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

RAND HEALTH

AHRQ
Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

E-Prescribing as a Model System

≈
?

RAND HEALTH

AHRQ
Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

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)

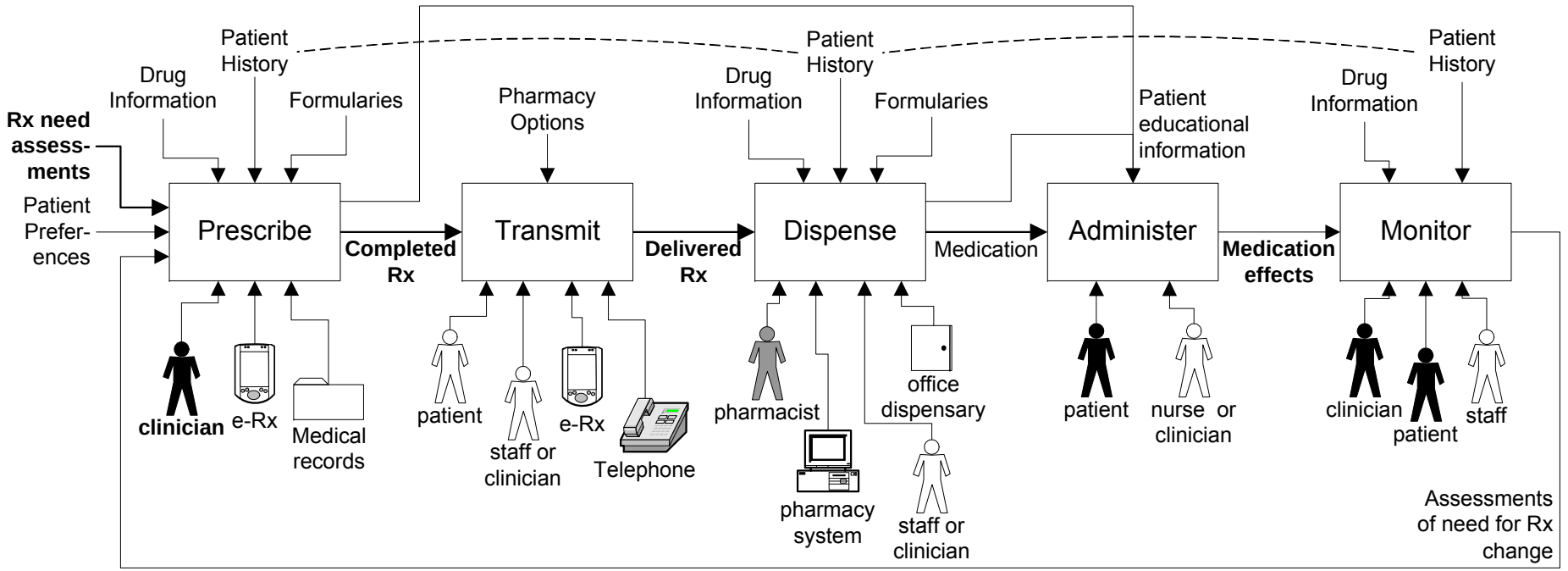
Mechanism of E-Prescribing Effects

- 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

RAND HEALTH

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

Macro Process Model



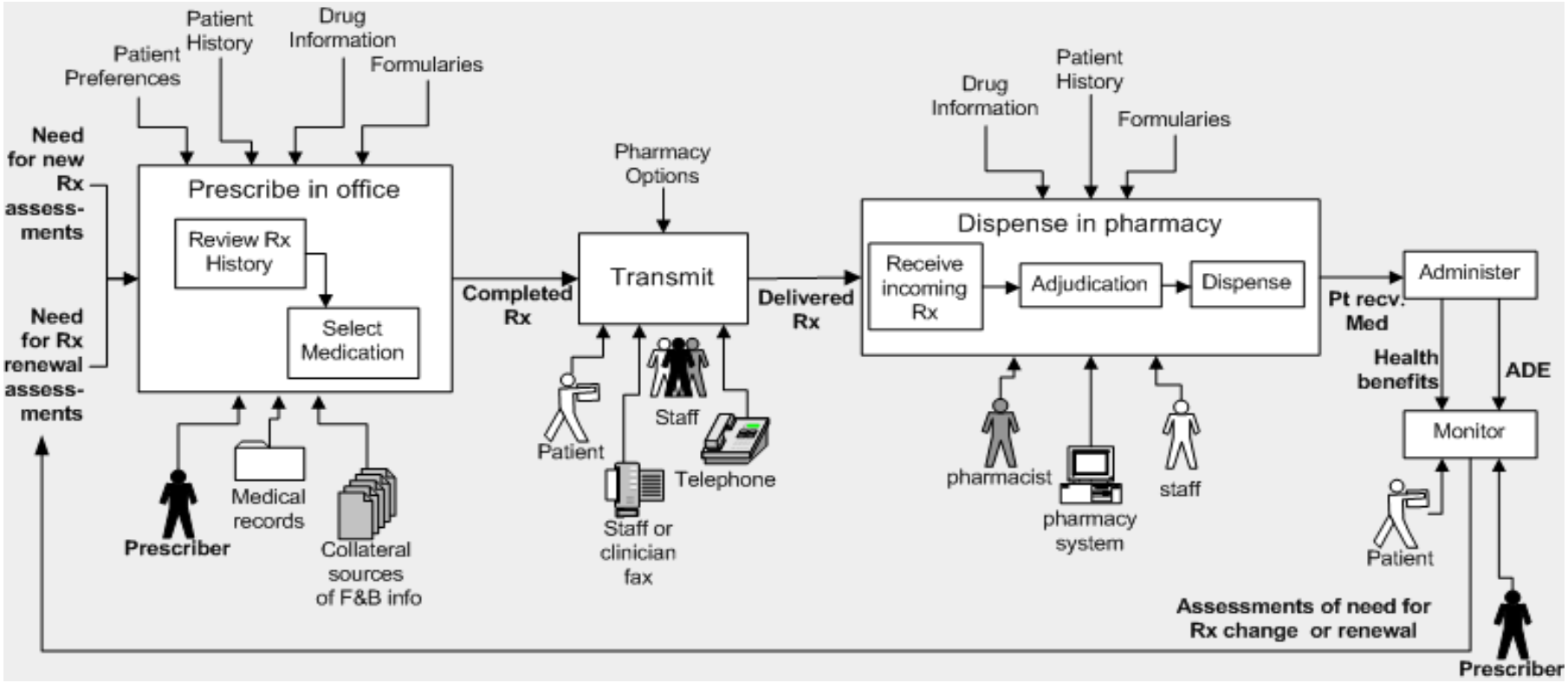
JAMIA, 2004; 11:60-70

RAND HEALTH

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

Process Mapping

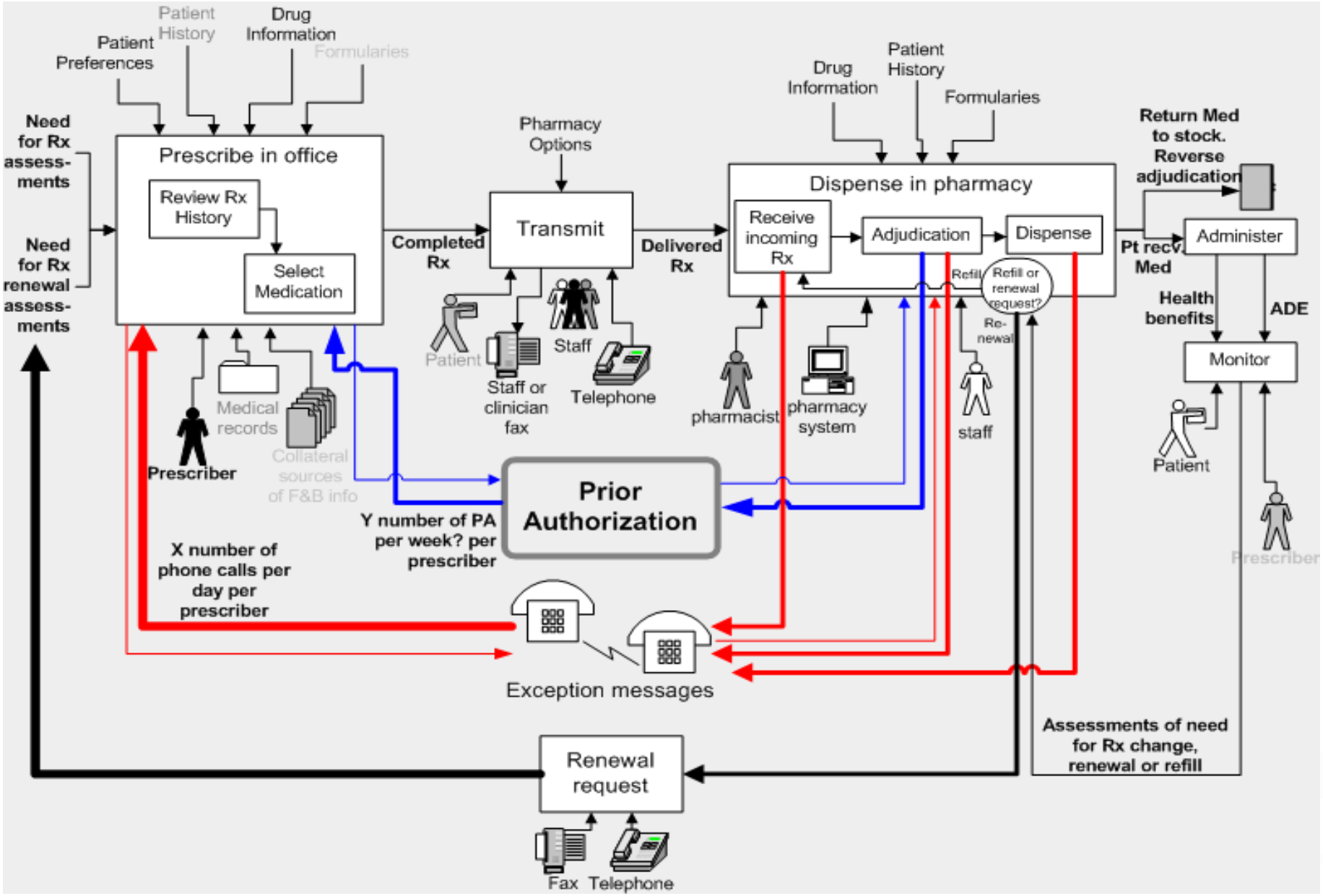
Expand prescribing and dispensing steps



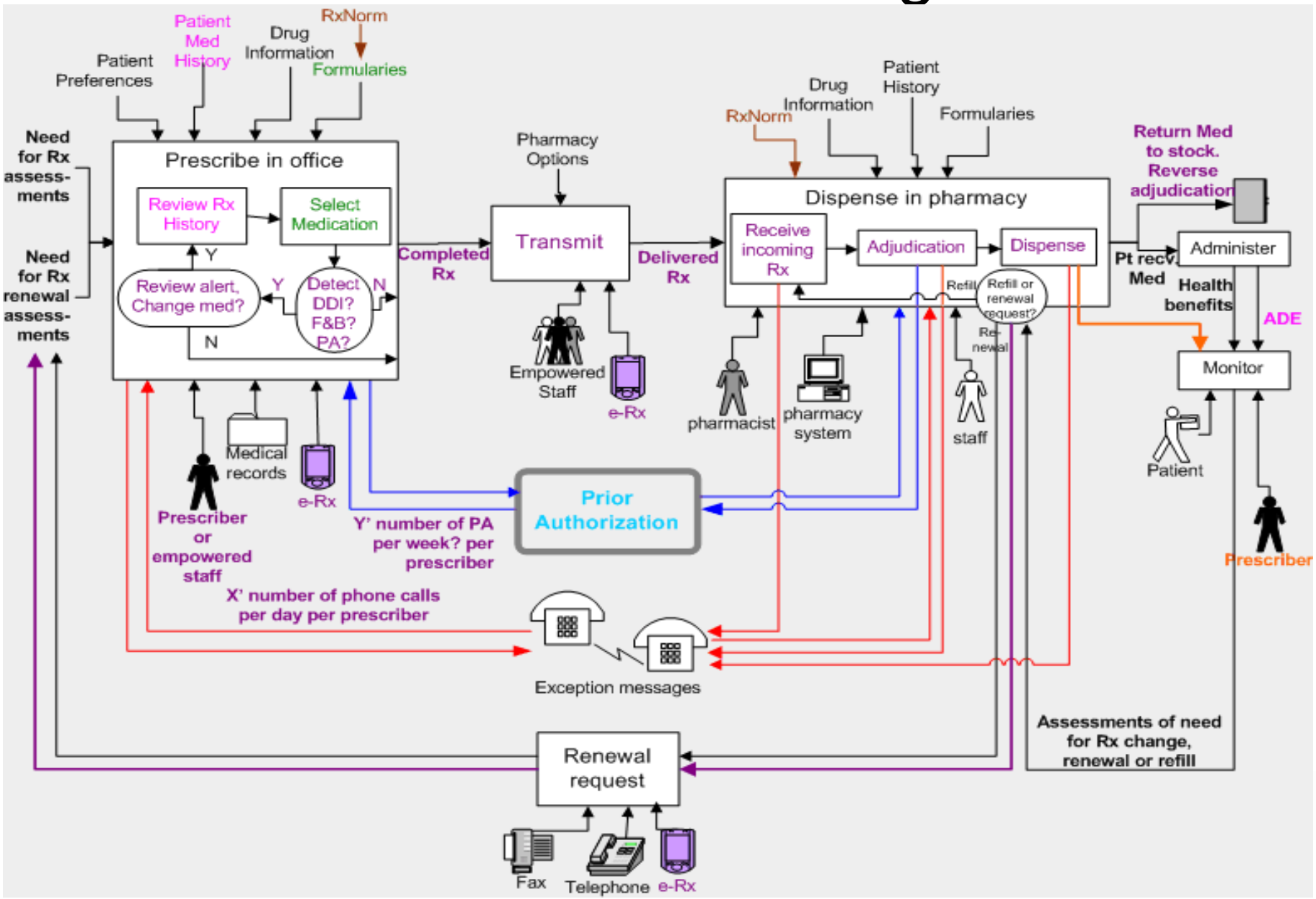
RAND HEALTH

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

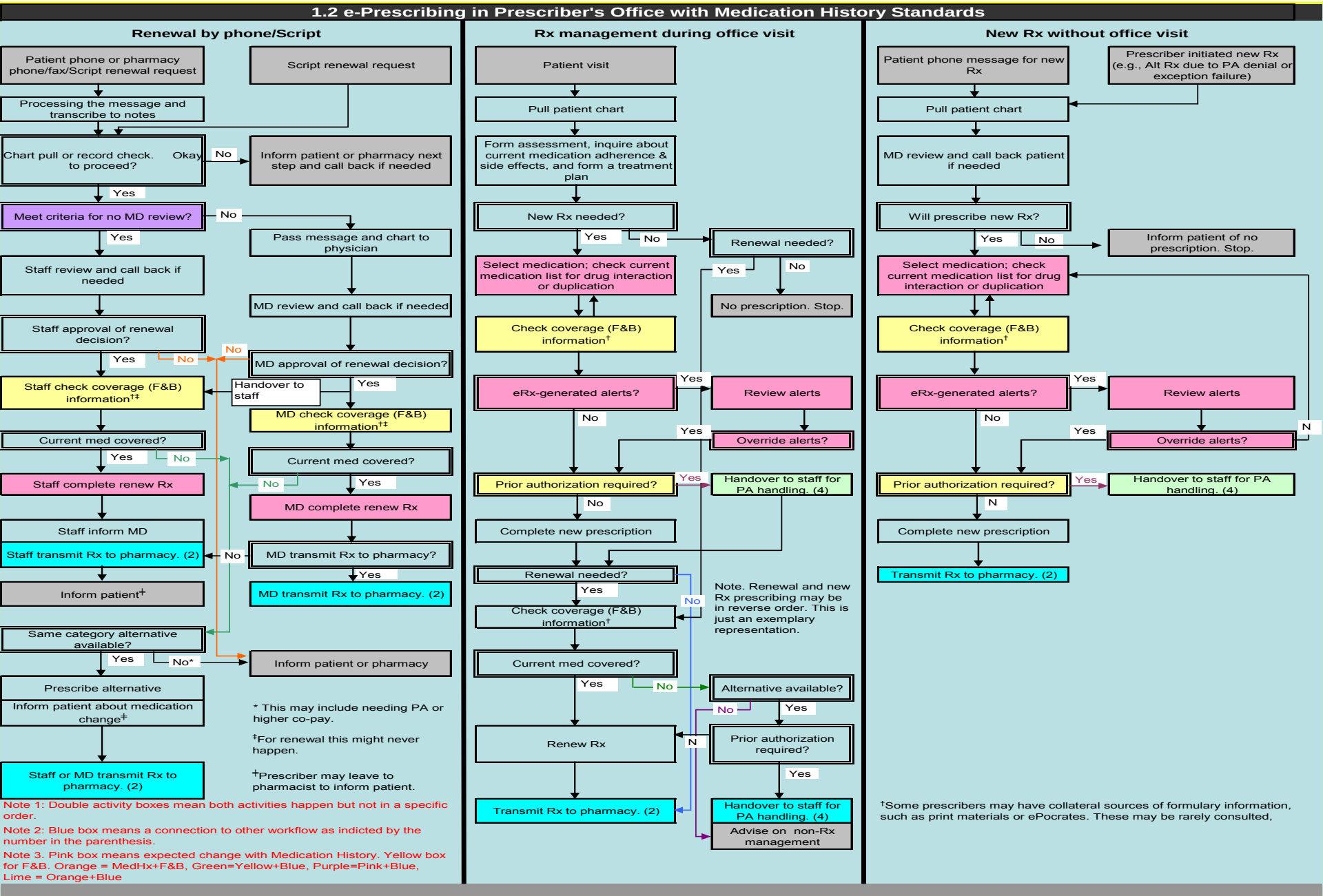
Add Rework Pathways



Add E-Prescribing



Qualitative, Micro-level Process Model



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)

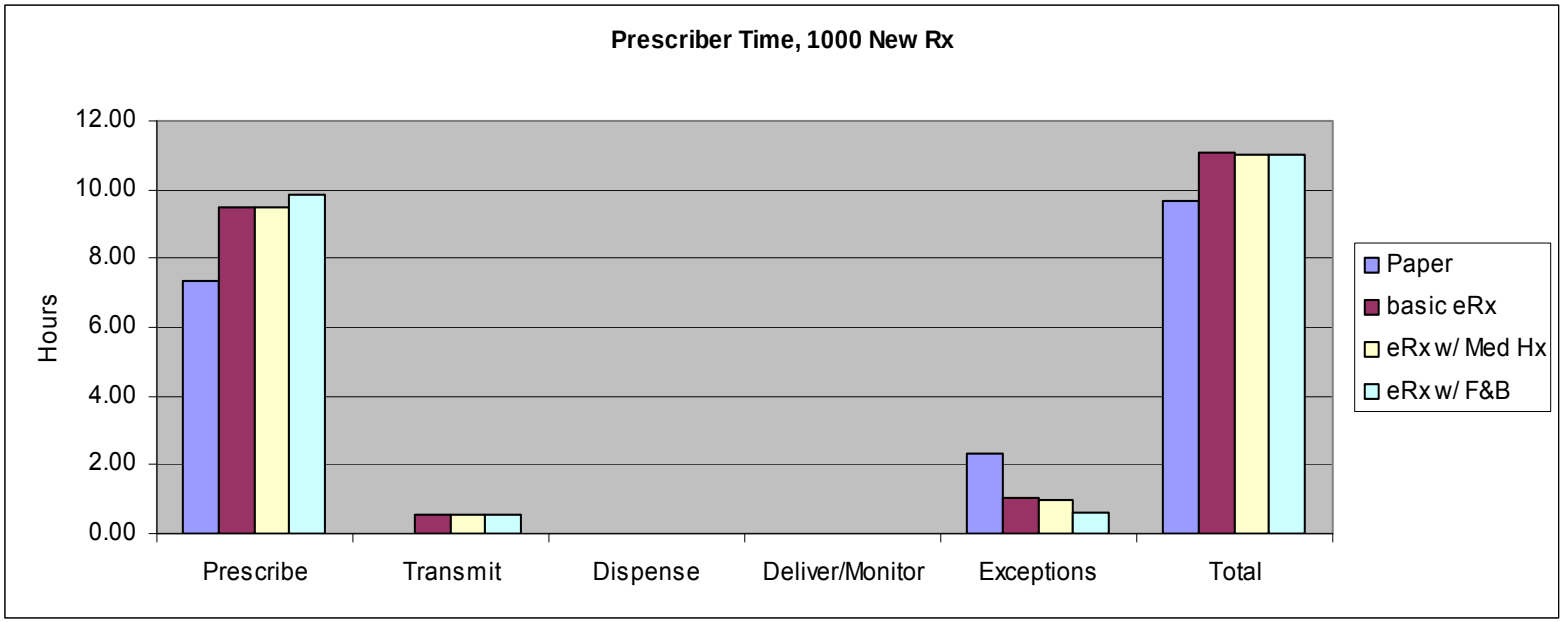
    - From micro-level model, with focus on key elements
  - Modules, corresponding to macro-level steps
    - Prescribe, transmit, dispense, deliver/monitor, exception handling
- Parameter values from field studies and the literature
  - Needed to make some assumptions to make the modeling feasible; still calibrating these assumptions

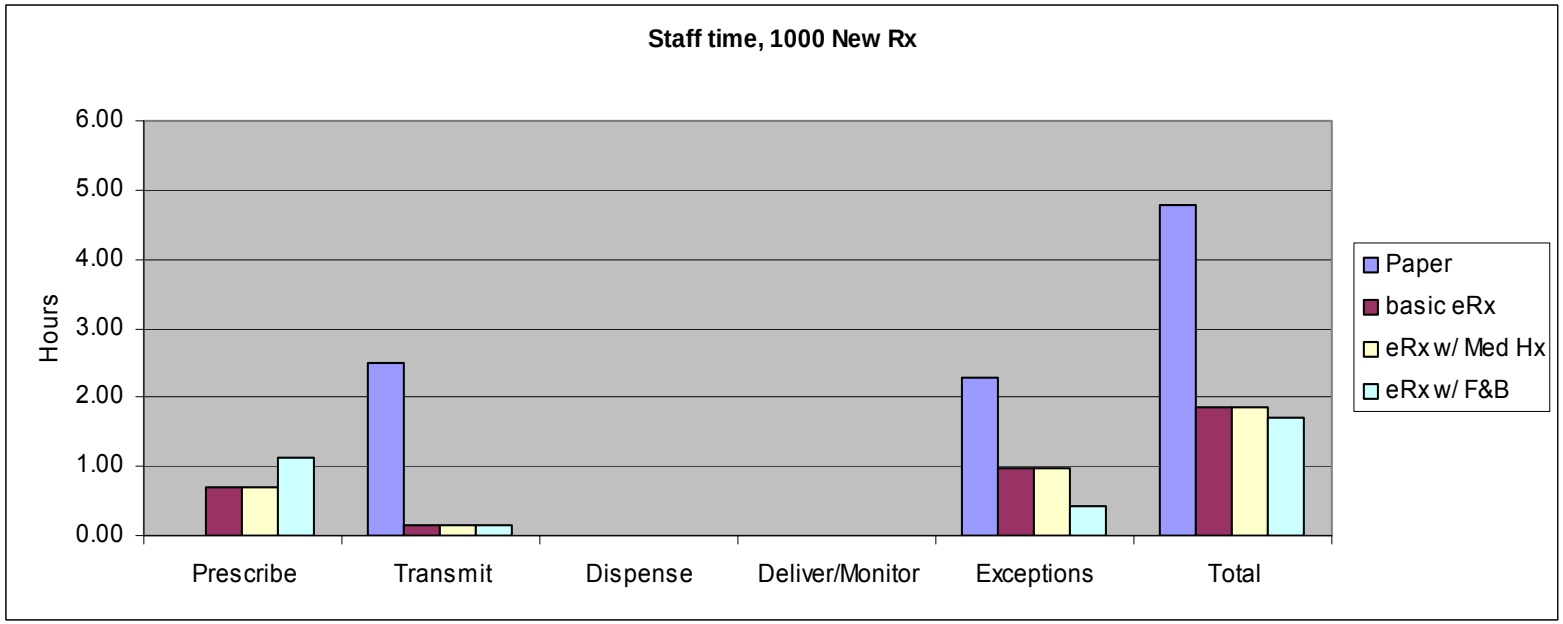
Model 2c: New Rx via E-Prescription with Formulary & Benefit Number of Rx events 1000

Module 1: Prescribe in Office

		Prob (phone call) (outgoing or incoming)		*Probability*	Staff Time (sec)	*Dr. Time (sec)*	*n Rx*
Inputs:	Number of patients needing new Rx						1000
Processes:	**Review Rx History**			0.050		30	1000
	Select Medication			1.000		30	1000
	*** take calls from pharmacy for clarification**	**1**	0.5	0.005	60	60	1000
	DDI						1000
	* prevalence of DDI			0.003			1000
	* detect & review (w/o med history)			0.500		60	3
	* change med			1.000		30	1.5
	┼ undetected or detected but unchanged causing additional work at pharmacy	1		0.500		60	3
	┼ change med | notified			1.000		90	1.5
	┼ notify pharmacy of change | change	1		1.000		165	1.5
	Formulary & benefit						1000
	* prevalence			**0.010**			1000
	* detect & review (w/ F&B)	0		**0.800**		30	10
	* change med	0		**1.000**		10	8
	┼ undetected or detected but unchanged causing additional work at pharmacy	1		0.200		60	10
	┼ change med | notified	0		1.000		90	2
	┼ notify pharmacy of change | change	1		1.000		220	2

Sample Results: New Rx





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

RAND HEALTH

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

Thank You!

dbell@rand.org

RAND HEALTH

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

Generating Accurate Medication Information

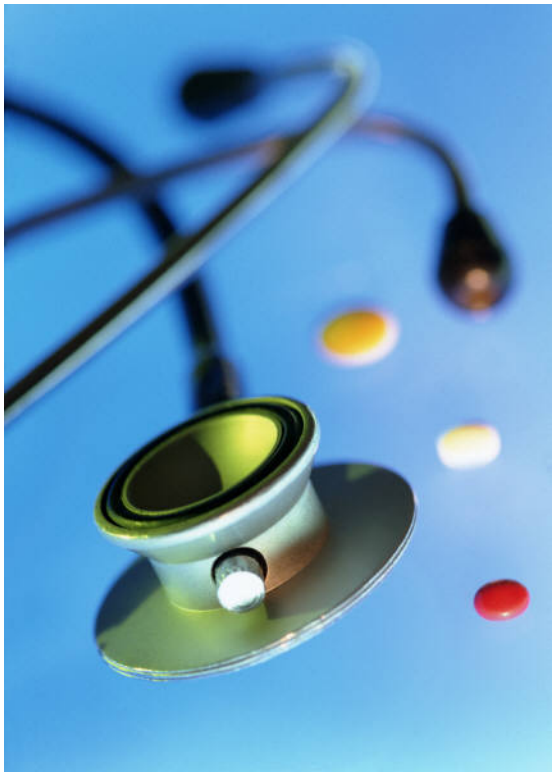
David R. Mehr, MD, MS
Professor and Director of Research, Curtis W. and Ann H. Long Dept. of Family & Community Medicine, University of Missouri

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

Message Center

Compose New Secure Message

Messaging Policy

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

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

Medications for Verification

Refill?	Medication Name	Strength	Quantity	Frequency	Status	Please Explain	Comments
☐	Zocor 20 mg oral tablet	20 mg	1 tab(s)	At Bedtime	Select from list	Select from list	
☐	metformin	500 mg		BID		Select from list	
☐	lisinopril	40 mg	0	Once Daily		Select from list	

Status dropdown options: Select from list, Stopped taking, Taking with changes, Taking as directed

Additional medications, vitamins, and supplements

255 characters left

Cancel Send

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

Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

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

Patient

1

Certified Prescriber Application

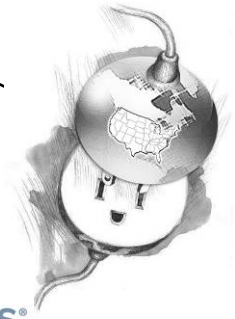
Collects Patient:
- ❑ Consent
- ❑ Name
- ❑ Date of Birth
- ❑ Gender
- ❑ Zip

4

- ✓ **Validates Information Received with Patient**
- ✓ **Reviews Benefit and Selects Therapy**
- ✓ **Pharmacy Selected by Patient**
- ✓ **E-Prescription Generated**

2

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



surescripts®

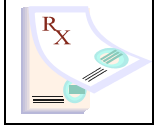
3

3

5

6

Electronic



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®

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

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:

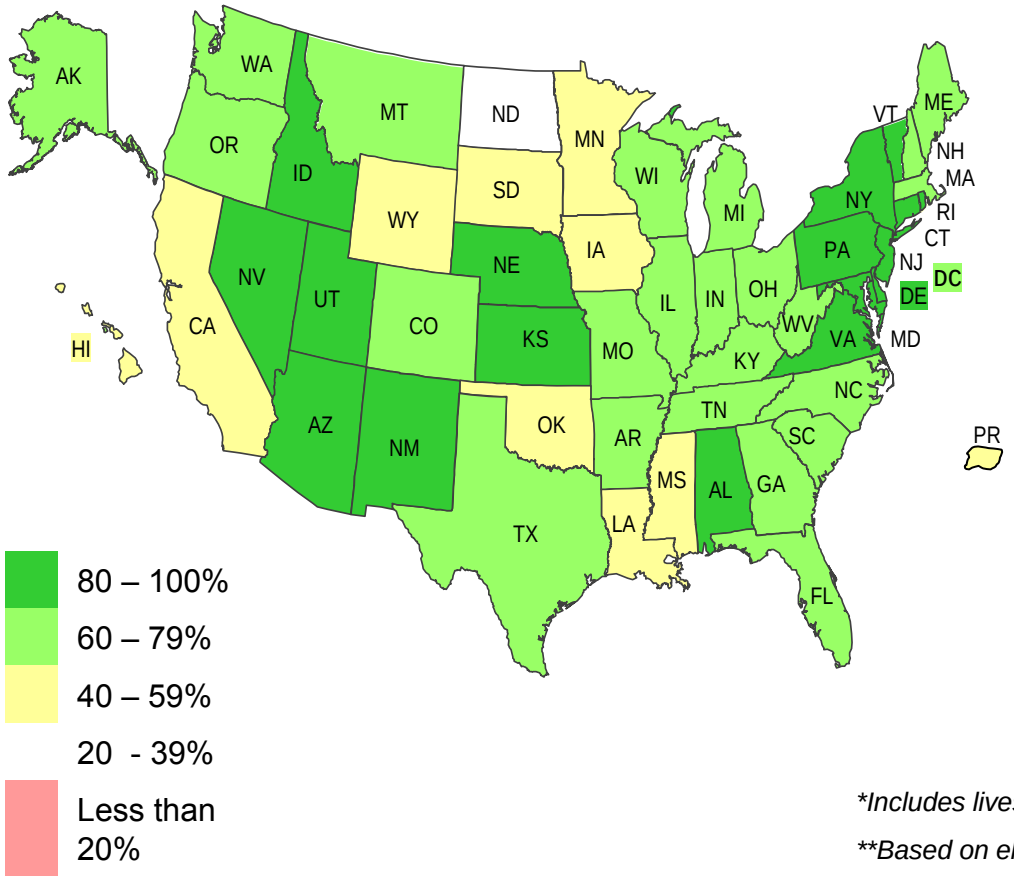
- ☑ **Patient compliance with prescribed regimens**
- ☑ **Therapeutic interventions**
- ☑ **Drug-drug and drug-allergy interactions**
- ☑ **Adverse drug reactions**
- ☑ **Duplicate therapy**

*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*

surescripts®

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

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**

surescripts®

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

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**

surescripts®

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

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.**

surescripts®

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

Political & Regulatory Landscape: Economic Stimulus Package

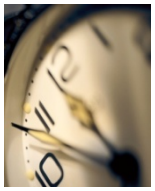
- The ***American Recovery and Reinvestment Act*** has major health-related provisions, which account for $150B
- Provides $17B to promote adoption of certified EHRs by hospitals and physicians
  - Incentive payments and non-adoption penalties through Medicare and Medicaid
- Codifies the Office of the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

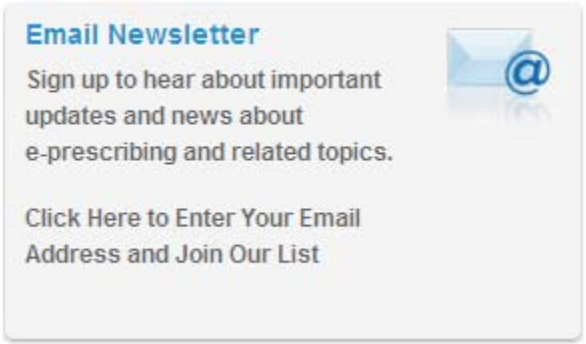
surescripts®

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

For More Information

The E-Prescribing Resource Center
www.surescripts.com

A Comprehensive Resource Center for Payers, Prescribers and Pharmacists



http://www.surescripts.com/news-sign-up.html

AHRQ Resources for E-prescribing

Thank You!

Ken.Majkowski@SureScriptsRxhub.com

surescripts®

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

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