E-Prescribing and Medication Management

March 31, 2009

Presenters:

Douglas Bell
Department of Medicine at University of California Los Angeles

David R. Mehr
Curtis W. and Ann H. Long Department of Family and Community Medicine at the University of Missouri

Ken Majkowski
Surescripts LLC.

Moderator:

Robert Mayes
Agency for Healthcare Research and Quality
Modeling E-Prescribing Processes to Understand Design Trade-offs

Douglas S. Bell, MD, PhD
Research Scientist, RAND Corporation
E-Prescribing as a Model System
E-Prescribing as a Policy Instrument

• Medicare Modernization Act (MMA)
  – “Deliver information to the point of care that enables more informed decisions about appropriate and cost effective medications.”
  – Mandates Part D plans accept e-prescriptions via standards

• Medicare Improvements for Patients and Providers Act (MIPPA)
  – 2009: 2% bonus for “meaningful use” of e-prescribing
  – 2012: 1% bonus for use; 1% penalty if not e-prescribing
  – 2014+: 2% penalty if not e-prescribing

• How?
  – Certification standards (Features; CCHIT)
  – Transaction standards (e.g. Medication History, Formulary and Benefit, Prior Authorization)
Mechanism of E-Prescribing Effects

- Information available in the system
- Information display / capture at prescriber
- Changes in work processes
- Changes in drug use
  - Appropriateness
  - Costs
  - Patient adherence
- Other effects
  - Labor and other costs
  - Health service use
  - Patient satisfaction
Macro Process Model

JAMIA, 2004; 11:60-70
Process Mapping

Expand prescribing and dispensing steps
Add Rework Pathways
Add E-Prescribing
Quantitative Modeling

- Set up deterministic simulations in Excel
  - Situations
    - Base: Traditional, handwritten Rx
    - Complete: E-prescribing with F&B, Med History, e-renewal
  - Components
    - Tasks / resource allocations
    - Routing rules (conditional probabilities)
      - From micro-level model, with focus on key elements
  - Modules, corresponding to macro-level steps
    - Prescribe, transmit, dispense, deliver/monitor, exception handling

- Parameter values from field studies and the literature
  - Needed to make some assumptions to make the modeling feasible; still calibrating these assumptions
<table>
<thead>
<tr>
<th>Module 1: Prescribe in Office</th>
<th>Prob (phone call)</th>
<th>Probability</th>
<th>Staff Time (sec)</th>
<th>Dr. Time (sec)</th>
<th>n Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs: Number of patients needing new Rx</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processes: Review Rx History</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select Medication</td>
<td>1.000</td>
<td>1000</td>
<td>30</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>* take calls from pharmacy for clarification</td>
<td>1</td>
<td>0.5</td>
<td>0.005</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>DDI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* prevalence of DDI</td>
<td>0.003</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* detect &amp; review (w/o med history)</td>
<td>0.500</td>
<td>60</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* change med</td>
<td>1.000</td>
<td>30</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>undetected or detected but unchanged causing additional work at pharmacy</td>
<td>1</td>
<td>0.500</td>
<td>60</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>change med</td>
<td>1.000</td>
<td>90</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>notify pharmacy of change</td>
<td>1.000</td>
<td>165</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formulary &amp; benefit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* prevalence</td>
<td>0.010</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* detect &amp; review (w/ F&amp;B)</td>
<td>0</td>
<td>0.800</td>
<td>30</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>* change med</td>
<td>0</td>
<td>1.000</td>
<td>10</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>undetected or detected but unchanged causing additional work at pharmacy</td>
<td>1</td>
<td>0.200</td>
<td>60</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>change med</td>
<td>0</td>
<td>1.000</td>
<td>90</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>notify pharmacy of change</td>
<td>1</td>
<td>1.000</td>
<td>220</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

• Workflow modeling useful for exploring socio-technical design alternatives
  – Interoperability standards
  – Work process configurations
  – Policy changes and incentives

• Limitations
  – Work processes in the wild may differ more
  – Many parameter estimates uncertain
  – Deterministic model
Thank You!

dbell@rand.org
Generating Accurate Medication Information

David R. Mehr, MD, MS
Professor and Director of Research, Curtis W. and Ann H. Long Dept. of Family & Community Medicine, University of Missouri
Need for Medication Lists

- Multiple chronic diseases frequently lead to many medications from multiple providers
Accurate listing needed to:

- Guide therapy changes
- Avoid drug interactions
- Provide key information to others
Patient Sources of Error

- Patient doesn’t maintain a list
  - Unlikely to remember complex regimen
- Assumption that providers have accurate lists and communicate with each other
- Failure to include important non-prescription meds
  - For example OTC sleep meds
System Problems

• Poor information at transitions
• Ambulatory provider errors of omission or erroneous recording, including system crashes
Possible solutions

• Printed list given to patient for reconciliation at each clinic visit
• Brown bag
• On-line reconciliation
Problems with Reconciliation

• List may be overwhelming
• May not be carefully examined
• Even if pt asked to bring in meds, may forget or bring in only some
• Meds must be accurately entered by staff
  – Issues of most effective way to do this
**Compose New Secure Message**

**From:** Swanson, Thomas  
**Subject:** Medication Verification  
**Provider:** --Select from list--

**Messaging Policies**
- Do Not use electronic communications for urgent matters.
- Normal turn-around time is one business day.

**Medications for Verification**

<table>
<thead>
<tr>
<th>Refill?</th>
<th>Medication Name</th>
<th>Strength</th>
<th>Quantity</th>
<th>Frequency</th>
<th>Status</th>
<th>Please Explain</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zocor 20 mg oral tablet</td>
<td>20 mg</td>
<td>1 tab(s)</td>
<td>At Bedtime</td>
<td>Select from list</td>
<td>Select from list</td>
<td></td>
</tr>
<tr>
<td></td>
<td>metformin</td>
<td>500 mg</td>
<td></td>
<td>BID</td>
<td>Stopped taking</td>
<td>Select from list</td>
<td></td>
</tr>
<tr>
<td></td>
<td>lisinopril</td>
<td>40 mg</td>
<td>0</td>
<td>Once Daily</td>
<td>Taking as directed</td>
<td>Select from list</td>
<td></td>
</tr>
</tbody>
</table>

**Additional medications, vitamins, and supplements**

255 characters left
Problems with On-line Systems

- EMR vs. personal health record information
- Usability
- Prompting to use
- Incorporating report into workflow
Conclusion

• Accurate medication lists are important
• Patient- and system-level challenges to getting accurate medication listing
Thank You!

mehrd@health.missouri.edu
Medication Management and the Act of ePrescribing

Ken Majkowski, Pharm.D.
Vice President of Clinical Affairs and Product Strategy for Surescripts LLC
Definition of E-Prescribing

E-Prescribing provides authorized prescribers with secure access to real-time patient level prescription benefits and prescription history to make informed prescribing decisions that are clinically appropriate and economical for the patient.

E-Prescribing also enables the bi-directional communications that includes new prescriptions and renewal prescriptions between the prescriber’s office and the patient’s choice of pharmacy.
E-Prescribing: How it works

Certified Prescriber Application
- Collects Patient:
  - Consent
  - Name
  - Date of Birth
  - Gender
  - Zip
- Validates Information Received with Patient
- Reviews Benefit and Selects Therapy
- Pharmacy Selected by Patient
- E-Prescription Generated

Patient uniquely identified in MPI. Request for patient information sent to payer & pharmacy.

Certified Payer
- Provides Patient:
  - Eligibility
  - Benefit & Formulary
  - Medication Claims History

Certified Pharmacy
- Processes:
  - Medication Pharmacy History
  - E-Prescriptions
  - E-Refills/Renewals

E-Prescribing Benefits
- More complete medication history
- Displays economic alternatives
- No illegible handwriting
- Reduces pharmacy callbacks
- More convenient for patients
- Reduces time spent on renewals

Surescripts ® Permission granted to copy this material for personal use only provided that proper notice of trademark appears on each copy.
Surescripts Services

**Prescription Benefit:** Access to more than 220M member records uniquely identified using demographic elements. Information includes patient pharmacy eligibility, benefit and coverage, and formulary at the point of care. Patient eligibility is also available to pharmacists at the point of dispensing.

**Prescription History:** Drug history for all patient coverages and includes original prescription and refills. Data can indicate:

- **Patient compliance with prescribed regimens**
- **Therapeutic interventions**
- **Drug-drug and drug-allergy interactions**
- **Adverse drug reactions**
- **Duplicate therapy**

*Information is available for outpatient, inpatient and emergency departments.*

**Prescription Routing:** Electronic delivery of prescriptions between prescribers and pharmacies and refill requests between pharmacists and prescribers.
Payer Member Records – March 2009

220M Member Records Accessible through Surescripts

- Authorized access provided to 27 data sources* (payer system platforms)
- 49 states have patient accessibility of 50% or greater (includes D.C. and Puerto Rico)
- Average multiple coverage rate is 15% nationwide**

*Includes lives accessible in production, does not include lives under contract
**Based on eligibility requests received by SureScripts-RxHub in 2008
Prescription History

Provides electronic delivery of patient prescription history from payers and pharmacies to prescribers.

Prescription History Data

- Date Range of History
- Drug Name (Brand/Generic)
- Oldest Fill Date, Most Recent Fill Date
- Number of Fills, Days Supply, Quantity Dispensed
- Pharmacies/Prescribers
Medication History for Hospitals

- Provides clinicians convenient access to up-to-date medication history for patients they are treating in an inpatient setting
  - Person search
  - Dispensed claims medication history
  - Delivered to the acute care setting via strategic distribution partners (DrFirst, Emerging Health, GE Healthcare, Healthcare Systems, InterMedHx, Regenstrief, Siemens, others...)
  - HL7 Interface
    - ADT
    - RDS
    - ORU
Value Drivers: Disaster Relief

• In response to the lessons learned in the aftermath of Hurricane Katrina, a collaborative of public and private organizations launched ICERx.org (In Case of Emergency Prescription Database).

• This online resource allows authorized physicians and pharmacists to get evacuees’ medication records.

• Prescription history information is pooled from a variety of sources, including SureScripts-RxHub, payers and state Medicaid programs.

• This information allows health care professionals to safely renew prescriptions for evacuees and help coordinate care, while avoiding harmful prescription errors and potential drug interactions.

• For more information, visit www.icerx.org.
Political & Regulatory Landscape: Economic Stimulus Package

• The *American Recovery and Reinvestment Act* has major health-related provisions, which account for $150B
  
• Provides $17B to promote adoption of certified EHRs by hospitals and physicians
  – Incentive payments and non-adoption penalties through Medicare and Medicaid

• Codifies the Office of the National Coordinator in HHS and provides $2B to promote HIT adoption

• Provides additional multi-billion-dollar funding (mostly through grants) for states and federally qualified health centers to build HIT infrastructure and adopt technology

• Expands privacy and security protections for health information, including
  – Extending HIPPA privacy and security requirements to business associates
  – Increasing enforcement, including new authorities for state attorneys general
Political and Regulatory Landscape: Economic Stimulus Incentives

• Incentives through Medicare
  – Hospitals get $2,000,000 plus discharge bonuses (total payout could be $10 million +)
  – Physicians can earn between $44,000 over five years if they are utilizing a certified EHR in 2011 ($15,000, then $12,000, $8,000, $4,000 and $2,000)
  – Incentives attached to “Meaningful Use”

• Incentives through Medicaid
  – Payments for 85% of EHR purchase for qualifying physicians, who must meet qualifying volume and practice site criteria
  – Payments are $25,000 in year 1, $10,000 in year 2, and up to 5% for no more than 5 years, with maximum of $63,750

• Penalties for late or non-adoption in both programs
• Physicians may earn Medicare e-prescribing incentives concurrently
Political and Regulatory Landscape: MIPPA

- E-Prescribing incentives created under MIPPA -- the Medicare Improvements for Patients and Providers Act of 2008
- Creates Medicare bonus payments for physicians who adopt e-prescribing by 2012, then penalizes those who don’t
  - Offers a 2% incentive payment to eligible physicians for two years beginning in 2009, drops the bonus to 1% in 2011 and 2012 and to 0.5% in 2013; then decrease Medicare reimbursements for non-adopters by 1% in 2012, 1.5% in 2013 and 2% in 2014 and later.
  - Beginning on 1/1/09, MIPPA incentive payments will be based on the proportion of self-reported ambulatory patient visits
    - That used specified e-prescribing quality measures in at least 50% of the applicable cases during the year.
    - That used a “qualified” system
  - Complete details are on the CMS website at www.cms.hhs.gov/pqri
E-Prescribing Readiness

☑ National infrastructure is established and secure

☑ Transaction standards are approved and have been used for 10 years

☑ All states approved for e-prescribing

☑ Solution Providers are certified on transactions and data usage

☑ Incentive plans are available

☑ Return On Investment is proven
For More Information

The E-Prescribing Resource Center
www.surescripts.com
A Comprehensive Resource Center for Payers, Prescribers and Pharmacists

Email Newsletter
Sign up to hear about important updates and news about e-prescribing and related topics.
Click Here to Enter Your Email Address and Join Our List

AHRQ Resources for E-prescribing

Thank You!

Ken.Majkowski@SureScriptsRxhub.com

Surescripts ® Permission granted to copy this material for personal use only provided that proper notice of trademark appears on each copy.
Questions & Answers

Our Panel:

Douglas Bell, M.D., Ph.D., Research Scientist at the RAND Corporation.

David R. Mehr, M.D., M.S., Professor and Director of Research for the Curtis W. and Ann H. Long Department of Family and Community Medicine at the University of Missouri

Ken Majkowski, Pharm.D., Vice President of Clinical Affairs and Product Strategy for Surescripts LLC
Coming Soon!
Our Next Event

Second in our three-part series on Medication Management

Stay tuned for exact date and time and information on how to register
Thank You for Attending

This event was brought to you by the AHRQ National Resource Center for Health IT

The AHRQ National Resource Center for Health IT promotes best practices in the adoption and implementation of health IT through a robust online knowledge library, Web conferences, toolkits, as well as AHRQ-funded research outcomes.

A recording of this Web conference will be available on the AHRQ National Resource Center Web site within two weeks.

http://healthit.ahrq.gov