic network
United Family Practice Health Center		St. Paul	$200,000	Interoperable EHR implementation with referral hospitals
Zumbro Valley Mental Health Center	- Family Services, Rochester - Goodhue County Mental Health Services, Red Wing - South Central Human Relations Center, Owatonna	Rochester	$50,000	EHR planning and selection

Community e-Health Collaboratives

Organization	Partners	City	Award	Project Description
Alexandria Clinic	- Broadway Medical Center, Alexandria - Douglas County Hospital, Alexandria - Douglas County Public Health, Alexandria - Galeon, Osakis - Knute Nelson Home, Alexandria - PrimeWest Health, Alexandria	Alexandria	$50,000	Community electronic health record portal planning
Lac qui Parle Health Network	- Appleton Area Health Services, Appleton - Johnson Memorial Health Services, Dawson - Madison Lutheran Home, Madison	Madison	$220,000	Final phases of interoperable EHR implementation
Lakewood Health System Hospital and Clinic	- Lakewood Health System Home Care/ Hospice - Lakewood Health System Care Center	Staples	$50,000	Interoperable EHR planning for health system
Madelia Community Hospital	- Luther Memorial Home, Madelia - Madelia Clinic, Madelia - New Ulm Medical Center, New Ulm	Madelia	$40,000	Health information exchange planning
Mahnomen Health Center	- Perham Memorial Hospital & Home, Perham - MeritCare: Physician clinics in Mahnomen, - New York Mills, Ottertail & Perham	Mahnomen	$500,000	Interoperable EHR implementation
Minnesota Rural Health Cooperative	- Glacial Ridge Health System, Glenwood, Brooten, Kennsington - Glencoe Regional Health Services, Glencoe, Lester Prairie, Stewart - Granite Falls Municipal Hospital & Manor, Granite Falls - Redwood Area Hospital, Redwood Falls - Sibley Medical Center, Arlington, Gaylord, Henderson, Winthrop	Cottonwood	$500,000	Interoperable EHR implementation and network support center
Minnewaska Lutheran Home	- Alexandria Clinic, Alexandria - Broadway Medical Center, Alexandria - Douglas County Hospital, Alexandria - Glacial Ridge Hospital, Glenwood - Holly Ridge Manor Assisted Living, Starbuck - St. Cloud Hospital, St. Cloud - Samuelsson's Drug, Starbuck - Starbuck Clinic, Starbuck - Stevens Community Medical Center, Morris	Starbuck	$18,000	Health information exchange planning
Sanford Tracy Medical Center	- Sanford Westbrook Medical Center - Sanford Clinics (Balaton, Tracy, Westbrook & Walnut Grove)	Tracy	$225,000	Interoperable EHR implementation
St. Gabriel's Hospital	- Albany Area Hospital & Medical Center, Albany - Avon Medical Clinic, Avon - Family Medical Center, Little Falls and Pierz - Holdingford Medical Clinic, Holdingford	Little Falls	$516,000	EHR implementation and health information exchange
Tri-County Hospital	- Medicine Shoppe, Wadena - Pamida Pharmacy, Wadena - Peter's Snyder Drug, Wadena - St. Cloud Hospital, St. Cloud - Schultz Drug, Bertha - Seip Drug, Henning - Wal-Mart Supercenter Pharmacy, Wadena	Wadena	$15,000	E-prescribing readiness assessment and planning

APPENDIX D

Selected Bibliography of Recent e-Health Resources

e-Prescribing

- Fact sheet on Minnesota's e-prescribing mandate.
  www.health.state.mn.us/ehealth/eprescribing/index.html

- Fact sheet from the federal Centers for Medicaid and Medicare Services (CMS) on its incentive program for e-prescribing.
  www.cms.hhs.gov/eprescribing/

- National ePrescribing Patient Safety Initiative (NEPSI), a coalition-based program comprised of health care, technology and provider companies that provides free e-prescribing to every physician and medication prescriber in the country.
  www.nationalerx.com

- Agency for Healthcare Research and Quality (AHRQ) press release: *Study Finds Doctors' Use of E-Prescribing Systems Linked to Formulary Data Boost Drug Cost Savings,* December 8, 2008
  www.ahrq.gov/news/press/pr2008/eprescribpr.htm

- SureScripts, operator of the nationwide Pharmacy Health Information Exchange.
  www.surescripts.com/safe-Rx/

- *A Consumer's Guide to ePrescribing*, eHealth Initiative, June 2008
  www.ehealthinitiative.org/assets/Documents/eHI_CIMM_Consumer_Guide_to_ePrescribing_Final.pdf

- Options for Increasing e-Prescribing in Medicare, Gorman Health Group, July 2007.
  www.gormanhealthgroup.com/

Adoption and Effective Use of EHR Systems

- Certification Commission for Healthcare Information Technology (CCHIT): Includes the list of nationally certified EHR systems required to meet the 2015 Minnesota interoperable EHR mandate.
  www.cchit.org

- Certification Commission for Healthcare Information Technology (CCHIT) press release: *Incentive Programs for EHRs Growing,* September 2008.
  www.cchit.org/about/news/releases/2008/Incentive-programs-EHR-adoption-growing.asp

- Minnesota e-Health grants and loans available through the Minnesota Department of Health.
  www.health.state.mn.us/ehealth, under Funding and Other Resources.

- Stratis Health DOQ-IT program: Practical tools to assist in planning, implementation and effective use of EHR systems.
  www.stratishealth.org

- The American Academy of Family Physicians Center for Health Information Technology: Practical tools for preparation, selection, implementation and maintenance of EHR systems.
  www.centerforhit.org

- Healthcare Information and Management Systems Society (HIMSS): Dozens of articles and presentations on the realities of EHR adoption and use.
  www.himss.org/ASP/topics_FocusDynamic.asp?faid-198

- Agency for Healthcare Research and Quality (AHRQ) Health IT Toolkit: Tools to support effective adoption and use of EHR systems.
  www.healthit.ahrq.gov

Standards and Interoperability

- Standards required for implementation in Minnesota, background information on standards, and information on the Standards Workgroup of the MN e-Health Initiative.
  www.health.state.mn.us/ehealth/standards/index.html

- Healthcare Information Technology Standards Panel (HITSP): The national body charged with harmonizing and integrating standards for health information.
  www.hitsp.org

- Certification Commission for Healthcare Information Technology (CCHIT): The national body that certifies EHR based on objective, verifiable criteria for functionality and interoperability.
  www.cchit.org

- The National Council for Prescription Drug Programs (NCPDP): Creates and promotes the transfer of data related to medication, supplies and services within the health care system through the development of standards and industry guidance.
  www.ncpdp.org

- Health Level Seven (HL7): ANSI accredited Standards Developing Organization (SDO) that is involved in development and advancement of clinical and administrative standards for health care.
  www.hl7.org

Privacy, Confidentiality and Security

- *Minnesota Standard Consent Form to Release Health Information:* The development of this form was mandated in the 2007 Minnesota Health Records Act, Minn. Stat. 144.291-.298. Its purpose is to allow a person to request that their health records be sent to whomever they choose for whatever purpose they choose.

  www.health.state.mn.us/divs/hpsc/dap/consent.pdf

- *Minnesota Standard Consent Form to Release Health Information Q&A:* Answers general questions regarding the standard consent form.

  www.health.state.mn.us/e-health/wgs0708/mpsp050608consentformqa.pdf

- *Nationwide Privacy and Security Framework for Electronic Exchange of Individually Identifiable Health Information:* Principles established to govern exchange of health information, including defining roles of and responsibilities of the exchange partners. Department of Health and Human Services, December 2008.

  www.hhs.gov/healthit/privacy/framework.html

- *The Health IT Privacy and Security Toolkit:* Guidance designed to help implement the *Nationwide Privacy and Security Framework* (see above). Department of Health and Human Services, December 2008.

  www.hhs.gov/healthit/privacy/framework.html

- *Connecting For Health* policy brief: A discussion of "a 21st Century privacy approach" allowing Americans to protect and share their health information. Markle Foundation, September 2008.

  www.connectingforhealth.org

Personal Health Records

- *myPHR:* Background information, testimonials, and a no-cost PHR. American Health Information Management Association.

  www.myphr.com

- Minnesota fact sheet on PHRs: See Appendix B or www.health.state.mn.us/ehealth, under Consumers and PHRs.

- Certification Commission for Healthcare Information Technology Personal Health Record Work Group: Reviewing and revising criteria and test scripts for certifying PHRs, scheduled to begin in 2009.

  www.cchit.org/phr

APPENDIX E

Minnesota e-Health Initiative Advisory Committee Members

Walter Cooney
Advisory Committee Co-Chair
Executive Director
Neighborhood Health Care Network
Representing: Community Clinics

Jennifer Lundblad, PhD
Advisory Committee Co-Chair
President and Chief Executive Officer
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Alan Abramson, PhD
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Barry Bershow, MD
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Laurie Beyer-Kropuenske, JD
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