Electronic Health Record (EHR)
Software Selection and Purchase

Understand practice needs and evaluate readiness for selection and purchase.

Michael Hodgkins, MD, MPH
AMA Vice President and Chief Medical Information Officer, Professional Satisfaction and Practice Sustainability, AMA

How will this module help me select the right software vendor?

1. Strategies and tactics to simplify software and vendor selection
2. Six steps to assist in successful selection and purchase
3. Answers to common questions and concerns
4. Tools to measure practice need and readiness
Introduction

What is EHR software selection and purchase?
This module outlines step-by-step strategies that can help ensure successful selection and purchase of an EHR for your practice. It includes comprehensive assessments for evaluating readiness for EHR adoption, understanding practice needs and selecting the right EHR vendor for your practice.

Why should we invest in EHR software?
Effective use of electronic health records is a key element in achieving the quadruple aim: improving the patient experience, improving the health of populations, reducing overall healthcare costs, and improving professional satisfaction. EHRs can improve the storage and management of charts and provide remote access to patient information. They can also help physicians successfully participate in quality payment programs, such as Meaningful Use and the Merit-Based Incentive Payment System.

Determine which EHR is best for your practice
There is no “one size fits all” approach to EHR adoption. The strategies presented in this module are intended to help physicians and staff make informed decisions about their EHR selection. Each practice should consider its own unique needs and resources when deciding which EHR works for them.

Q&A

Physicians in our practice are concerned that EHR adoption will negatively affect patient care. Why should we still consider it?
EHR adoption will undoubtedly change the practice by altering the current routines/workflows of physicians and staff. Adoption of EHRs provides a unique opportunity to 1) redesign the way patient care is provided in your practice and 2) electronically integrate with other departments (e.g., laboratory, radiology or pharmacy) as well as other physicians who provide care to your patients.

I hear that current EHRs have integration issues. Rather than waiting for these issues to be resolved, what are ways to mitigate these concerns when adopting an EHR?
Before purchasing an EHR, the practice should evaluate their needs, evaluate different EHR vendors and their products and confirm that the EHR the practice selects will have the necessary capabilities for future integration. The practice can work with external stakeholders such as local hospitals and laboratories to ensure that their EHR selection is compatible with other systems. Practices should also inquire about costs and any fees that are required...
to ensure integration. Even after installation, the practice may continue to work with the EHR vendor to optimize the system.

Six steps to a successful EHR selection and purchase

1. Use resources to make an informed decision
2. Determine practice needs
3. Determine EHR requirements
4. Select an EHR vendor
5. Assess financial capabilities
6. Negotiate key contract terms

Use resources to make an informed decision

Seek help to make an informed decision about EHR selection and purchase. Below are available resources to consider:

- Regional Extension Centers (RECs) can help physicians select, implement and demonstrate meaningful use of certified EHR software technology. They provide education, outreach and technical assistance to physicians in their service areas.
- Review the Office of the National Coordinator for Heath Information Technology (ONC) Playbook, which provides actionable steps and guidance to healthcare providers on how to implement and use health IT.
- Colleagues who have adopted an EHR can share experiences to help set and manage expectations.
- Local hospitals where physicians have privileges may provide special deals for purchase, service and support.
- National and specialty associations may offer guidance specific to the physician practice.
- The AMA has developed resources and partnerships to help physicians and practices navigate the health IT ecosystem.
- American EHR provides collated and organized health IT information to optimize decision-making among an online community of clinicians.
- The EHR user-centered design evaluation framework created by the AMA and Medstar, which increases transparency of EHR vendor usability processes.

Q&A

Where can I locate the nearest REC?

The Office of the National Coordinator for Heath Information Technology (ONC) has compiled a list of currently active RECs across the country.

Determine practice needs

There are two strategies for determining practice needs: measuring level of preparedness among physicians and staff and prioritizing practice needs.
Health IT readiness survey
(MS WORD, 55 KB)

A Measure level of preparedness

Circulate a readiness survey among staff to determine the state of health IT adoption, prerequisites for change, potential barriers, user needs, time-sensitive factors and appropriate next steps.

Q&A

Should our practice still consider adopting an EHR if results from the health IT readiness survey indicate that we are not ready to do so?

Yes, although not immediately. The practice should remain open to adopting an EHR in the future. Results from the health IT readiness survey can help physicians and staff identify aspects of the practice that need to be cultivated to increase or accelerate the level of preparedness. Staff meetings can serve as a platform for learning more about EHR options and discussing any reasons for reluctance to adoption. This type of team engagement activity can increase stakeholder buy-in, which is critical to a successful EHR adoption.

B Prioritize practice needs

Use a needs assessment to determine the most important and relevant characteristics of an EHR system for the practice. It can be helpful in determining whether EHR components/modules or a complete EHR software application is more appropriate for the practice. Identify critical areas of the practice that need to be prioritized as the practice begins using the new EHR.

Needs assessment for the practice
(MS WORD, 52 KB)

Before completing the needs assessment for the practice, consider:

- **Listing health IT currently used in the practice to select an EHR that has sufficient interoperability.** Some practices already use a variety of health IT for managing patient information and medical care, such as e-prescribing and practice management systems (PMS). Without sufficient interoperability, physicians and staff could perform redundant administrative work. For example, choosing an EHR that doesn’t integrate with your PMS technology might require duplicate data entry or that reports be generated from separate systems. EHR vendors will be able to provide information about the compatibility of their product with other systems.

- **Identifying health IT currently used by network providers and health care partners to select an EHR that can integrate or communicate with other systems.** Without this capability, some paper-based processes will remain unchanged even with an EHR. For example, instead of transmitting laboratory tests and referrals electronically, physicians and staff will still need to send them via fax.

- **Exploring local hospitals and health care systems that may be interested in partnering with the practice.** They may prefer a certain type of EHR and may be willing to subsidize and/or assist with adoption. Partnering with other groups may help the practice negotiate a lower-cost option.

- **Ensuring current IT infrastructure is secure.** All of your patients’ personal health information (PHI) will be stored electronically, which may require a more secure network than what is already in place. Work with IT and the EHR vendor you choose to secure patient information and adhere to HIPAA requirements.

“Identify EHR performance priorities in your practice #STEPSforward”
Q&A

Should we consider adopting an EHR if we will not qualify for Medicare or Medicaid EHR incentives?

Yes. Practices that adopt an EHR may have more opportunities to be successful in future payment or incentive programs. These may include participation in CMS’ new Quality Payment Program (QPP). Additionally, if you participate in a clinical registry, EHRs can help capture and report quality and other data to your registry. For more information on the QPP, please visit the module on quality reporting and QCDRs, the AMA’s MACRA resource page or CMS’ QPP website.

3 Determine EHR requirements

Select the type of EHR software and server host that will work best in the practice. Selection should be based on practice needs that are driven by current patient payment composition, level of preparedness and practice priorities.

A Choose between a modular and complete EHR

Decide whether to purchase a modular or complete EHR (see Figure 1). Some practices may want to purchase a complete EHR to attain the full benefits of replacing the paper chart, while others may only purchase the modules necessary to meet the requirements for meaningful use or the QPP (e.g., order entry, patient education and patient portal). For example, physicians and staff that are satisfied with their current PMS and other components, such as e-prescribing, may add modules rather than replacing the existing system.

Figure 1. Two types of certified EHR technology

Source: AMA. Health information technology. April 2011.

B Select a server host

Determine where practice and patient information will be hosted. There are three hosting options: self-hosted, software as a service (SaaS) and outsourced (see Figure 2). In the self-hosted option, the server is housed in the practice and managed by practice staff. In the SaaS-hosted option, also known as cloud-based EHR, the physician practice accesses the software through the Internet. There is no need to maintain, update or own the software. In the outsourced option, the server resides at the application service provider (ASP) location that is managed by a third party. The ASP may offer services such as software support, data backup and disaster recovery. The
EHR vendor may offer this option or have a partner who does. Each of the three server hosting options has advantages and disadvantages.

Your patients’ medical record data must be secure and protected from unauthorized access. You and a qualified attorney should also consider the following regarding HIPAA concerns, among others:

- Understand and clearly specify who is liable if the data is compromised.
- Understand that patient information may be compromised if it is co-mingled with that of other clients.
- Data should be encrypted and backed up.

**Figure 2. Three types of hosting options**

![Diagram showing three types of hosting options: Client computers, Servers, Devices.

**SELF-HOSTED**
Housed and managed by you

**OUTSOURCED**
Housed and managed by a third party

**SOFTWARE AS A SERVICE (SAAS)**
Internet-based software

Source: AMA. *Health information technology*. April 2011.

**Q&A**

What are some of the advantages and disadvantages of each server hosting option?

Cloud-based EHRs, also known as SaaS, are usually the least expensive option and may be particularly appealing to medical practices with limited IT resources or staff. Depending on the nature of the business, these EHRs can run using a simple web browser or a secure Internet connection. Since EHR information is often stored across a network of data storage centers, your Internet connection speed and uptime are important factors that will affect your overall EHR experience. Prior to making a cloud-based EHR purchasing decision, consider the following:

- How will latency or lag time affect your workflow?
- Are there alternatives to accessing your data during an Internet outage?
- How could performance be impacted when uploading larger files?

Client-server systems store data in-house, requiring that a server, hardware, and software be purchased, installed, and maintained in the physician's office. Traditionally, this been the way most medical practices deploy software in their clinics. Having the server onsite can allow for improved EHR performance and ensure access to the full, accurate record for all practice patients. However, more and more medical offices are moving away from hosting software applications onsite due to the expense as well as the need to
employ dedicated staff to monitor the system regularly. Additionally, technology upgrades and system failures can often impact the practice's ability to function normally for hours or even days.

A co-located EHR is essentially a mixture of SaaS and client-server options. Software and hardware are typically purchased and owned by the physician; however, the EHR is physically located outside the walls of the clinic and housed in a secured data center. Like SaaS, a co-located EHR is stored at a dedicated facility that provides a secured cage or cabinet, regulated power, dedicated Internet connection, and physical security and support. Like client-server systems, the maintenance, setup costs, and data security are the responsibilities of the physician's practice. Additionally, physical access to the server often requires travel to the data center.

In certain situations, co-locating an EHR can have its benefits. For instance, medical practices that have multiple locations, have limited space, or are in areas where natural disasters are frequent (i.e., tornado or earthquake zones) can benefit from locating their EHR server in a secure environment with redundant Internet connections and electricity. Internet speed, data backup and security are still considerations when co-locating an EHR server.

### Select an EHR vendor

Select a vendor that meets the needs of the practice. To do this, the practice must actively explore potential vendors, arrange vendor demonstrations to learn more about their product(s) and services, obtain proposals to better assess vendor capabilities and pricing and evaluate vendors to facilitate selection.

#### Explore potential vendors

Gather information and learn about different vendors. Some practices contact colleagues who have adopted an EHR for vendor referrals and/or to inquire about their experience selecting and working with the vendor. Other practices conduct phone interviews to learn more about what each vendor has to offer. There are also practices that conduct online research. Practices seeking to participate in Medicare or Medicaid quality reporting programs, such as the QPP or meaningful use, should consult the ONC website's comprehensive list of certified health IT products that can be used for these programs. Products that are not certified are generally not eligible for participation.

#### Arrange vendor demonstrations

Schedule vendor demonstrations to help physicians and staff test and evaluate the alignment of the EHR product with the needs of the practice. For example, if your practice plans to use EHR apps, ask vendors if their product supports EHR app technology. **To optimize the vendor demonstration experience, some practices provide vendors several workflow scenarios that are critical to their operations.** This allows the vendor to customize their presentation and product demonstration.

#### Q&A

**What are EHR applications or apps?**

In general, EHR apps are designed to allow you and your patients to use the data stored in an EHR in different ways. Just as the apps on your smartphone or tablet let you customize how you use those devices, EHR apps provide features and functions that are not already part of your EHR. For example, some apps allow you to visualize data in new ways while others help you create reports or connect to new sources of information. However, it is important to note that not all apps are created equal. Many apps will only work with a given vendor's proprietary EHR products. EHR "smart" apps, on the other hand, which share a new technology with certain participating EHR developers, can run across different EHR platforms.
and products that use this new technology. Apps that run across different EHR platforms are also referred to as reusable.

Do all EHRs support apps?

No. Some EHRs allow the use of a select group of apps, with this group differing by vendor. Most EHR apps will in fact only work with that vendor’s EHR products, and sometimes not even across the vendor’s different versions of software. Some EHR developers are adopting a new technology that allows the same app to run across different vendors’ EHRs. These reusable, interoperable “smart” apps make it easy to have the same EHR experiences—indeed independent of vendors or medical facilities—at all points of contact.

How do I know if my EHR supports reusable, interoperable “smart” app technology?

The only way to know if your EHR supports or will support the advanced reusable, interoperable “smart” app technology is to ask your vendor. For specific questions to ask vendors, download the reusable, interoperable “smart” RFP document. These same questions are also appropriate and valuable to ask if you are considering purchasing or upgrading an EHR. Remember, while some EHRs offer apps already, many of these apps are built only for that particular EHR product and do not incorporate emerging “smart” app technology. With the adoption of this new technology, EHR developers and vendors are taking an important step forward in improving the usability and interoperability of their products and systems.
Is there an “app store” for reusable, interoperable “smart” apps?

Yes. Smart Health IT, which is an open, standards-based technology platform, is the nonprofit group behind this new generation of interoperable “smart” apps that are reusable and interoperable. Visit gallery.smarthealthit.org to see their “app gallery”, which showcases some of the advanced uses of this new technology.

C Obtain EHR vendor proposals

Request proposals from the top three to four prospective EHR vendors. The practice may develop and distribute a request for proposal (RFP) to the vendors that clearly outlines EHR requirements and criteria for selection.

D Evaluate EHR vendors

Determine the capabilities of the EHR vendors’ products and services, and evaluate the level of alignment with the needs and priorities of the practice. Some practices use a vendor evaluation matrix to assess EHR usability characteristics and functions offered by each vendor. Examples of functions and characteristics include charting, prescription management, clinical tasking, orders and results management, decision support and health record management. Physicians and their staff may learn that some vendors have richer content, such as progress note templates or decision support logic. Some physicians and staff conduct site visits to practices that have successfully implemented similar systems. Visiting practices with a mature EHR is helpful for comparing services and overall product functionality.

Q&A

Are there tools for evaluating EHR usability characteristics and functions?

Yes. The Health Information Technology Research Center (HITRC) and the Vendor Selection and Management Community of Practice have developed an EHR Evaluation Matrix Tool, which can be useful for comparing vendors that best align with the priorities of the practice. The AMA and HIMSS (Health Information and Management Systems Society) have also published usability principles that are designed to guide EHR vendors in creating systems that support physicians in delivering safe, quality patient care.

Assess financial capabilities

Assess financial capabilities to better select an EHR that can create long-term practice sustainability. To do this, the practice must determine the cost of total ownership, explore financing options and conduct due diligence.

A Determine costs

Determine the total cost of ownership to assess the impact of each EHR option in the practice.
This involves calculating:

- The capital cost of *hardware and software licenses*, such as desktop computers and mobile workstations
- Ongoing expenses such as software *maintenance and/or service fees*
- The cost of *physician and staff time and materials* needed to learn new system features and implement practice-wide procedures
- The expense of an *implementation support provider* that can help physicians and staff effectively and efficiently use the new EHR during adoption
- The expense associated with connecting the new EHR to registries, health information exchanges, or other tools that the practice may be using to track patient outcomes and perform quality reporting
- The cost of migrating data into the new system
- The cost for appropriate privacy and security measures to ensure compliance with state and federal laws

**Q&A**

**What is the typical cost of purchasing and installing an EHR?**

According to the ONC, EHR purchase and installation can cost $15,000 to $70,000 per provider. The Michigan Center for Effective IT Adoption, one of the RECs funded by the ONC, developed a [chart](#) that provides estimated average upfront cost, annual cost and five-year total cost of ownership for both self-hosted and cloud-hosted EHR servers. According to their estimates, a self-hosted option averages $33,000 in upfront costs and $4,000 in annual costs while an SaaS option averages $26,000 in upfront costs and $8,000 in annual costs.

**Explore financing options**

Explore options for financing the EHR purchase. Some states offer low interest loans and local banks may offer business loans. Vendors sometimes offer low- or no-cost financing. Local foundations may provide grants. In addition, local hospitals and health care systems that are interested in partnering with the practice might consider subsidizing or assisting with implementation.

**Conduct due diligence**

Conduct due diligence before signing the vendor contract. EHR vendors may not clearly define the total cost of an EHR purchase. Rather, they may charge numerous fees for specific products and services. Therefore, it is important for the practice to thoroughly review the vendor’s contract. The Texas Medical Association has compiled a [list](#) of fees to watch for when reviewing the EHR contract. These include:

- Licensing fees
- Equipment and third-party software fees
- Maintenance fees
- Professional services fees
- Implementation services fees
- Interface fees
- Fees for additional features

In addition, there may be fees associated with software fixes, upgrade charges and customization charges to fix problems or make the EHR more usable. It is strongly recommended that the practice defer to an attorney who can help ensure the practice is protected in the event something goes wrong with the purchase and that an exit clause protecting the practice’s interests is clearly outlined.
Negotiate key contract terms

Negotiate the terms of your contract with the selected EHR vendor. Together with a qualified attorney, develop a definitive negotiation strategy that takes into consideration practice circumstances and resources, the vendor’s standard contract terms, state and federal laws, and your willingness to walk away if both parties can’t agree on terms. In addition to cost, you should negotiate additional services and support with the vendor. To maximize performance and minimize practice risk, include specific contract terms around vendor support and financial consequences during system downtime and failure and ongoing maintenance and performance monitoring. Uptime warranties and/or service level agreements are also helpful in protecting your practice from excessive downtime or less than optimal performance. Consider termination clauses and how patient data transfers to another EHR system will occur in the event the contract is terminated. You may also consider formally outlining responsibility for staff training during implementation and for future upgrades. A HIPAA business associate agreement between your practice and the vendor is also essential. For additional support in contracting with your EHR vendor, review the “EHR Contracts Untangled” guide from the Office of the National Coordinator for Health Information Technology.

Conclusion

Selecting the right EHR software and vendor requires careful consideration about your practice’s needs, EHR requirements and budget. Using this module as a guide will help you make informed decisions to ensure that you purchase the right EHR system for your practice. Once the EHR is purchased, the practice can start looking forward to implementing the new system.

Introduction:
Increasing administrative responsibilities—due to regulatory pressures and evolving payment and care delivery models—reduce the amount of time physicians spend delivering direct patient care. Technology can make some processes more streamlined (e.g., billing and accessing patient historic data), and it can also make certain processes more cumbersome (e.g., documenting a multifaceted patient visit). Deciding to use an electronic health record (EHR) in the clinic setting can be a challenging conclusion for physicians. Pressures from government and regulatory agencies continue to grow as technology becomes an increasingly important element of providing safe, high quality patient care. EHR selection and purchase will guide physicians and their teams through the process of choosing which EHR will work best for their practice and patient needs.

Learning Objectives:
At the end of this activity, you will be able to:
1. Identify available resources to make informed decisions and list the two strategies for determining practice needs
2. Describe how to select the type of EHR software and server hosts that will work best in your practice
3. State how to select the most appropriate EHR vendor and the importance of contract negotiation
4. Explain how to assess financial capabilities to select an EHR that can lead to long term practice sustainability

Release Date:
March 2015
End Date: March 2020

Accreditation Statement: The American Medical Association is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Article Information

AMA CME Accreditation Information

Designation Statement: The American Medical Association designates this enduring material activity for a maximum of 1.00 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Target Audience: This activity is designed to meet the educational needs of practicing physicians.

Statement of Competency: This activity is designed to address the following ABMS/ACGME competencies: practice-based learning and improvement, interpersonal and communications skills, professionalism, systems-based practice, interdisciplinary teamwork, quality improvement and informatics.

Planning Committee:

- Kevin Heffernan, MA – AMA CME Program Committee
- Michael Hodgkins, MD, MPH – AMA Vice President and Chief Medical Information Officer, Professional Satisfaction and Practice Sustainability, AMA
- Ellie Rajcevich, MPA – Practice Development Advisor, Professional Satisfaction and Practice Sustainability, AMA
- Sam Reynolds, MBA – AMA Director, Professional Satisfaction and Practice Sustainability
- Christine Sinsky, MD – Vice President, Professional Satisfaction, American Medical Association and Internist, Medical Associates Clinic and Health Plans, Dubuque, IA
- Rhoby Tio, MPPA – AMA, Senior Policy Analyst, Professional Satisfaction and Practice Sustainability

Author Affiliations:

- Michael Hodgkins, MD, MPH, AMA Vice President and Chief Medical Information Officer, Professional Satisfaction and Practice Sustainability, AMA

Faculty:

- Kenneth Adler, MD, MMM, Chief Medical Officer, Arizona Community Physicians; Cynthia Brown, AMA VP, Government Affairs; Marie T. Brown, MD, FACP, General Internist, Rush University Medical Center; Jennifer Brull, MD, FAAFP, Family Physician, Post Rock Family Medicine; Robert Hash, MD, MBA, AMA Assistant Secretary Liaison Committee on Medical Education, Associate Director Undergraduate Medical Education, Medical Education; Thomas P. Healy, JD, AMA, Vice President and Deputy General Counsel; Michael Hodgkins, MD, MPH, AMA Vice President and Chief Medical Information Officer, Professional Satisfaction and Practice Sustainability, AMA; Wyatt Packer, MHA, Program Director for the NV-UT Regional Extension Center for Health IT, HealthInsight; Jeffrey Panzer, MD, Medical Director, Oak Street Health; Ellie Rajcevich, MPA, Practice Development Advisor, Professional Satisfaction and Practice Sustainability, AMA; Sam Reynolds, MBA, AMA Director, Professional Satisfaction and Practice Sustainability; Christine Sinsky, MD, Vice President, Professional Satisfaction, American Medical Association and Internist, Medical Associates Clinic and Health Plans, Dubuque, IA; Christian Tashjian, MD, FAAFP, Family Physician, Vibrant Health Family Clinics; Rhoby Tio, MPPA, AMA, Senior Policy Analyst, Professional Satisfaction and Practice Sustainability; Matthew Wynia, MD, MPH, FACP, AMA Director, Physician and Patient Engagement, Improving Health Outcomes
About the Professional Satisfaction, Practice Sustainability Group: The AMA Professional Satisfaction and Practice Sustainability group has been tasked with developing and promoting innovative strategies that create sustainable practices. Leveraging findings from the 2013 AMA/RAND Health study, "Factors affecting physician professional satisfaction and their implications for patient care, health systems and health policy," and other research sources, the group developed a series of practice transformation strategies. Each has the potential to reduce or eliminate inefficiency in broader office-based physician practices and improve health outcomes, increase operational productivity and reduce health care costs.

Renewal: 03/17/2016

Disclosure Statement:

The content of this activity does not relate to any product or services of a commercial interest as defined by the ACCME; therefore, neither the planners nor the faculty have relevant financial relationships to disclose.

References