Selecting an Electronic Medical Record (EMR):
Don't let the vendors choose for you!

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Learning Objectives

- Understand key steps in the process of selecting an EMR
- Learn how feature and functionality checklists drive most consulting practices in assisting with the selection process: much in the public domain
- Learn the most important questions to ask any vendor
- Learn where to find public-domain listings, ratings, and reviews of EMR products

Note: Lecturer will not name, endorse, or critique any specific vendor (that goes for after-lecture questions as well)– goal is to give you a process to decide for yourselves

EMR Defined

- “Electronic Medical Record” (EMR) is a general term being applied to computerized medical record-keeping systems
- EMR can apply to inpatient or outpatient clinical documentation, decision support, laboratory management, or prescription-writing operating within one organization (not a global, all-encompassing vision)*
- For our purposes today, “EMR” is any electronic system for documenting outpatient clinical encounters. It may or may not include:
  - Decision support (a major question); complex or simple
  - Integration with practice management system and billing
  - Prescription writing (most will include this)


Three Phases in Choosing an EMR

- Decide whether you need an EMR (but then, you’re all sitting here…). There are some good reasons, but not the subject of today’s discussion; some of this is predicated on redesigning the way we deliver care*
- Decide what the EMR needs to do: What problems will it solve? (aka “Requirements Analysis”)
- THEN choose a vendor
- If you skip the early steps, you’re dead (the vendor will try to choose for you)


For EMR’s, the Problems to be Solved Might Include…

- Operational problems:
  - “Our charts are absent too often.”
  - “Our enterprise is distributed over too much space to effectively ship paper charts.”
  - “Handling paper charts incurs huge labor costs.”
  - “Handling Rx-refill, referrals, and phone messages is a workflow-buster in the paper environment.”
- Clinical problems: A future-oriented business case for independent practitioners
  - “We have too much variability in our clinical processes to get optimum outcomes for the chronically ill.”
  - “It’s tough to report on clinical parameters for pay for performance (P4P) reimbursement models.”
  - “We want to compete for patients on the basis of quality.”

Requirements Analysis is Derived from Identified Problems

- What problems will the EMR solve?
- What will the EMR do?
- What features will the EMR need to solve those problems?
- How much can we spend?

Never start with the solution before you identify the problem you are trying to solve.
Reality: Most Practices are Still Solving Operational, not Clinical Problems

- Walk before you learn to run
- Eventually, operational savings may pay for the clinical improvements

Operational Issues, and Desirable Features

- Absent charts: “up-time” guarantee
- Enterprise distributed over space: Network questions, how does system run over network, and who maintains it?
- Labor costs: Savings from less paper chart handling, but might counter some savings with information technology labor cost
- Work flow management improvement: Prescription-writing and refill, referrals, phone messages, transcription, etc.
- Coding “efficiency”: undercoding in typical paper environments?
- The system cannot decrease productivity: To what extent does the system force doctors into pick-lists and away from dictation? What level of forced structure is tolerable?
- Operational problems: Solution will be data storage and data delivery – doesn’t absolutely require structured data.

Clinical Problems

- P4P: How does the system support P4P reimbursement models?
- Sub-optimum outcomes in chronic disease: Are there care management templates for diabetes, hypertension, hyperlipidemia? Are they modifiable by users?
- Medication errors are common: Does the EMR include simple allergy, med-med, and med-disease checking?
- Clinical problems: solutions will be decision support, reminders, and alerts (very different from operational support) because it requires structured data.

Structured Data vs. Unstructured Data\(^1\): Ask Very Detailed Questions About This

- Structured data requires a change in work flow from MDs. – choose limited vocabulary from a pick-list rather than use free text
  - Advantage: Enables decision support
  - Disadvantage: Slows you down
- Unstructured data such as free text, dictation, etc.
  - Advantage: Fast and cheap; the way we work now
  - Disadvantage: Makes decision support impossible
- In a Harvard study, more than 80 percent of physicians using EMRs DID NOT utilize decision support functionality, or did not purchase it\(^2\)

A Checklist So You Can Start Searching, or Craft an RFP (Request for Proposal): Parallels the List of Problems

Feasibility of alternative solutions: Four primary areas
1. Technical: Is this a mature & viable technology?
2. Operational: Will it integrate with our existing work flow? If not, are we willing to change our existing work flow? Is it clinically useful (ask users, not the vendor)?
3. Economic: Additional 25-30 percent of yearly cost of system must be spent in implementation and training; MDs paid on productivity basis today
4. Schedule: How long to get up and running? How long would any “productivity hit” last?

Technical and Operational Feasibility

- Determined by vendor characteristics, existing system characteristics, and clinical features
- Vendor characteristics include:
  - Vendor references
  - Support: on-site? Phone? FAX? E-mail?
  - Consulting days included in package?
  - Years in business (with this particular product)
  - Number of employees
    - Percent full-time vs contract
    - Volume per year, existing installed base

Technical and Operational Feasibility: Vendor

- Average cost per customer
- Average time for installation
- Market leader? Client list available?
- References from past installs? Disclose failed installs?
- Similar installs performed
- Experience and skills of consultants on project

Technical and Operational Feasibility: System

- Runs under which hardware and software
  - PC network, client-server?
  - Application Service Provider
- "Back-end:" Database type: should be open system like Oracle
- "Front-end" for users: runs under...? Desktops?
  Wireless devices? Slate-based PCs? Handhelds?
- Data import/export capabilities
- Access: Anywhere, anytime? Home?
- Security: HIPAA compliance, chain of trust, electronic signature, audit trails

Technical and Operational Feasibility: Clinical Features

- Peer-reviewed literature on this product?
- Vendor’s scientific depth: MDs, PhDs, MS, MA-trained developers? Contract or employees?
- Data sources for report: ICD, CPT, lab, Rx?
- Update pathway?
- Number of patients in any normative repository
- Regional or national norms?
- Create our own templates? Discounting based on co-development?

Technical and Operational Feasibility: Software Delivery

- Application Service Provider (ASP): Rent an application over the Internet or a private network
- Is it a solution for customer problems? Or vendor problems?

Technical and Operational Feasibility: APSs

- First concrete example of a Web-based technology claiming to “revolutionize” the way we use technology
- With an ASP you don’t buy software, you “rent” its use over the Web
- A viable option for EMRs? Probably, but jury is out. Ask the vendors if an ASP solution is available, and whether it was developed “native” for ASP or adapted to it.

Technical and Operational Feasibility: ASP Advantages

- Cost: presumed advantage
  – don’t have to maintain any technology, don’t have to hire technology staff
- Ease of use: Internet, Web-based interface
Technical and Operational Feasibility: Concerns

- If Internet is down, you’re down
- Remote access = security issue
- The “firewall” may ultimately be your (expensive) responsibility. Be sure you understand contractually where the responsibility lies
- Local equipment will require continuous remote monitoring to update vendor’s current software.
- The ASP is an “outsourcer” over which you have little control. Their compliance, business, and HR problems may become yours.

Technical and Operational Feasibility: Do ASPs Solve Vendor Problems, Rather than Customer Problems?

- Prevents software piracy
- Makes it easier to release and then upgrade “buggy” software
- Lowers the cost of customer disloyalty in a volatile market
- Allows vendor to “cash in” on individual healthcare transactions

But all of this will mean cheaper EMRs

Technical and Operational Feasibility: Integration

- My opinion: it should!
- Was it built to integrate, or do you need to pay for custom software to make the “crosswalk?”
- What practice management software is available for the EMR you choose? Same vendor? Different vendor? Fewer vendors is generally better.
- You may have to throw out your existing practice management software and start over again.

Technical and Operational Feasibility: Quality of Care Issues

- Reminders and alerts have been unequivocally shown to improve the quality of care
- P4P reimbursement models will require sophisticated clinical reporting based on highly structured, searchable EMR data
- But P4P accounts for no more than 5% of current reimbursement
- Purchase structured EMR to address a future business need? Or hope that low-structure EMRs will be adaptable to a more structured future?

Economic Feasibility: Costs

- Initial software (not in an ASP; just a periodic maintenance fee)
- Hardware: What is included? Is all hardware generic, or is some vendor-specific?
- Implementation and training (additional 25 to 30 percent the first year)
- Staffing: Lose some staff for paper chart handling, but may need to hire additional to manage EMR

Economic Feasibility: Calculating ROI

ROI (return on investment): Most experts are guessing that practices break even in two to three years (ROI about 1.2:1); most savings accrue from work flow improvements and net decreased staffing needs. Vendors aren’t saying.

ROI = (Savings+Increased Revenue)/Investment
### Economic Feasibility: Total Savings

| Labor savings in chart room and triage | __ |  
| Transcription savings                  | __ |  
| Chart handling+Labor/Workflow savings  | __ |  
| Charge capture increase                | __ |  
| Coding “efficiency”                    | __ |  
| Productivity change                    | __ |  
| Safety/quality improvements (P4P, etc.)| __ |  
= TOTAL SAVINGS __

### It’s Difficult to Actually Make That Calculation...

- BUT force your vendors to do it anyway!

### Schedule Feasibility

- When do you need it vs. when do they promise delivery?
- Penalties for late delivery or “go-live” date?
- How long does a “productivity hit” usually last?
- How do we talk directly with your installed base?
- Who supplies the implementation team? Who pays for it?
- How long does implementation take?
- How long till X percent of physicians are using X percent of features?

### Making a Choice: The Question of Structure

- Need structure?
- Just need free text
- Case study: a University-based practice with a 65% chart-missing
- What do they need?

### Another Picture

- Third-generation managed care market paying bonuses for diabetic care meeting criteria:
  - HgbA1C twice a year
  - Percentage of diabetics with HgbA1C below 7.0%
- How will you report on this without electronic search capability?

### Shopping for an EMR: A Structural Continuum for Structure

<table>
<thead>
<tr>
<th>Minimally Structured</th>
<th>Maximally Structured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allows some or much free text</td>
<td>Minimal or no free text</td>
</tr>
<tr>
<td>No limited vocabulary</td>
<td>Menu/pick list driven</td>
</tr>
<tr>
<td>Essentially automated transcription</td>
<td>Template-driven</td>
</tr>
<tr>
<td>Enforced limited vocabulary</td>
<td></td>
</tr>
<tr>
<td>No reminders and alerts</td>
<td>Capability for reminders and alerts</td>
</tr>
<tr>
<td>Less physician resistance</td>
<td>Major cultural barriers</td>
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<tr>
<td>Potentially cheap</td>
<td>Expensive</td>
</tr>
<tr>
<td>Operational efficiencies</td>
<td>Disease mgt, qual improvements</td>
</tr>
<tr>
<td>A tactical implementation</td>
<td>A strategic implementation</td>
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</tbody>
</table>
Shopping for an EMR: Scope of Features

- Clinical documentation
- Laboratory reporting and live connection
- Radiology reporting
- "Tickler lists" med lists, problem lists
- Work flow enhancements
  - Telephone management?
  - Prescription-writing and refill: Live connection? Other order entry?
  - Referral management?
  - Remote access?
  - Patient web access, secure e-mail w/providers?
  - E&M coding checks?
- Clinical features: Decision support enabled?

Public Domain Resources

- American Academy of Family Practice “How to Select an EMR” checklist: [www.aafp.org/fpm/20050200/55howt.html#box_c](http://www.aafp.org/fpm/20050200/55howt.html#box_c)
- Advance for Health Information Executives: [http://health-care-it.advanceweb.com](http://health-care-it.advanceweb.com)
- HIMSS: [www.himss.org/ASP](http://www.himss.org/ASP)

Summary

- Follow a step-wise process in selecting EMRs
- Define your own requirements
- Follow a step-by-step process to force vendors to address your business and clinical problems
- Decide on your required level of structure in advance
- Decide on scope in advance
- Question vendors but don’t rely on the answers: Speak to the installed base!
- Basic checklists and public-domain resources can get most independent practices started

Contact Info

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