Minnesota’s e-Health Profile
Where are Rural Providers?
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Kari Guida, MPH
Senior Health Informatician
Office of Health Information Technology
Minnesota Department of Health
kari.guida@state.mn.us
www.health.state.mn.us/e-health/assessment.html
Topics for Discussion

• MN e-Health Profile
• e-Health Status: Focus on Rural Providers
• Bringing It All Together
• Questions
MN e-Health Profile
Highlights

• Adoption rates are high & will continue to rise
• Utilization rates are low to moderate & gaps occur between urban and rural settings
• E-prescribing by pharmacies has rapidly increased but rural clinics are e-prescribing at lower rates
• Exchange rates are low with most exchange occurring between affiliated clinics & hospitals
MN e-Health Initiative

Vision….

…accelerate the adoption and effective 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.
e-Health

e-health is the adoption and effective use of electronic health record (EHR) systems and other health information technology (HIT) to improve:

– Improve health care quality
– Increase patient safety
– Reduce health care costs
– Enable individuals and communities to make the best possible health decisions
Key Drivers for Investing in e-Health

- Support clinical practice
- Increasing evidence relating to improvement in quality, safety and health outcomes
- Consumer needs and interest
- Demand for Information to follow the patient, i.e. around transitions of care
- Policy: Minnesota laws:
  - 2011 electronic prescribing mandate
  - 2015 interoperable electronic health records (EHR) mandate
- Federal financial incentives and disincentives programs
  - Meaningful Use
The MN e-Health Profile is a method to uniformly collect and routinely share the results of MN’s e-health assessment activities statewide. The assessment information is used to:

- **MEASURE** Minnesota’s status on achieving state and national goals to accelerate adoption and use of electronic health records and other HIT and to achieve interoperability of health information

- **IDENTIFY** gaps and barriers to enable effective strategies and efficient use of resources

- Help **DEVELOP** programs and **INFORM** decisions at the local, state and federal levels of government

- **SUPPORT** community collaboration efforts
MN e-Health Profile Approach

- Used the MN Model for Adopting Interoperable EHRs
- Examined status, barriers & needs, and future plans across the continuum of care and multiple settings
- Coordinated collaborative effort with associations and other stakeholders
- Leveraged the expertise and knowledge of the Minnesota e-Health Advisory Committee, workgroups, and community
## MN e-Health Profile

### Approach: Minnesota’s Domains

<table>
<thead>
<tr>
<th>Ambulatory Surgical Centers</th>
<th>Hospice</th>
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<tbody>
<tr>
<td>Assisted Living</td>
<td>Hospitals</td>
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<tr>
<td>Chiropractic Clinics</td>
<td>Jail Health</td>
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<tr>
<td>Clinics and Physician Offices</td>
<td>Laboratories</td>
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<tr>
<td>Complementary Medicine/Care</td>
<td>Local Health Departments</td>
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<tr>
<td>Convenience Clinics</td>
<td>Mental/Behavioral Health</td>
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<td>Correctional Facilities</td>
<td>Pharmacies</td>
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<tr>
<td>Dental/Oral</td>
<td>Radiology</td>
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<tr>
<td>Emergency Departments</td>
<td>Skilled Nursing Facilities</td>
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<tr>
<td>Emergency Medical Services</td>
<td>State Agencies</td>
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<tr>
<td>Habilitation (OT, PT, RT)</td>
<td>Tribal Health Agencies</td>
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<tr>
<td>Home Health Agencies</td>
<td>Urgent Care Centers</td>
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MN e-Health Profile
Use & Dissemination

• Online reports, factsheets, & brief
  – MN e-Health Reports
    • Comprehensive report for specific domains
  – MN e-Health Factsheets
    • Factsheet for specific domain
  – MN e-Health Briefs
    • Selected e-health indicators from multiple domains plus other topic areas
• Presentations & discussions
• Papers & articles

www.health.state.mn.us/e-health/assessment.html
Defining Rural: Rural-Urban Commuting Areas (RUCA)

Census tract-based classification scheme based on standard Census Bureau area definitions and commuting information

- Urban: Duluth, Rochester, Mankato, St. Cloud,
- Large Rural: Albert Lea, Alexandria, Bemidji, Willmar
- Small Rural: Two Harbors, Wadena, St. James, Park Rapids
- Isolated: Adrian, Tyler, Walker, Renville, Minneota
Adoption

Chiropractic Offices
Nursing Homes
Clinics
Hospitals
Clinical Laboratories
Local Health Departments
MN Adoption of EHRs and Related HIT in Selected Settings

- Chiropractic Offices with EHRs (2011): 25% (69/277)
- Nursing Homes with EHRs (2011): 69% (217/316)
- Clinics with EHRs (2011): 72% (900/1246)
- Hospitals with EHRs (2011): 93% (129/138)
- Local Health Departments with Public Health EHRs (2010): 94% (68/72)
- Clinical Labs with Lab Information Systems (2010): 97% (133/137)

Adoption: Notable Findings
Chiropractic Offices & Nursing Homes

- 9% (3/35) of chiropractic offices in isolated areas had EHRs compared to 25% (38/154) in urban areas
- The EHR adoption rate was lower for nursing homes in small rural and isolated communities

<table>
<thead>
<tr>
<th>EHR installed and in use (N = 217)</th>
<th>Urban</th>
<th>Large Rural</th>
<th>Small Rural</th>
<th>Isolated Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>74% (108)</td>
<td>73% (37)</td>
<td>62% (24)</td>
<td>59% (48)</td>
</tr>
</tbody>
</table>
Adoption: Notable Findings
Clinics & Hospitals

• 15% (51/338) of all rural clinics and 21% (190/908) of all urban clinics do not have an EHR
  – 74% of all clinics plan to adopt in the next 5 years
  – Common barriers to adoption: costs and staff to design and customize an EHR, trainers, computer / IT personnel, and staff to prepare the EHR for use

• 5 of 9 hospitals without an EHR were critical access hospitals (CAHs)
  – 3 CAHs plan to deploy in the next 18 months
  – Common barriers to implementation: upfront capital costs and staff to manage and process data, information, and knowledge
Adoption: Notable Findings
Laboratories & Local Health Departments

Laboratories (N = 133)
• 94% (125/133) of all the LIS are commercial
• 53% (71/133) since 2003 or earlier

Local Health Departments
• No certified public health EHRs
• 95% (68/72) have an electronic client health records
  – 94% have either CHAMP (33), PH-Doc (24), or CareFacts (7)
• Local health departments use different systems and different combinations of systems to meet their needs

Source: Minnesota Department of Health, Office of Health Information Technology, MN Clinical Laboratory Survey of Readiness and Needs for Electronic Health Information Exchange (2011)
Response Rate: 93% (151 of 163)
Use: CPOE

Nursing Homes
Clinics
Hospitals
MN Nursing Homes with EHRs Use of Computerized Provider Order Entry (CPOE) for Lab Tests and Medication Orders by RUCA (N = 129)

Twenty percent of rural nursing homes with EHRs were using CPOE for lab tests compared to 11% of urban nursing homes.

A higher percentage of rural nursing homes reported use of CPOE for medication orders than urban nursing homes.

Source: Minnesota Department of Health, Office of Health Information Technology, MN EHR Nursing Home Survey (2011) Response Rate: 83% (316/382)
Effective Use* of Computerized Provider Order Entry (CPOE) in MN Ambulatory Clinics with EHRs by RUCA (N = 900)

Sixty-three percent of urban clinics were effectively using CPOE compared to 51% of rural clinics.

*Effective use is defined as more than 80% of all provider orders completed using CPOE.

Source: Minnesota Department of Health, Office of Health Information Technology, MN HIT Ambulatory Clinic Survey (2011) Response Rate: 92% (1248/1348)
CPOE Use: Notable Findings
Clinics & Hospitals

Clinics
• 28% (67/241) of all rural clinics & 20% (134/659) of all urban clinics are under users of CPOE
• 21% (51/241) of all rural clinics & 17% (112/659) of all urban clinics are not using CPOE

Hospitals
• 80% (56/70) of critical access hospitals are not effectively using CPOE (46% under use and 34% no use) compared to 60% of all hospitals
• Two-thirds of hospitals not using CPOE plan to implement in the next year

Source: Minnesota Department of Health, Office of Health Information Technology, MN HIT Ambulatory Clinic Survey (2011)
Response Rate: 94% (1246/1348)
Use: Clinical Decision Support

Nursing Homes
Clinics
Hospitals
Use of Clinical Decision Support Tools by Minnesota Providers (2011)

Use of Clinical Decision Support Tools

- **Medication guides or alerts**
  - Clinics (N = 900): 81%
  - Nursing Homes (N = 217): 51%
  - Hospitals (N = 129): 62%

- **Preventive care services reminders or alerts**
  - Clinics (N = 900): 54%
  - Nursing Homes (N = 217): 47%
  - Hospitals (N = 129): 41%

- **Clinical guidelines**
  - Clinics (N = 900): 43%
  - Nursing Homes (N = 217): 43%
  - Hospitals (N = 129): 33%

Clinical Decision Support Use: Notable Findings Nursing Homes, Clinics, & Hospitals

- Urban nursing homes were slightly more likely to use CDS tools
- 34% (81/241) of rural clinics and 56% (291/659) of urban clinics were routinely using more than three CDS tools
- 16% (11/70) of CAHs were not using any CDS tools
- Increase in use of medication guides, preventive care services reminders, and clinical guides for clinics and hospitals from 2010
- Common challenges were staff training, resources to build/implement, and staff resistance
Use: E-Prescribing

Pharmacy
Nursing Homes
Clinics
Hospitals
## E-Prescribing by Clinics with EHRs by Rural-Urban Commuting Areas (RUCA) (N = 900)

<table>
<thead>
<tr>
<th>Rural-Urban Commuting Areas</th>
<th>E-prescribing for 80% or more of prescriptions</th>
<th>E-prescribing for less than 80% of prescriptions</th>
<th>No e-prescribing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban (N = 659)</td>
<td>59% (391/659)</td>
<td>12% (78/659)</td>
<td>29% (190/659)</td>
</tr>
<tr>
<td>Large Rural (N=89)</td>
<td>48% (43/89)</td>
<td>12% (11/89)</td>
<td>39% (35/89)</td>
</tr>
<tr>
<td>Small Rural (N = 65)</td>
<td>51% (33/65)</td>
<td>17% (11/65)</td>
<td>32% (21/65)</td>
</tr>
<tr>
<td>Isolated (N = 87)</td>
<td>30% (26/87)</td>
<td>25% (22/87)</td>
<td>45% (39/87)</td>
</tr>
</tbody>
</table>

Source: Minnesota Department of Health, Office of Health Information Technology, MN HIT Ambulatory Clinic Survey (2011)
Response Rate: 94% (1246/1348)
Distribution of Isolated MN Ambulatory Clinics with an EHR Not Effectively e-Prescribing (N = 61)

- One isolated clinic with an EHR that is not effectively e-prescribing
- More than one isolated clinic with an EHR that is not effectively e-prescribing

Source: Minnesota Department of Health, Office of Health Information Technology, MN HIT Ambulatory Clinic Survey (2011)
Response Rate: 94% (1246/1348)
e-Prescribing: Notable Findings
Nursing Homes & Hospitals

- 34% (24/70) of critical access hospitals were e-prescribing, slightly less than the total (39%)

- 3% (6/217) of nursing homes were e-prescribing
  - 51% (110/217) plan to e-prescribe in the next 18 months

Source: Minnesota Department of Health, Office of Health Information Technology, AHA Annual Survey (2011)
Response Rate: 93% (138/148)
Exchange

Nursing Homes
Clinics
Hospitals
Health Information Exchange by Minnesota Clinics and Hospitals (2011)

- Exchange Health Information with any Partners: 87%
- Exchange Health Information with Unaffiliated Partners: 43%
- Exchange with Other Providers*: 16%

*Other providers include any provider that is not a clinic or hospital, can include nursing homes, assisted living, home health providers

MN Nursing Homes’ Current Capability and Need to Electronically Exchange (N = 217)

- Clinics/ambulatory providers: 16% capability to exchange, 76% need to exchange
- Hospitals outside your system: 18% capability to exchange, 76% need to exchange
- Laboratories: 21% capability to exchange, 62% need to exchange
- Pharmacies: 16% capability to exchange, 55% need to exchange
- Hospitals in your system: 23% capability to exchange, 53% need to exchange
- Hospice: 16% capability to exchange, 30% need to exchange
- Health plans: 18% capability to exchange, 26% need to exchange
- Home health agencies: 14% capability to exchange, 25% need to exchange

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

Nursing homes with EHRs indicated large gaps between the capability to exchange and need to exchange.

The largest gaps occurred with clinics, hospitals, labs, and pharmacies.
Coding Standards

LOINC

• Logical Observations, Identifiers, Names and Codes
• Terminology data set that includes standard codes for lab test names

Test name: Salmonella Stool Culture
LOINC code: 20955-1
Local or vendor-specific code: SSC

Others will be unable to interpret this code unless they have your local code lookup table or use the same vendor as your laboratory

SNOMED

• Systemized Nomenclature of Medicine
• Terminology system that includes standard codes for organisms and other results

Test result: Salmonella Enteritidis
SNOMED code: 7352500
Local or vendor-specific code: Sen

Others will be unable to interpret this code unless they have your local code lookup table or use the same vendor as your laboratory
Codes† Most Used by Each MN Clinical Lab to Store and Send Test Names in 2010 (N=134*)

<table>
<thead>
<tr>
<th>Coding for Test Names</th>
<th>Stored</th>
<th>Sent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Code</td>
<td>43% (57)</td>
<td>38% (51)</td>
</tr>
<tr>
<td>Text</td>
<td>22% (30)</td>
<td>24% (32)</td>
</tr>
<tr>
<td>LOINC Code</td>
<td>6% (8)</td>
<td>4% (5)</td>
</tr>
<tr>
<td>Missing/Don’t know</td>
<td>27% (36)</td>
<td>34% (45)</td>
</tr>
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</table>

LOINC codes were the least used coding for test names. About one-thirds of the clinical laboratories may not have sufficient knowledge to answer how they store and send test names.

†the code that a laboratory used the most and this code must be used more than 50% of the time.
*2 laboratories used charge codes to store test names and 1 laboratory used charge codes to send test names; 1 laboratory did not use any coding more than 50% of the time (no most used).
Source: Minnesota Department of Health, Office of Health Information Technology, MN Clinical Laboratory Survey of Readiness and Needs for Electronic Health Information Exchange (2011) Response Rate: 93% (151 of 163)
Codes† Most Used by Each MN Clinical Lab to Store and Send Test Results in 2010 (N=134*)

SNOMED codes were the least used coding for test results. About 37% of the clinical laboratories may not have sufficient knowledge to answer how their laboratory information system (LIS) store/send test results on lab report.

†the code that a laboratory used the most and this code must be used more than 50% of the time.
*1 laboratory used CPT codes to store/send test results
Source: Minnesota Department of Health, Office of Health Information Technology, MN Clinical Laboratory Survey of Readiness and Needs for Electronic Health Information Exchange (2011)
Response Rate: 93% (151 of 163)
Within the next 3 years, 63% of the clinical laboratories (71) plan to use LOINC while 20% (23) plan to use SNOMED.
Exchange: Notable Findings

- Increase in exchange from 2010
  - 29% increase in hospitals exchanging medication history with affiliated clinics
- 52% (126/241) of rural clinics and 69% (454/659) of urban clinics were exchanging
- 66% (88/133) of labs use HL7 and 4% (5/134) use both LOINC and SNOMED (standards)
- Local health departments are primarily exchanging with MDH and DHS but need to exchange with clinics and hospitals
- Common challenges for exchange were competing priorities, cost, lack of technical support or expertise and insufficient information on exchange options available
The Minnesota e-Health Profile including assessment briefs, reports, factsheet, and surveys can be found at www.health.state.mn.us/e-health/assessment.html
Bringing It All Together

- Share best practices, templates and protocols
- Offer internship or field experience for students
- Engage in state and community activities
  - E-health workgroups, coordinated responses and assessment activities
  - Coordinate and engage in community exchange
- Sign-up for e-health listserv
  
  www.health.state.mn.us/e-health
Bringing It All Together with HITECH Programs

- **REACH (Regional Extension Centers)**
  - Support providers in adopting & being meaningful users
- **UP-HI & Normandale College**
  - Workforce development
- **CMS Incentives (Meaningful Use)**
  - Incentives payments to eligible professionals and hospitals participating in Medicare and Medicaid
- **BEACON**
  - Demonstration communities for meaningful use of EHRs to achieving improvement in quality and outcomes
- **SHARP**
  - Achieving breakthrough advances to address key problems
- **e-Health Connect (MDH)**
  - Activities to assure health information exchange throughout MN
  - HIE Guidance (www.health.state.mn.us/divs/hpsc/ohit/hieguidance/index.html)
# Bringing It All Together

Office of Health Information Technology

<table>
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<tr>
<th>Focus</th>
<th>Example</th>
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| **Strategic Initiatives** | ▪ Minnesota e-Health Initiative  
  ▪ Policy & oversight program and privacy  
  ▪ e-Health Advisory Committee and Workgroups |
| **Health Informatics Projects** | ▪ Public health informatics profile toolkit  
  ▪ EHR assessment and evaluation  
  ▪ Standards monitoring and recommendations  
  ▪ Health information exchange  
  ▪ Immunization interoperability  
  ▪ e-Vital Records Interoperability |
| **Health Informatics Capacity** | ▪ Mentoring and training of informatics graduate students  
  ▪ Teaching, advising and consultation |
Acknowledgements

- OHIT Colleagues
  - Marty LaVenture
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  - Priya Rajamani
  - Rebecca Johnson
  - Anne Schloegel
  - Erica Christenson
Building Common Ground

If you want to go fast, go alone; If you want to go far, go together.

African proverb
Questions

Kari Guida, MPH
Senior Health Informatician
Office of Health Information Technology
Minnesota Department of Health
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