

# Best Practices

A guide for improving the efficiency  
and quality of your practice

## 7

### Successful Preparation and Implementation of an Electronic Health Records System

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Selecting, purchasing, and implementing an electronic medical records (EMR) or electronic health records (EHR) system is one of the most complex and resource-intensive activities any medical practice can undertake. Despite advances in technology, even with the best planning and preparation, problems will undoubtedly arise. Experience has shown that firm resolve and commitment is necessary to withstand these pressures. Key to maintaining this resolve is appreciation of the business case for adopting an electronic health records system.

### EMR VS. EHR

Many people use the terms EMR and EHR interchangeably. So what is the difference?

In general, EMR systems replace the paper medical records or charts maintained within a physician's practice. EMR systems, which have been around for many years, can range from the scanning and digitizing of paper records and medical charts to more complex systems.

Electronic health record, or EHR, refers to systems that go beyond simply providing an electronic form of a medical record. An EHR is a comprehensive health record and includes the following:

- **Interoperability:** the ability to exchange information with other sources—for example, to order laboratory tests and integrate results directly into the record.
- **Decision support:** the ability to use information about the patient within the EHR in combination with external information (such as diabetes care guidelines) to guide the physician in patient care. Decision support can also include warnings and alerts such as a potential drug interaction during the prescription-writing process.
- **Continuity of care:** the ability to exchange and interface patient clinical data with other health care providers such as hospital emergency departments or specialists and provide patients with their own personal health record.

Through these features, EHRs can provide increased communication, coordination, and decision support. Additional benefits include reduced medical errors, improved quality of care, and saving of physician time<sup>7,8</sup>. By reducing errors, improving timely physician access to necessary patient information, reducing adverse drug events, and providing clinical decision support, EHRs can improve quality of patient care.

For these reasons, this chapter will focus on EHRs rather than EMRs. We will discuss the steps you should take to determine whether an EHR is right for your practice and if so, how you can avoid mistakes commonly made during the selection and implementation phases.

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<sup>7</sup> Berman, Jeff. "Safety Centers and EMRs." *Health-IT World*, 2004. Available at <http://www.health-itworld.com/emag/050104/183.html> (accessed August 11, 2004).

<sup>8</sup> Hier, Daniel, Adam Rothschild, Anne LeMaistre, and Joy Keeler. "Differing Faculty and House Staff Acceptance of an Electronic Health Record." *International Journal of Medical Informatics* 74, no. 7/8 (2005): 657-662.

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## WHAT IS A BUSINESS CASE?

Most medical practices don't think in terms of business strategies, return on investment, long-term cash flow analysis and projection, etc. They should, however, because implementing an EHR is one of the most important business decisions a practice can make.

A business case is a set of considerations that justify a particular business strategy, investment, or process. It is the rationale for a particular business decision. Because of the complexity and cost involved with electronic systems, it is imperative that medical practices identify the business cases for such a significant business decision. Throughout the implementation, medical practices may need to remember and rearticulate the business case in order to make necessary decisions.

Here are potential business cases for implementing an EHR in the current environment:

1. Reducing office staff time spent looking for paper charts.
2. Providing access to medical records anywhere and anytime.  
This can improve quality and continuity of care along with efficiency, notably, for example, for an on-call physician or a multiple-location practice.
3. Improving legibility of medical records. Illegibility of the paper record alone can cause errors. Handwritten and hard-to-read notes are replaced by computerized text.
4. Accessing drug recall or other patient alerts based on criteria such as the prescription medications the system has on file.
5. Reducing filing time by automatically loading laboratory results and other diagnostic tests.
6. Reducing filing time and paper-handling by scanning documents and appending or attaching to the medical record.
7. Reducing time spent filling out forms and tracking and managing prescriptions, laboratory results, or diagnostic test orders.
8. Reducing time spent copying records for the numerous records and access requests/transfers a practice receives.

Business cases for implementing an EHR in the future or with emerging best practices:

1. Implementing evidence-based practices using clinical guidelines and other data.
2. Improving patient safety and quality improvement.
3. Ability to review quality metrics and report data to health insurers' pay-for-performance programs.

4. Increasing the ability to share information with health information exchanges and health information networks (such as an immunization registry or a regional health information network).
5. Improving the ability to analyze patient populations and participate in clinical trials.

All of the above business cases point to the most important business case, which is the ability to improve quality of care.

A discussion about EHR preparation is not complete without reviewing how practice management (PM) software fits in. Most EHR vendors now include an integrated PM module that incorporates billing and collections or, at a minimum, can create an interface with your PM system. Without an integrated billing and collections module or interface, your practice will be forced to perform dual entry of patient demographic and billing information, which can be a significant drain on staff time.

## THE EHR IMPLEMENTATION PROCESS

Many practices have staff who are already overwhelmed and find their administrative overhead steadily increasing. Commonly, offices struggle to keep up with the tremendous demands of third-party payors, referral management, scheduling, and paperwork.

It is also a challenge for many practices, especially those in rural areas, to recruit, train, and retain qualified and experienced staff. Selecting and implementing an EHR system can place additional strain on staff and resources. If practices don't plan for this change, they will likely create more work and defeat the intended purpose of increasing efficiency. Experience has shown that a multistep process is the best way to plan for change, including:

- Performing a needs assessment
- Performing a readiness assessment
- Performing a work flow analysis
- Creating your road map for selecting and implementing a system

In this chapter, we will walk you through each of these steps.

## THE BEST WAY TO DO A NEEDS ASSESSMENT

Performing a needs assessment is your first step in the EHR selection and implementation process. It is a step that won't be finished until you complete two additional steps: the readiness assessment and the work flow analysis.

The needs assessment has one primary purpose: to help you clearly define what you need in an EHR. In the process, you may discover that your needs can be met without an EHR, perhaps by improving your business processes or use of forms or improving your current technology and computer systems.

The best way to complete a needs assessment is to involve all the “stakeholders” who will ultimately use the EHR. This is sometimes known as a “facilitative” process because it facilitates feedback from all involved people. It not only assures that you will have appropriate feedback and information; it also creates a sense of ownership and involvement in the process, which may improve physician and staff buy-in and use of the system later on.

Stakeholders include just about everyone in a typical physician practice:

- Office managers or administrators
- Front desk and scheduling personnel
- Billing and collections staff
- Filing staff
- Medical assistants or nurses
- Physicians, nurse practitioners, and physician assistants; as well as other health care providers, if applicable
- Your billing service, if you use one
- Your computer support staff, if applicable

Performing the needs assessment is relatively straightforward. Once your team is assembled, ask all participants to describe how they believe an EHR will improve their job and what they believe they need from a system. Some people may not have seen an EHR before and won't know how to describe potential benefits of implementing one. Some practices find it valuable to have a web-based demonstration of one system just to get an overview, or to visit a colleague who is already using an EHR.

## COMPLETING A READINESS ASSESSMENT

The next phase of preparation is a readiness assessment. This is a very important step and should not be overlooked. Many practices have done a good job defining their needs and selecting an appropriate vendor, only to fail in their implementation because they were not ready. Sometimes the readiness assessment will reveal enough deficiencies in the practice to warrant either delaying or discontinuing your search for an EHR until the deficiencies are addressed and resolved.

The readiness assessment looks at both your internal and external environment. Below are some areas you should

evaluate. Use this as a guide and add any other readiness questions that may be appropriate for your practice. The answers can help you determine your EHR “road map” (described in the next section) or decide whether or not to move forward with an EHR. They can also help you figure out whether to resolve some or all of these readiness issues before proceeding or concurrently with implementation.

A readiness assessment involves asking yourself the following questions:

### 1. What is the financial status of the practice?

**Why this is important:** If your practice is having a cash flow problem and finding it difficult to keep up with bills, or the physicians have not yet been able to achieve projected earnings, then purchasing an EHR will only compound the situation. Similarly, if you have a financial challenge on the horizon (perhaps you are planning to hire a new physician and subsidize the salary until that person can pay his or her own way), an EHR may not be the best purchase for your practice at this time.

#### Considerations:

- Is there a significant identifiable accounts receivable problem?
- Are financial challenges on the horizon?
- Can the practice afford an EHR?

### 2. What is the practice's strategic plan?

**Why this is important:** If acquiring and implementing an EHR is not part of your strategic plan, you may need to consider delaying or reprioritizing.

#### Considerations:

- Are there competing corporate priorities such as practice merger/acquisitions or affiliations?

### 3. Are you implementing other technology?

**Why this is important:** Implementing other technology (for example, a new diagnostic device or practice management system) may require significant staff resources for a period of time. It may not be wise to place competing demands on already limited staff by concurrently implementing an EHR.

#### Considerations:

- What kind of technology is being implemented?
- How much staff time or resources will be allocated for implementation of the other technology?

#### 4. Are there any major staffing changes on the horizon?

**Why this is important:** Any change of key physicians or staff can be a strain on a practice, and an EHR project could wind up creating a competition for resources. Training staff to use an EHR as they prepare to leave the practice is also problematic. And the stress of losing or replacing a physician, office manager, or key billing person makes concurrent implementation of an EHR impractical.

**Considerations:**

- Which staff or physicians are leaving?
- What role do they play in the practice?
- What is the retirement or leave date?
- Do you have a succession plan in place?

#### 5. Is the practice understaffed today?

**Why this is important:** If the practice is understaffed today, introducing a new EHR system will compound that problem, and failure of implementation could result.

**Considerations:**

- In what areas is the practice understaffed?
- Do you have plans to hire new staff?

#### 6. Where will the new computer server be placed? Is there enough room for any additional equipment?

**Why this is important:** Often a practice's existing server sits in a closet that is not air-conditioned and has inadequate power. An EHR system may entail bigger servers and more workstations. The server certainly must operate in an air-conditioned environment with enough space to be accessible to support personnel.

The server location must also be physically secured and protected from unauthorized access.

**Considerations:**

- Is there adequate space?
- Is there adequate power?
- Is the facility capable of additional cabling for computers (i.e., asbestos or mortar walls)?
- Do you have ergonomic furniture to support computer workstations? Will you need to adjust heights of desks or chairs?
- Is there fire suppression for the computer servers?
- How is the power quality and reliability in your area?
- Do you have power backup?
- Is there adequate air-conditioning?

#### 7. Are your existing charts ready for conversion?

**Why this is important:** Usually a practice will develop some form of conversion plan for existing charts. If the charts currently are out-of-date or too thick, you might consider reviewing them before implementing an EHR. Thinning of the chart might immediately bring some relief in terms of space and ease of filing for new information in the physical chart. However, before you discard any medical

## THE IMPORTANCE OF COMPLETE MEDICAL RECORDS

Incomplete medical records can also jeopardize a physician's ability to obtain proper reimbursement. With increased cost containment efforts by third-party payors, physicians' medical records are subject to increased scrutiny. Incomplete medical records also interfere with other physicians' ability to perform peer review and therefore maintain the quality of health care delivery, exposing a physician to possible disciplinary action or severe sanction by outside review agencies. Finally, medical records are often a physician's best evidence in a professional liability lawsuit, and inadequate records may undermine the ability to defend oneself. ❁

### ON CALL

For more information on medical record retention and contents of medical records, see CMA ON CALL Document #1160, "Retention of Medical Records" and Document #1135, "Contents of Medical Records."

record information, we strongly recommend you consult with an attorney or your malpractice carrier or both. Medical records serve as a basis for planning and maintaining quality of patient care and when patient records are devoid of important information, other treating physicians and health professionals may remain unaware of important aspects of a patient's condition. Additionally, if medical records are to be destroyed, precautions should be taken to protect the privacy of this information. It is a violation of the Confidentiality of Medical Information Act to negligently dispose of, abandon, or destroy medical records in a manner that fails to preserve their confidentiality (Civil Code §56.101).

#### Considerations:

- Are you out of space at this point in time, or will you be soon?

### 8. Do you have plans to relocate?

**Why this is important:** If your practice is about to relocate, seriously consider postponing the new-system implementation until after the move. Relocation demands significant staff and management resources.

#### Considerations:

- When do you plan to relocate?
- Does the new facility have enough room for any additional equipment?

### 9. Do you have physician champions for the EHR?

**Why this is important:** It is essential to have as many physician champions as possible who will lead or support the cause for implementing an EHR. Often practices include some physicians who want to move ahead with this change and others who find it difficult to give up old ways of doing things—making implementation very challenging. Moreover, staffers may feel anxious that the EHR will replace their jobs, which creates some tension and opposition.

#### Considerations:

- Do champions exist?
- Do you anticipate resistance?

*External environment readiness factors:*

### 10. Do you have quality high-speed Internet connectivity?

**Why this is important:** High-speed connectivity is essential for data exchange, such as electronically receiving laboratory results.

#### Considerations:

- Is redundant high-speed connectivity, such as DSL or cable, available in your area?
- Is it affordable?

### 11. Is your IPA or area hospital offering a discounted or subsidized EHR?

**Why this is important:** If you belong to an independent physician association (IPA) or network, it may offer a discounted solution. Similarly, some hospitals offer discounted or subsidized systems and may also provide implementation and hosting support.



**Considerations:**

- Does the discounted or subsidized EHR include an integrated practice management system?
- Are there any drawbacks to the deal?

**PERFORMING A WORK FLOW ANALYSIS**

Concurrent with the readiness assessment, you should begin the work flow analysis. A work flow analysis involves reviewing how your practice completes the work associated with the patient encounter and all related components. Some examples:

1. Scheduling the initial visit
2. Scheduling follow-up visits
3. Scheduling referrals or diagnostic tests
4. Receiving and reviewing tests or referral results
5. Prescribing medications and handling refills
6. Entering clinical notes
7. Billing and collections

The work flows or processes in your practice require information intake as well as output. Some examples:

Information you may obtain from patients and enter into their medical records:

- Demographic and billing information
- Medical history form, list of current medications, etc.
- Forms the patient signs that are then filed, such as the HIPAA acknowledgment of receipt of the Notice of Privacy Practices, a waiver form, informed consent, and so forth
- Provider notes, including vital signs, chief complaint, and notes from the examination/consultation and assessment/plan
- Documentation of calls to verify insurance eligibility and benefits, which is entered into the billing software
- Copies of prior medical records

Information you may export from the patient's chart:

- Referral forms for diagnostic services, such as reference laboratory requisition forms or radiology referral forms
- Referrals to other physicians or health care providers
- A report or narrative to send to the referring physician
- Prescriptions
- Referral authorization forms to send to the health insurer

**HIPAA AND ELECTRONIC HEALTH RECORDS (EHR)**

Implementing an EHR often requires a new evaluation and assessment of existing HIPAA privacy and security practices. This assessment must focus on whether existing safeguards are sufficient or in need of improvement. Many practices currently have weak HIPAA compliance plans in place or have allowed their HIPAA compliance plans to lapse. This problem can be exacerbated by implementation of an EHR.

EHR systems greatly expand vulnerabilities of protected health information. In a paper-based practice, a chart or medical record must be physically accessed in order to be compromised. Since there is only one "copy" of the record available, it can be guarded and protected from unauthorized access with relatively simple safeguards (locking the office, locking the chart racks, restricted access after-hours, and so forth).

With paper charts, identity thieves seeking to steal all your paper records to extract Social Security numbers or info on health status or benefits would need to find a way to break into your facility undetected and probably use a truck to cart away all the charts. With an EHR they can simply break in and steal the computer server, or if you use an unencrypted or weakly encrypted wireless system to transfer information internally, they can park nearby and hack into your system using wireless Internet access.

It is very important to be wary of any vendor's claim that a system is "HIPAA compliant." It is not possible for a system itself to be HIPAA compliant. Only a covered entity such as a physician can be "HIPAA compliant." A covered entity is an organization that, by virtue of providing health care services and billing for them using electronic means, is subject to the provisions of HIPAA. The vendor's EHR can simply help your practice be HIPAA compliant by offering a high level of security or allowing you to quickly identify whether, for example, the Notice of Privacy Practices has been given to the patient. So while a system's features and capabilities are important, equally important is your own implementation and configuration of its features and capabilities. For more information on determining whether an organization or individual is a covered entity under HIPAA, visit CMS's website at <http://www.cms.hhs.gov/HIPAAGenInfo/Downloads/CoveredEntitycharts.pdf>.

You can simplify the work flow analysis by breaking it down into typical classifications of patient encounters. These classifications are called domains. Each domain has its own set of processes that can be mapped. For example:

- New patient for well visit or preventive care
- New patient for sick or problem-oriented visit
- Established patient for chronic condition periodic care
- Established patient for a sick or problem-oriented visit
- Patient medication management including refills
- Patient billing, calls, and interaction

## ON CALL

For a more in-depth discussion on HIPAA, please see CMA ON CALL Documents #1603, “HIPAA ACT SMART—Introduction to the HIPAA Privacy Rules,” #1600, “HIPAA Security Rule,” and #1606, “HIPAA Electronic Transaction Rule.”

## WHY DO A WORK FLOW ANALYSIS?

The work flow analysis will create a baseline for each patient encounter, domain, or process. This baseline can identify:

1. Time taken per task
2. Labor or personnel resources per task
3. Information needed to complete the task
4. Difficulties receiving this information in a timely manner
5. Information that must be generated and sent out for each task
6. Difficulties generating or sending this information
7. Errors that may occur while performing these tasks
8. Other obstacles

By analyzing each domain, a medical practice can identify problems and possible solutions. Often the solutions do not require computerization or EHR systems, but may be corrected by other system changes such as use of chart note templates, improved document management, or even better transcription systems.

Ultimately, the benefit of the work flow analysis is to ensure you don't apply a computer solution to a broken process. Applying a computer solution to a business process that doesn't work will only exacerbate the problem rather than alleviate it.

For more detailed information on performing a work flow analysis, please see Chapter V.

## HIPAA CONSIDERATIONS IN SELECTING AN EHR

Most practices are relatively familiar with the HIPAA privacy rule. Practices with paper charts often rely on sticky notes, labels, and other notes on the front of the chart (or inside the chart) related to HIPAA privacy obligations. Key HIPAA privacy obligations that typically are documented this way:

1. Charts flagged to indicate a patient was not given a Notice of Privacy Practices.
2. Any special privacy protections requested by the patient (restrictions on use and disclosure of his/her data).



3. Any “confidential communications channels” or special ways the patient would or would not like to be contacted (for example, appointment reminders only on a cell phone and not a home phone).
4. Information about family or friends who are authorized by the patient to call or be called regarding the patient’s condition and care.
5. Disclosure accounting log that lists any disclosure of protected health information not pursuant to the patient’s signed authorization or for routine treatment, payment, or health care operations.

Implementing an EHR requires a new work flow for these documents and alerts. Evaluating the ease-of-use and functionality of these should be a key consideration in vendor selection. ⚙️

## WHAT IS IT YOU NEED?

The needs and readiness assessments and the work flow analysis are important to help you decide if an EHR is the right solution for your practice. Often this process identifies other steps that can (and should) be taken first. Some practices will wind up postponing EHR implementation for a defined period of time; others opt for an indefinite delay; still others conclude they are ready to move ahead.

## WHAT ABOUT DISEASE REGISTRIES?

Just as document management or visit templates are an excellent solution prior to implementing an electronic health record, online disease registries can also be of value. Online disease registries allow a medical practice to record clinical notes, patient vitals, and lab results into a preset disease-specific template. The registry then provides physicians and clinicians with prompts or alerts related to clinical best practices. The online registry can simplify management and reporting of patients with certain chronic diseases. Once a practice implements an EHR; however, it will be able to replace the online registry with an integrated solution.

## READY FOR AN EHR? THE NEXT STEPS

The work flow analysis will assist you in selecting and purchasing a system. As we suggested earlier, each medical practice should analyze the key patient domains and work flows, to get a specific outline of the typical patient care scenarios that are relevant to your practice. For example, a pediatric practice will typically have a well-child visit with accompanying scheduled immunizations, whereas a cardiology practice may have consultations and follow-up care as their typical patient encounter.

In mapping the work flow for these tasks, you can learn what kind of functionality or features are important in an EHR. These key features also become part of the scenarios you will present to the vendor when asking for a demonstration during your selection process. Rather than relying on a vendor-driven demonstration (where they show all the “bells and whistles” but perhaps ignore the details) we recommend asking the vendor to demonstrate how a patient record is created and managed based on several of your most common scenarios. That way you can compare one vendor to another and get a detailed view of how you must use the software for your common work flows. If a system is hard to use and looks like it will create more work for the physicians, the implementation may fail. Only a scenario-based demonstration provides this level of information. Once you have narrowed your selection, it is also important to “test-drive” the system yourself. You will want to see how a system handles all steps of the patient encounter process.

## CREATING AN EHR ROAD MAP

A road map is a simple-to-follow outline of the steps a medical practice should take relative to the search for, selection of, and implementation of an electronic health records system. Because implementing an EHR is likely to be one of the most complex and comprehensive business moves any medical practice can make, it is important to have a well-defined plan.

The road map should identify the steps needed to improve your practice’s readiness and preparation prior to implementation; it should also help guide the process of selecting vendors and system candidates, evaluating systems, making a final selection, and negotiating the agreement. In addition, it outlines the many steps needed for a successful implementation, such as conversion of records, training, accommodating reduction in resources and productivity, change in work flows and processes, and so forth.

Below is an example of what a very high-level road map might look like for a medical practice, after the needs, readiness, and work flow analyses are conducted. Each of these tasks in turn will entail numerous individual tasks.

## XYZ Family Physicians of Central California—EHR Implementation Roadmap

Task	Due Date
Upgrade Windows network and renovate office to create a server room	
Set user access for all new users	
Implement paper templates	
Complete Medicare fraud and abuse plan and begin regular chart audit	
Complete chart thinning and archiving	
Complete final needs assessment and key functions for the EHR	
Prepare scenarios for vendor review	
Choose three vendors and review via web-based demonstrations	
Select two finalists and conduct detailed on-site reviews	
Check references and visit other practices using these systems	
Negotiate best price configuration with both systems	
Final selection	
Contract signed	
Initial training and conversion planning	

### ON CALL

For more information on factors to consider in an electronic medical record or electronic health record, see CMA ON CALL Document #1132, “Electronic Medical Records.”

Selection, timing, and implementation of an EHR require careful consideration and planning and will consume an enormous amount of resources. But when done correctly, it helps practices realize work flow efficiencies, improve communication and coordination, and most important, improve the quality of patient care.  

