RAND HEALTH

Electronic Prescribing: Federal Standards and Expert Recommendations -- Paving the Way to Advanced HIT

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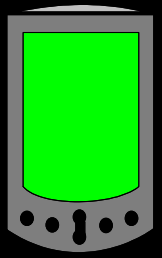
What Is E-Prescribing?

- Use of computer systems to generate or renew prescriptions
  - Not necessarily online (internet) systems
  - May be a component of:
    - electronic health record systems (EHR)
    - computerized physician order-entry systems (CPOE)
  - Excludes:
    - Drug utilization review (DUR) systems
    - Prescribing for patients whom the physician has never seen in person



Overview

- e-Rx standards emerging from the MMA
  - Paper forthcoming in Sept. 14 issue of *Health Affairs* (http://www.healthaffairs.org/)
- RAND's expert consensus recommendations
- Other important activity
  - AMIA CDS Workgroup recommendations
  - Certification Commission for HIT (CCHIT)
- The road ahead for e-Rx adoption

E-Rx: A Focus of Transformation

- E-Rx seen as an entre to more-integrated HIT
  - Rx management inefficient for most MD offices
  - e-Rx may be easier to implement than full EHR
  - EHR functions might be added over time
- Policy issues likely to drive e-Rx adoption:
  - Medicare Foundation standards -- starting now
  - 2006 pilot testing of more potential standards
  - Interoperability platform (NHIN)
  - Certification of EHR systems (CCHIT)

Jump here to slides from:

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Projecting e-Rx Adoption

Stakeholders have different incentives

- **Medical Groups**
  - **Workflow, risk management**
- **Payers & PBMs**
  - **Expenditures, formulary adherence**
- **Patients**
  - **Health outcomes, out-of-pocket costs**

How Much Payor Support Can We Expect?

- Health plans expected to derive the greatest financial benefits from eRx adoption
  - Potential to reduce net expenditures
- Two factors may mitigate plans' interest:
  - Formulary adherence already enforced
  - Some Part D plans will be at risk only for pharmaceutical costs, not for hospitalization and other services
- Still, some coalitions have attracted payor support
  - Maryland STEP Alliance, Mass., ? Michigan

Providers' Incentives and Disincentives

- Incentives
  - Reduce prescribing errors
  - Reduce pharmacy calls
    - One report: 1 staff FTE / 10 MDs (Mandel, 2004)
    - Part D may increase call volume
      - Formulary restrictions permitted
- Disincentives
  - Implementation costs (Johnston, 2003)
  - New responsibilities for physicians
  - Uncertainty about effects and interoperability

Will Patients Tip the Balance?

- Patients may begin to favor providers with e-Rx
- Patients would look for systems that:
  - Assure them of optimal safety and health
  - Help them manage their out-of-pocket costs
  - Save them time at the pharmacy
- Privacy implications may be a concern for some
  - Who will have access to medication history, other medical history?

RAND eRx Project Objectives

1. To create recommendations for e-prescribing...
   - to promote patients' interests (patient safety, health outcomes, patient costs)
   - without hindering e-prescribing adoption or violating patient privacy
   - that are supported by a rigorous, objective, multidisciplinary process
2. To assess how often commercial electronic prescribing products are already implementing the resulting recommendations.

Methods

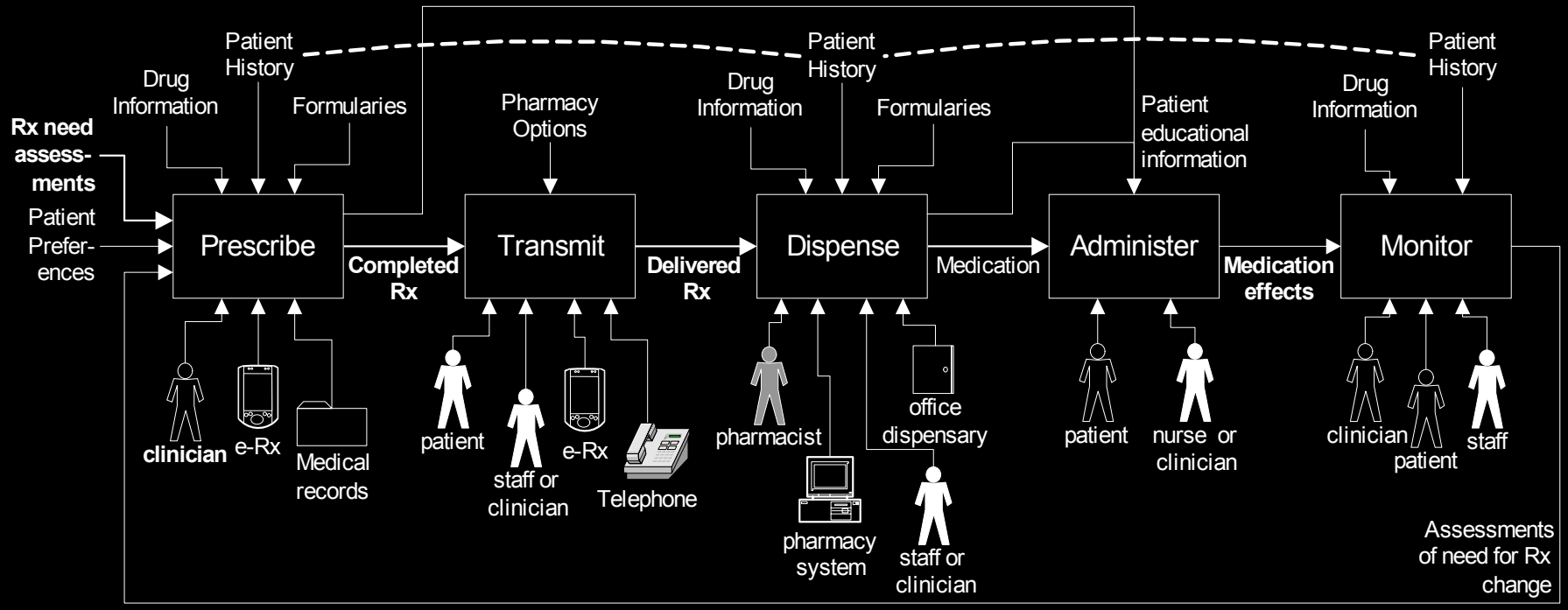
- Literature review
  → summary of evidence
- Delphi expert panel process
  → recommendations
- Site visits to clinics with e-prescribing
  → assessment of current systems

Risks of Harm from Outpatient Prescribing

Study	Detection Method; Study Population	Preventable adverse drug event rate	Serious, Life Threatening, or Fatal (%)
Honigman, 2001	Automated EMR screen; 15,665 patients	2.0 per 100 patients per year	23%
Gurwitz, 2003	Clinician report, record review; 27,617 Medicare patients	1.4 per 100 person-years	58%
Gandhi, 2003	Telephone interviews; 661 patients	3.0 per 100 patients	10%

Process Model for Evaluating E-Rx

From: Bell, et al., JAMIA 2004



Literature Review

- **Most studies consider e-prescribing as a black box**
- **Studies to date *have* shown the following effects**

Feature	*Effect*
Menus for dosage selection	Reduced dosage errors
Safety alerts (e.g. drug interactions)	Reduced adverse drug events
Dosage calculations (e.g. For renal fn.)	Reduced dosage errors
Automated orders for monitoring tests	Reduced monitoring errors
Prescribing by indication	Improved guideline adherence
Formulary alerts	Increased formulary adherence

- **No studies for many potentially important features**

SOURCE: Bell, 2004; see esp. Table 4.

Expert Panel

Expertise	Panel Member	Affiliation
Healthcare quality and safety	Don Berwick, MD (chair) Peter Juhn, MD Margaret O'Kane	IHI Wellpoint NCQA
Consumer advocacy	Phyllis Borzi, JD, MD	GWU
Medicine	Lonnie Bristow, MD Christine Cassel, MD	AMA ABIM
Pharmacy	Schumarry Chao, MD,MBA Helene Lipton, PhD	MedImpact UCSF
Health economics	Paul Ginsburg, PhD	Center for Health Systems Change
Medical informatics	Clement McDonald, MD	RIH
Nursing	Mary Mundinger, DrPH	Columbia

Drafting of Recommendations

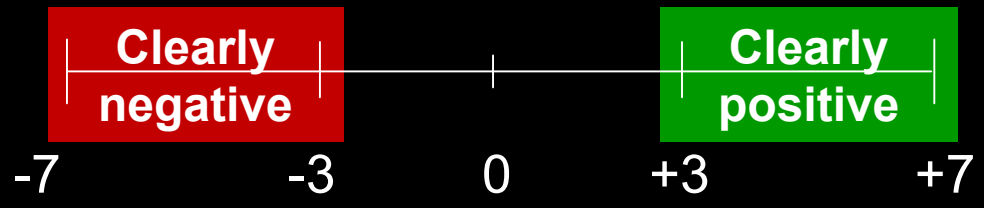
- Initial panel meeting
  - Presented literature review
  - Nominal group process
- Staff organized recommendations into categories and reworded to make explicit
- 3 rounds of revision
  - Ratings, teleconferences, written comments
  - Wording revised, new recommendations added

  → Set of 60 recommendations

Delphi Expert Panel Process

- Rated each recommendation's effect on:
  - Patient safety and health outcomes
  - Helping patients manage their costs
  - Maintaining patient privacy
  - Promoting clinician acceptance

- Rating scale:



- Also rated how soon each recommendation would be achievable in the average clinician's office

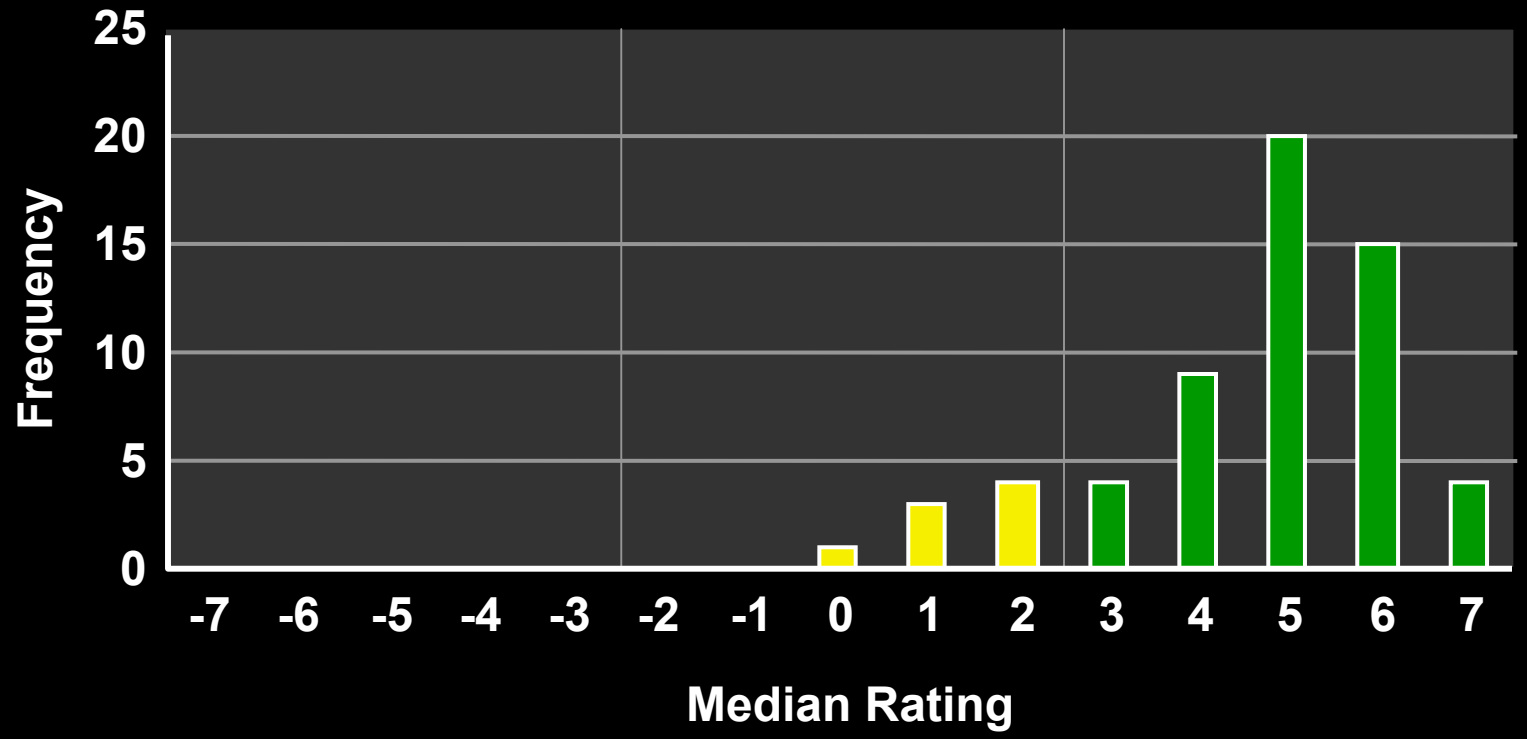
Sample Median Ratings

	Safety/ Health	Patients' Costs	Patient Privacy	Clinician Acceptance
7. Prescribers with care responsibility for the patient should be able to review the patient's complete current medication list, based on open prescriptions from all other clinicians. (Achievable in 3 years? -- Yes)	7	3	-2	6
21. The system should enable providers to determine the accurate formulary status and the actual cost to the patient for each medication option based on the patient's prescription insurance coverage. (Achievable in 3 years? -- No)	2	7	0	3

Median Ratings of the 60 Recommendations

Patient Safety and Health Outcomes

- 52 rated in the "clearly positive" range



Rating Results

- All 60 recommendations had median ratings in the "clearly positive" range on at least 1 dimension
- 26 recommendations had a median rating of 6 or greater on at least 1 dimension
- No medians were in the "significantly negative" range on any dimension
- Only #56 was significantly controversial

Field Study Results

129 Companies Screened

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58 e-Rx products chosen (from 51 companies)

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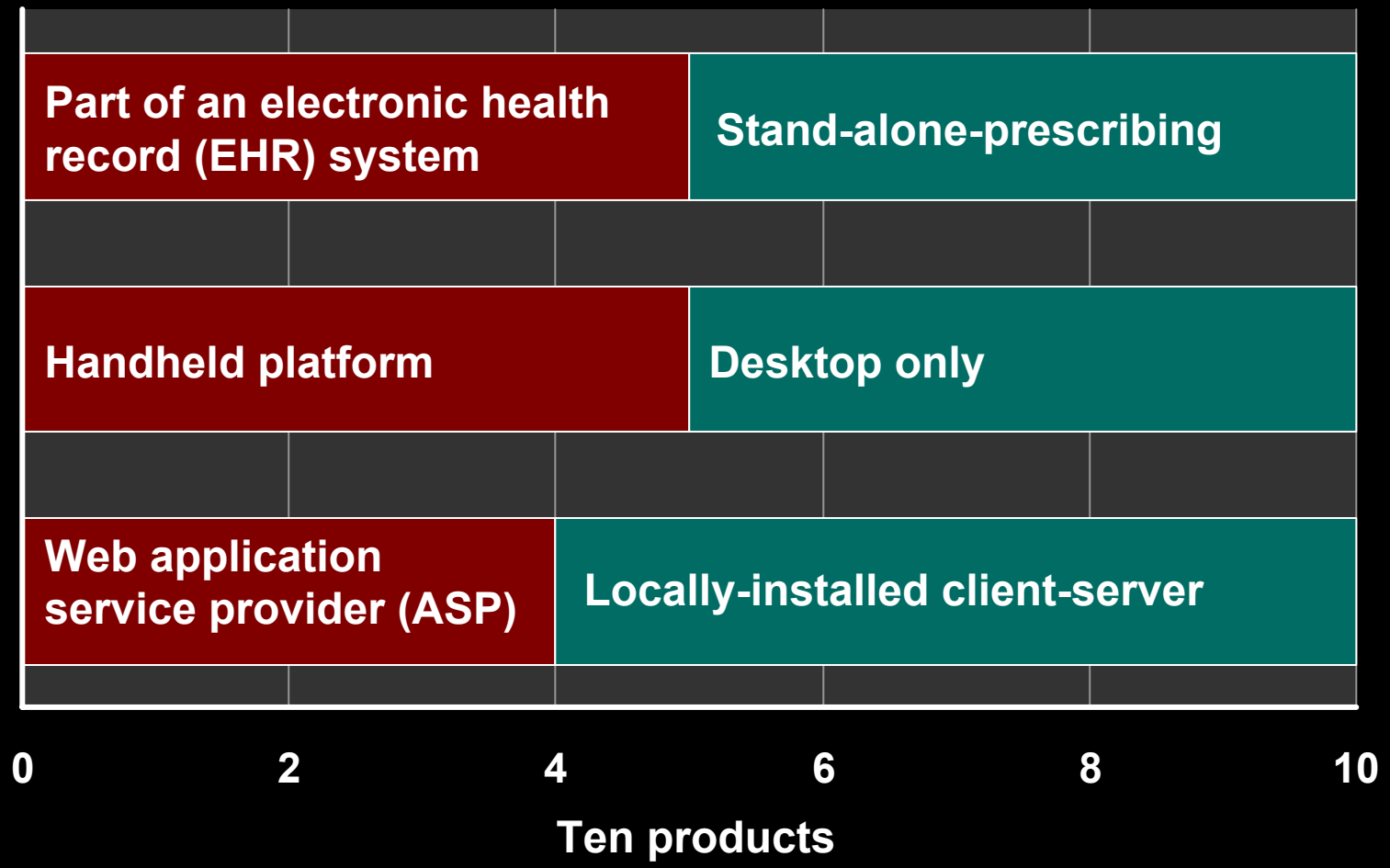
29 products (from 26 companies) met inclusion criteria: outpatient, “significant” adoption

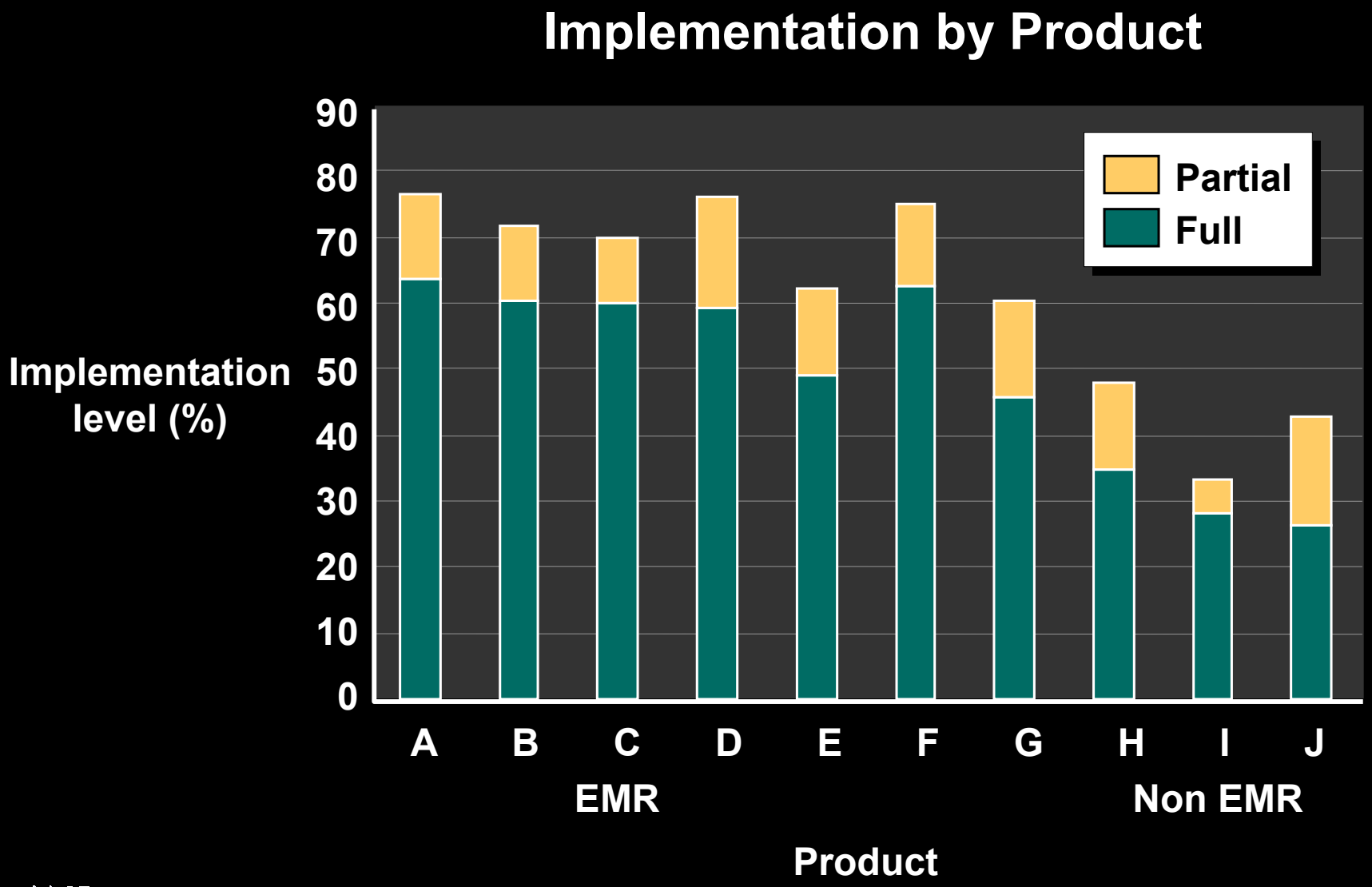
↓

10 representative product sites selected

Final Field Study Sample



On Average, 50% Were Implemented



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Underuse Recommendations

Recommendation	Number Fully Implementing
5. Extract data for decision support from external pharmacy, hospital, laboratory, and EHR systems	None
7. Display a complete current medication list	5
13. Provide prescribing by indication	5
27. Provide reminders for important omitted medications	1
39. Provide information for patients on how to take the medications	5
40. Print a complete current medication list for patients	6
47. Receive and store notification from pharmacies when prescriptions are delivered to the patient	None
48. Notify prescribers when prescriptions are not filled	None

Other E-Prescribing Recommendations

- eHealth Initiative report (2004)
  - Hierarchy of systems: No decision support to fully integrated HER
- AMIA/HIMSS Joint Clinical Decision Support Workgroup
  - Separated features into:
    - Basic 2006 (e.g. drug allergy alerts)
    - Advanced 2006 (e.g. drug-lab result alerts)
    - Basic 2008 (includes all “Advanced 2006”)
    - Advanced 2008 (e.g. corollary orders)

Certification

- Commission for Health Information Technology (CCHIT)
  - Developing detailed, explicit criteria for evaluating Electronic Health Record (EHR) systems
  - Started from HL7 EHR "Draft Standard for Trial Use"
    - a 77-page detailed outline of *EHR* functionality
  - Plans to create a subset of the standards for electronic prescribing are being discussed.

Conclusions

- Stage is set for E-prescribing to grow rapidly in the next few years
- Foundation Standards → basic interoperability
- Additional standards will raise the floor over 3-4 yrs
- Expert recommendations can guide e-Rx purchasers
  - Purchasers should examine systems carefully
  - Set your goals and priorities
  - Highlight the e-Rx features that are important for achieving those goals
  - Compare systems based on those features

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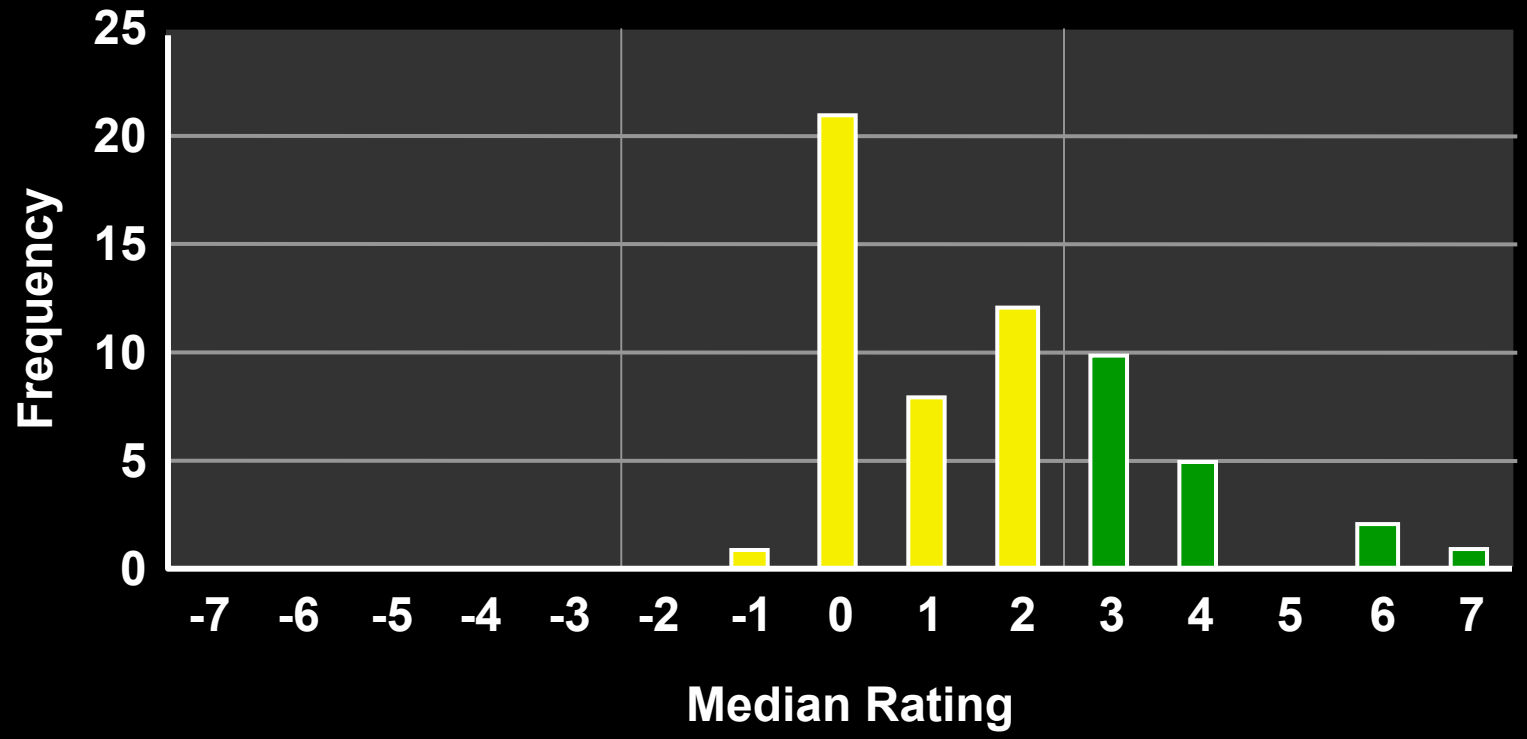
Median Ratings of the 60 Recommendations

Helping Patients Manage Their Costs

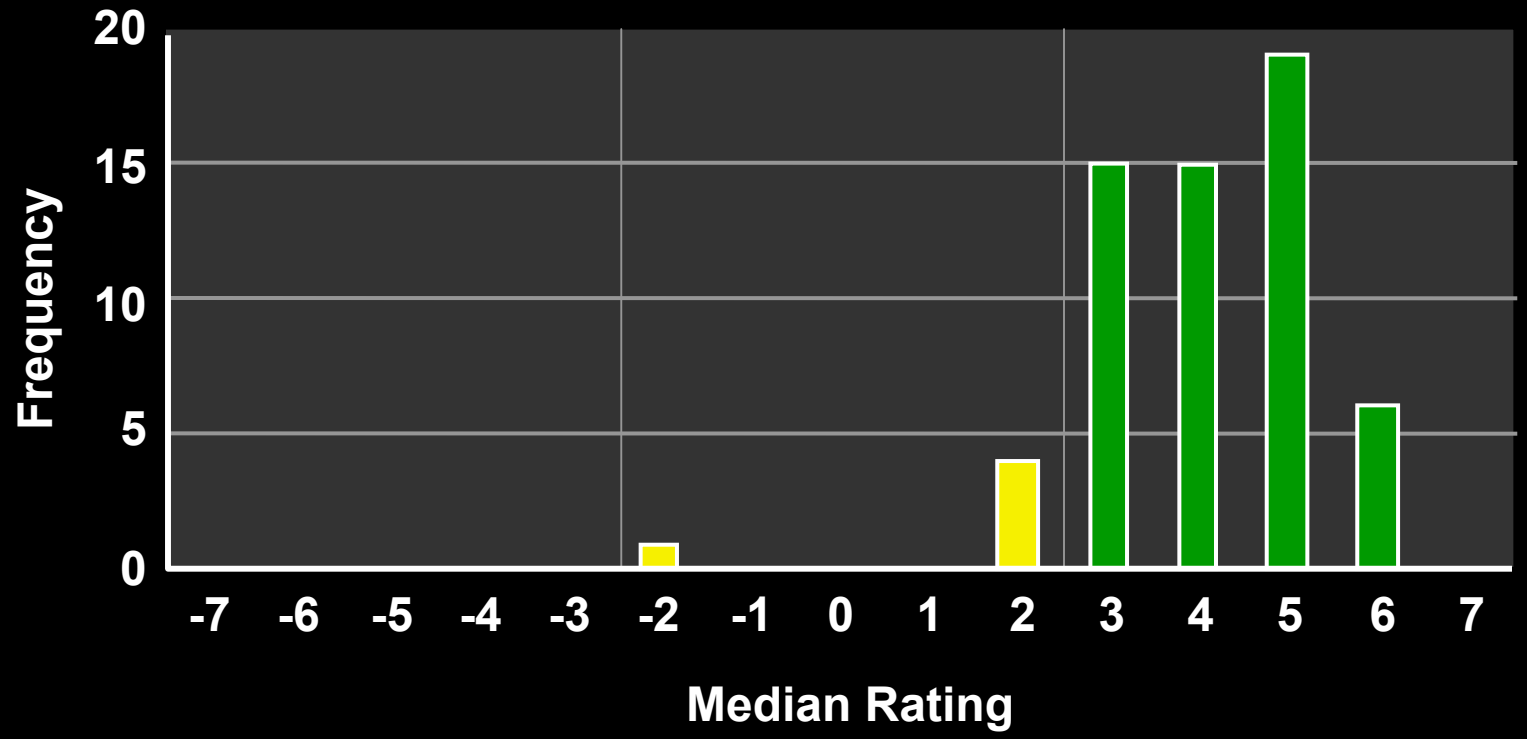
- 18 rated in the "clearly positive" range



Median Ratings of the 60 Recommendations

Promoting Clinician Acceptance

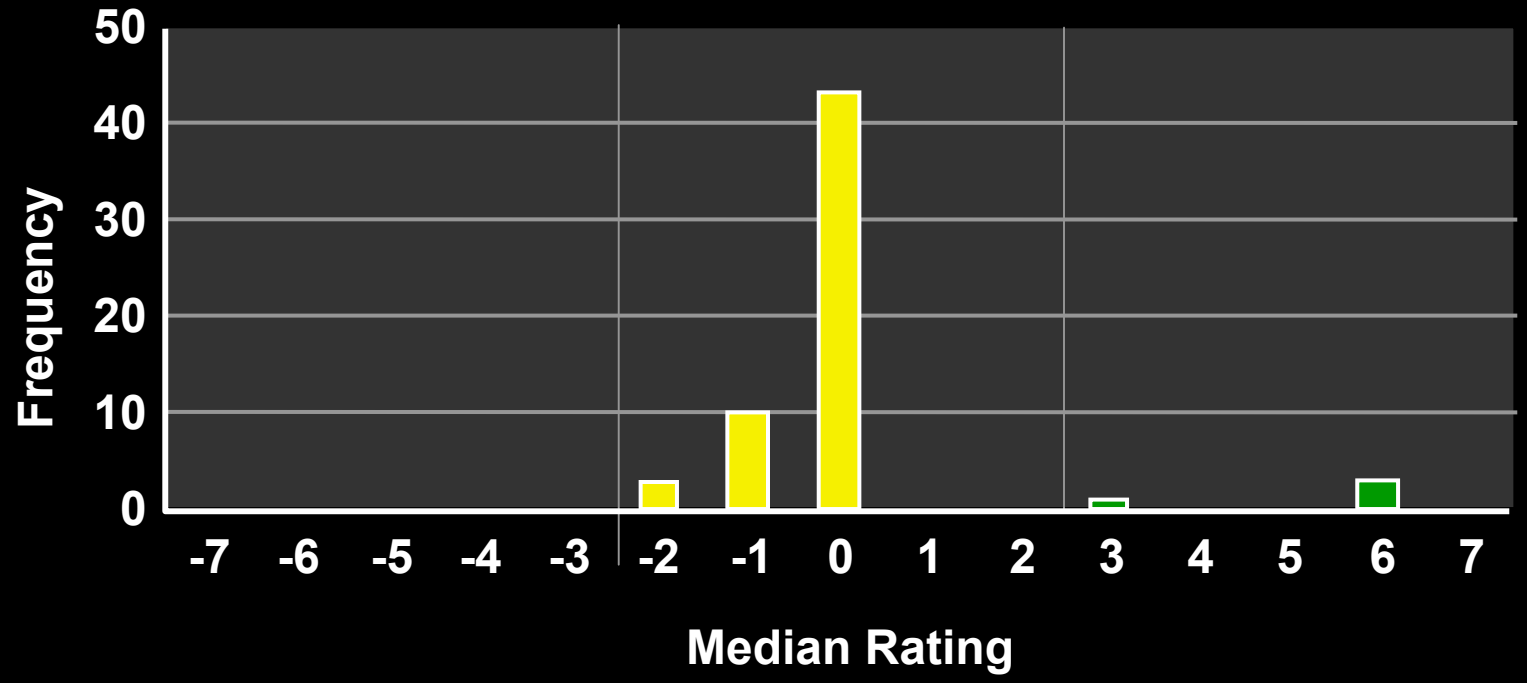
- 55 rated in the "clearly positive" range



Median Ratings of the 60 Recommendations

Maintaining Patient Privacy

- 4 rated in the "clearly positive" range



- 43 recommendations rated as achievable in 3 years