Minnesota Clinics’ Adoption, Use and Exchange of Electronic Health Information

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In 2007, Minnesota passed a law requiring all health care providers in the state to implement an interoperable electronic health record (EHR) system by January 1, 2015. Since then, the Minnesota Department of Health has been monitoring progress each year by surveying hospitals, clinics and other health and health care facilities about their EHR use. This article summarizes findings from the 2013 survey of ambulatory clinics. Those results show Minnesota clinics are well on the way to achieving the state’s goals for using EHRs to exchange information: 87% of clinics have adopted EHRs, 80% routinely use medication guides and alerts, and 36% exchange health information with unaffiliated settings.

Electronic health record (EHR) systems enable physicians in a variety of settings to access information that can help them deliver care that leads to better outcomes, is less expensive and leaves patients satisfied. The information gleaned from EHRs is also enabling researchers to better understand illness and treatment and health care administrators to identify inefficiencies and drivers of cost.

In 2007, Minnesota enacted legislation that requires all health care providers in the state to implement an interoperable EHR system by January 1, 2015. Since 2010, the Minnesota Department of Health’s Office of Health Information Technology has conducted surveys of health and health care facilities in the state about their adoption and use of any type of EHR system. Those surveys have shown that almost all hospitals, clinical labs, pharmacies and local health departments have adopted an EHR or EHR-like product (Table 1).

This article presents the findings of the latest survey, which focused on EHR use in clinics. It also identifies emerging issues related to the use of EHRs.

**Table 1**

Adoption of Electronic Health Record Systems and Related Technology in Minnesota

<table>
<thead>
<tr>
<th>TYPE OF FACILITY</th>
<th>PERCENT WITH EHRS OR EHR-LIKE SYSTEMS</th>
<th>NUMBER ADOPTING/NUMBER RESPONDING</th>
<th>YEAR OF ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinics</td>
<td>87%</td>
<td>1,114/1,286</td>
<td>2013</td>
</tr>
<tr>
<td>Hospitals</td>
<td>96%</td>
<td>130/136</td>
<td>2012</td>
</tr>
<tr>
<td>Local health departments</td>
<td>94%</td>
<td>67/71</td>
<td>2012</td>
</tr>
<tr>
<td>Clinical labs</td>
<td>97%</td>
<td>133/137</td>
<td>2011</td>
</tr>
<tr>
<td>Nursing homes</td>
<td>69%</td>
<td>217/316</td>
<td>2011</td>
</tr>
<tr>
<td>Chiropractic offices</td>
<td>25%</td>
<td>69/277</td>
<td>2011</td>
</tr>
</tbody>
</table>

**The Health Information Technology Survey**

The 2013 survey was sent to 1,623 ambulatory clinics (defined as any location where primary or specialty care ambulatory services are provided for a fee by one or more physician). It was administered online between February 15 and March 15, 2013, and consisted of 72 questions. The response rate was 79%, with 1,286 clinics responding.

The survey found nearly nine in 10 (87%) ambulatory clinics had adopted an EHR, representing 1,114 clinics (Table 1). Nationally, 38% of clinic-based physicians reported using an EHR.

Currently, there is no significant difference between the EHR adoption rates in urban and rural clinics. However, specialty care clinics have a lower implementation rate than primary care clinics, with 83% currently using an EHR or in the process of installing one, compared with 93% of primary care clinics. EHR adoption rates among Minnesota’s clinics have increased over time and are expected to continue to increase. Figure 1 shows that since the first clinic survey in 2010, the EHR adoption rate increased from 67% to 87%.
and other providers are using multiple tools, with 57% of clinics reporting that their providers use three or more of the following CDS tools: automated reminders for missing labs and tests; chronic disease care plans and flow sheets; clinical guidelines based on patient problem list, gender and age; high-tech diagnostic imaging decision support tools; medication guides/alerts; patient-specific or condition-specific reminders; reminders of preventive care services that are due.

Common reasons why providers do not use CDS tools include too many false alarms, lack of resources to build the tools and the need to redesign workflow.

Another indicator of effective use is electronic prescribing or e-prescribing—secure bidirectional electronic information exchange between prescribers, dispensers (pharmacies), pharmacy benefit managers and health plans, either directly or through an intermediary network. Minnesota has seen a notable increase in the rate of pharmacies using e-prescribing, from 57% in December of 2008 to 95% in April of 2013; currently, nearly 1,000 pharmacies in the state are using e-prescribing. Of the 69 pharmacies that are not, 36 are chain and 33 are independent. An estimated 80% of new and renewal prescriptions in Minnesota are now e-prescribed.

Common barriers to e-prescribing are the technical inability to e-prescribe controlled substances and pharmacies being unable to receive electronic prescriptions.

Effective Use of EHRs

The real value of an EHR system is realized when it is used to support workflow and clinical decision-making, gather information for quality-reporting initiatives, and improve the health of individuals and populations. Effective use of EHRs means that the system has tools such as e-prescribing and clinical decision support, and that staff are adequately trained to use them.

The clinic survey measures the use of several tools and functionalities. For this analysis, three clinical decision support (CDS) tools are highlighted: medication guides/alerts, preventive care reminders and clinical guidelines (Figure 2). Four out of five primary and specialty care clinics (892) routinely use medication guides and alerts. More than half (642) are routinely using preventive care reminders, and about half (566) are routinely using clinical guidelines. Use of all three tools has increased substantially over time. Furthermore, there is evidence that physicians of 2013, another 9% of clinics report that they are planning to implement an EHR within the next three years. Earlier data on EHR adoption is limited; a 2005 survey of a subset of adult primary care clinics estimated the adoption rate at 17%.

**FIGURE 1**

*Trends in Adoption of Electronic Health Record Systems among Minnesota Clinics*

**FIGURE 2**

*Clinic Trends in Use of Clinical Decision-Support Tools, Minnesota*

Health Information Exchange

Health information exchange is the secure electronic exchange of clinical information between organizations using nationally recognized standards. The goal is to make information available when and where it is needed, thus improving the quality and safety of care. In Minnesota, a number of efforts are underway to help achieve the secure electronic exchange of clinical information. Currently, most of the exchange is happening between hospitals and clinics that are owned by the same health system or that are affiliated with one another. Figure 3 shows that more than half (54%) of clinics are exchanging...
information with affiliated hospitals or clinics, but a little more than one-third (36%) are exchanging with unaffiliated hospitals or clinics. Common challenges for exchanging information include limited capacity of others to exchange, lack of technical support or expertise, competing priorities, and cost and privacy concerns.

Discussion
This research shows that Minnesota’s ambulatory clinics have made great strides toward implementation and effective use of EHR systems. This has been driven in part by key national and state actions. The American Recovery and Reinvestment Act of 2009 authorized $20 billion in funding to develop health information technology infrastructure to promote adoption and use of EHRs.11 As of May 2013, organizations in Minnesota have received more than $270 million in incentive payments to implement EHR systems.12 Before these federal incentive dollars became available, policymakers in Minnesota recognized that more effective use of health information technology—including timely exchange of information—was needed to improve the quality and safety of care and to help control costs. The Department of Health recently published guidance that describes Minnesota’s law, who is affected, what kind of information should be exchanged, privacy and security requirements, and how organizations can go about exchanging information.13 The health department will continue to support implementation guidance for providers across the continuum of care.

Over time, EHR systems are being used more effectively. Minnesota has had great success with e-prescribing following the state’s 2011 e-prescribing mandate.14 Because of its high rate of e-prescribing adoption, Minnesota has consistently ranked at or near the top of Surescripts’ Safe-Rx Ranking.15 There is still room for improvement, however, and barriers to interoperability need to be addressed. Some EHR systems have issues that may inhibit optimal utilization such as excessive alerts, poor functionality and features that don’t apply to a clinic’s practice; as technology evolves these issues should diminish.

Ongoing training will be needed both for the existing workforce and for new hires. Findings from this study show that health informatics and health information technology-related skills are needed to optimize use of EHRs and address changes in workflow. Clinics need staff who can customize and/or maintain an EHR, who have solid computer skills, and who are trained in health informatics.

Patient privacy and security continue to be a concern. In 2012, the Legislature directed the Minnesota Department of Health to study patient consent practices. Key recommendations from this study focus both on work practices and technology. They include the need to help providers develop best practices and standards for monitoring records in order to make sure privacy is not breached and information is not compromised, and to educate patients about how their information is protected.16

An emerging issue is consumer engagement—encouraging patients to access and use their personal health information, and identifying best practices for providers to involve patients in their health. Providers can support the concept of “patients as partners” by encouraging patients to register and use their personal health information, and by providing educational materials through the EHR that are tailored to the patient’s condition. More than half (57%) of the ambulatory clinics in Minnesota offer an online portal for patients to access their EHR.

EHRs are also important to health care reform efforts at both the state and national level. The expansion of Medicaid eligibility in Minnesota will bring more people onto the health insurance rolls, including some who have complex health care needs and a transient lifestyle. Having an accessible medical record will allow physicians and other providers to review these patients’ health histories and provide them with consistent care, even if they have never been seen in that clinic. Minnesota received a $45 million grant from the Centers for Medicare and Medicaid Services to test the Minnesota Accountable Health Model, which is designed to expand the state’s current Medicaid ACO demonstrations and provide more integrated, less fragmented care.17 Effective use of EHRs, including timely and secure health information exchange among multiple providers, will be essential to achieving the goals of this model.

Conclusion
More and more health care providers are embracing EHR systems and related technologies. Although more work is needed to achieve interoperability, Minnesota’s clinics are well on the way to meeting the state’s goals for using EHR technology to exchange information. Much of the progress to date has resulted from collaboration within the health care community.
Health care providers will benefit by continuing to work together to overcome technical barriers and push for better tools and systems. When this happens, they will be well-positioned to optimize patient care and outcomes, and engage patients as partners in their care. MM

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Information about EHR adoption and information exchange in other health care settings is available at www.health.state.mn.us/e-health/assessment.html.

REFERENCES


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