The Future of ePrescribing: Leveraging HIT to Manage Medications

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ePrescribing background
  - Drivers
  - Change in Focus
  - Flow
  - Components & Value
  - Evolution to eMedication Management

Gaps, Challenges & Opportunities in ePrescribing

What’s Available and In Development in other areas of eMedication Management
  - Dispense
  - Monitor
  - Assess

Conclusions
Background
For over a decade the Federal Government has influenced ePrescribing and Medication Management.

**HIPAA**
Established transaction standards

**PQRI**
Provides ePrescribing Incentives

**Health Care Reform Acts**
Establishes ACO pilots, HIX, health insurance mandate, MLR threshold, centers for outcomes research and healthcare innovation.

**MMA**
Established Medicare Part D, ePrescribing standards and pilots

**MIPPA**
Provides ePrescribing Incentives

**ARRA/MU**
Provides Incentives for EHRs and includes ePrescribing criteria

Patient Centered Accountable Care Priorities addressed by advanced ePrescribing

- Proactive population health management
- Improve coordination and continuity of care
- Reduce overuse and waste
- Improve safety
- Enhance the patient-provider experience
- Improve quality

*eSource: Engelberg Center for Health Care Reform at Brookings*

ePrescribing within an EHR with integrated architecture provides the platform for the eMedication Management applications needed for PCAC.
Other ePrescribing Drivers

- General shift from FFS to value-based care will necessitate the infusion of information into the ePrescribing process
  - ACOs, PCMH
- The push for efficiency
  - Prescriber
  - Health plan
  - Pharmacy
- State ePrescribing mandates
- Payer pressure
  - mandates, P4P, formulary compliance
- Hospital ownership of physician practices
- Clinical Decision Support
As ePrescribing increases over the next decade, the focus will shift from adoption to utilization to information quality & quantity.

- 54% of ambulatory prescribers now prescribing electronically
- >36% of ambulatory prescriptions now transmitted electronically
Most ePrescribing Occurs within EHRs

**Ideal ePrescribing Software Features within an EHR**

- Generate a medication list
- Select medications, transmit prescriptions, respond to refill requests and conduct safety checks electronically
- Customize DUR alerts based on user's preferences
- Provide eligibility-informed formulary data, medication history, and prior authorization requirements electronically from the patient's drug plan.
- Provide mail-order eligibility information and ability to transmit to mail-order electronically
- Ability to handle ePrescribing of controlled substances (EPCS)
- Import diagnosis codes and other relevant medical information from the EMR into electronic prescription

**Percentage of ePrescribers using EHRs**


- 2007: 0%
- 2008: 10%
- 2009: 20%
- 2010: 30%
- 2011: 40%
ePrescribing Flow

**Physician Practice**
- EMR or e-Rx System
- Drug info Database
- Formulary Database

**PBM or Plan**
- Claims Processing System
- benefit plan rules, formulary, history

**Retail or Mail Pharmacy**
- Pharmacy Dispensing System

**Request Eligibility, Drug History**
- Intermediary
- Electronic transmission (EDI)
- Database

**New Rx**
- Refill Request
- Refill Auth/Denial
- Change Request

**Intermediary**
- A1
- A2
- B
- C
ePrescribing Applications: now much more than an electronic prescription writer

Enables transference of information and decision-making from the point of dispensing to the point of prescribing creating a new channel for intelligent information.
The Evolution of ePrescribing to eMedication Management

- Evaluate health status and medical problem
- Comprehensive medication review and reconciliation
- Identify medication therapy problems
- Medication therapy guideline best practices
- Medication therapy action plan

- Identify formulary
- Identify other insurance requirements, e.g., for step therapy, prior authorization, consults needed
  - Formulary compliance
  - Write e-prescription
  - Drug interaction, allergy and contraindication alerts

- Check Fill status
- Verify patient pick-up
- Medication self-management support (education, organizing)
  - Risk Evaluation and Mitigation Strategies (REMS)
  - eCoupons

- Compliance and adherence, tracking and intervention
- Monitor effectiveness and safety
- Measure health status and outcomes
- Public health surveillance & PDMP
- Care communications & EHR

EHR, PHR, ePrescribing, CDS, mHealth, Web-based apps
eMedication Management: Gaps, Challenges & Opportunities Remaining in ePrescribing
ePrescribing Errors – an increasing complaint

More and more pharmacies are reporting prescribing errors with eRx¹
- More than 10% of electronic prescriptions contain an error
- About two-thirds of the errors were omissions. For instance, some of the prescriptions left the duration, dose, or frequency blank.

Other prescribing errors²
- Drug product errors - incomplete drug name, strength omitted, error in strength, incorrect drug chosen
- Dose errors - dose omitted, incorrect dose, ambiguity in sig field, dose incomplete, overdose, underdose
- Route errors - incorrect route, omitted route
- Frequency errors - frequency omitted, frequency changed
- Special instructions - mismatch between what is indicated in this field and the other fields

Errors also are created when old NDCs are used and drug descriptions are not accurate


Challenges with Solving ePrescribing Errors
- Limited efforts to measure how big this issue really is
- Unknown whether it is limited to certain vendors or all vendors
- Providers (prescribers and pharmacies) are too busy to report the issues
- Limited systematic use of the codified data and fields currently available via eRx
As of June 1, 2010 the federal barrier to EPCS removed
- Allows prescribers the option of electronically signing and transmitting prescriptions for controlled substances
- Permits pharmacies to receive, dispense, and archive electronic prescriptions for controlled substances
- Includes Schedules II, III, IV, and V
- Participation is voluntary
- Written, manually signed, and oral prescriptions for controlled substances still permitted

Stage 2 MU allows EPCS though Stage 1 does not

Growing number of vendors currently supporting EPCS:
- **Pharmacy**: Cerner Etreby, CVS/pharmacy, H E B Pharmacy, MDScripts, Rite Aid, SUPERVALU, Walgreens,
- **Prescriber**: DrFirst, GE Healthcare, NewCrop, NextGen, RxNT
PA is an administrative burden for prescribers, pharmacies, patients, and payers.

More drugs are expected to be subject to PA as the average cost of new therapies increases (e.g., specialty meds).

ePA legislation has appeared in multiple states over the last year.

An ePA standard was created by NCPDP in 2009, and is in the process of being updated. Balloted standard expected by mid-2013.

ePA pilots have been launched by CVS Caremark and others; AMA attempting to pilot ePA of services, DME and medications.
Medication contra-indication Alert Fatigue

Alert fatigue is a significant issue for ambulatory ePrescribers - 6.6% of electronic prescriptions generate alerts\(^1\)

- Shotgun approach to drug-drug interactions, dosing and duplicate therapy alerts
  - Everybody sees everything
  - Limited by a few basic severity parameters
  - Even “Severe” categories have far too many alerts
  - 90% of ambulatory ePrescribing alerts are overridden\(^1\)
    - 9.2% of interactions; 23% of allergy alerts
  - Prescribers tend to “blow through” alerts, don’t believe they are relevant

Refinements needed
- Better classification of drug-drug interactions
- Better implementations of the data (e.g., screening for route of administration)
- Customized solutions by provider specialty or practice setting
- Patient context sensitive alerts (e.g., diagnosis, age, lab values)

\(^1\)“Overrides of Medication Alerts in Ambulatory Care” Archives of Internal Medicine Feb 9, 2009

First Databank Releases Major Innovation to Address Medication Alert Fatigue in HIT Systems

FDB AlertSpace™ Demonstrates How Easily Clinicians Can Customize Medication Alerts

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First Databank (FDB), a leading provider of clinical drug knowledge that improves medication-related decisions and patient outcomes, introduced its new alert management solution, FDB AlertSpace™, designed to address alert fatigue in computerized provider order entry (CPOE) systems, has achieved unprecedented industry acceptance among various US hospital institutions. AlertSpace will be demonstrated in the FDB booth #2333 during the HIMSS12 Conference, February 25-29, this week in Las Vegas.

Studies have shown that clinicians override the majority of medication alerts in CPOE applications, suggesting that current alert configurations may inadequately protect patient safety. FDB developed AlertSpace in order to help its thousands of customers address this common industry-wide problem with the goal of accelerating clinicians’ acceptance and utilization of CPOE applications. At present, hospitals are aggressively deploying CPOE applications as a requirement of the HITECH Act which provides incentive payments to encourage widespread adoption and use of health information technology to improve patient care.

AlertSpace is a Web-based software solution with an intuitive user interface. Users can fine-tune FDB’s medication alerts and customize them to their organization’s circumstances and clinician perspective as they see fit. This approach to alert management facilitates collaboration among all clinical stakeholders in an institution and eases the deployment of alert best practices across disparate institutions. Furthermore, the solution will “crowd-source” alert knowledge and enable creation of alert “playbooks” so that institutions can share the most commonly observed and clinically effective alerts.

Alert Fatigue: A Common Complaint

- The complaint is more commonly voiced thru large physician groups and enterprises, but the problem is pervasive
- It is a problem for the EHR vendors
- EHR vendors need a solution that is easy to implement
- There are solutions such as FDB’s Alert Space (above)
- Limited efforts to measure how big this issue really and whether some systems are better than others
- Issue is not easily tracked and/or providers are too busy to report inappropriate alerts
- Even if a prescriber overrides an alert an the point of prescribing the alert likely continues to fire downstream - at the pharmacy, at the health plan
Various stakeholders are becoming aware of **significant data latency** problems
- Recently launched drug products are often unavailable to ePrescribers because ePrescribers lack an updated drug database
- Latest alerts and black box warnings unavailable to ePrescribers

The complex, multi-step process of data distribution is fraught with delays
- Compendia vendors release updates
- HIT Vendors process these updates (quarterly, monthly or weekly)
- End-user clients either receive the data from vendor (SaaS) or initiate a “pull” of the data
- Non SaaS sites often have **significant delays** in processing of updates
- Result: **new drug entities** and **new alerts** may not be available to prescribers for **up to 6 months**

Yet the size and variability of the client base is so great, direct distribution to them is improbable
- Likewise, synchronizing with releases is imperative
- Ripe for disruption with game-changing technology?

**How Updates are Loaded in the Prescriber System**
- Most leading HIT vendors require the provider system staff to do something to process and load updates
  - The legacy vendors with the most market share are not architected to support PUSH methods
  - Someone on site must download the data
  - Data files can be very large and include drug info, formulary and pharmacy data files
  - HIT vendors are unable to monitor if clients sites are current with processing updates
  - This is the reason for the most significant delays resulting in out of date drug information
- Prescribers assume their alert data is current, and are generally unaware of latency issues
- Anecdotal evidence that many sites don’t understand the correlation between processing the updates and having new drugs and alerts
Ordering and Prescribing Specialty Therapies

- Specialty drugs continue to drive increase in overall drug spend
  - Express Scripts\(^1\) reports specialty trend growth of 17.1% in 2011
- EMRs do not yet automate the complex process of ordering specialty medications
- A very **complex**, bureaucratic process
  - Manufacturer may limit distribution channel to **specialty pharmacies**
  - Plans require dispensing by a **designated** specialty pharmacy
  - Most therapies require **prior authorization**
  - Each specialty pharmacy has a unique **intake/order form**
    - Non-specialty products may be bundled in
  - Drug product **delivered** to prescriber office, specialty clinic, or patient’s home.
  - Typically handled as “orders” rather than "prescriptions”
  - Pharma or health plan may sponsor a “Hot Line "or “Hub” to assist with the ordering process

\(^1\) Express Scripts 2011 Drug Trend Report
Electronic prescribing systems and standards have not evolved to handle the complexities of specialty pharmacy orders.
eFormularies – increasingly part of the prescribing process and increasingly a source of concern

- eFormularies not always updated quickly
- With the exception of Medicare Part D standards, there is no uniform requirement for display of formulary information
- Formulary check required for MU Stage 2
- Eligibility-driven formulary not required
- Prescribers don’t always trust or understand eFormulary representation
  - Dr. Smith, “Well, the product is not on formulary.”
  - Provider Rep, “We have placed it on Tier 2.”
  - Dr. Smith, “See, look here. It is a red frowning face.”
- Vendors are not always as concerned as others about accuracy
  - “We’re about 80% accurate and that is good enough for most physicians.”
- Vendors often simplify formularies by using symbols and/or not providing additional information such as PA, copay, and tier
eMedication Management:
Dispense, Monitor & Assess –
What’s In Development & Available
Available
- Check Fill status (standard developed but non being utilized)
- Medication self-management support (education, organizing)
- eCoupons

In Development
- Verify patient pick-up
- Risk Evaluation and Mitigation Strategies (REMS)

Risk Evaluation and Mitigation Strategies (REMS)
- With more and more drugs being approved by the FDA with REMS requirements, the future of ePrescribing should plan to accommodate the various REMS requirements
- REMS requirements include:
  - distribution of medication guides
  - enrollment into a tracking program
  - lab value monitoring
  - other requirements
- ePrescribing should be able to accommodate and help oversee that these requirements have been fulfilled
Available
- Check Fill status (standard developed but non being utilized)
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Fill Status
- MMA foundation standard for ePrescribing
- Can provide a truly accurate calculation of medication adherence ratios
- Pharmacy and provider systems will need to make investments to appropriately implement the transaction
- Prescribers (or support staff) will need to intervene when presented with a fill status notifications
# Available
- Public health surveillance & PDMP

# In Development
- Compliance and adherence, tracking and intervention
- Monitor effectiveness and safety
- Measure health status and outcomes
- Care communications & EHR

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**Medication Adherence and Persistency**

- One-third to one-half of patients do not take their medications as prescribed
- Medication non-adherence costs the health care system $290 billion annually
- Medication history information can be leveraged more intelligently to provide adherence and persistency rates that can be tracked and incorporated into ePrescribing systems
- Providing notifications to providers can help identify first-fill, on-going persistency issues
Available
- Public health surveillance & PDMP

In Development
- Compliance and adherence, tracking and intervention
- Monitor effectiveness and safety
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Monitor Effectiveness & Safety
- ePrescribing systems need to mature to integrate surrogate markers on effectiveness of therapy (e.g., lab values, imaging results, physical assessments, etc.)

- Medication safety issues should be able to be reported electronically leveraging the ePrescribing system
  - Safety issues should be reported electronically to the FDA and manufacturers
  - Patients should be able to report safety issues electronically to providers
  - Safety alerts from the FDA and manufacturers should immediately appear within systems
Available
- Public health surveillance & PDMP

In Development
- Compliance and adherence, tracking and intervention
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Prescription Drug Monitoring Programs
- Require pharmacies and providers to report to and check the database
- Limited sharing of data across states
- Data latency issues since reporting is typically done twice a month
- Programs currently operate outside the ePrescribing process
Available
- Evaluate health status and medical problem
- Medication therapy guideline best practices
- Comprehensive medication review and reconciliation

In development
- Identify medication therapy problems
- Medication therapy action plan

Medication Therapy Guideline Best Practices
- Best practice guidelines are incorporated into EMRs and are influencing prescribing behavior
- Guidelines can be set at the provider or institution level
- Some systems allow best practice guidelines to be shared across system installation sites
- Ensuring the latest guidelines are incorporated into systems will be a challenge
Available
- Evaluate health status and medical problem
- Medication therapy guideline best practices
- Comprehensive medication review and reconciliation

In development
- Identify medication therapy problems
- Medication therapy action plan

eMedication Reconciliation
- Medication reconciliation required for hospital JCAHO accreditation
- MU Stage 2 requires it 50% of the time
- Can leverage electronic medication history data to support the MedRec process
  - Translates into time savings; manual MedRec takes from 19 to 30 min, but can be done electronically in under a minute
  - Improves patient safety
  - Especially helpful if patient cannot communicate (unconscious, incapacitated, cannot speak English, etc.)
Assess

**Available**
- Evaluate health status and medical problem
- Medication therapy guideline best practices
- Comprehensive medication review and reconciliation

**In development**
- Identify medication therapy problems
- Medication therapy action plan

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**Medication Therapy Management**

- Access to complete medication history is needed for comprehensive medication reconciliation
- Medication reconciliation is required medication therapy management
- Portals being used to share active medication lists across providers
The evolving role of retail pharmacy in value-based healthcare

- Expanded scope for immunizations
- Part of the care team within PCMH and ACO
- Participating in HIE
  - Providing and receiving data
- Increasing electronic care communications
  - Messaging to and from the prescriber
    - Compliance concerns, patient monitoring
  - Messaging to and from the patient
- Sharing a common view into the EHR with the prescriber
- Being recognized as an Eligible Provider for MU incentives
Conclusions

- ePrescribing is well on the way to becoming a standard of care
- Gains in patient safety and efficiency are certainly being achieved today
- More hard work is ahead to refine and mature the products to raise the bar for quality and usability
  - Specialty drugs
  - eFormulary quality
  - Data Latency
  - Alert Fatigue
  - MedRec
- ePrescribing is just one component on the spectrum of eMedication Management
- Among the other components, some are available and others in development
- Eventually Meaningful Use will run its course, and solution providers will be back to focusing on value to key stakeholders
DISCUSSION
The End
Currently, CDS is available in limited EMRs using their own proprietary mechanism and leveraging only data that resides within its system.

Create a standardized CDS system that leverages the latest guidelines as well as clinical information across care givers.

This can substantially improve adherence to medical treatment guidelines within both the inpatient and ambulatory settings.

A robust CDS system can help bring greater transparency behind clinical recommendations to prescribers and disseminate best practices to a wide range of clinicians.
Available
- Check Fill status (standard developed but non being utilized)
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- eCoupons

In Development
- Verify patient pick-up
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eCoupons
- Couponing by pharmaceutical industry has been increasing
- Pharmaceutical manufacturers are paying the ePrescribing vendors to display coupons within the application.
- Physicians can print coupons, send them via email or text message from their ePrescribing application
Available
- Check Fill status (standard developed but non being utilized)
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In Development
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Medication Self-Management
- Patient education
  - Interactive tutorials on outcomes, risks, challenges with medications; specific to patient’s interests and concerns
- Patient counseling
  - Virtual consultations during stressful events, transitions of care, etc.
  - Pharmacist-provider communications
- Self-reinforcement
  - Tracking of timely pickup of medications, and rewards for successful compliance