DOQ-IT: EHR Roadmap to Success

TEPR 2006

DOQ-IT Delmarva
Delmarva Foundation
May 21, 2006
DOQ-IT Delmarva Team

- **Michael C. Tooke**, MD, FACP
  Chief Medical Officer

- **Beth B. Franklin**, RN, MS, CPEHR/CPHIT
  EHR Implementation Advisor

- **Donette Emory Branch**, CPEHR/CPHIT
  Quality Improvement Consultant

- **Tobi Pratt**
  EHR Implementation Advisor

- **Meskerem Abebe**, RN, MS
  Clinical Informatics Advisor
Delmarva Foundation

• National, not-for-profit organization
• Mission: Improve Health
• 30+ year history, 250 employees (associates), $30+ Million Revenue
• Associates: Physicians, Nurses, Scientists, Analysts, Reviewers, Improvers
• Quality Improvement Organization (QIO) for Maryland and DC
• Customers: Centers for Medicare & Medicaid Services (CMS), State Medicaid Departments, Agency for Healthcare Research and Quality (AHRQ), Private Foundations, Private Firms

• We Provide:
  • Resources
  • Education
  • Training
  • Data Analysis
  • Clinical Review
  • Best Practice Sharing
  • Collaborative Improvement
  • Leadership
DF Team National Experience

- Medicaid External Quality Review
- Medicaid Quality Assurance
- Medicare Quality Improvement Organization
- Maryland Patient Safety Center
- Medicare Quality Improvement Organization
- Medicaid External Quality Review (Washington, DC)
- Developmentally Disabled Statewide Quality Assurance Program
- Medicaid External Quality Review
- Program Safeguard Contract
- Western Integrity States
- Medicare+Choice Quality Assurance/Performance Improvement Project
Delmarva Foundation

- Maryland Performance Excellence Award

- Winner of the 2005 U.S. Senate Productivity Award for Maryland

- Eligible for Baldrige Award pilot for non-profit organizations
Quality Improvement Organizations (QIOs)

- National network of organizations in each U.S. state and territory under the direction of CMS.
- Enacted by federal statute “to improve the efficiency, effectiveness, economy, and quality of services delivered to Medicare beneficiaries.”
- Work with consumers, physicians, hospitals, and other caregivers to refine care delivery systems
- Ensure patients get the right care at the right time
- Share information about best practices with providers, to identify opportunities and provide assistance for improvement.
CMS Quality Improvement Organizations

- Non-governmental
- All 50 states & territories
- Existing commitment to work with
  - Physicians
  - Hospitals
  - Long term care facilities
  - Home health agencies
National → Local Level

“The government’s 10-year strategy to have most Americans using electronic health records will fail unless small physician offices adopt technology…

…I can’t get to that goal without getting to the small physician practices.”

Dr. David Brailer, former National Coordinator, ONCHIT
“DOQ-IT”

Doctor’s Office Quality-Information Technology:
A three-year project to accelerate the adoption of health information technology, in adult primary care physician offices.

A program of free technical assistance from Delmarva for adult primary care physicians committed to harnessing the power of electronic clinical information to improve patient care.
Target physician groups

- Adult primary care practices
  - Family Practice
  - General Practice
  - Internal Medicine
  - IM/Cardiology
  - IM/Endocrinology
At Any Stage of HIT Adoption!

- Without existing HIT
- With some modality
  - e-prescribing
  - e-laboratory
  - Medical Registry
- EMR in place, but would like assistance
- Tried, failed, would like to try again…
Agenda for Workshop

3:15 pm – 3:25 pm  Introduction
3:25 pm  - 5:00 pm  EHR Roadmap Part I
  * Adoption
  * Implementation
5:00 pm – 5:15 pm  Break
5:15 pm – 6:00 pm  EHR Roadmap Part II
  * Implementation (continued)
  * Care Management
6:00 pm – 6:15 pm  Questions
EMR vs. EHR

- **PHR** (Personal Health Record) - “contains medical information and it is owned by the patient.”¹
- **EMR** (Electronic Medical Record) - the electronic version of the health information about the patient owned by the healthcare organization. ²
- **EHR** (Electronic Health Record) – ”is a longitudinal electronic record of patient health information produced by encounters in one or more care settings.”²

¹ Hartley, CP, Jones III, ED *EHR Implementation* American Medical Association Press 2005
² [http://www.himss.org/ASP/topics_ehr.asp](http://www.himss.org/ASP/topics_ehr.asp)
## EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>Phase</th>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADOPTION</strong></td>
<td>1. Assessment</td>
<td>Practice readiness: Physician(s), staff &amp; office</td>
</tr>
<tr>
<td></td>
<td>2. Planning</td>
<td>Develop goals &amp; barriers Identify opportunities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workflow redesign</td>
</tr>
<tr>
<td><strong>IMPLEMENTATION</strong></td>
<td>3. Selection</td>
<td>Understand and review available HIT/EHR options</td>
</tr>
<tr>
<td></td>
<td>4. Implementation</td>
<td>Prepare staff and office for EHR. Go Live!</td>
</tr>
<tr>
<td><strong>CARE MANAGEMENT</strong></td>
<td>5. Evaluation</td>
<td>Production of ECI Implement workflows</td>
</tr>
</tbody>
</table>
Assessment

*What you want, what you need, what you can afford…*
## EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

(Note: The table cells are empty and not labeled in the provided text.)
# EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
When you think about implementing an EHR, what does “assessment” mean to you?
Assessment

- Assess the practice to:
  - Identify opportunities to design and improve processes for patient care
  - Improve workforce morale
  - Integrate Health Information Technology (HIT)
“Start where you are
Use what you have
Do what you can…”

Arthur Ashe, Tennis Player, Wimbledon Winner
Identify and Analyze Practice Needs

- Know the practice
- Understand the processes
- Understand the workflow
- Identify the “pain points”
- Prioritize and focus
- Plan for change
- Manage change
ASSESSING YOUR PRACTICE

“The Green Book”

www.clinicalmicrosystem.org
What is “The Green Book”?

A diagnostic tool that provides guided discovery of your patients, people, processes, and patterns. It helps you to start thinking about improvement…from the “inside-out.”
Clinical Microsystems
~Improving Healthcare by Improving Microsystems

Assessing Your Practice
"The Green Book"

Patterns

"Know Your Patients"
"Know Your People"
"Know Your Processes"
"Know Your Patterns"

www.clinicalmicrosystem.org
Plan for CHANGE!
Assessment

- Identify a Physician Champion
- Develop an EHR Implementation Team to identify practice issues, (the team should be selected from key staff in each area of the practice.)
- How often does everyone get together?
  - Huddles
  - Staff meetings
Assessment

- Workflow assessment
  - “Walk through”
  - Identify pain points and bottlenecks
- Begin mapping:
  - Current processes
  - Idealistic processes
  - Where do the two intersect
Assessment

- Assign an individual or team leader to lead practice changes (this may be the physician).
- For a successful implementation:
  - Plan regular communication with staff
  - Staff must be committed to adoption of EHR
  - Choose workflow changes to maximize results
## EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Planning

Failing to plan is planning to fail!
**EHR Implementation Roadmap**

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Planning</td>
<td></td>
</tr>
</tbody>
</table>
How does a practice plan for an EHR implementation?
Planning

- Identify goals, priorities and barriers
- Identify high priority needs, features and functions of EHR from staff perspective
- Define a project scope
- Communicate to staff the anticipated change
Planning

- Identify project goals
  - What are you doing
  - When do you want to do it
  - What is your budget

- Long term objectives of the practice
  - What do you need now
  - What do you need in 5 years based on your projected growth
Identify Project Scope

- Putting a fence around what you want to accomplish
  - Identify goals and objectives
  - Product functionality
  - Resources available
  - Time defined
Establishing Scope

- Within the scope:
  - Identify and prioritize components that are critical to project success
    - Budget
    - Physical environment
    - Hardware requirements
    - Software requirements
    - Human resources
    - Budget
  - Set realistic timeline for attaining goals
Establishing Scope

- Involve practice leader(s) with:
  - Requirements identification
  - Project scope management
  - Feature functionality

- Involvement ensures:
  - Quality
  - Timeliness
  - Success
Planning

- Understand the implications of different rollout approaches:
  - Big Bang
  - Incremental
- Do I need an “RFP” (Request for Proposal)?
Planning

Scanning Patient Charts

- Process of making an electronic image of a document
- Scanned documents may or may not be searchable
- Is scanning the right option for your practice?
Planning

To scan or not to scan?

- What scanning capabilities do vendors provide?
- Identify key information and documents that will need to be in the system
- How much of the chart do you want to scan?
  - The whole chart?
  - The last three visits?
  - Only pertinent data?
Planning

- Discuss a plan for entering existing chart documents into the system
  - When will data be entered
  - How will existing documents be entered
  - How will new information be entered
- How much will you scan going forward?
  - Reports
  - Other documents
Planning

Other planning needs:

- Change management with staff
- Notifying patients and other parties about your move to EHR
Financial Planning

Do I need to complete:

- A cost/benefit analysis
- Return on Investment (ROI) for an EHR system
Classifying the Benefits

- “Hard” benefits
  - Predictable, reliable decrease in costs or increase in revenue
- “Stretch” benefits
  - Financial in character, but variable in quantity
  - Varies based on effectiveness in using IT tools
- “Soft” benefits
  - Non-financial
    - Improved quality of care
    - Patient safety
    - Higher staff satisfaction
# Hard Dollar Benefits

<table>
<thead>
<tr>
<th>Hard Dollar Benefit</th>
<th>Conditions</th>
<th>Revenue Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capture lost charges</td>
<td>IF charges are now being lost</td>
<td>1% - 5% revenue gain</td>
</tr>
<tr>
<td>Reduce ‘defensive downcoding’</td>
<td>IF downcoding is prevalent</td>
<td>5% - 11% revenue gain</td>
</tr>
<tr>
<td>Reduce claims denials &amp; delays</td>
<td>IF denials or delays are common</td>
<td>15 – 30 day A/R speedup</td>
</tr>
<tr>
<td>Increase preventive and management services</td>
<td>IF new services are profitable AND capacity exists</td>
<td>5% revenue gain</td>
</tr>
<tr>
<td>Reduce transcription</td>
<td>IF dictating AND willing to change</td>
<td>$5K - $15K/yr costs cut</td>
</tr>
</tbody>
</table>
## Stretch Benefits

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Condition</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase physician productivity</td>
<td>IF physicians have extra capacity AND get ‘faster’ with EMR</td>
<td>0% - 15% revenue gain</td>
</tr>
<tr>
<td>Staff efficiency</td>
<td>IF overtime being paid, or IF staff ratio can be reduced</td>
<td>0% - 15% cost reduction</td>
</tr>
<tr>
<td>Reduced chart pulls</td>
<td>IF practice charged for pulls</td>
<td>$5/pull or $6K/yr/MD</td>
</tr>
<tr>
<td>Reduce cost of paper chart materials</td>
<td>IF office goes “paperless”</td>
<td>$1-5/patient or $1k/yr/MD</td>
</tr>
<tr>
<td>Reduce costs of chart storage and archiving</td>
<td>IF office goes paperless and chart room eliminated</td>
<td>$1k/yr per physician</td>
</tr>
</tbody>
</table>
Approximate costs per physician in a 2 physician family practice office
Assumes preexisting PMIS, but no preexisting computers at point-of-care
# EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Planning</td>
<td>Develop goals &amp; barriers Identify opportunities Workflow redesign</td>
</tr>
</tbody>
</table>

*Note: The table is incomplete and contains placeholders for additional content.*
Selecting an EHR

Wading through the possibilities...
# EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Planning</td>
<td>Develop goals &amp; barriers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identify opportunities</td>
</tr>
<tr>
<td>IMPLEMENTATION</td>
<td></td>
<td>Workflow redesign</td>
</tr>
</tbody>
</table>
# EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Planning</td>
<td>Develop goals &amp; barriers Identify opportunities Workflow redesign</td>
</tr>
<tr>
<td>IMPLEMENTATION</td>
<td>3. Selection</td>
<td></td>
</tr>
</tbody>
</table>

*DOQ-IT*

*Delmarva Foundation*

*We don't provide healthcare...we make it better.*
How do you know if an EHR system is right for you?

How do you go about selecting a new car?

Research, Evaluate, Test Drive!
Requirements

- Do you need a new billing system (PMS)?
- Does your PMS support an interface to an EHR?
- Do you want a single vendor solution or an interface?
- Do you want a server on site or a vendor to host it remotely?
Physician Offices

Physicians in the outpatient setting provide chronic disease management and preventive services to millions of Medicare beneficiaries in the United States. To successfully achieve sustained improvement in health care, physicians need to redesign processes to meet the needs of patients. A redesigned system should include standardized, predictable processes based on best practices and incorporate an integrated health information technology system to enhance quality, safety, and performance. The redesigned system also needs to support patient self-management, facilitate coordination of care, and empower patients to integrate clinical goals with life goals to live longer, healthier, and happier lives.

QIC Picks

- EHR Roadmap
- Join FVRP
- Key Events Calendar
- Physician Office Literature Review
- Physician Office Monthly e-Newsletters
- Vendor Lists
- MedQIC Quick Tour for Physician Offices

In this Section...

- Tools
- Literature
- Stories
- Links
- Measures
- Other Resources
- Presentations

Introducing

Welcome to Medicare!
Recommended Action:
Selection Phase - Guide the Medical Practice in choosing an EHR

After identifying the necessary functions and features of the EHR, the practice begins to attend structured demonstrations of EHR vendors using clinic-specific case scenarios. After narrowing the choices down to a few vendors, the team will conduct site visits of other practices to get real-time observations and feedback. Finally, the best software and hardware vendors are chosen, contracts negotiated, and financing determined.
Integrated Solution - ‘Best of Fit’

- Single database
- Information real-time
- Similar “look and feel’
- Reports less complicated to write
- Single support source
- No “finger-pointing”
Interfaced Solution - ‘Best of Breed’

- Multiple databases
- Additional hardware and software
- Information delivery delay
- Additional maintenance
- Greater complexity and costs
- Complicated support structure
EHR Hosting Models

- Application Service Provider (ASP)
  - Data & servers located off-site by third-party
  - Communication across Internet
  - System administration and maintenance managed remotely
  - Lower initial costs
  - Ownership and maintenance is spread over time
  - Who controls data?
EHR Hosting Models

- Locally Hosted Application
  - Data and servers located in practice
  - Communication across local network
  - System administration & maintenance managed locally
  - Higher initial cost of ownership
  - Control of data
EHR Hosting Models

- Web-based
  - Utilizes web browser to access patient data
  - No installation of software on PC required
  - No ongoing management of PC required
  - System updates easy to manage
  - Who controls data?
EHR Hosting Models

- Client-Server
  - Utilizes specific software
  - Requires installation/configuration of software on PC
  - Requires ongoing management of PC
  - System updates difficult to manage
  - Potential conflict with existing software
Interoperability

What do you want to connect to?
- Laboratories
- Local hospital
- Physician Offices/Clinics
- Pharmacies
- Medical devices
Documentation Options

Understand the implications of your options:

- Templates
- Free Text
- Voice Recognition
- Dictation
What will provide value?

- Value does not necessarily equal ROI
- Focus on things physicians do 95% of time
- What are staff needs?
  - Email
  - Instant messaging
  - Patient education tools
  - Forms
Don’t Forget About…

- HIPAA
  - Authentication & authorization
  - Role-based security
  - Audit trails
  - Electronic signature
- Documented policies and procedures
Full Featured vs Good Enough Systems

**Full Featured**
- More customizable and flexible
- More moving parts
- Better modeling of practice’s workflows
- Implementation more complex and longer
- More training required

**Good Enough**
- Less ability to accommodate workflows
- Implementation less complex and shorter
- Easier to get going and maintain
End User Hardware

- Physician work habits
  - How and when do physicians do their work?
  - Patient-physician interaction
  - Mobility needs (home, house calls, etc)
  - Comfort level with technology

- Practice infrastructure
  - Desktop space in exam rooms
  - Space in staff workstations
  - Need to re-wire practice
End User Hardware Options

- Desktop PCs
  - Powerful & inexpensive
  - Full use of EHR

- Laptops
  - Powerful & relative inexpensive
  - Full use of EHR
  - Fairly mobile, but short battery life
  - Ergonomics of physician-patient interaction
End User Hardware Options

- Tablet PC
  - Slate vs. convertible
  - Large screen display
  - Requires different work style
  - Expensive
  - Extremely mobile but short battery life

- PDAs
  - Extremely mobile but short battery life
  - Limited screen = limited use
End User Hardware Options

- Document Scanners
  - High vs. low throughput (PPM)
  - Resolution
  - Type depends upon needs
    - What are you scanning
    - Who is scanning

- ‘Paperless’ vs. ‘chartless’
Database Server

- Buy Best Server You Can Afford
  - Expandability – 5 year plan
    - Processor
    - Memory
    - Disk space
  - Back-up – what can go wrong
    - Redundancy
    - Failover server
    - Routine system back-up
EHR Selection Tools

- **Web-based Tools**
  - EMR Update – [www.emrupdate.com](http://www.emrupdate.com) (free)
  - EMR Institute – [www.emrinstitute.com](http://www.emrinstitute.com) (free)
  - HIMSS Ambulatory EMR Selector – [www.ehrselector.com](http://www.ehrselector.com) ($49/$149)
  - EMR Consultant – [www.emrconsultant.com](http://www.emrconsultant.com) (free)
EMR Selector (EMR Consultant)

This questionnaire has been crafted by our staff of physicians and EMR experts to address the many considerations involved with selecting an EMR. Due to the thoroughness of this set of forms, you can answer any number of questions over multiple sessions.

For your convenience, our questionnaire now features auto submit. Your answers are immediately sent to our database as you enter them. Whenever you tab-off or click-off any answer field, your results for that question are sent at that time. No submit button needed! No waiting for the page to reload after submitting!

You can also go right to those questions that are currently unanswered by clicking here.

- Contact Information 7 answered of 14 total.
- Practice Information 0 answered of 25 total.
- Manufacturer Information 0 answered of 10 total.
- Product Features 0 answered of 185 total.
- Clinical Documentation 0 answered of 63 total.
- Technology 0 answered of 24 total.
- Pricing 0 answered of 6 total.
EMR Selector (EMR Consultant)

1. Do you want the EMR to...
   - **1.** allow the user to add free text to sections of a chart note?
     - [ ] Will not purchase without this feature
     - [ ] Would strongly prefer this feature
     - [ ] Would like, and will pay a little extra for this feature
     - [ ] Would like, but would not pay extra
     - [ ] Don't need this feature at all

2. Offer the ability to dictate or partially dictate parts of chart notes?
   - [ ] Will not purchase without this feature
   - [ ] Would strongly prefer this feature
   - [ ] Would like, and will pay a little extra for this feature
   - [ ] Would like, but would not pay extra
   - [ ] Don't need this feature at all

3. Allow the user to make annotations directly on a diagram or image document using a drawing tool?
   - [ ] Will not purchase without this feature
   - [ ] Would strongly prefer this feature
   - [ ] Would like, and will pay a little extra for this feature
   - [ ] Would like, but would not pay extra
   - [ ] Don't need this feature at all
EHR Vendor Reports

- AC Group Annual Report
  www.acgroup.org

- KLAS Report
  www.healthcomputing.com

- Family Practice Management Vendor Survey
  www.aafp.org/fpm/20010100/45elec.html
Other Sources of Information

- Discussion Forums
  - EMR Update, AAFP

- Vendor Fairs and Exhibits
  - TEPR EMR Road Show
  - AAFP Intelligent Medical Practice
  - DOQ-IT Vendor Fairs

- Reports
  - AC Group, KLAS

- Peers
Request for Proposal (RFP)

- General Format
  - Proposed solutions to problems
  - Implementation process
  - Training
  - Support
  - Costs
    - Hardware and software
    - Implementation and training
    - Interfaces
    - Support
Request for Proposal

- Recommendations
  - Focus on practice’s needs and requirements
  - Ask vendor to tell “HOW” system will address practice’s problems, not “IF”
  - Ask specific, focused questions – not broad, open-ended questions
    - Vendors will usually say they can do it – you need to probe and see it for yourself.
Remember your DUE DILIGENCE of the vendor you select
Evaluating EHR System Options

- Product Demonstrations
  - Use patient visit-based scenarios the practice defines
    - Multiple chronic conditions
    - Different diagnostic/treatment needs
    - Utilize actual patient cases
  - Develop work flow scenarios based on your practice
    - Referrals
    - Prescription refills
  - Ask data questions
    - Patients taking certain meds
    - Diabetic population
    - Elderly population
- Make it your demo not the vendors demo!
Options for Evaluating EHR System

- Product Demonstrations
  - Evaluate functionality vs. ease of use
  - Drive product – don’t be driven
  - Make vendor show you
  - Validate vendor’s RFP response
  - Involve practice staff
<table>
<thead>
<tr>
<th>Functionality/Usability</th>
<th>Priority</th>
<th>Vendor A</th>
<th>Vendor B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Charting</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can the system accommodate (and potentially improve) my workflow?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can I easily build and/or customize “off-the-shelf” templates?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the system offer a variety of data entry options, e.g., dictation, voice recognition, structured notes, etc.?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can I make subsequent edits and addendums to clinical documentation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the system alert me about unfinished portions of the clinical documentation and can I bypass it if necessary?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can I access other such clinical information as previous labs, progress notes, etc. from a patient’s “electronic chart” while charting?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the system allow me to multi-task, e.g., create task, order lab, etc. while charting?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the system allow me to forward patient information to staff, other physicians, etc. via e-mail, electronic faxing, messaging, etc.?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the system ensure that only authorized clinicians can sign clinical documentation?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Evaluating EHR System Options

- Site Visits
  - Vendor recommends site
  - Visit practice with similar profile
    - Size and specialty
    - Problems and goals
    - Geographic area
  - Conduct structured visit
    - Overall goals
    - Questions to ask
    - Things to observe
Evaluating EHR System Options

- Site Visits
  - Involve practice staff
  - Spend as much time as possible watching system in use
  - Understand references’ incentives
    - Discounts
    - Freebies
Contract Considerations

What If:

- Need to get out of contract
  - Bi-lateral termination clause
- Vendor goes out of business
  - Data ownership
  - Source code escrow
- Vendor merges or is acquired
Contract Considerations

What If:

- Things don’t work …
  - Performance warranties
- Things go wrong
  - Resolution process
  - Breach of contract
  - Exit points and strategies
Contract Considerations

- Scope of License
  - Total vs. concurrent users
  - Term vs. perpetual
  - Transfer of licenses
  - Additional licenses

- Bold-typed Clauses
  - Warranty
  - Disclaimer
  - Indemnification
  - Limitation of liability
What to Include in the Contract

- Milestone-based Payment Schedule
  - Incentive for successful completion
  - Leverage for practice

Example

15% - Signing of contract
10% - Installation of software and hardware
20% - Completion of training
25% - Completion of system testing
30% - Final system acceptance
Key Points to Ensure

- Preliminary Project Plan
  - Timing and scope
  - Resource allocation

- Acceptance Testing
  - Unit (individual modules)
  - Integration (inter-functionality of modules)
  - Interface (functionality between systems)
  - Stress testing
  - Live
  - Final (30 – 60 days post go-live)
Key Points to Ensure

- Compliance with HIPAA
  - Transaction standards
  - Security
  - Confidentiality (Business Assoc. Agreement)

- Compliance with CHI Standards

- Ownership of Data
  - Non-proprietary, readable format, e.g., XML
  - Data can be converted to another system
Key Points to Understand

- Minimum Hardware Specs
- Practice’s Responsibilities
- Ways vendor can terminate agreement and make contingency plans
What’s included in your contract?

- Implementation & Training
  - What are costs?
  - What resources are provided?
  - How many hours included?
  - What else is included?
    - Project plan
    - Training and user documentation
    - Implementation guides
  - Who covers expenses, e.g., travel?
  - What if more assistance is needed?
  - Cost for customizations?
What’s included in your contract?

- Interfaces
  - What interfaces will be provided?
  - What are costs for each?
  - What is included, e.g., specifications, development hours, etc.?
  - What if additional hours needed?
  - Who pays for modifications?
  - Who will troubleshoot when it goes down or there are errors?
  - Who is responsible for upgrades?
What’s included in your contract?

- **Support Agreement**
  - Level of support provided
    - Normal hours
    - Response time
    - Services included
  - Cost for additional or increased support
    - After hours, weekends, and holidays
    - Increased response time
    - Local or onsite assistance
  - Who is responsible for upgrades, patches, etc.?
What’s included your contract?

- Third Party Software/Content
  - Additional costs
  - Additional licenses required
  - Responsibilities for support and upgrades
  - Restrictions on use
eHealth Initiative EHR Master Quotation Guide

Introduction

The purpose of the eHealth Initiative Master Quotation Guide (“Guide”) is to assist small- to medium-sized medical practices in comparing the costs of electronic health record (EHR) vendors. It is intended to help physicians, clinicians, practice administrators and other decision makers compare quotations and bids from vendors for EHR software, implementation and training services as well as support and maintenance.

This guide was made possible by grant number 1D1BTM00095-01 from the Office for the Advancement of Telehealth (OAT), Health Resources and Services Administration (HRSA). The contents are solely those of the author and do not necessarily reflect the official view of HRSA/OAT. This guide is for individuals who have already gone through an initial selection process, compared major features and functions, and are seeking to compare cost information from candidate vendors on an “apples to apples” basis. It is not a guide for comparing the functions and features of electronic health record applications.

The Guide was developed by a multi-stakeholder group including physicians, nurses, practice administrators, EHR vendors, labs, providers, lawyers, and other key players. This document is intended to provide a non-prescriptive description of the elements required to make final vendor selections.

How the Guide is Organized

The Guide is organized into a number of sections based upon the elements of an EHR software quote as well as EHR implementation services, maintenance and support. Hypertext links connect text or objects to one another and allow the reader to gain more information by clicking on the mouse when the cursor is on a highlighted section of text. This allows the reader to immediately jump to a different section of the Guide related to the highlighted material. The Guide also contains a glossary of definitions, examples of common terms, and “red flags” or areas of concern. There is also a Frequently Asked Questions (FAQs) section that contains brief responses regarding common questions regarding the specific cost category. Also included are a bibliography and examples of master quotations.

The Guide sections include the following:
The Guide sections include the following:

Master Quotation

1. **Vendor Software** - this section includes costs related to the basic and optional modules of an EHR product, licenses and alternative service provider (ASP) user fees.
2. **Interfaces** - software which allows connection and communication to labs, pharmacies and other entities.
3. **Third Party Software** - this can be software for components of the EHR provided by other companies such as patient education materials, drug interactions and general system software (e.g., database or operating system software).
4. **Conversion Services** - costs of vendor to convert existing paper or electronic data to the EHR system.
5. **Implementation Services** - vendor services such as planning or readiness assessments, EHR & interface installations, project testing and project management.
6. **Training Services** - cost of customer training components from vendor.
7. **Data Recovery Services** - vendor services to back up data offline and recover data.
8. **Annual Support & Maintenance** - costs of the components of annual support based on varying levels of service support.
9. **Financing Alternatives** - costs of buy or lease options and terms of payment.
10. **Terms** - schedule of payments.

For each section of the Master Quotation, there are:

1. Red flags - issues of concern.
2. Frequently Asked Questions (FAQ's) - common questions and answers related to the master quotation.

Service Level Agreement
Final thoughts on contracts

- Does what you are purchasing meet your requirements?
- Have you done your due diligence on the vendor?
- Have your contract reviewed by your legal council
  - If they are not familiar with EHR vendor contracts find someone who is
## EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Planning</td>
<td>Develop goals &amp; barriers Identify opportunities Workflow redesign</td>
<td></td>
</tr>
<tr>
<td>IMPLEMENTATION</td>
<td>3. Selection</td>
<td>Understand and review available HIT/EHR options</td>
</tr>
</tbody>
</table>

*DOQ-IT*

**Delmarva Foundation**

*We don’t provide healthcare...we make it better.*
Questions?
Break time…back in 10 minutes!
Implementation

You have signed a contract, now what do you do?
EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Planning</td>
<td>Develop goals &amp; barriers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identify opportunities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workflow redesign</td>
</tr>
<tr>
<td>IMPLEMENTATION</td>
<td>3. Selection</td>
<td>Understand and review available HIT/EHR options</td>
</tr>
<tr>
<td></td>
<td>4. Implementation</td>
<td></td>
</tr>
</tbody>
</table>

ADOPTION

IMPLEMENTATION
What needs to be done to get the system up and running...
Incremental Approach

- Reduces “shock” to staff and physicians
- Spreads out costs of software and implementation over longer period
- Project less likely to ‘blow up’
- Total training, implementation costs may be higher
- ROI is not achieved as quickly
- More of a risk getting ‘stuck’ at midpoint
“Big Bang” Approach

- Shortens painful “parallel paper/EMR” operation period
- Achieves ROI more quickly
- Less likely to get “stuck” part way to the goal
- Higher risk of ‘blow up’
- Significant productivity hit at go-live and some time afterward
- Staff or physicians unable to cope with change may rebel
Critical Success Factors

- Executive Support/Sponsorship
- Physician and End-user Involvement
- Project Scope and Project Plan
- Communication
- Staff Training
- Testing
Implementation

- Preparation
- Workflow changes
- Paper to electronic
- Policies and procedures
- Scenario testing
- Device testing
Project Management
Components & Tools

- Project Scope and Plan
- Roles and Responsibilities Matrix
- Action Items and Risk Tracking
- Communications Process
- Measure Satisfaction/Quality
  - Sign-Off Milestones
Project Kick-off

- Communications
- Team Building
- Strategy for success
- Set expectations
- Validate practice readiness
Fitting the System to the Practice

- Workflow review
- Template building
- Alerts
- Interface specifications
- Reports
- Change management
  - Current vs. new workflow transition
Fitting the System to the Practice

- Hardware Installation
- System Configuration
  - Data Dictionaries
  - Templates
  - Workflow
  - Reports
- Interfaces Developed
Fitting the System to the Practice

- Policies and Procedures
  - Backup and Downtime
  - Support and Maintenance
  - Security

- Test Infrastructure Connectivity
  - Network
  - Database
Fitting the System to the Practice

- Test Interface(s)
  - PMS
  - Results
  - Orders
  - e-Prescribe

- Test Workflow Changes
Training the Practice on the System

- Make Training Mandatory for all Staff Members
  - Administrative Users
  - Physician End Users
  - System Support Users
- Devote sufficient time to training
- Develop super-users
- Do not overload staff during training
Training the Practice on the System

- Training Agenda Items
  - Day-to-Day Workflow Changes
  - Administration and Clinical Setup
  - Go Live Planning

- Create training documentation
Go-Live

- Rollout the system to site(s)
- Shadow staff operations
- Debrief, trouble-shoot, and fine tune
- Maintain an ongoing issues list
  - System/software issues
  - Internal issues
  - Workflow issues
  - Go-live and Post go-live
- Celebrate success and make it fun!
  - Have snacks to celebrate the go-live
Post Go-Live

- Transition to support
- Implementation evaluation
  - Lessons learned
- Add new features/functions
  - If incremental approach taken
# EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Planning</td>
<td>Develop goals &amp; barriers Identify opportunities Workflow redesign</td>
</tr>
<tr>
<td>IMPLEMENTATION</td>
<td>3. Selection</td>
<td>Understand and review available HIT/EHR options</td>
</tr>
<tr>
<td></td>
<td>4. Implementation</td>
<td>Prepare staff and office for EHR. Go Live!</td>
</tr>
</tbody>
</table>
Evaluation

Or, now that you are live…
# EHR Implementation Roadmap

## Adoption

<table>
<thead>
<tr>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Planning</td>
<td>Develop goals &amp; barriers Identify opportunities Workflow redesign</td>
</tr>
</tbody>
</table>

## Implementation

<table>
<thead>
<tr>
<th>3. Selection</th>
<th>Understand and review available HIT/EHR options</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Implementation</td>
<td>Prepare staff and office for EHR. Go Live!</td>
</tr>
</tbody>
</table>

## Care Management
# EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Planning</td>
<td></td>
<td>Develop goals &amp; barriers Identify opportunities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workflow redesign</td>
</tr>
<tr>
<td>IMPLEMENTATION</td>
<td>3. Selection</td>
<td>Understand and review available HIT/EHR options</td>
</tr>
<tr>
<td></td>
<td>4. Implementation</td>
<td>Prepare staff and office for EHR. Go Live!</td>
</tr>
<tr>
<td>Care Management</td>
<td>5. Evaluation</td>
<td></td>
</tr>
</tbody>
</table>
Now that the EHR is live:  
Is it meeting the goals you set during your assessment and planning phases?
Evaluation

- Conduct post-live review of:
  - Practice goals being met
  - Training needs
  - Workflow
  - Data capture
  - Reports
Evaluation

- An ongoing process
- Conduct post-live evaluation at determined intervals
  - Daily
  - Weekly
  - Monthly
  - Quarterly
Evaluation

- Did the practice meet their goals with installing EHR?
  - Not all goals will be met at live

- Who needs additional training?
  - Assess staff daily/weekly during initial live period to determine need for additional training
  - Are providers charting correctly?
Evaluation

- Are your new processes working?
  - Tweak
  - Trash
  - Try again!

- Is your staff adopting to the changes?
Evaluation

- How do you notify the staff that the patient is ready to be seen?
- Are the ALERTS appropriate?
- What about:
  - Referrals?
  - Prescriptions?
  - Reports from outside sources
Are you collecting the data you want?

- Does the system allow you to capture and report on the clinical data you want?
  - Assessment data
    - Vital signs
    - Tests performed
    - Pertinent history
  - Preventive data
    - Immunizations
    - Mammograms
Workflow Changes

- Are your charges being captured correctly?
  - Daily review of charges to ensure they are being captured for 30-60 days post live

- Are the reports telling you what you need to know?

- Now what happens to the paper chart?
  - How long do you keep it before sending to storage?
  - What do I do with all the paper reports that come into the office?
Scanning Patient Charts

- Did what you scanned meet your needs:
  - The whole chart?
  - The last three visits?
  - Only pertinent data?

- How much will you scan going forward?
  - Reports
  - Other documents
# EHR Implementation Roadmap

## Adoptions

### 1. Assessment
- Practice readiness: Physician(s), staff & office

### 2. Planning
- Develop goals & barriers
- Identify opportunities
- Workflow redesign

## Implementation

### 3. Selection
- Understand and review available HIT/EHR options

### 4. Implementation
- Prepare staff and office for EHR. Go Live!

## Care Management

### 5. Evaluation
- Production of ECI
- Implement workflows
IMPROVEMENT

The use of electronic clinical information...
### EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>Stage</th>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADOPTION</strong></td>
<td>1. Assessment</td>
<td>Practice readiness: Physician(s), staff &amp; office</td>
</tr>
<tr>
<td></td>
<td>2. Planning</td>
<td>Develop goals &amp; barriers Identify opportunities Workflow redesign</td>
</tr>
<tr>
<td><strong>IMPLEMENTATION</strong></td>
<td>3. Selection</td>
<td>Understand and review available HIT/EHR options</td>
</tr>
<tr>
<td></td>
<td>4. Implementation</td>
<td>Prepare staff and office for EHR. Go Live!</td>
</tr>
<tr>
<td><strong>Care Management</strong></td>
<td>5. Evaluation</td>
<td>Production of ECI Implement workflows</td>
</tr>
<tr>
<td></td>
<td>6. Improvement</td>
<td></td>
</tr>
</tbody>
</table>
Now that you are live... what to do with the data?
Video
Care Management

- A process which:
  - Assesses
  - Plans
  - Implements
  - Coordinates
  - Monitors, and
  - Evaluates the options and services to meet the health needs of an individual or a population of patients.
Your Practice can now...

- Track patient follow-up activities, patient compliance and patient progress
- Track patient health maintenance
- Support patient self management
- Increase patient education with online disease management tool
- Improve continuity of care and timeliness of diagnoses and treatment
Patient Care Report
Diabetes

Patient: John Smith    Birth date: 12/01/1930    Physician: Philip Mohler, MD

Blood pressure
Goal: less than 130/80

A1C
Goal: less than 7

LDL
Goal: less than 100

Weight

Last dilated eye exam:
05/16/05
Waterhouse

Last microalbumin/creatinine:
12/14/04
5

Patient taking aspirin or equivalent:
07/06/2005    Yes
Using Electronic Clinical Information (ECI)

A successful DOQ-IT practice must be able to do all of the following:

- Generate medication lists
- Generate problem lists
- Enter laboratory tests and retrieve results
- Select medications, print them out or transmit them to a pharmacy, and conduct safety checks
Using Electronic Clinical Information (ECI)

A successful DOQ-IT practice must be able to do all of the following:
- Identify specific patients by disease
- Produce reminders or prompts
- Develop patient-specific care plans

In at least two of the following clinical areas:
- Diabetes
- Hypertension
- Coronary Artery Disease
- Congestive Heart Failure
- Preventive Services
Individual Patient Care Management

- Improve the availability, timeliness, and accuracy of communication among health care providers
- Point-of-care decision support
- Rapid and remote access to patient information
- Easier chronic disease management
- Integration of evidence-based clinical guidelines
<table>
<thead>
<tr>
<th>Active Problems (4 of 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key</strong></td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>Act.</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Outpatient Medication Details

PRAVASTATIN TAB 20MG
TAKE ONE TABLET BY MOUTH EVERY 3 HOURS

Activity:
07/19/2005 13:37 New Order entered by DENAYE, ROBERT (ANALYST)
Order Text: PRAVASTATIN TAB 20MG
TAKE ONE TABLET BY MOUTH EVERY 3 HOURS
Quantity: 720 Refills: 3
Nature of Order: ELECTRONICALLY ENTERED
Elec Signature: DENAYE, ROBERT (ANALYST) on 07/19/2005 13:38
07/19/2005 13:38 Change entered by DENAYE, ROBERT (ANALYST)
Changed to: PRAVASTATIN TAB 20MG
TAKE ONE TABLET BY MOUTH EVERY 3 HOURS
Quantity: 720 Refills: 3
Nature of Order: SERVICE CORRECTION
Signature: SERVICE CORRECTION TO SIGNED ORDER

Current Data:
Treating Specialty:
Ordering Location: DR OFFICE
Start Date/Time: 07/19/2005
Stop Date/Time: 07/20/2006
Current Status: ACTIVE
Order #: 27

Order:
Medication: PRAVASTATIN TAB 20MG
Instructions: 20MG ORAL Q6H
Sig: TAKE ONE TABLET BY MOUTH EVERY 3 HOURS
Days Supply: 90
Quantity: 720
Refills: 3
Pick Up: WINDOW
Dispense Drugs (units/dose): PRAVASTATIN 20MG
Last Filled: 7/19/05
Refills Remaining: 3
Filled: 7/19/05 (Window)
Prescriptions: 7
Message taken by:

Purpose of Call:

Plan:

[X] Come to office
[ ] Go to ER
[ ] Call Back
[ ] Call Urgent Care

Active Outpatient:

Active Outpatient

1) ACETAMINOHEN
   MOUTH BY
   [ ]
   [ ]
   [ ]
   [ ]
   [ ]
   [ ]

2) ASA/BUPRENOR
   TWICE A
   [ ]
   [ ]
   [ ]
   [ ]
   [ ]
   [ ]

3) PRAVASTATIN
   HOURS
   [ ]
   [ ]
   [ ]
   [ ]
   [ ]
   [ ]

Patient Age: 3

Reminder Resolution: HF-1: LVF Assessment

DOQ-IT Measure clinical recommendations/rationale.

In patients with HF, an assessment of left ventricular systolic function (ejection fraction) or radionuclide ventriculography is recommended. In patients with heart failure and reduced ejection fraction, an event/treatment with significant effect on cardiac function, repeat assessment is recommended.
Reminder Resolution: HF-8: Warfarin Therapy

- DOQ-IT Measure clinical recommendations/rationale.
  - Anticoagulant use is recommended for patients with HF and concomitant diseases (e.g., paroxysmal or chronic atrial fibrillation or previous thromboembolic event.
- Check to insert lab results in your note

LAB HF8
  - No data available for HGB; PLT; PT

WARFARIN RESOLUTION ITEMS:

- Order for Warfarin placed.
- Warfarin therapy is not appropriate for this patient for the following reason:

LAB ORDERS:
- Lab order for PT placed.
- Lab order for platelet count placed.
- Lab order for hemoglobin placed.

HF-8: Warfarin Therapy:
- DOQ-IT Measure clinical recommendations/rationale.

Health Factors: HF8 FACTOR
Orders: PT, WARFARIN

*Indicates a required field
150
Population Management

- Target specific patients with special care needs (immunization, treatments, tests)
- Aggregate data on all patients to look for overdue interventions
- Stratified patients by risk or conditions
- Obtain population reports and profiles
- Provide feedback to healthcare providers
Population Management

- Segment the patient population to administer tailored educational interventions
- Use simple statistics to characterize the practice needs and patients demands

(Note: make sure that the EHR system that you are buying has population management functionality. Not all EHR systems have these features)
## EHR Implementation Roadmap

<table>
<thead>
<tr>
<th>ADOPTION</th>
<th>1. Assessment</th>
<th>Practice readiness: Physician(s), staff &amp; office</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Planning</td>
<td>Develop goals &amp; barriers Identify opportunities Workflow redesign</td>
</tr>
<tr>
<td>IMPLEMENTATION</td>
<td>3. Selection</td>
<td>Understand and review available HIT/EHR options</td>
</tr>
<tr>
<td></td>
<td>4. Implementation</td>
<td>Prepare staff and office for EHR. Go Live!</td>
</tr>
<tr>
<td>CARE MANAGEMENT</td>
<td>5. Evaluation</td>
<td>Production of ECI Implement workflows</td>
</tr>
</tbody>
</table>
Acknowledgements

- Centers for Medicare and Medicaid Services
- Lumetra, QIO for California
- New Mexico Medical Review Association
- eHealth Initiative
- VistA Office
Suggested Readings/References


- Kilo, Charles M, MD, MPH, Leavitt, Mark, MD, PhD, FHIMSS *Medical Practice Transformation with Information Technology*. HIMSS, 2005

- Wasson, John, MD, Benjamin, Regina, MD, MBA *How’s Your Health?* FXN Corporation, 2005.
Questions?
Contact Information:

dojitdelmarva@dfmc.org

Delmarva Foundation