

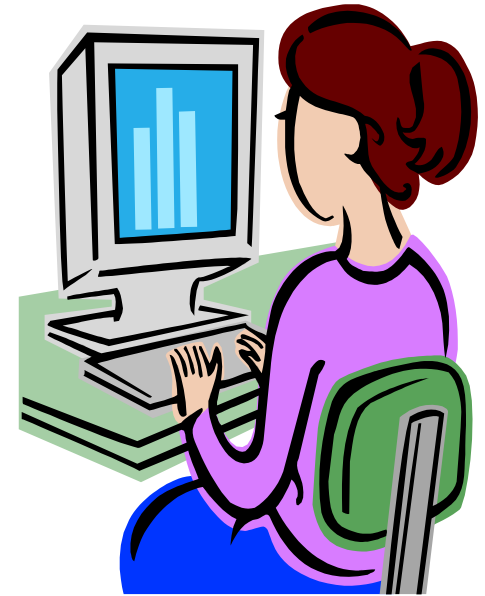
Implementing Clinical Decision Support in an Electronic Medical Record System

Realizing the Potential of Electronic Health Records
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Mark C. Hornbrook, PhD
Chief Scientist
Kaiser Permanente
The Center for Health Research
3800 North Interstate Avenue
Portland, OR 97227-1110
503-335-6746
503-335-2428

On-Line Knowledge Connections

- Clinical practice guidelines
- Formulary & drug directories
- Referral resource directories
- Fee schedules
- Coding definitions
- Full-text access to electronic journals & textbooks
- PUBMED



Clinical Decision Support



- What has happened so far?
- What should I do next?
- Are you sure you want to do this?
- This is not an acceptable action!
- Which patient who did not arrive today deserves my attention next?

Order Entry

- “Order entry is actually very easy to do with an EMR and makes errors significantly less if implemented correctly. Order Entry is also faster now and improves medication reconciliation when patients are admitted.”

Richard Dell, MD, KPNC Orthopedist

Medication Warnings

- Prescribing error alerts
- Drug allergy alerts
- Drug-drug interaction alerts
- Safety surveillance alerts



EMR Smart Sets

- Linked support that integrates clinician note generation, orders, after-visit summary, etc.
- Activating a smart set function opens and fills in templates for notes, order sets, etc.
- Support tailoring of diagnostic work-ups to optimize accuracy-cost trade-offs

After Visit Summaries

- Tailored and personalized instructions for patients to take with them for reference at home
- Specialty-specific templates
- Standard phrase libraries for ease of data entry
- Personal messages from clinicians

E-Prevention

- Tobacco use and control
- Immunization registry and reminders
- Body Mass Index
- Disease screening

Panel Support Tool

- Prioritizes clinical preventive services across PCP's patient panel
- Adverse event surveillance—who is past-due for scheduled lab tests and for how long?
- Alerts for return-to-clinic visits—who is past due for how long?
- Alerts for referral follow-ups—did patient comply?
- Chronic disease management—who has the longest non-compliance interval for check-ups?

Secure Physician-Patient E-mail

- Patients prefer being able to securely e-mail their providers
- Evidence is accumulating that secure patient-physician e-mail increases care efficiency
- Secure e-mail improves quality of care
 - KP study of 35,423 members with diabetes, hypertension, or both

MD-Pt E-mail Improves Quality

- For patients with diabetes and hypertension, use of secure patient-physician e-mail was associated with increased likelihood that patients would meet each of nine HEDIS measures
- Compared to matched controls, use of e-mail associated with a 2.0–6.5-percentage-point improvement in HEDIS performance

Zhou YY, Kanter MH, Wang JJ, Garrido T. Improved Quality at Kaiser Permanente through e-mail between Physicians and Patients. HEALTH AFFAIRS 29, No. 7 (2010): 1370–1375.

Getting Data In

- Coding vs. free text
- “This is part of the EMR that many clinicians dread until the EMR champion shows them tips and tricks to quickly get data into the EMR. Coding has improved after our EMR for various reasons including reminders to make sure coding is done correctly.”

Richard Dell, MD, KPNC Orthopedist



Getting Data Out

- “Everyone loves the ability to quickly get to the data needed for patient care, such as notes, lab tests, and digital images. The EMR gives you the ability to use filters to quickly get to data and summary reports to put the data together for ease of use.”

Richard Dell, MD, KPNC Orthopedist

EMR \$aving\$



- Cost savings from eliminating paper
- Reduced duplication of lab testing
- Increased pharmacy efficiency and reduced overall Rx errors

EMR Challenges

- ~10% reduction in clinician efficiency that nobody has figured out how to fix
- New error potential = “click fatigue”
- Slow system response times and system crashes
- Over-centralization of data entry on MDs
- Secure e-mail tsunami
- Managing clinical practice variations

EMR Evolution

- Phase I – Eliminate paper
- Phase II – Enterprise management
- Phase III – Medical e-home

