EMR 101: A Beginner’s Guide to Electronic Medical Records

Electronic medical records is the inevitable next step in the continued progress of American healthcare. Medicine may be the most information-intensive of all professions, and is well-poised—after many false starts—to take advantage of the advances in information systems technology that have transformed our society.

Successfully making the transition to electronic medical records may be the most important project that a medical practice can undertake. This is partly because an electronic medical record directly impacts the daily mission of medical practice: delivering patient care. An EMR is unique in that it touches the lives of the health care providers, the administrative staff behind the scenes, and the patients themselves.

Because the impact of the electronic medical record reaches deep into the heart of the practice, the stakes are high. While a successful electronic medical records project has the potential of significantly improving the clinical and administrative efficiency of medical practices, as well as enhancing overall quality of care, an unsuccessful project can be frustrating and expensive.

At Physician Micro Systems, we have been successfully building and installing electronic medical records systems for ambulatory medical practices for nearly 15 years. Success is a logical, systematic process; it does not happen by accident. Based on our experience, we have compiled this Practice Partner Forum as a guide to help you successfully plan your EMR project.
CONSIDERATION OF ELECTRONIC MEDICAL RECORDS

Let’s start at the beginning. This section addresses some basic but very important questions that are absolutely necessary to consider before proceeding with your EMR project.

What is an electronic medical record (EMR)?

An EMR is software that allows you to create, store, edit, and retrieve patient charts on a computer. A successful EMR project allows a practice to replace its paper charts with electronic charts. This offers tremendous productivity and efficiency benefits to a practice. By storing all the data you previously recorded in the patient’s paper chart, an EMR replaces the racks of chart folders with a computer.

What benefits should one expect from a successful EMR project?

We believe an EMR is one of the best business and clinical investments that a practice can make. Broadly speaking, there are four main benefit categories:

1. Cost reduction. The productivity and efficiency gains of an EMR translate into lowering the hard dollar cost of customers report savings in the following areas:
   - Reduced transcription costs
   - Labor costs
   - Reduced internal/external copying expenses
   - Malpractice insurance costs
   - Pharmacy costs

2. Revenue enhancement. An EMR can impact the top line of a practice by improving the completeness of documentation and the accuracy of coding, increasing the number of services offered, and increasing the number of visits per day. For example, Practice Partner Patient Records features built-in age and gender specific reminders for the practice and patients to complete routine procedures, such as mammograms.

3. Improved administrative efficiency. Successful EMR sites are more efficient than traditional offices. As a result, the number of FTEs required to support physicians is lower than at paper based offices. Practice Partner sites report 2.0 to 2.5 FTEs per doctor, compared to the MGMA average of 4.0. These improvements can be attributed to the following:
   - Fewer chart pulls and less filing
   - Universal access to the chart (by more than one person at a time) and less searching for lost charts
   - Reduction in phone tag
   - Improved internal office communication
   - Fewer call-backs from pharmacies
4. Improved clinical efficiency, patient care, and service. The EMR itself includes a number of features that allow the clinical side of the practice to operate more efficiently. Some of the improvements include:

- Higher quality documentation (legible, organized, complete)
- Built-in protocols and reminders (including health maintenance)
- Improved medication management
- More efficient signing of charts

For more detailed information on the benefits described above, please see the Practice Partner Forum entitled The Dollars and Sense of Electronic Medical Records: The Bottom Line Case for an EMR. (See Resources Available on the back page.)

What is the typical EMR configuration?

The most common configuration of an EMR is to have PCs in the exam rooms, doctors' offices, nurses' stations, and at the check-in desk. These are networked together and linked to a common server. This configuration gives both administrative and clinical staff easy access to workstations and the EMR. A less common configuration includes the use of wireless laptops. These are typically used solely by the physician in conjunction with networked PCs. Wireless technology allows a practice to purchase fewer PCs. However, this is offset by additional investment in wireless networks.

How will it impact the day-to-day work flow of my office?

Since an EMR provides universal access to patient charts, it can vastly improve the work flow in your office by eliminating the time-consuming process of creating, finding, and re-filing paper charts. This makes many of the day-to-day activities of the practice, such as prescription refills or refill authorizations, patient call-backs, and outside requests for charts, much easier. The patient can move smoothly from the check-in process to the nurses’ station for vital signs and into the exam room without a staff member ever having to carry a paper chart. Administrative staff, such as billers or transcriptionists, also benefit from universal access to charts. For other examples of workflow improvements, please see our Practice Partner Profiles, which describe work flow benefits at a broad variety of practices. (Please see Resources Available on the back page.)

How much interaction do physicians actually have with the EMR, and how much keyboard and data entry activity is required?

Once the EMR is established in the clinic, it becomes the focal point of all clinical documentation and will be the most commonly used computer application by physicians during their normal workday. The amount of keyboard and data entry activity required is variable according to the EMR software vendor and physician preference. Practice Partner Patient Records is designed to minimize the need for key-
board interaction, if that is the preference of the physician. At a minimum, physicians will be required to directly use the computer to open and view patient charts and to write prescriptions. In both cases, only basic computer or typing skills are required.

**How are progress notes created?**

Again, this is variable according to the software vendor. Practice Partner Patient Records allows progress notes to be created in the following ways:

*Clinical templates.* These represent pre-formatted progress notes that provide a standard protocol for documenting specific conditions. They allow for “point and click” entry or keyboard entry based on possible conditions that might be observed for a given patient. Templates represent a direct entry mode in which data is entered directly by the physician into the computer. Most Practice Partner customers use templates in conjunction with QuickText, which are commonly used clinical phrases that can be dropped into a progress note with a push of a button. Additionally, the Practice Partner application includes insert codes that automatically pull data from other parts of the chart (i.e. medication list, allergies, social & family history, problem list, etc.) into the current progress note. The overriding design philosophy is to allow physicians to focus on data selection as opposed to data creation.

*Dictation.* Many Practice Partner physicians, even after successful transition to the EMR, continue to prefer the familiarity of dictation as a means of creating progress notes. The benefit of transcription is that it allows physicians who are reluctant or uncomfortable with direct entry to fully embrace the EMR. A unique feature of Practice Partner Patient Records is that the transcribed note automatically updates all of the relevant portions of the chart, such as medication lists, problem lists, vital signs, lab results, and allergies, from the data included in the progress note. In contrast, many systems store transcribed notes as a block of text without import or export of data items contained within the note.

*Voice recognition.* Voice recognition offers the promise of reducing the need for keyboard entry while providing a cost effective alternative to traditional transcription. Recent advances make voice recognition a viable means of data entry for certain practitioners. For a detailed case study on how practices are using voice recognition, see our Practice Partner Profile: “Focus on Voice Recognition”. (See Resources Available on the back page.)

**How secure is the EMR?**

EMR security is ensured by network access limitations and EMR access levels once individuals are logged on. An EMR system should offer highly granular security, allowing system administrators to define access and privileges according to the respective roles of the office staff. For instance, Practice Partner Patient Records provides very detailed security and privilege levels, defining specific viewing, data entry, editing, and a myriad of other rights on an individual by individual basis.

**Is the record legally valid?**
Yes, the Practice Partner Patient Records EMR offers a complete, medically legal record with an audit trail, allowing practices to track all changes to any textual record (progress notes and other clinical documents). This ensures document integrity within the organization and validates the record for medical legal purposes.

**What happens if the system goes down? What do I use for backup?**

A standard part of any EMR installation is system backup. This involves copying the patient charts to a specialized storage medium such as DAT (digital archive tape) that is then stored offsite. In the event there is a system downtime that results in loss of data, patient information can be restored from the tape backup.

**MAKING THE PROJECT A SUCCESS**

Defining the goals of an EMR implementation and preparing a plan to achieve the goals are critical to the success of the project.

**What is the appropriate method of measuring the success of an EMR project?**

The success of an EMR is directly correlated to the ability of a practice to effectively transition the majority of their clinical documentation from paper-based systems to electronic systems while still maintaining physician productivity. At PMSI, our most successful sites have significantly reduced or eliminated paper-based record-keeping in favor of electronic media. These sites, which we call “paperless,” also derive the greatest economic benefit from the EMR, since they have dramatically reduced the time, labor, and overhead associated with maintaining paper-based charts. The least efficient means of deploying an EMR is to run dual systems, that is, maintaining an EMR and a paper chart. Dual systems actually require additional labor, since two separate charts must be maintained.

**How do I go paperless?**

Going paperless is a step-by-step process that involves the following elements:

*Utilizing the EMR as the primary means of clinical documentation.* Progress notes, prescriptions, vital signs, nurses’ notes, and all other handwritten or transcribed documentation should be entered into the EMR.

*Establishing interfaces (particularly lab).* Interfaces allow information from either clinical or administrative sources to be loaded directly into the electronic medical record. This eliminates the need for manual entry of these values.

*Establishing scanning protocols.* Some relevant clinical documentation will arrive via paper. These documents can be scanned and converted to text (using optical character recognition software) and then loaded into the chart. Our most successful Practice Partner sites are careful to scan only those
documents which are considered essential to the record.

*Using clinical tools that support a paperless environment.* For instance, PC-based 12 lead ECG machines are available that can display, store, and interpret a patient’s heart rhythm on a computer. This eliminates the need for scanning or storing paper ECG readouts and provides universal access to historical ECGs.

*Retiring your existing charts in a steady and methodical fashion.* It is not necessary or practical to eliminate your paper charts from day one. Successful Practice Partner customers have tackled the transition by:

- Summarizing the salient points of the paper chart for entry into the EMR. This typically includes problem lists, allergies, current medications, selective lab results, and the most recent progress note. These summaries can either be transcribed and then downloaded into the chart or entered directly as you summarize.

- Being selective about which charts to summarize. Some Practice Partner clinics will summarize the paper charts as patients make appointments. Others will select their high frequency patients. In either case, it is a methodical process accomplished over a period of 6 to 12 months, depending on patient volume. The summarized paper charts are then typically archived off site.

**How do I build support from the doctors in the practice who are reluctant to use an EMR?**

We believe that the best way to increase acceptance among physicians is to minimize the amount of change required in daily work flow patterns. For instance, physicians that are hesitant to use the keyboard to directly enter notes should be allowed to continue to use dictation as a means of data entry. For those who are going to utilize direct entry, the EMR system should be flexible enough to accommodate the physician’s personal documentation style, without requiring extensive or complex programming. With Practice Partner, this is accomplished through the use of clinical templates or QuickText macros that can be readily modified using basic word processing skills.

**PREPARING YOUR ORGANIZATION FOR ELECTRONIC MEDICAL RECORDS**

There are many things that can be done before one decides to implement an EMR. Both the office and the staff must be prepared for the transition to a new system. The following are a few steps you can take to help assure your organization of the smoothest possible transition to the EMR.

**What will I need to purchase?**

Deploying an EMR involves purchase of the following items:

*EMR software and related accessories.* As a multi-user, networked application, EMRs are typically
sold on a per seat basis, with a seat representing a user logged on to the system. One should allocate roughly 3 to 5 seats per physician, depending on the specific configuration of the site. In addition, EMRs typically offer software accessories such as Patient Education, drug to drug / drug to food / drug to allergy checking, and formulary checking (determines whether prescriptions comply with a patient’s insurance formulary). These are typically sold on a subscription basis since the information is dynamic and is routinely updated.

**Hardware and networks.** An EMR requires that an office install a network of PCs that seamlessly communicate with each other. The network consists of the individual PC workstations; a server, which is the main computer for storing patient data and allowing communication between the PCs; the operating systems, such as Novell or Windows NT necessary to run the network; and the various hubs, network cards, and wiring that connect everything together. In addition, the practice will purchase printers, scanners, and backup devices.

**Services.** An EMR represents a capital improvement project that will require the assistance of experts. Most EMRs require implementation and training services, consisting of project planning, customization, and education on the application to prepare the office for the new software. These services are offered by the EMR vendor. In addition, hardware and network services are required to ensure the successful deployment of the network.

**Support.** You will need to maintain technical support contracts for both hardware and software. Technical support for software is sold and renewed on an annual basis and is typically priced as a percentage of the total price of the software. For most EMR vendors, the support contract provides the help desk function — the ability to call the vendor’s technical experts — and software updates, which are new versions of the software that provide improved performance and additional features.

**Is there a way to save my clinical documentation before going live with an EMR to ease the transition from paper?**

For potential Practice Partner sites that are currently using transcription for clinical documentation, we recommend specific, easy-to-use formatting of transcribed notes so they can easily be downloaded into the EMR. This will not only create a progress note, but will also create a complete chart (i.e. medication list, problem list) from information contained within the progress note. This allows a clinic to establish the foundation of a complete electronic medical record with only a slight modification of their daily activities. When the EMR project is ready to go live, the stored information can be downloaded, and the practice will be up and running with a significant amount of clinical data already in place.

**How long does it take from signing the contracts to going live with the EMR?**

An EMR project is a cooperative effort between the software and hardware vendors and the practice. It requires the completion of the following tasks:

- Mobilization of clinical and administrative staff
- Acquisition and installation of hardware and network
- Configuration of the EMR to meet the individual practice’s needs
- Completion of special interface projects
- On-site training

The amount of time required will vary depending on the EMR application, the size of the practice, and the quality of the project management by both the vendor and the practice. Practice Partner sites are typically deployed within 12 weeks, depending on the size of the installation.

**How does the EMR interact with my billing and scheduling products?**

If your practice currently has an existing medical billing and appointment scheduling functionality that is satisfactory, the EMR will function side by side with these applications. Ideally, an interface will be established between the existing practice management software and the EMR to transfer patient demographics. This process then creates electronic charts within the EMR that are ready for entry of clinical information. For new practices, or practices that are discontinuing use of their billing software, there is some advantage to integrated systems: software that includes billing, scheduling, and the EMR from the same vendor. These systems typically offer greater transfer of information between applications and also help simplify support and training.

**What organizational leadership is required to make it successful?**

For an EMR project to be successful, physician leadership is required. For a multi-physician group, this typically requires a physician leader/advocate who can effectively communicate the goals of the project and be a liaison to the group on technical or user issues.

**What additional staff is needed to support the EMR?**

You do not need to make additions to your staff to support the EMR, but it is necessary to allocate the responsibility for basic system administration. An EMR system requires routine maintenance, back-ups, and someone to troubleshoot problems as they occur. These tasks will ensure the smooth running of the EMR on a daily basis.
SUMMARY

The excitement and benefits of converting to an electronic medical record need not be overshadowed by unanswered questions surrounding the selection and implementation of this technology. If a deliberate path is outlined from the project's inception, with the clear goal of a paperless and thus more efficient office, success will surely be yours for the taking. In the end, you will have a more profitable office, a more efficient staff, and a healthier patient population to attest to the fact that you made the right decision in implementing an EMR.