Health Information Technology: Electronic Health Record

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Disclosure

This speaker has no financial interests or relationship with industry relative to the subject of this lecture

Learning Objectives

Upon completion of this lecture the participants will be able to:

1. List the attributes of an ideal EHR
2. List the barriers to adoption of EHR
3. List the benefits of e-prescribing
4. List the steps needed to select an EHR system

Outline

1. Current problem
2. Ideal Attributes for EHR
3. Benefits
4. E-prescribing
5. Barriers
6. Selecting & Implementing EHR

Alphabet Soup of Terms

Automated Medical Record (AMR)
Clinical Data Repository (CDR)
Computerized Medical Record (CMR)
Computerized Patient Record (CPR)
Computer Based Patient Record System (CPRS)
Electronic Health Record (EHR)
Electronic Medical Record (EMR)
Electronic Patient Record (EPR)
Lifetime Data Repository (LDR)
Virtual Health Record (VHR)

Levels of IT Engagement

- PDA
- Billing, Business
- Hospital Information Access
- Clinical
  - Charting
  - Clinical Decision Support
  - Fully integrated

1. Current Situation

Care Coordination Concerns Abound

Base: Have seen a doctor in past two years

Percent saying in the past two years:	AUS	CAN	NZ	UK	US
Test results or records not available at time of appointment	12	14	13	13	17
Duplicate tests: doctor ordered test that had already been done	7	6	7	4	14
Received conflicting information from different doctors	18	14	14	14	18
Percent who experienced at least one of the above	28	26	25	24	31

Source: 2004 Commonwealth Fund International Health Policy Survey.

Ayres McHenry & Assoc. Survey 2007

- **E-prescribing definition** – continual update to patient drug history, formulary, medication library and transmission to pharmacy electronically
- **Physician**
  - Use e-prescribing 7%
  - E-prescribing is a good idea 85%
  - E-prescribing will reduce error 81%

HHS Secretary Mike Leavitt

http://secretarysblog.hhs.gov/my_weblog/

"E-prescribing is not only more efficient and convenient for consumers, but wide-spread use would eliminate thousands of medication errors every year …**Medicare and Medicaid need to move toward making it a mandatory part of medical practice.**"

David Blumenthal, M.D., M.P.P. National Coordinator for Health Information Technology

"The goal of assuring an electronic health record for every American is daunting. We at the Office of the National Coordinator for Health Information Technology do not pretend otherwise. We know this will be hard for some clinicians and hospitals…"

American Recovery & Reinvestment Act 2009

- "Meaningful Use" bonuses
  - 3 stages: 2011, 2013, 2015
- Penalties for late adopters > 2015
- General Requirements
  - E-Medication management
  - Quality Reports
  - Information Exchange

Meaningful Use – Physicians 2011 – 25 Measures

- CPOE > 80%
- E- Insurance confirmation
- Patient access to HER
- Clinical summary to pt at each office visit>80%
- Clinical decision support
- E-reminders to patients
- E-claims >80%
- E-Report ambulatory quality measures
- Pt. list by conditions >1
- E-prescribing >75%
- Med Allergies>80%
- Labs incorporated>50%
- Security measures
- Med reconciliation >80%
- E-exchange capability

Institute of Medicine, 1997

"The full benefit of …EHR systems if they are ***interoperable*** – able to exchange data across providers, sites and organizations"

Interoperability isn't as hard as people say it is…

it's much worse!

NQF-2006

EHR system implementation is not all about information technology; it must be about transforming clinical and business practices

CEO Survival Guide Electronic Health Record 2006

Perhaps the greatest challenge to successful implementation to improve the quality and efficiency of health care is the human processes that need to change to accommodate the IT revolution. Otherwise, manual processes will simply be replaced with digital ones.

Chantler et al JAMA 296(18), 2006

2. Attributes of an EHR System IOM, 1997

- Provides problem list
- Health Status
- Documents clinical reasoning
- Linkage with other pertinent records
- Confidential, privacy and audit trails
- Authorized user access
- Supports simultaneous use

Attributes of an EHR System IOM, 1997 – cont.

- Access to local and remote information
- Facilitates clinical problem solving
- Supports direct physician entry
- Supports QA analysis
- Supports current specialty needs
- Modifiable for future needs

3. Benefits of EHR

- Information available at point of care;
  OB: GBS, BP and weight trends, US
  - 4 pieces of relevant data missing when needed; delays decisions 80%
- Data available after hours, off site, on call
- Decision support-drugs, protocols
- Prompts for preventative care
- Follow up reminders
- Population data for QI evaluations

Benefits of EHR

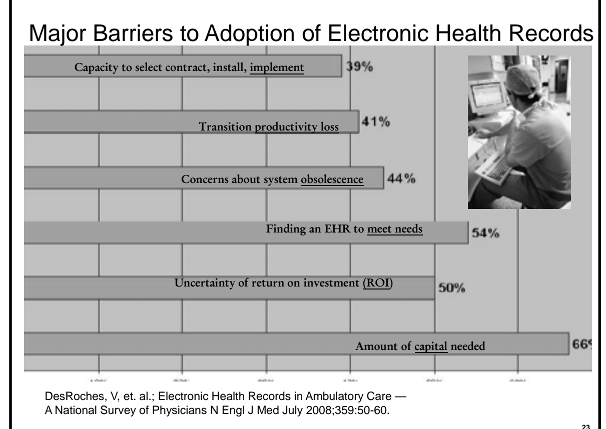
- Less handling of paper/charts
  - $3-5 each chart pull
- Reduces dictation costs
- Reduces errors of commission or omission
- Facilitate coordination of care

4. E-Prescribing

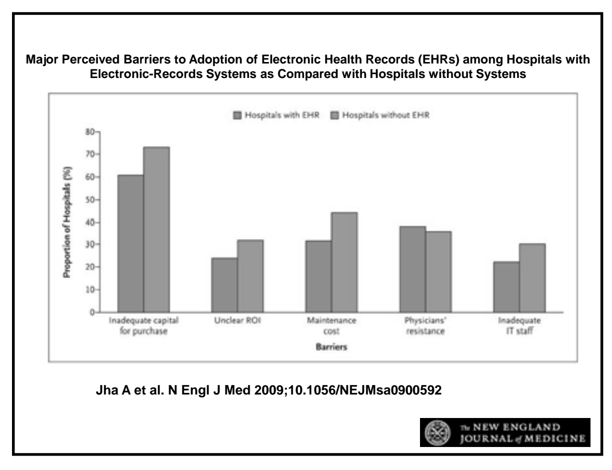
- Prevents handwriting problems
- Prevents dosing problems (21%)
- Avoids transcribing errors
- Formulary issues
- Efficient, no loss Rx, faster dispensing
- Speeds Rx renewals (1-2 hrs/day)

IT and Medication safety

- Dose and decision support
- Allergies
- Drug interactions
- Adjust for renal of liver function
- Reduces duplicate orders
- Reduces call backs for unclear orders



DesRoches, V, et. al.; Electronic Health Records in Ambulatory Care — A National Survey of Physicians N Engl J Med July 2008;359:50-60.



Jha A et al. N Engl J Med 2009;10.1056/NEJMsa0900592

6. Selecting an EHR

Selecting an EHR

- Needs Assessment
- Choosing a vendor
- RFP
- Costs
  - Bids (not budget)
- Hardware
- Internet connection
- Onsite vs. Offsite server
- Implementation

Needs assessment

Clinical IT

- Patient records
- E-prescribing
- Medication reconciliation
- Protocols
- Tracking systems
- Reminders
- Remote access
- Connectivity to Hosp
  - Labs, Radiology

Business IT

- Billing, coding
  - Insurance
  - Patient
- Management reports
- Scheduling
  - Patients
  - Physicians
- Supply management

Selecting a vendor-RFP

- Years in business (min 6 yrs)
- Number of Customers (with ref.)
  - In your state
  - In OB/GYN practices
  - In similar size offices
- Sales volume
- Interoperability with your hospitals
- CCHIT approved

www.CCHIT.org

- Private, Not for Profit
- Formed by 3 trade/advocacy groups - 2004
- Voluntary certification (3 year)
- 200 EHR vendors, 81 certified
- 151 criteria across 3 domains:
  - Functionality
  - Interoperability
  - Security
- EHRDecisions.com

Other sources of information

- National Resource center for health IT at AHRQ
  - www.healthit.ahrq.gov
- E-Health initiative self assessment tool kit
  - www.Ehealthinitiative.org
- American Medical Informatics Association
  - www.amia.org
- Health Information & Management Systems Soc
  - www.himss.org
- California Health Care Foundation
  - www.chcf.org
- HIT Standards Panel
  - www.hitsp.org

INTERNET CONNECTION

1. Availability
2. Costs
3. Speed

Broadband Connections

- DSL (digital subscriber line)
  - Asymmetric aDSL (upload < download)
  - Symmetric sDSL (upload = download)
- Cable (generally fastest)
- T1 (most expensive)
- Satellite

HARDWARE

Tablet PC

PRO

- Wireless Mobility
- Data entry
- Less intrusive
- Information can be shared or hidden

CON

- Small screen
- Loss of connection
- Weight cumbersome
- Susceptible to damage
- Battery life
- Theft

Laptop

PRO

- Mobile, wireless
- Less expensive
- Larger screens
- Less space then desktop
- Familiarity

CON

- Heavier than tablet
- Loss of connection
- Damage
- Battery life
- Theft

Desktop

Pro

- Nothing to carry
- Less damage
- More stable connections
- Bigger screens
- Continuous power
- Individually less expensive

Con

- No portability
- Unauthorized access
- Size
- More intrusive
- In aggregate more costly – more units

Server

Offsite
- Initially less cost, more expensive long term
- Backed up automatically
- Updgrades easier
- Ownership of data
- Transfer of data

Onsite
- More cost initially less expensive long term
- Need for regular back up
- Upgrades and maintenance

Costs

Vendor
- System
- Installation
- Maintenance
- Support

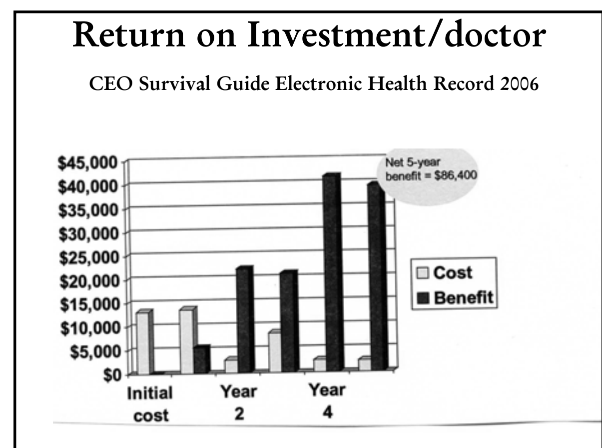
Practice
- Loading data
  - Outsource
  - Internal
- Decreased workflow

Costs per physician

- Start up $15-30K, annual $5-15K
  - Training
  - Initial workflow disruption
- ROI – Cost benefits
  - Billing efficiency
  - Time efficiency
  - Improved quality (P4P) Benefits accrue to payers now
  - Workflow (ex chart filling), Process improvement
  - Dictation costs

Return on Investment/doctor

CEO Survival Guide Electronic Health Record 2006



Implementation-Conclusion

Tom Lee, MD, President, Partners HealthCare
AMNews Dec. 12, 2007

"You can't practice medicine of a generation ago and expect to stay in business"

- Partners HealthCare-EHR & e-prescribing:
  - All PCP by January, 2008
  - All specialist by January, 2009

Medical Record Institute

27% of practices unhappy with EHR

- 18.8% of practices replaced their initial EHR with a new system
- 8.2% removed EHR and went back to "paper"
- 30% had 1 or more clinicians refuse to use EHR

Review of Literature (257 Reports)

Chaudhry, Wang, Wu, et al. Annals Int Med. 2006

- HIT improves quality - increasing adherence to guidelines, enhancing disease surveillance, and decreasing medication errors.
- The major benefit - decreased utilization of care.
- Effect on time utilization is mixed.
- Empiric ROI - limited and inconclusive.
- Little evidence is available on the effect of multifunctional commercially developed systems.
- Little evidence is available on interoperability and consumer health information technology.

Conclusion

- Move toward EHR but do your homework
- You need a "champion"
- Phase in
- Anticipate more time to see patients initially
- Outsource conversion of current records
- Do not run "dual" system
- Commit to the long haul, anticipate resistance