Electronic Medical Records

an eBook

A practical resource for the private practice physican

Second Edition

John D. Deutsch and Christopher J. Ferguson

EMR Experts, Inc. provides healthcare practices with quality electronic medical record (EMR) and practice management software solutions. EMR Experts unique service provides physicians with unbiased and reliable information on the leading software vendors so that physicians can make educated decisions when selecting an electronic medical record system for their office. EMR Experts also assists physicians in the hardware purchasing, installation, training and maintenance phases to help ensure a successful implementation and maximum return-on-investment. With hundreds of physicians already benefiting from their proven technologies, EMR Experts makes the process of going paperless pain-free.

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Table of Contents

FOREWORD

As consultants in the Electronic Medical Record (EMR) software industry, we've seen our fair share of both successful and failed implementations.

With a record number of physicians trading in paper charts for their paperless counterparts, the health care industry in general is still decades behind the rest of the nation when it comes to automation through technology.

There are a number of reasons for this, including a lack of quality solutions, a lack of incentives from governing bodies, and simply a dependence on outdated ways of doing things.

However, EMR software solutions have greatly improved in the past few years, with a number of innovative companies leading the way. Still, with over 300 software vendors in the market, selecting the right EMR system can be a daunting task.

Unfortunately, and contrary to what many will tell you, there is no "one size fits all" solution given the number of different medical specialties and different types of business structures.

Chapter 1: Electronic Medical Records: An Overview

1.1 What is an Electronic Medical Record?

An Electronic Medical Record (EMR), also known as Electronic Health Record (EHR) or Computerized Patient Record (CPR), is a patient medical record in electronic format, located in an integrated system that allows access to networked computers for the primary purpose of providing medical care and health-related services.

The information contained in an EMR pertains not only to a patient's past medical history—e.g. clinical examinations, social and family history, surgical records—as well as current assessments and plans, but also includes such documents as radiological images, lab results, and financial and demographic information.

Additionally, EMRs facilitate the ordering of medical tests, treatments, and medications, while offering clinical decision support and practice guidelines immediately accessible at the time of the encounter.

EMR data can be captured, transmitted, received, updated, stored, and retrieved securely, in real-time, by users at the point of care or at remote locations.

The term EMR is often used loosely and in a number of ways, however a true EMR must perform the following functions:

Capture patient data

True EMR systems are fully integrated systems designed to capture data at the point of care. The information is submitted to the system via a computer workstation, notebook computer, tablet PC, pocket PC, or similar computing devices.

Integrate with multiple data sources

An EMR must be capable of integrating with diverse systems that are encompassed in patient care pathways. Administrative, financial, and clinical systems must operate in conjunction to achieve maximum utility.

By linking these systems, redundancies are avoided, saving time and ensuring data quality throughout the entire network.

Full integration of healthcare systems, from billing and practice management, to laboratory, imaging and pharmacy, delivers maximum benefits. Health Level 7 (HL7) interfaces, which employ a common language for sending and receiving messages among various systems, facilitate communication between practice management and EMRs, and between hospitals and physicians offices.

Provide decision support

With the integration of lab, pharmacy, imaging and other EMR systems, EMRs can provide real-time data to the provider, facilitating clinical decision-making. Furthermore, by capturing data at the point of care, systems aid in caregiver decision-making by accessing a rules engine to provide alerts, reminders, clinical protocols, and coding assistance (i.e. E/M level coding) among other functions.

With an EMR's ability to aggregate and make available large amounts of data at the click of a mouse, providers are able to quickly process and easily analyze such data as clinical statistics analysis, population health, patient/drug reports, and patient demographic reports.

1.2 EMR Functions

Patient Charting

While, traditional paper charts have undergone frequent format changes over time, EMR charting generally employs electronic templates and forms for the input of patient encounter information. Vitals, complaints, history and present illness, as well as physical exams, and other relevant data are entered effortlessly via drop-down boxes, pick lists, hand-writing recognition and/or voice recognition.

Order Communication Systems

Often referred to as Computerized Physician Order Entry (CPOE), this function communicates with external systems such as laboratories, pharmacies, imaging centers and hospitals via HL7 interfaces. It assists the physician in sending lab requests, prescriptions, imaging requests, and by submitting visit charges and diagnosis codes to the back office/billing system.

TIP: When selecting an EMR, it is crucial to select a system which easily integrates with other systems and can be customized to interface with your proprietary data sources.

Clinical Decision-Making Support Systems

A decision-making support function assists physicians by providing automatic recommendations, reminders, and alerts. These events, based on patient information entered by the physician, are matched against a database and the patient's health maintenance profile, to ensure the most appropriate treatments.

This function also aids doctors with coding and diagnosis.
Most EMR systems provide physicians with a recommended CPT code based on Evaluation & Management (E/M) rules, allowing doctors to bill payers at the highest possible rate for the services performed.

Document and Image Management

The implementation of image/document management systems enables hospitals to optimize in-bound paper flow; therefore, documents such as patient intake forms, referring physician letters, faxes, and lab reports are rapidly processed and managed by the system, eliminating manual data entry, filing and office storage. Physicians can also better manage images such as x-rays, MRIs, ultrasound, and, in some programs, audio and video.

Patient Portal

With fully more than half the US population using the internet regularly, and half of those using it to research medical information, it is apparent that a large portion of the populace is becoming increasingly concerned with their own health care. Furthermore, overburdened practices are making it difficult for patients and other doctors to access information in their records in a timely fashion.[1]

A patient portal function allows patients the comfort of sustained involvement in their own medical care by providing access to their Personal Health Record (PHR) from any computer in the world.

Automated PHR features include appointment scheduling, lab results, Rx refill requests, record access, electronic intake forms, outcome assessments, and patient education. Patients can grant physicians access to the PHR enabling provider-to-provider and provider-to-patient communication.

Statistics and Reporting

Providers can generate and analyze reports from their database. This function can be especially helpful for dealing with drug recalls, health maintenance reminders, disease management, and patient marketing.

In public health organizations, the ability to provide statistical reporting to governing bodies (local, state, federal) can be an invaluable resource in, for example, obtaining funding, or for use in regional health statistic reports.

Chapter 2: Industry Summary

2.1 State of the industry

"Americans spent almost $2 trillion on health care in 2005, according to the most recent study from the Department of Health and Human Services. Yet, many doctors and nurses 'still use pen and paper and clipboards to record patient data."
~Michelle Kessler, USA Today, (February 27, 2007)

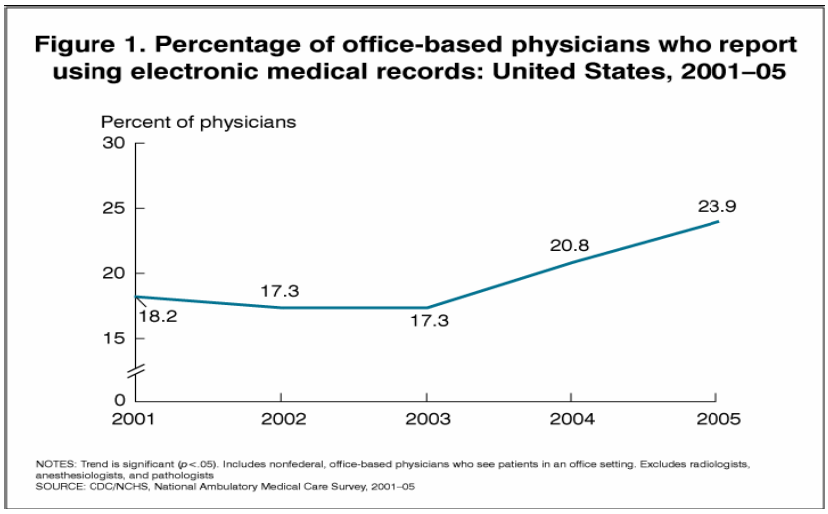

Figure: 1-Percentage of Office-based Physicians Using Electronic Medical Records (E-Health Stats)

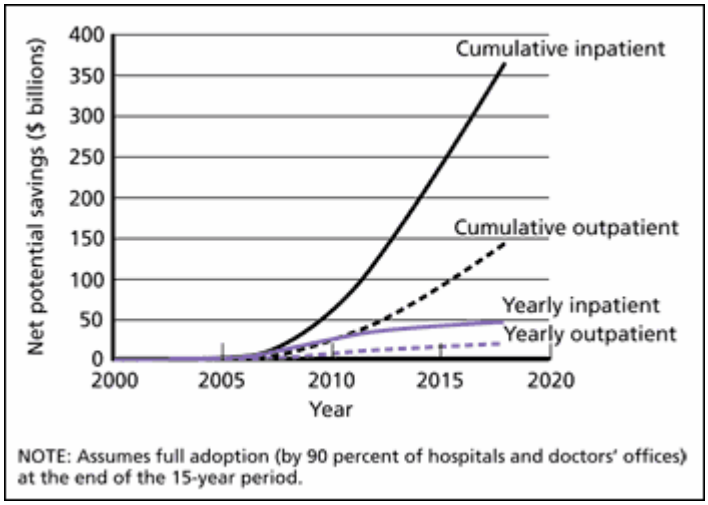

Figure 2 Estimated Annual Benefits from Inpatient Computerized Physician Order Entry Systems, After Full Adoption Source: Rand Corp.

Facts

Health care, along with education, construction and retail, is one of the least automated industries in the nation. In 2006, there were over 1.5 million injuries caused by adverse drug events.

A recent survey of 1900 physicians conducted by *Medical Economics* and published on January 21, 2005, found that 15% of physicians polled were using an EMR, and 23% of those physicians who did not have an EMR, stated that they were planning on purchasing one by the end of 2005.[2]

Recent data from the National Ambulatory Medical Care Survey (NAMCS) indicated that one-quarter of office-based physicians report using full or partial EMRs in 2005, a 31% increase from the 18.2 percent reported in the 2001 survey.[3]

EMR Experts performed a survey of more than 600 private-practice offices throughout the nation and found that less than 5% had a fully implemented EMR.

A study from the Center for IT Leadership estimates potential savings at a staggering $78 billion a year from improved information exchange.[4]

While information technology has reshaped most modern industries, healthcare remains lamentably behind the times. Studies have estimated that the health care industry as a whole is almost 20 years behind the rest of the nation. Smaller doctors' offices (1-10 physicians) have been the slowest adopters of EMRs.

This can be attributed to a number of reasons:

1) Lack of Technology

- Poor software technology scalable to multiple locations
- Poor mobile hardware solutions
- Lack of good/affordable high-speed internet solutions
- Poor wireless networking technology

2) Lack of Infrastructure

- Source systems such as those found in laboratories and pharmacies have only recently permitted integration with physician offices via HL7 interfaces.

3) Lack of Standards

- Diverse payer groups
- Lack of integration standards such as HL7 messaging standards and EDI
- Little government support
- Limited documentation standards
- Continuity of Care Record (CCR) allowing patient records to be moved from one EMR to the next

2.2 Why are Doctors Adopting EMRs?

To err is human, but EMRs have been proven to make medical practice safer.

Electronic Medical Records promise to revolutionize the health care industry. Implementation of integrated EMR systems reduces health care costs while improving quality of care, and, most importantly, saves lives.

Consequently, there has recently been a strong push towards EMR systems throughout the health care industry.

The year 2006 was a record year for EMR adoption thanks in part to new product innovations, new government initiatives encouraging EMRs, economic pressures, improved patient awareness, and an improved attitude among physicians towards EMRs.

Here are some of the many reasons why providers are moving to EMRs faster than ever before:

1) New Product Innovations

Different types of new product innovations driving EMR adoption

- Mobile computing through wireless
- Affordable high-speed internet
- Cheaper high-speed imaging devices
- Cheaper technology/storage
- New internet-based solutions

2) Government

Government involvement in incentivising, setting standards for, and regulating EMRs is facilitating their adoption.

For example, under terms of a bill introduced by U.S. Representative Patrick Kennedy, a Rhode Island Democrat, “Doctors would get $3 for every patient signed up to use an electronic health record.[5]

HIPAA Regulations provide a framework for dealing with all-important privacy issues.

New industry standards such as XML, HL7, Medcin, SNOMED, PACS, and Surescripts provide EMR system designers with solid frameworks.

3) Hospitals

With the Stark Law being relaxed many hospitals have begun paying for the majority of EMR costs for doctors on staff or practices that are partnered with the hospital.

4) Economic Pressures

"Wal-Mart Stores, Intel, BP America, Pitney Bowes and Applied Materials are launching an initiative under which they will invest at least $5 million to give electronic portable personal health records to employees..."

Several economic pressures are driving EMR adoption:

- Lower reimbursement from payers
- Higher administrative costs resulting from increasing complexity in insurance and billing
- Increased malpractice costs
- Increased labor costs for reporting
- New pay-for-performance plans by payers which rewards data capture, allowing physicians to measure and improve the quality of their practice

5) Patient Awareness

Patients have become increasingly savvy about healthcare. A recent study by Accenture, in which 519 consumers were polled, showed that nine out of ten patients believe Electronic Medical Records can improve medical care and reduce hospital errors. Additionally, more than half said they would be willing to supplement the additional cost of having their records in an instantly-accessible electronic format.[6]

Government measures, including the allocation of funds to implement the ubiquitous use of EMRs by 2014, and the creation of the Office of the National Coordinator for Health Information Technology (ONCHIT), whose mandate is to ensure the nationwide deployment and integration of health information technology, have pushed EMRs to the forefront.[7]

In today's wired world, patients expect cutting-edge technology. They are becoming wary of the pen and ink system, instead championing the latest innovations and the most efficient care practices.

Practices that do not use EMR systems are likely to be perceived as outdated. Whether this has a significant effect on an office's patient retention is difficult to say, but it certainly should be carefully considered.

Chapter 3: Clinical and Financial Benefits of EMRs

3.1 Financial Benefits

Increased Productivity

EMR technology handles the complexity of the health-care system with an ease and practicality intuitively foreign to paper-based management. From the massive volumes of every day medical transactions and the continuous development of new and advanced treatments, to the specialized nature of medicine itself, EMRs maximize productivity by bridging discrete elements and implementing order at the simple click of a button.

Chart pulls and filing become fully automated. Doctors no longer need to spend valuable time tracking down lost, illegible reports. In practices without EMRs, in one of seven visits, important data is missing, largely due to administrative errors including problems in charting, filing, and testing. This results in delays and duplicate medical service, increasing costs and decreasing quality of care.[8]

By spending less time tracking charts, staff can streamline provider and patient contact time. By entering data prior to the patient's arrival, documentation time required by the doctor is decreased.

Consequently, physicians may spend more time with the patient and can even increase the number of patients seen in a day. Furthermore, end of day reporting is quicker as reports can be generated directly from the EMR system. Lab and imaging results are readily accessible as they can be uploaded directly into the EMR, available to doctors within seconds.

When integrated with diagnostic devices such as EKG, Spirometry, Vitals and Holter monitors practices can eliminate costly double data entry. Midmark® is the most common manufacturer of EMR integrated EKG, Spirometry and Holter monitors while Welch Allyn Spot Vital machines are the most common devices using for taking patient vitals. Midmark publishes a list of EMR vendors they integrate with.

Increased Revenue

By enabling an increase in services per visit and offering a thorough and complete capture of services provided, EMR technology can actually increase revenue. EMRs provide the extensive and complete documentation mandated by an increasing number of insurance companies for reimbursement of provided services.

EMRs also provide fully documented coding recommendations, reducing the need to justify coding to higher management levels. They may also help keep malpractice premiums lower as a result of higher quality documentation and drug prescription alerts.

Such Evaluation and Management (E/M) coding assistance can be an incredible financial benefit, especially in family, pediatric and internal medicine practices. In fact, a recent study by *Medical Economics Magazine* stated that a physician not coding to the maximum E/M levels may be losing $40,000 to $50,000 annually. A similar study by *Partners Healthcare System* found an increase of 1.5%-5% in net collections simply through improved charge capture.

Many EMR vendors offer patient-oriented features; thus patients are now able to view their own medical information, schedule/cancel appointments, and save time by completing forms prior to their scheduled appointments. All this can be achieved by simply logging into the organization's website. These patient-friendly enhancements can help attract new clients and reduce staff work-load.

Cost Avoidance

EMRs can reduce many clinical expenses, particularly those associated with paper charts, poor documentation and high malpractice premiums. Reducing, and eventually eliminating paper chart costs-- including the purchase of stationary (folders, paper, tabs), copying, management (pulling/filing) and storage (office space, cabinets)-- is one of the most obvious benefits of EMR.

With less paper and storage required, more office space becomes available for treatment, and possibly even allows room for an additional associate.

Transcription costs (not to mention transcription errors) drop to virtually nil as EMR software provides a facile means for patient documentation and report writing. The Decatur, Illinois-based Heritage Behavioral Health saved over $200,000 alone on transcription and documentation costs, while the University of Illinois at Chicago "reallocated $1.2 million of nurse time from manual documentation tasks to direct delivery of patient care"[9]

Increased Profit

In order to increase profit one needs to compare EMR benefits to the new costs incurred with an EMR implementation.

Many benefits, however, such as improved care, patient satisfaction, and office image can be difficult to quantify. These intangibles may all contribute to higher profits as a result of increased patient referrals and increased patient retention.

While limiting your risk to medical errors cannot be quantified, it may be one of the greatest benefits of EMR by preventing a devastating malpractice lawsuit.

3.2 Clinical Benefits

Improved Clinical Decision Making

***FACT**: Adverse Drug Events (ADE) are responsible for 2.1 million injuries and 100,000 deaths every year, equivalent to two 737's crashing every day. (American Medical Association)*

One of the more profound benefits of Electronic Medical Record software is its sophisticated clinical decision support system, which optimizes patient care and safety by providing alerts and preventative recommendations.

The support system notifies physicians of key information regarding a patient's progress if certain treatments are implemented, and can aid physicians in finding diagnoses, writing prescriptions, and making up-to-date treatment plan recommendations.

Most EMRs have built-in PDR-based medication dictionaries which provide doctors with automatic Adverse Drug Event (ADE) alerts, and generic drug recommendations and dosages.

Health maintenance reminders keep the doctor and his/her staff updated on what treatments or checkups are due for a patient.

By giving providers more information about the patient through the integration of external sources (labs, pharmacies, imaging centers, and hospitals) the provider is capable of making better educated decisions.

Enhanced Documentation

Electronic Medical Record software allows concurrent access to a patient's chart by multiple users. Point-of-care real time availability of information ensures a more complete and accurate chart as all data is inputted at the time of the encounter.

With new HIPAA laws, many offices using paper charts are exposing themselves to unnecessary risks such as losing charts due to natural disasters, theft, or simple mismanagement.

Most EMRs come equipped with a security administration module enabling administrators to manage access to patient records through user permissions. One of the greatest advantages of having patient documentation computerized is the ability to manipulate data for reporting capabilities. This becomes very useful for research reports, statistics, health maintenance reminders, drug recalls, and patient marketing.

Disaster Recovery

According to government statistics, two out five companies that experience a disaster go out of business within five years. What will happen to your practice? What happens to the patient records? California is prone to earthquakes, while the Gulf States, for example, are frequently subject to hurricanes. EMRs can play an invaluable role in the recovery of patient data so long as the EMR is properly and frequently backed up, and stored on a reliable system.[10]

Better Patient Care

Finally, the ability to provide better patient care, though not easily calculated, may be the greatest benefit of EMR technology. Numerous studies have shown that the quality of practice diminishes due to lack of information. EMRs are the solution, and the mounting evidence is hard to ignore-- EMR systems do improve quality of care.

Doctors are now taking advantage. Doctors are increasingly using the internet to conduct web-based consultations. Being able to access patient data from anywhere in the world via a secure connection even allows doctors to conduct web-based consultations and perform other tasks from home or even on vacation.

Case Study - The Veteran's Administration

The VA healthcare system was once looked upon as a "dangerous backwater of medicine."[11]

Endless bureaucracy and unsanitary hospitals prompted many veterans to look elsewhere for care. However, that has now changed. With the appointment of Dr. Kenneth W. Kizer as Under Secretary to the Veteran's Administration's health department in the early 90's, VA hospitals witnessed a comprehensive overhaul.

The implementation of Electronic Medical Records effected a dramatic change, greatly improving the once unwieldy organization. The system, called VistA, allows patients' medical records to be accessed directly from any VA location in the country.

The once criticized system outperformed Medicare on a wide array of quality measures. With EMR technology in place, VA hospitals are now concentrating on preventative care; cancer screenings, diabetic care, and follow-up care. The number of patients treated has doubled since 1995. According to Peter S. Gaytan, Director of Veterans' Affairs for the American Legion, "the quality of care has improved greatly."

Chapter 4: How to Purchase an EMR

4.1 Planning

When deciding to convert to EMR technology, you must look at the big picture. Merely considering a vendor or product is not enough. You have to take into account the product fit for your specialization, as well as cost, office work flow redesign, ROI and the long term non-financial benefits such as improved quality of care, automation, and quality of life changes.

In the simplest sense the EMR path looks something like this:

Select > Install > Train > Implement > Evaluate > Refine > Set New Goals

However, there is plenty to think about before selection even begins.

Determine your Goals

Why are you considering an EMR?

Simply put, an EMR, if carefully and thoughtfully implemented can save an incredible amount of time and money. Implemented haphazardly, however, it can have a detrimental effect on your patients and your organization.

In our experience the most common reason for a failed EMR experience is poor implementation by the vendor, lack of commitment by the practice as a whole and project/responsibility management by both parties.

Implementation requires active participation and a willingness to make changes; you will need to monitor and change systems, evaluate goals, review progress, analyze data, and make even more changes.

Everyone in the practice must have a strong understanding of their responsibilities. These responsibilities or tasks need to be tracked in some type of whiteboard, document, spreadsheet, Gantt chart or similar collaborative tracking system.

Determine Readiness

An EMR system offers tremendous advantages, but none will be realized if it is not accepted by the staff. A preliminary assessment of staff attitudes and perceptions will help you organize the implementation process to reinforce positive commitments.

Staff Readiness - Consider, for example, what percentage of the staff is computer literate? Communicate to your staff how the new system will impact them. If someone feels they are being replaced, the natural inclination is resistance. Spend time educating them about the

transformational value of the technology and the impact on their own efficiency and productivity.

Is your office currently set up for technology? Patient and staff flow and clinical processes will need to be altered. Existing office space will most likely be adjusted to accommodate EMR equipment, such as scanners, workstations in treatment rooms or at nurse's stations, etc.

Identify how much of a change this will be for you and your staff. If you are planning on purchasing all new hardware for your office, be sure to allow extra time for ordering, setup and testing.

Budget is big point to address. How will this impact your practice in the short term? Initially, your practice will see revenue losses due to a temporary decrease in productivity--fewer patient visits will take place--as you get used to the system.

In a 2003 study conducted by the University of California, it was estimated that “initial EMR costs ranged from $15,000 to $50,000 per physician.” Since 2003, with the growth of competition, you’ll find very attractive pricing on some very good systems, with complete EMR systems starting at just $5,000. However, the market still remains rife with both expensive and poor quality solutions.

It's also important to consider that while purchasing an expensive car or expensive computer generally means you are getting a better quality product. However, this theory does not apply to EMR in the same way since expensive often means more complicated or too many features that clutter up the workflow. You will likely want to find a healthy medium.

Identify Key People to Lead: The EMR Champion

EMR systems are rooted in technology. Having someone who is knowledgeable about technology to lead the way is paramount.

Your EMR champion must persist through all ups and downs, remaining focused on the long term goals established by the office. Most physicians won't necessarily feel compelled to learn the most efficient way to use the system, nor the best methods for migrating existing data. The EMR champion must lead with determination and a positive attitude.

The champion should also become the vendor’s main point of contact directing the changeover.

Having one main contact also curtails the unnecessary convolutions which often accompany crowds. Involving too many can result in confusion.

4.2 Pre-Selection Analysis

There are many ways to evaluate an EMR and the company that sells it to you. We will outline here two studies which you can apply in your own selection process.

Cost-Benefit Analysis

A Cost-Benefit Analysis is an estimate of net financial costs and benefits applied prior to selecting a solution.

The cost of an EMR should be weighed against the current expenses which may decrease upon implementation. These costs, which include staffing, transcription, billing and collection, as well as office supplies, chart management, and storage, are costs that are often overlooked or underestimated; however, the net gain from savings in these areas can be substantial.

Return on Investment (ROI)

A Return on Investment (ROI) assessment will give you a more exact view than a Cost Benefit Analysis. An ROI is a performance measure; in readily identified financial terms it can be expressed as a ratio determined by the cost of the investment subtracted from the gains and divided, again, by investment; or expressed more precisely, it is the return of the purchase divided by the initial investment.

This information should be received from the final vendor candidates during the final steps of the selection process.

Looking again at the University of California study mentioned previously, we see that physicians “realized savings of between $0 and $20,000 per year.” Again, it is not simply the product that is important but rather, how it is utilized.

It is also important to not overlook the adjunct costs in EMR implementation when considering the ROI. Consider, for instance, the impact on other systems such as billing, networking and other computer systems. How will the interfacing work? Will you need consulting and implementation services? In addition to the EMR software, you will also incur costs for maintenance, software upgrade, additional hardware, and hardware maintenance costs.

Also consider ”soft ROI” which includes less measurable variables such as increased patient safety, improved work flow and time management, as well as regulatory compliance.

Although these returns are difficult to quantify, they may carry as much weight, if not more, to health institutes and practices than measurable benefits. The value of improved patient care, patient satisfaction, and improved patient-provider relationships may indeed be immeasurable.

4.3 Post Selection Analysis

Benefits Realization Study

A Benefits Realization Study is an evaluation of benefits resulting from the EMR investment. Performed at specific preset intervals throughout the life of the EMR, it is used to help make adjustments to work flow, and to plan for future changes.

This assessment should be completed after the EMR implementation to determine whether or not the vendor's "promises" have been realized. Its value lies in identifying things that need correction in order to improve efficiency and cost savings. You should identify a set of quantifiable benefits that can be easily measured, charted, and analyzed over time.

"Let doctors compare not just EMR products, but also, EMR vendors and their commitment to honest sales and service."
-Dr. David Winn, founder of e-MDs

4.4 EMR Vendor Selection

You will find numerous variations in vendor products, features, functions, and of course price.

An entry level EMR product for a solo physician practice costs as little as $3,000. An advanced (or overpriced) system can cost as much as $100,000.

When selecting an EMR vendor, ask your self what is it about these companies that one can charge $3,000 and others charge $40,000, while yet others charge over $100,000?

Simply, buying an EMR in the $3000 price range can lead to a $3,000 headache. This may be due in part to a lack of features and functions.

Conversely, are feature-rich products costing $40,000 really that much better? Not necessarily. Price and value can only be determined by the individual consumer.

Once a practice has converted to an EMR, the initial expense and the resulting revenue are actually quite different. When the EMR is fully running, your practice becomes more efficient, actually increasing productivity and financial income.

Selecting an EMR can seem simple. Features and workflow shown by a trained professional demonstrator can be made to seem easy and user friendly. Actually, one might describe it as "Sleight of Hand".

Shopping for an EMR is complex. The systems can seem to all run together after a while. Having a trained EMR consultant can help filter the products and narrow the field while directly matching the product to your needs.

Selecting the right product is the key to a successful implementation. First and foremost, the issue of technical proficiencies needs to be addressed. If the product is too technically advanced for your users, it will not be effectively used or will slow your users down.

Finding the right EMR is critical for your success. Consider getting assistance from someone who has been through an EMR implementation before or hiring a consultant to assist you.

Integrated vs. Modular Systems

Automating part of your practice can be beneficial, just as it can be a challenge to overcome. There are many EMR vendors that have a Practice Management application built into their system. Many of these products can become a total replacement for existing applications.

Some EMR vendors have taken an approach whereas they have focused their efforts on a particular set of features or functions, such as just EMR or EMR and scheduling, etc. Be advised that not all EMR vendors have the capability to integrate with an existing software product, nor can all existing software applications (typically billing or practice management systems) be integrated to an EMR. It is advisable that you determine a vendor's capabilities prior to committing to them. Get a quote from both parties as typically they will both charge a fee to allow the interface to happen. These generally range between $1000 and $10,000.

You will find that running separate systems simultaneously can lead to much unneeded double data entry and as a long term plan it will save the practice a lot of time and money. However, interfaces are frequently a major problem source. It's very important you as the vendors for references of clients that are running the same combination of software as you are to see if they are experiencing problems with it. If you are the first client the interface will be used with, you may want to consider other options, such as purchasing a complete solution.

Even if an interface is available and is well tested you may still choose to opt out of the interface option if your long term plan is not to use the two systems together. This is typically seen where a practice purchases an integrated EMR/PM but uses a phased in approach by implementing just the EMR with plans of integrating the PM module at a later date. This can be a very smart way to approach an EMR implementation since it limits the risk of interruption to your cash flow, often experienced when an EMR is implemented at the same time as the PM and the practice is unable to implement the total system in a timely manner.

Not a Commodity

Delaying the decision to convert to electronic medical records to wait for prices to come down could backfire. For each patient encounter an increasing amount of paperwork must be scanned, and consequently, the added cost multiplies substantially.

As the laws of economics begin to play out in a "Supply vs. Demand" scenario, increasing demand will see more and more vendors busy with EMR installations, resulting in higher prices—ultimately, costing you more. You may also end up waiting months for installation, or you may be forced to go with a less popular or lower quality product.

Waiting for the prices to come down can also be financially detrimental in the long term. Certainly, new companies will appear and offer impressive price incentives; however, these incentives are likely to translate into an inferior product which may require additional customization and testing, resulting in further complications.

Your practice may become the “test practice,” resulting in additional down time and further staff frustration.

Beware of “As is”, “Off the Shelf” or “One Size Fits All” Marketing Message

No two practices are alike, yet many EMR vendors still seem to think so and therefore treat all practices the same, offering products with little customizability and flexibility for different workflows.

In healthcare, every specialty has different needs, and every medical practice must contend with different levels of technical aptitudes. Each practice, therefore, is designed to accommodate particular nuances, goals, and visions.

Implementing an EMR system requires the same sort of consideration. Adopting an EMR will necessitate changes in work flow and practice procedures. There is no simple ‘plug and play' solution.

The EMR product is still a service, not a plug n' play boxed software. The total cost of an EMR system is heavily weighted in implementation and customization. Therefore, it can be important to select a system that is already mostly complete or whose customization charges are low.

Each practice should consider the unique customization they need to fit their specific requirements. Customization is not an overwhelming task to the EMR vendor, nor is it an excessive expense to the practice. Be sure to explore the vendor’s willingness to complete the desired custom forms (templates), to explain facts, and to adjust to work flow.

Training

In order to appreciate the full benefits of an EMR system, staff must be trained. It is important to consider how much training is needed--are you and your staff quick learners, are you new to this technology? Technical proficiencies need to be accounted for.

Honestly assess your staff’s technological experience and ability. EMR implementation is a long-term commitment that requires the dedication of those using it.

There will be disruption in the workflow at the practice. Any vendor telling you that this conversion will be easy is not telling you what you need to know.

A staff member who embraces change as opposed to someone who is resistant may very well have quite different learning curves. Installation of an EMR will result in organizational disruption; however, it should be an exciting time in your practice.

Preparing Your Questions in Advance

A seemingly straightforward task, asking questions, yet when the day is at hand, things become a little less clear. Just what questions should you ask?

Of course, as you become more familiar with EMRs, the depth of your questions becomes more sophisticated. Remember, however, that the vendor representative is polished and may have been through numerous EMR negotiations. Sales representatives know what questions to ask, and how to answer your questions without actually answering.

This may be your first time negotiating an EMR deal. More likely than not, the vendor has an insider's advantage; this is their profession after all. They know this technology better than any one and often use this knowledge to their benefit. Their bias will obviously come out as they describe why their product is the best on the market, and why you should buy from them.

Your questions should be broken down into separate categories—e.g. budgetary, payment options, time frames, computer hardware needs, current automation, installation, networking needs, high speed internet access, adequate training for staff, completion, and go-live goals.

Draft your list of top questions and organize the questions and answers in a spreadsheet. This will allow you to quickly include or exclude EMR vendors in your list of viable candidates. The last thing you want to do is sit through a demonstration and realize that the EMR vendor cannot provide you with a suitable solution.

Keep your research as concise as possible using your questions as a guide. A simple equation to apply is the 80/20 principle: Spend 80% of your time researching, developing your goals and choosing an approach; dedicate the other 20% of your time to action.

Preliminary Questions to Ask a Vendor:

- What is the cost per physician license?
- What does each license provide?
- How many clients does your company have?
- Do you have existing clients in our specialty?
- Does your system come pre-loaded with templates for my specialty?
- Is your company the developer of the software or is it re-branded from another vendor?
- Is your system client/server based or ASP based?
- Does your system include practice management software?
- Does your system include a patient portal?
- Is your system HL7 compliant?
- How long has your company been in business?
- Is your development done overseas?
- Is support done overseas?
- Is your software CCHIT certified? If not, why?
- How often is the software updated?
- Does the system include a backup solution? If so, how is it backed up?

Interviewing the Vendors

Think of the EMR vendor as your partner. As with any partner, it is best to get to know them as well as you can before you sign a deal. Don't let your sales representative be the only face of the company you know.

What you don't ask can hurt you after the fact. Plan wisely and research all aspects of your potential partner:

- Are they financially stable? (The vast majority of vendors are not)
- Will adequate support be readily available?
- Consider the company's history, its philosophy and future direction-- after all; should the company you select go out of business, your practice will be impacted.
- Another key point in assessing the viability of an EMR vendor is the company's stability.
- How many installations have they done? (EMR vendors may give you a much larger number based on number of "users".) Take the number of installations they've done and divide it by number of years in business. This is an accurate depiction of the company's' financial status.
- Are they publicly-held or private?
- How many years have they been in business?
- What is their retention rate? (Many will boast a high number-- 90% or better).

It may be beneficial to contact a consultant such as EMR Experts Inc., who can walk you through all your questions and concerns prior to signing the deal. Keep in mind that you will be dealing with seasoned professional sales representatives. Stand firm on your needs.

Go in armed with your list of questions. Ask straight questions, and expect straight answers. If you feel many empty promises are being made, beware. If the EMR vendor promises customization or enhancements that will meet your needs, get it in writing in the contract.

Remember, if it is not in writing, it doesn't exist.

Remember, the vendor's first line of representation and the face of the company is the sales representative. You should look beyond that face. When speaking to the representative try your best to get a feel for them as a person. Were they pleasant to talk to on the phone? Were they courteous and respectful? Do they ever admit and faults or disadvantages of the system, since all systems have some? If they don't or dodge the question with irrelevant faults they could be hiding something.

The attitude prior to the sale does not improve after the sale. Ultimately, they will be responsible for your customer satisfaction upon installation completion.

Once the sales rep has made the sale to you, he/she moves on to the next customer. This is not to say they no longer care about you, but their attention to you is not as focused as it was prior to the sale.

Ask your sales rep probing questions to get a sense of their personality and to achieve some insight towards determining the level of post-sale support you can expect. The answer you get from any of the vendor's staff should be taken with a grain of salt which is why it is crucial to call vendor references and ask them what their experience has been with the support.

Product Demonstrations

The EMR demonstration process is crucial to your decision making. It can, however, be very complex and confusing. You will need to ask questions, review, review again, and finally act.

Your primary decision will be in choosing between a web-based Application Service Provider (ASP) and a client-server system. After making this decision, you must decide how many different systems you are willing to look at.

Set a time frame and try to stick with it. After a while, many EMR vendors may seem to be indistinguishable from one another.

Do not delay. Keep in mind that the product offering may change significantly during relatively short time periods.

Quickly disregard the products that do not meet your needs. Do not be afraid to cross vendors off your list.

Choosing the right EMR involves complex decisions which should not be made alone. Seek help where you can. Professional consulting firms, which may charge a fee, can be invaluable. Do not forget that others have gone through this process so ask your colleagues.

Check with other practices about their experiences. Ask what they might have done differently, and what questions they would have asked. Sit back and listen.

What to Expect During the Product Demonstration

There are a variety of ways to go about product demonstrations. One possibility is to have the representative give a demonstration at your office; however, this means interrupting your workplace and you also need to ensure adequate space is available.

One alternative is to have the vendor mail you a product demonstration CD. Another is to review the product on the company’s website. While these options inherently limit your opportunity to ask questions and describe operational scenarios unique to your practice they can be easily accommodated into your schedule. It's also important to consider that by evaluating systems this way you will likely not be able to develop a true opinion of the system since you're not trained on how to use the system properly.

You should consider an interactive online demonstration using an internet meeting solution such as Go To Meeting® or WebEx®. More and more EMR companies are demonstrating their product this way. It is inexpensive, reciprocal, and allows for control of the screen to be passed from presenter to audience with a simple click of the mouse. If you have questions,

ask them during the presentation instead of potentially developing an incorrect opinion of what the product can and can't do.

During an internet demonstration you can also dial into a teleconference meeting room. In fact, a typical internet meeting can handle ten or more audience participants from a variety of geographical locations giving you the opportunity to invite others such as a family member or friend with software development experience who can give you their opinion of the software's architecture.

If you opt for an interactive presentation, tell the presenter to keep the presentation at a “forty thousand foot view”. Many presenters tend to drill into the subject matter much too quickly, making the work flow look confusing. Ask the presenter to take you through an encounter from start to finish as quickly as possible, so you can see the workflow and overall speed of the system.

Have your check list and questions in front of you. Be prepared to identify your needs. Tell the presenter what you want to see. If they do not have the specific features you are looking for, politely decline their offers, as they will most likely not meet your needs. This will save you from being inundated with sales calls later on.

Once you find the EMR best suited to your needs, spend more time with it. There is no limit to how many times you can look before you buy. The vendor’s rep should accommodate your need for more detail. Be the informed buyer.

Pose some “what if” scenarios and see how fast the presenter can adjust. Do not concentrate on features alone. If tasks can’t be accomplished in a logical order, the software may be too hard to use.

Always keep a second vendor in mind as this will prove beneficial later when it comes time to negotiating the price of your primary choice.

Prefabricated Specialty Templates

Most EMR vendors will have specialty specific templates, or macros from existing clients. Ask to see your specialty’s templates. They can be a valuable insight into the company's design and programming sophistication.

Although certain prefabricated templates may not meet your specific needs, they will shed light on the vendor’s ability to perform the customization required for your practice.

If the vendor you are looking into does not have templates that apply to your specialty, don’t rule them out immediately.

This may be a great opportunity for you as you can help design templates that suit your vision, and some of the vendors will give you a considerable discount off the purchase price or annual support agreement. Be sure however to put in the necessary caveats in the contract as systems with lack of content may be a sign of system immaturity.

Moreover, they can rely on you and your specialty's expertise and you could potentially become a consultant to the EMR vendor. If the company is willing to program these templates for you, ask for a time line and have it added to the contract.

Do not sign an agreement until the vendor has proven that they can customize the system to your liking and that the customization terms are clearly noted in the contract. This will give you an out in the event the vendor cannot meet your needs and furthermore will incentivize them to complete the customizations.

Request for Proposal (RFP)

Requesting a proposal from a vendor is a preliminary step in the decision making process. Since some products will clearly be out of your price range it's a great way to narrow the list of vendors down. Keep in mind that depending on the size of your practice some vendors will not even bother to reply, especially the busy ones (often the better ones). You may therefore prepare a simple email with 3-5 key questions which will more likely be honored with a reply.

If you simply would like to know the price, ask for an estimate which should be broken down into different components:

- cost for the software
- for software installation
- training
- customer support

In many cases, expect to pay for travel expenses incurred by the vendor's training staff. The per diem charge can be negotiated or simply capped with a daily maximum at the time of signing.

In an effort to obtain a realistic price quote, be prepared to give the vendor a detailed description of your practice including any foreseeable changes. Include information concerning number of providers and licensed users (physician assistants, nurses, medical billers, and front-office schedulers). You may also want to negotiate a price for the purchase of additional licenses at the time of final negotiations since many vendors will honor this request with very low rates for as long as 5 years.

Don't be shy about telling a vendor that you have other options in mind. Competition always works in your favor. Try finding out who the vendor's top competitor is and entertain the purchasing of the product for negotiation purposes. Vendor's will often come down on their price even further if they know they can avoid giving business to a top competitor.

Consider Value Not Just Price

Value: A fair return or equivalent in goods, services, or money for something exchanged. (Merriam-Webster Inc.)

There are many relatively inexpensive EMR applications on the market. It is crucial that you choose an EMR with features suitable to your practice. The overall value of an EMR lies in its use, not just in its price tag. An inexpensive product may prove quite costly in the long run. A study by Samuel J. Wang found a vast difference in Return on Investment (ROI) with "Light EMRs" compared to "Full EMRs"[12]

Lower-priced products often become expensive over time as new features and support are needed.

Make decisions based on perceived value and potential Return on Investment (ROI). Ask to see white papers and real-life case studies. Each qualified EMR vendor should have ROI data to back up their claims.

Be wary if the vendor cannot or will not provide this factual data to support their ROI claims.

Support

An old adage in the software industry warns that consumers buy on features, and leave because of support (or lack thereof). It is important to check references relating to technical support.

There are many support issues to consider:

- How long do you have to wait "on hold" before your telephone call was answered by a real person?
- Did you have to leave a message in a support general voice mail box?
- How long does it take for someone to return your call?
- What is the plan and time frame to have your issue resolved?
- Can your issues be taken care of on the first call or are they often passed to a different department?
- Do you see a pattern developing where the vendor takes your name, issues a ticket number and "will get back to you?" This should be a "red flag" that this EMR vendor is faced with infrastructure needs.

Your issues, especially urgent ones should always be addressed within a reasonable time.

While evaluating a company's support in this manner may be challenging, asking references these questions can help you achieve the same result.

Do not confuse technical questions with customization. These two topics should be considered separately. A technical issue should be a priority for the technical support staff, while customization is a priority of the programming staff.

As more practices go with an EMR, vendors will become stretched and the need for technical support resources will increase. Some vendors will address this problem adequately, others will not.

Your practice will also see changes in the vendor's support staff. New hires will often be inexperienced with the product and may need a few months to get up to speed with the system. It's important to recognize this and often get a second opinion by someone else in the department. How the vendor's technical support staff performs is an indication of how well the company is managing their growth, and it is a good indicator of how likely they are to support you in the future.

How much should you expect to pay for ongoing support? The industry standard is 20% of the license fee. This however only covers product maintenance, not support in some cases. It's important to know what the monthly or annual maintenance agreement covers. Is the maintenance agreement optional? If support and maintenance agreements are two different things, is one mandatory and the other not?

Application Service Provider (ASP) or Client/Server?

An ASP is a remotely hosted software system typically accessed via an internet web browser, similar to the model used in online banking.

A client/server application is run on a server typically located in your office and maintained by your staff or IT department.

Both ASP (Web-based EMRs) and Client/Server EMRs have their merits and pitfalls.

In this section we'll explore the advantages and disadvantages of each model so you'll be able to make an educated decision when the time comes to purchase an EMR.

An ASP system is accessed by paying a rental or service fee. A HIPAA compliant secured server is located offsite, not in your office.

The servers are managed by a professional IT company to whom you pay a monthly access fee or are bundled in your monthly software subscription with the vendor. New features and enhancements can be added to your system instantly without your involvement.

The cost of an ASP-based system is relatively low in the beginning; however, as the fees never stop, the long term costs add up, and usually prove to be more expensive than with a Client/Server-based system, typically after a 3 yr period. However, there are many variables in calculating the time at which the total ASP investment exceeds the purchase price of a client/server modeled system.

Keep in mind, however, that with an ASP-based system, almost all computing is done via a remote server, thereby reducing the minimum computer hardware requirements for the clients/workstations. The benefit to this model is that the cost, rather than being a capital expenditure, becomes operational.

Additionally, ASP solutions allow you to access all of your information at any time, from any device that has internet access.

There are, of course, disadvantages. ASP applications can be more difficult to customize as the system is not hosted locally.

In some cases, ASP-based vendors do not allow each client to maintain their own version of the software making it impossible to customize unless the customization functionality already exists in the software. But one must ask if they want to have a customized system since once your system is customized they will often not be able to provide you with major updates to the system or your customizations could be lost in the update.

Another concern with an ASP-based system is speed. In comparison to the client/server model, ASP-based systems can lag significantly behind, especially when a large template/form is being used or the system needs to load large tables in the database (i.e. list of ICD-9 codes). If you are seriously considering an ASP application, make sure you properly test it in a live environment at your location prior to purchasing. If the flow is not quick enough you may either need to upgrade to a faster internet connect (this needs to be factored into your total investment and cost benefit analysis) or switch to a client/server version of the program, if it is available.

Consider your practice's work flow: the number of patients seen daily, the time spent in the exam room, and time spent completing the final notes. Each day, vital seconds may be spent waiting for data to transfer over the internet, assuming of course that the internet connection is fully operational. If your internet connection goes down you will no longer have access to your system.

Whereas in the past, a five minute service interruption would not cause significant problems, but now that you are dependant on your internet connection for access to your EMR, a five minute connection drop will have a more significant effect.

Lastly, with the ASP model there are a number of accountability issues to consider. Service degradation is felt more acutely and events such as a vendor bankruptcy could have a drastic impact on the practice. It is advisable that you periodically check the stability of the EMR vendor, and obtain a backup copy of your data.

The pros and cons of using an ASP system include:

Pros

1) System is maintained by IT professionals remotely, reducing the cost of maintenance
2) Online backup service
3) Accessible anywhere in the world from any computer with an internet connection
4) Low initial cost of ownership
5) Quick time-to market for new features
6) Additions are easily added (compared to client-server based systems in which each computer must be updated manually

7) Great for practices with multiple locations or who frequently need to access the system outside of the office

Cons

1) Risk of data being inaccessible in the event vendor goes bankrupt
2) Risk of company not performing routine maintenance (backup, updates, performance enhancements as promised)
3) If your internet connection goes down you cannot use your system
4) ISP might experience an outage, making your system unusable
5) Costs more in the long run

Client/Server systems allow for quicker response times as the data from the server to the client is transmitted much faster since all the data is located locally in your office and local area network speeds are much faster than internet connection speeds.

Newer client/server products developed in Java and Microsoft have the best both worlds as they have the speed of a local system plus offer accessibility from a remote location. Whereas traditional client/server products required practices to use MS Terminal® services or Citrix® technology to access data from remote locations, newer systems can be accessed using an internet browser.

The Client/Server model also boasts the benefits of allowing the practice greater control over their data.

However, with control comes responsibility; you are now open to the risk of theft, fire, component failure, data corruption, and security breaches among other events.

The pros and cons of using a client/server system include:

Pros

1) Faster overall operational speed
2) Control over your own data
3) No dependency on internet connection
4) Better integration with imaging devices (scanners, printers) and on-site resources

Cons

1) Higher upfront cost of ownership as a server and software must be purchased upfront
2) Manual product updates are usually required (not in all cases)
3) Practice is responsible for implementing and maintaining a backup system
4) Online backup must be purchased as add-on 3rd party software
5) Risks such as component failures and data corruption

Many IT futurists consider ASP-based systems to be the wave of the future; however, many offices have less need for remote access, and would rather have greater performance and control of their own data, making client/server systems a popular option.

In most cases, if an office has multiple locations, an ASP system should be considered; however, if an office requires high-performance and does not have multiple locations, the client/server system may be the better option.

If the client/server model is your model of choice, expect additional hardware and IT service networking expenses. You will need to purchase a server or designate one of your existing workstations/servers to take over in the new system.

Servers can take up a significant amount of your EMR budget, as costs can range from as little as $2500 for a single provider office to as much as $25,000+ for larger organizations.

As mentioned previously, it is highly recommended that you research, review, and purchase your EMR before buying the anticipated computer hardware. Once you have selected the EMR vendor, they will provide you with the minimum computer hardware specifications. If you settle for the minimum configuration, you may need to buy additional memory in the near future to handle increased patient loads.

Another key consideration for the client/server model is ownership. Once purchased, it's yours for the keeping. Bear in mind, however, that software is a “fluid” product, which the vendor continually modifies, adding enhancements and new features. A software without support can be a ticking time bomb for your practice.

Using the ASP model enables you to access new features upon release. The client/server based system typically requires you to update your software manually to gain access to the new features.

If you do select a Client/Server model, be sure to factor in the cost of a redundant backup solution. Online backup services are becoming increasingly popular for client/server solutions and start at just $30/month. EMR Experts offers HIPAA-compliant backup solutions to their client/server based clients. For more information please visit www.emrexperts.com

Your EMR vendor will make you aware of these enhancements and if not included in your maintenance agreement sell you the latest update in version releases. New versions or updates are typically released on a quarterly, semi-annual, or annual basis. The costs of these new releases are as varied as the initial purchase, and vary greatly from vendor to vendor.

How, then, will you know if you are buying a release with substance, or just a "fresh coat of paint?" Simple--schedule a demonstration with the vendor. Ask to see the differences, and ask questions.

If you decide to pass on buying the new version, check the terms of your contract.
The vendor (in many cases) has contractual language that allows them to "no longer support" the current version if there have been additional version releases that were not purchased. This is designed to allow the company to focus their efforts on the ever changing needs within the market.

Seeking outside help can assist you in making an informed decision. Do you need the latest version? Your practice can often negotiate upgrades at no charge or a percentage of retail.

Electronic Medical Records are still in the early adoption phase by private practice physicians. There is as yet no one true model in the lead - ASP or Client Server. Only time will tell. However, with the ability to look at our past and the direction that major companies such as Microsoft® are heading, the signs are pointing to ASP or a self hosted ASP type solution.

Industry Certifications, Ratings and Awards

In recent years, organizations such as CCHIT, TEPR, AC Group, KLAS and MS-Hug have started ranking EMR vendors.

The Certification Commission for Healthcare Information Technology (CCHIT) recently launched an initiative to provide a standard benchmark certification to assess EMR products. The CCHIT certification is generally the most important attribute to watch for since, many of the awards are highly subjective, the CCHIT certification is based on a series of pass/fail points that the vendor's product must have. These points include such things as encryption, HL7 capability, ability to run without errors and many more items.

The cost for a vendor to become certified is very high and is prohibitive to many smaller vendors. A number of currently certified products actually have some of the poorest reputations for end user satisfaction. Ultimately, the CCHIT certified vendors list should be used as an additional resource to supplement your own research. One must ask if a vendor is not CCHIT certified: Why? Is their product not able to pass? Could they not afford the certification fee?

TEPR, KLAS, AC Group and MS-Hug all provide ratings on the vendors but should all be taken with a "grain of salt" since not all vendors participate and like any award, rankings can be bought or easily influenced.

Links to these organizations can be found in Appendix B.

The Stark Law

Congress included a provision in the Omnibus Budget Reconciliation Act of 1989 (OBRA 1989) which barred self-referrals for clinical laboratory services under the Medicare program, effective January 1, 1992.

This provision is known as "Stark I". The law included a series of exceptions to the ban in order to accommodate legitimate business arrangements. A number of observers recommended extending the ban to other services and programs.

The Omnibus Budget Reconciliation Act of 1993 (OBRA 1993) expanded the restriction to a range of additional health services and applied it to both Medicare and Medicaid; this legislation, known as "Stark II," also contained clarifications and modifications to the exceptions in the original law.

The Stark Law has special implications for EMR software in that many hospitals are interested in purchasing EMR software for private practice doctors who are on staff or associated with the hospital. This is currently seen as a conflict of interest as hospitals have historically purchased computers and other equipment for private practices as an “incentive” to receive referrals.

There has however been talk about relaxing the Stark Law in an effort to increase EMR adoption throughout the country.

Second Generation EMRs

In the recent years we've seen a number of new EMRs taking advantage of the latest programming technologies such as Java and .NET which has enabled EMR vendors create more robust systems than ever before. At EMR Experts we call these new systems Second Generation EMRs.

Developed using the latest technologies, these EMRs are highly customizable, specialty-neutral, and capable of being deployed for both large groups (100+ providers) as well as solo practitioner offices.

Second Generation EMRs take advantage of internet friendly programming enabling them to be installed across multiple locations without the use of Terminal Services of Citrix remote access technologies.

Patient Portals

As the healthcare industry shifts its focus to Electronic Medical Records, many forward thinking practices are asking EMR vendors about “Patient Portals.”

A portal can be thought of as a gateway or door (in the form of a web interface) to related sets of data, content, and web services.

Some well-known portals include Google (www.google.com), MSN (www.msn.com) and Yahoo (www.yahoo.com) search sites.

Patient Portals typically provide communication services between patients and providers. Providers grant patients access (with a secure username and password) to information through a web connection. Patients can log in to the system to:

- Check appointment schedules
- Requests an appointment
- Check lab results
- Examine statements
- Request a prescription refill
- Complete new patient intake forms

Providers can send messages such as appointment reminders, electronic statements, and lab results to patients.

Providers can better communicate with their own patients. The attending doctor can easily communicate with patients' other attending physicians without the potential delay of traditional mail or phone messages.

Data is exchanged in a HIPAA (Health Insurance Portability and Accountability Act) (www.hipaa.org) compliant and secure fashion.

As exponentially more and more physicians adopt Electronic Medical Records they begin to realize the potential benefits of a Patient Portal.

All too often doctors spend time with patients discussing symptoms, illnesses, and providing medical advice for which they routinely do not bill for. Why? Perhaps a fast paced office with a waiting room of patients and falling behind in the day's schedule; too many things to remember beyond the "Chief Complaint."

This may be only one potential reason for under coding and subsequent under billing that many doctors say is routine. The doctor's note in it's entirety and the professional manner in which it is ultimately written, documented and adhered to, is the prize.

The patient can log on to a HIPAA compliant and secure web site and complete much of their pertinent information on-line prior to their in-person visit.

The patient's data is encrypted. The practice can be sure that HIPAA standards are being met. Please consult with your vendor if you have security concerns.

To minimize the learning curve, data can be entered using on-line forms that look just like traditional paper forms. The forms can be the same forms the practice has been using for years.

Once a physician's practice has made the conversion from traditional paper charting to the EMR world, it becomes much easier to add a Patient Portal.

The practice is the ultimate authority regarding how much data is conveyed to the patient. The patient does not have access to the doctor's records at any time. The patient only sees what the doctor wants them to see. The physician note remains protected.

The office staff enjoys the benefits of the patient portal too. The days of sending the patient a registration packet and hoping it's complete before the office visit are gone forever. Staff no longer has to wait while the patient fills in all the necessary information.

The patient fills out the paper work in the luxury of their own home. For patients that do not have access to an internet-enabled computer, a touch screen kiosk can be set up in the lobby away from wandering eyes.

New functionality is being added to patient portals. Some EMR vendors that support Patient Portal even have English & Spanish versions with automatic translation built in.

Through a quality Patient Portal, the capability exists for test results to be viewed by the patient. This is not to be confused with the newest health care product release by Microsoft: the Microsoft Health Vault (Announced October 5, 2007). This product allows an individual to store their own person health documents in a secure vault.

Ideally, the practice using a high quality Patient Portal allows the patient to upload their records to a central repository. The continuity of care between different doctors of different specialties, in different locations, becomes a reality for the self-help health- conscious consumer.

A web presence is important. A physician practice is a business. Like most businesses, a quality web site becomes you "store front" to a prospective patient. Acceptance of technology in healthcare is a growing trend. Sites like Web MD (www.webmd.com) provide the resourceful educated healthcare consumer with a valuable educational resource.

Many practices post educational information on their practice web site as a service to their patients. This information does not replace a doctor's care but serves as a valuable resource to the patient.

Consumers are demanding automation and web services in all facets of daily life. The health care practitioner needs to provide these types of services to remain competitive in today's health care market.

Final Steps

Final vendor selection should include input from your office personnel. "Buy in" from the office staff is critical to the degree of success or failure of an EMR implementation.

While staff members may be happy that the physician has decided to convert to EMR, they may be asking "what is in it for me?" Will their lives become simpler? Will they loose their job?

Such concerns among staff members can be alleviated by cultivating a sense of involvement in the selection process.

Participation in a product demonstration can solidify staff commitments and reinforce positive attitudes towards EMR use. Allow office members to ask questions pertinent to the impact of EMR in their daily lives. You may uncover something about the person or the product that you may not have otherwise thought of.

Always take one more look before buying. Ask yourself, “is the version being demonstrated the version I will buy? When was the last version released? When will the next version be released?”

By this point, references should have been checked, and on larger deals, a site visit to a current client is highly recommended. This will help you uncover unexpected costs and reinforce the implementation plan. It will also provide you with an example of what your office can achieve.

Now is the time to discuss customization requirements and new version releases. This is a simple tactic to drive a better deal.

Final Decision

Recognize that no system comes 100% complete--neither today nor in five years from now. All systems require a certain level of customization since no two practices are alike. Even as technical proficiencies for the end user improve, the technology will keep changing. The fact remains, someday, you will need to do this all over again. Embracing this fact can help in the smooth transition to an EMR since the many benefits of implementing an EMR in your practice are real.

Make your decision, leaving behind regrets, doubts, and hesitations. If you have done your research, asked the right questions, and consulted the experts, then you have done your best to make the right decision.

EMR Tailored to your Specialty

EMR Experts offers a one-stop shop to healthcare organizations looking to become paperless through Electronic Medical Records. Working with over 20 different software vendors, EMR Experts has researched over 100 vendors in their partner selection process. EMR Experts also provides comprehensive implementation support and project management services to all their clients free of charge.

EMR Experts also offers Electronic Medical Record Software integrated Practice Management solutions to meet the complex billing needs of today's healthcare organization, offering solutions from small physician offices to medical billing services to hospitals.

We offer solutions to the following specialties:

» Behavioral Health
» Cardiology
» Chiropractic
» Dermatology
» Endocrinology
» ENT/Otolaryngology
» Family Practice
» Gastroenterology
» General Surgery
» Geriatric Care
» Internal Medicine
» Neurology
» OB-GYN
» Occupational Medicine
» Oncology
» Ophthalmology
» Orthopedics
» Pain Management
» Pediatrics
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Chapter 5: Implementing an EMR

Although the implementation phase is possibly the most important topic in this e-book, it is unfortunately, often the most overlooked. In many cases, offices will thoroughly review different EMR packages, but once the product is purchased they expect the vendor to take over.

While many vendors' products are similar, the processes used for product implementation can vary greatly from vendor to vendor. Some offer remote training & installation services while others provide onsite services; some will give you both options. Selecting an implementation method suitable for your office and your budget will make a huge difference.

It's important to recognize that implementation costs will be a significant portion of your total EMR project expenditure. At first glance the price may seem unnecessarily high, but you must recognize the importance of achieving a successful implementation.

The implementation phase can be sub-divided into the following phases:

- Implementation Planning
- Preparation
- Build and Customize
- Install & Test
- Go-Live
- Maintenance

5.1 Implementation Planning

Planning for implementation may be done before or after the system is purchased. Again, in a multi-provider environment, it is advisable to appoint a leader or champion who will be responsible for planning, system setup, testing in both simulated and live environments, training, maintaining templates/rules, and managing future updates and customization.

He or she will become the main point of contact with the EMR vendor. When selecting a champion, it is imperative to select someone who is comfortable with technology, has adequate time available for training other users, and who can meet with the vendor. If possible, the appointed champion should be incentivized.

If necessary, hire an IT specialist to assist in setting up your computers. Even if this service is to be provided by the vendor, it is still recommended to have local IT help in the event of an emergency.

If you expect resistance from one or more doctors and would like to implement the EMR in phases, consider using a hybrid record. Hybrid records allow physicians to continue working

with paper charts while using the electronic super-bill or CPOE module to enter charges. If you are currently using a transcription service you may even consider offering EMR access to your transcription service and have them transcribe directly into the EMR for some of your doctors.

At the end of each patient encounter, all the resulting paper can be scanned into the system. This facilitates the conversion from paper charts, while also allowing you to use select features from the EMR such as electronic prescriptions, electronic lab orders, electronic faxing, and electronic charge posting. Once you are ready to fully implement the system, the process to go electronic is easier, as much of the patient data is already in the system.

After developing a strategy for converting your paper records, set a go-live date. The go-live date depends on factors such as the size of your office and the anticipated difficulty of the implementation process. You may choose to go live towards the end of the training period, or at a later date, once the majority of your active patient's records have been converted to the EMR system.

Use a project management method (for example a spreadsheet program) to track tasks, issues, requests and meetings. Tracking issues as they arise is crucial to meeting the long term goal of improving your system. By placing issues into a spreadsheet, setting urgency level for issues, and scheduling regular meetings to discuss status, you will be able to keep abreast of all concerns as well as problems that may arise.

Conversion Planning

Consider how to manage your existing records. At this point, if transitioning from paper records is warranted; you will need to plan carefully.

There are many factors which will affect this decision, such as the total number of records, the number of active patients, the content and size of the records and simply the practices foreseen ability to transition to an EMR. Whichever solution you choose, a number of older records will need to be kept for easy access, while others will need to be converted immediately.

Before any conversion plan is implemented it is recommended that you purge your charts, moving any old patients to storage or to a separate location to help make managing your active charts easier.

If you are also converting financial records such as accounts receivable and insurance information, you'll need to plan on running your old practice management software in tandem with your new software in an effort to eventually transfer your balances to the new system.

You will also need to implement a protocol for the scanning and mapping of patient charts into the EMR. This is typically done by holding practice meetings where one staff member of each department decides what data they need readily accessible in the EMR the first time they see a patient under the EMR. You may decide to pull 10 or 20 different charts of varying types of patients, based on type of condition, size of chart, age of patient, etc. to help you plan the scanning protocol for your different types of charts. For example, if it is a diabetes patient you

may want to have the last couple lab results manually entered into the EMR. Each staff member will have to make some sacrifices since it is very labor intensive to map data from a paper chart to an EMR.

You will also want to implement a system to mark charts that have been scanned and mapped into the system so that nothing goes into the chart without it also going into the EMR. This can be done with a colored sticker which is fixed to the chart after scanning. If the entire chart is scanned into the EMR, not just the most recent data you can simply shred the chart and skip this step all together.

Consider using one of the following methods for you EMR transition:

1) Scan all active patients into the system prior to going live

This method requires you to purge your records for all highly active patients (whom you expect to see within the next 2-4 months). These records will then be scanned and mapped into your EMR system. Because of the sheer volume of charts you will typically need to hire a team of temporary employees to assist your practice with this process. One of the problems with this method is that the scanning process typically takes at least 3 weeks to complete, making it an issue if a chart is scanned into the system and the patient unexpectedly comes in for a visit between the time you scan the chart and you go live on the EMR. It is therefore critical to mark the chart to ensure that nothing is added to the chart without also being added to the EMR.

2) Scan all patient charts in the day before their visit

This process is similar to the above method. The difference is that you will not have to worry about seeing patients during the transition period since the chart is scanned in the day before the encounter. The downside to using this method is that it requires expert management to ensure that the next day's charts are completely scanned in and mapped in each day. The other downside is that this process may take months, and in most cases you will need to hire supplemental staff for the scanning/mapping during this entire time.

3) Phased-in approach

This method allows you to ease into the EMR by initially documenting one or two patients per day in the EMR. This will also only require your office to scan and map one or two charts per day which is easily done without hiring any extra staff. The downside to using this method is that it can be difficult to manage since some patients are on the EMR and some are not.

If you are also converting financial records such as accounts receivable and insurance information, you'll need to plan on running your old practice management software in tandem with your new software in an effort to eventually transfer your balances to the new system.

5.2 Prepare you practice

Start preparing as soon as you've selected a vendor. You will work with the vendor, project manager, consultants and IT professionals to purchase the appropriate hardware for the project and prepare your infrastructure for the EMR implementation.

Without the assistance of an IT professional, there is no guarantee that the correct computer hardware will have been purchased or networked correctly. The vendor will only identify the minimum computer hardware requirements; it does not provide answers to the real questions that arise during actual user installation.

Working with a professional IT company is highly recommended for integration and networking. When considering an IT company, always obtain multiple bids to confirm the best deal and best level of competency.

Keep in mind that finding a good IT company is like finding a good auto mechanic. An honest IT company will work hard to ensure your network is operational and will stand behind its work. A dishonest company, on the other hand, can run up excessive costs and is not likely to return in the event of trouble.

Selecting the right hardware for your office is critical. With many options available, it can be difficult select what's best for you and your practice. The hardware you do choose should not overwhelm your staff. Have staff test different products to discern which technology they are comfortable with and which technology compliments your office's workflow.

Which is best for you? Tablet PCs, Workstations or Laptops?

You could choose to have a workstation in each treatment room. Conversely, you might select a single Tablet PC that can be taken from treatment room to treatment room or a laptop on a rolling card that can be rolled around the office with you.

There are many things to consider when selecting the hardware setup for your office. Firstly, you and your staff's computer proficiencies need to be considered since Tablet PCs tend to be much more difficult to use than workstations or laptops. However, many systems don't offer a quick way to log into the system, such as an ID card swipe system or fingerprint recognition, making it a significant inconvenience to you and your staff to log in and out of the system every time you go to a different treatment room or computer station. Whereas laptops on a rolling cart and Tablet PCs can move with you through the practice, eliminating the need to log in and out of the system.

If you like the idea of a Tablet PC but fear the learning curve or inconvenience of not having a readily accessible keyboard you do have the option of placing a docking station, keyboard and mouse in each of your treatment rooms and/or computer stations. This will allow you to place your Tablet PC in the docking station as soon as you enter the room, immediately providing you with a standard keyboard and mouse to use during the encounter.

Tablet PCs

These days Tablet PCs are the most popular choice for physicians.

This is not to say that Tablet PCs are always the best choice. The technology has a number of drawbacks including limited battery life, cost, steep learning curves and moderate durability. When selecting a Tablet PC you'll need to consider which features are most important to you.

Tablet PCs come in two styles: slate and convertible. The primary difference lies in the built-in keyboard sported by the convertible-style model.

The slate-style Tablet PC, on the other hand, lacking any keyboard, requires the use of a stylus/digitizer pen. Although the convertible style has full Tablet PC capabilities such as hand-writing recognition, speech recognition and mobility, it tends to be thicker and heavier because of the weight of the keyboard. The weight difference between the two models is usually about one to two pounds.

Some EMRs contain very extensive clinical content databases, rendering them more point and click friendly. These EMR systems usually operate better with slate style Tablet PCs as handwriting recognition and typing are used less frequently. In most cases, however, the slate-style Tablet PC, being lighter, (usually 3.5 lbs), easier to carry, and offering more advanced features, proves to be the better choice.

However, if you think you will be using the Tablet PC out of the office or if your work requires frequent keyboard use, the convertible model is the more robust option.

What type of CPU is best for Tablet PCs?

Tablet PCs come equipped with three types of CPUs, the Intel Celeron®, Intel Pentium® M and the Intel Core 2 Duo®, also called the Centrino Duo®. While the Celeron® is significantly less expensive, it lacks a number of important features, including integrated wireless, faster performance, improved stability, and advanced power-saving controls, all of which do come with Centrino Duo® or Core 2 Duo® technology.

The wireless chipset included with the Centrino® and Core 2 Duo® platforms contains generally high-quality wireless circuits that function in both 802.11b, 802.11g and 802.11n environments. A physician office setting will see heavy use of wireless technology, therefore selecting a Tablet PC with solid wireless capabilities is vital.

How long will the batteries last?

Battery life for a Tablet PC ranges from two to four hours depending on the model. While many of the Tablet PC manufacturers claim to have higher battery life, they often do not take into account actual Tablet PC use. For example, the built-in wireless networking, as well as larger applications such as Electronic Medical Records software tends to drain the battery's life at much faster rate.

Even under these operating conditions, almost all Tablet PCs have a minimum battery life of two hours and some Tablet PCs offered by Motion (www.motioncomputing.com), HP

(www.hp.com), Fujitsu (www.fujitsu.com) and Electrovaya (www.electrovaya.com) can achieve a consistent battery life of over 3.5 hours during heavy use.

Many of the Tablet PCs now feature an extended or second battery option. In Motion's case you can attach their extended battery to gain an extra 3 to 4 hours of battery life, giving you at least 7 hours of continuous use without a recharge. Motion also features replacement batteries which can be hot swapped throughout the day. Fujitsu, IBM and ASUS all make convertible notebooks which feature a multi-use bay that supports a second battery, giving the computers at least 5 hours of battery life.

Which Tablet PCs are best for use in physician offices?

Although there is no clear choice when it comes to purchasing a Tablet PC, there are a few models that have become very popular among physicians and generally prove to be effective choices:

The new Motion LE1700® Tablet PC by Motion Computing and Fujitsu ST5000® Tablet PC are arguably the best slate-style Tablet PCs on the market; both range between $1700-$2500.

The Fujitsu T2010®, ASUS R1F, Lenovo X61 are all great convertible Tablet PCs. All three range in cost from $1500-$2200.

The newly released Motion C5® from Motion is another option. Designed especially for healthcare use, the Motion C5 includes a built-in bar code scanner to track patients and medications, a video and still camera for documentation, and radio frequency identification technology which can automatically retrieve chart information and record vitals using wireless technology. The tablet is also enclosed in a durable case which can be easily sanitized without damaging the system. Unfortunately, the monitor is only 10.4”, making it difficult to use with applications that use smaller fonts. The unit is also expensive at approximately $2,300.

How do Tablet PCs connect to my network?

Tablet PCs come equipped with built-in wireless networking functionality. Some Tablets, for example the Motion LE1700 feature a built-in Sprint wireless card. In order for a Tablet PC to send or receive data in real-time, you must be connected to a wireless network. (More information on wireless networking can be found in the “Networking” section below.)

Workstations

Workstations can be used in conjunction with Tablet PCs, laptops or all on their own in each treatment room. Many offices choose to use workstations instead of Tablet PCs simply because it is a relatively uncomplicated technology, with less of a learning curve.

Workstations can be an ideal option if an office has a large number of providers but few treatment rooms. In this scenario an office is not required to equip each provider/assistant with a Tablet PC or laptop, as one workstation per treatment room is sufficient.

Workstations are almost always the choice system for front desk computers or where mobile computers are not required and/or cost is a concern as they usually price well below $1000 per unit. Ultra Small Form Factor (USFF) workstations by manufacturers such as Dell® and IBM® are very popular options for offices with limited space.

Laptops

Laptops are a great low-cost solution commonly used for nurses and assistants who require some mobility. Often laptops are placed on rolling carts providing convenient mobile access while permitting the user to have their hands free. Laptops can be purchased for as little as $700 these days from reputable vendors such as Dell®, Acer®, HP® and Gateway®.

Servers

A server is the backbone for all your computers. If you are using software that operates under a client-server model, you will be required to purchase a server for your office if you don't have one already that meets the vendors' minimum requirements. Purchasing a server can be quite complicated and prices can range from $2000 to tens of thousands of dollars.

The first step in the selection of a server is to meet the vendor's minimum requirements. You will also need to make other decisions such as database software, backup systems, storage, and operating system. Be sure to find out what database technology your software vendor uses; you may need to purchase that software if it is not included.

Selecting a server with a RAID (Redundant Array of Independent Disks) array will protect your data from the very real possibility of hard drive failure. A RAID supported server copies data onto more than one hard drive simultaneously providing immediate, accessible, backup protection for your data.

The two most common types of RAID arrays used in servers for small organizations are RAID 1 and RAID 5. Both provide hard drive redundancy; however a RAID 5 array is faster and recovery in the event of a hard drive failure is much easier. It is also more expensive than RAID 1. RAID should be a minimum requirement for your server as hard drive failure is common and RAID arrays are generally quite inexpensive, usually under $1000.

Operating System

Deciding which operating system you will need for your server can be challenging. If your vendor requires MS SQL Server and your organization has fewer than ten concurrent users, then a server with Microsoft Small Business Server 2003 Premium Edition® is usually your best bet.

If, however, you have more than ten concurrent users you will likely want to purchase Microsoft Server Standard Edition and MS SQL Server separately as Microsoft requires you to purchase CALs (Client Licenses) for each concurrent user.

Windows 2003 Small Business Server is more expensive if your office has a larger number of employees as each Client Access License (CAL) is more expensive than those of Windows 2003 Server.

Some systems operate under UNIX or Linux servers. If your software is one of those, then it is usually best to consult your vendor or local IT company as to which type of server you will need.

Imaging Devices

While we can never eliminate paper from the office, we can make the process of handling the influx as easy as possible.

Fujitsu's 5100 series scanners are the most commonly used models in the industry. They have small footprints and therefore can be placed directly beside a computer terminal located at a front desk. This will allow your staff to quickly scan documentation such as intake forms, HIPAA forms, referral letters, and insurance cards without having to leave their station.

Multi-function units which include print and fax capabilities are cost-effective options where limited scanning will be done. High speed scanners handling over 25 PPM (pages per minute) may be purchased or rented for the initial implementation phase during which heavy scanning is anticipated.

Backup

> ***Fact:*** *Ninety-three percent of companies that lost their data for 10 days or more due to a disaster filed for bankruptcy within one year. Half of those same businesses that found themselves without data management for this same period of time filed for bankruptcy immediately.*
> *Source: National Archives & records*

In our own experience, fewer than 50% of medical offices have a working backup system in place. Total loss of your patient or financial records can easily ruin your business.

Putting the correct precautions in place is simple and does not need to be expensive. In addition to employing a reliable backup system with recent copies stored off-site, your system should be tested monthly with a full recovery simulation from your backup image files.

Online Backup

If you are using an ASP-based system in which your data is stored off-site, your vendor will typically take care of your database backup for you. But if you are using a client-server system, it is almost always your responsibility. Tape backup is the most common backup system and usually cost less than $1000 for a complete system, assuming you aren't backing up more than 100GB of data.

Online backup services are becoming increasingly popular for backing up patient data as all data is kept off site, protecting your practice in the event of a fire, theft, hurricane, earthquake, flood or other natural disasters. Costs typically range between $20 and $100 per month.

While online backup could function as your sole backup system, it is usually used in conjunction with a tape backup or hard drive backup system for redundancy. Do not take backing up your system lightly-- imagine, if you will, the effect on your practice if all your paper charts simply vanished from your office.

EMR Experts offers HIPAA compliant backup solutions to practices using client/server based EMRs. For more information please visit www.emrexperts.com

Networking

Your network connects all your computers to one another, to the EMR system, and to the internet. The type of software you purchase and the type of hardware you select will dictate the type of network you need.

If Tablet PCs, PDAs or laptops will be used, you must plan on integrating a wireless network into your wired network. In order for wireless devices to send or receive data in real time, you must be connected to a wireless network. To do this you need a Wireless Access Point which enables you to connect the Tablet PC(s) wirelessly to your wired network.

Business-quality wireless access points from Cisco, 3COM, NetGear, and Linksys are all sound options and generally cost between $150 and $600. It's critical that you purchase a high quality wireless access point.

If you are using an ASP-based system, you will need to plan on integrating a high-quality internet connection into your network and enable access to the internet from each terminal.

In most cases each terminal will need to have internet access as most software vendors will require it to provide technical support. If you are using a client-server based system and wish to have remote access to this system, you will need to acquire an internet connection with a Static IP address.

Internet Access

The type of server you use-- either an ASP or a client-server based system-- will dictate which type of internet connection you will need. ASP-based systems in most cases will require you to lease a T1/T3 internet connection.

These connections are faster than standard ADSL or cable internet connections and may be necessary due to the large amount of data that will be transmitted between your office and the remote location where your data is housed.

For smaller offices or for satellite offices that do not experience heavy patient volume, a high end business DSL connection will often suffice. For offices using a client-server based system with limited remote access requirements, a business class DSL or cable connection will

suffice. In all cases a Static IP address will be required for remote access and technical support.

Security

For all their virtues, the internet and networks bring with them new security risks. For medical offices where patient confidentiality is a principle concern, security breaches can be very costly. Unfortunately, proper security measures are often overlooked.

To limit your risk to security violations, enlist the help of a trained IT professional with extensive experience in IT security. Both virus and spyware protection should be implemented as a minimum security measure.

Secure your network with a firewall to protect yourself from unwanted intruders on the internet. Manage client logins to protect your data from disgruntled employees (the most common source of security breaches).

If a wireless network is to be installed, it is critical that the proper security measures have been put in place to protect against intruders accessing your wireless network from the area around your office, for example, your parking lot.

5.3 Build and Customize

During this phase, the vendor will design and build the EMR to your specifications. You will be responsible for testing features and providing the necessary feedback on any customization.

As all EMRs incorporate some level of customization—e.g. templates, forms, workflow, it is important that all these items are tested *before* installation. In taking this approach you will have a number of opportunities to make sure that this is the right system for your office before it is installed.

Should you become unsatisfied with the software's performance, it is much easier to return the software at this time than after the installation. Vendors are also more willing to work with you to customize the system prior to the installation as they are motivated to finish installation and collect their final payment.

If you requested a data conversion from your previous system, this will also be completed during this phase. Data conversions are prone to problems, making it even more important to have them finished during this phase of the implementation.

While the system will be thoroughly tested after the installation of the software and before the go-live date, testing during the system build phase is also required. This is usually performed remotely by connecting to the vendor's system via the internet.

This particular set up makes it difficult to test the performance of the system, but workflow and features testing should be done. Have the office champion input patient data and perform all of your most common tasks during testing.

5.4 Install & Test

The installation process is a joint effort by your IT representatives and the vendor. Therefore, it is crucial that there is open communication between the vendor and the IT reps. If you do not yet have an IT consultant, ask your colleagues in the area whom they use and what their experience with them has been.

> *Tip: Involve the IT representatives during the installation of the EMR so they may later assist in properly maintaining the system*

When scheduling the installation choose a time over a weekend or when the office is closed for the necessary number of days. If your installation will take more than a couple days, plan your patient visits around the installation.

The testing of the newly installed system is a critical step in ensuring a successful implementation and is often skipped by offices because they are behind schedule or they simply expect the system to be completely operational once installed. This, however, is rarely the case. EMRs are highly customizable systems and are usually built to suit.

It's critical that during the testing phase all aspects of the system are tested, including the workflow, templates and any HL7 interfaces to labs, pharmacies, hospitals, etc. Too often the system is not completely tested which then affects training and puts added pressure on the staff after the training process because they are using a system that is not fully functional.

5.5 Train

Training should be seen as an ongoing process throughout the life of your EMR. As new features are added, your office should receive proper training for each feature.

One of the many benefits of an EMR is its ability to standardize your office's workflow. When new staff is hired, it makes just as much sense to have them trained by the vendor as it does to have them trained by a member of your staff. Using a combination of both will ensure that your new hires understand how to leverage the many features of an EMR while understanding the workflow of your office.

Vendors have a tendency to not provide enough training in their initial training packages, or to rush through training in an effort to wrap up the implementation and move on to the next customer.

To maximize the training plan, realize it in stages to give your staff adequate time to actually use the modules they've recently learned before moving on to new modules.

Every office learns at a different pace so be prepared to purchase additional training sessions should you find that you or your staff is not ready to go live. A classroom setting can be helpful in the preliminary training phases, especially if 10 or more staff members need to be trained. However, remote training over the internet for the preliminary training phases is both cost-effective and disperses the training load.

A 'Train-the-Trainer' approach is a strategy that can work very well. This usually involves someone with a strong understanding of computers who goes through in depth training from the vendor and is then responsible for training all the staff. They will generally take a lighter workload during implementation and be in charge of training all the staff able to take a lighter workload during the implementation phase to train others.

5.6 Go Live

Once the previous phases are completed, it's time to go live. Schedule a lighter patient load for the following weeks or even months. Your actual go live date should be no more than 50% of your normal patient load. Depending on the size of your practice but for a 1-10 doctor practice we at EMR Experts recommend a 50% patient load for the first week, then graduating to a 75% patient load for the few weeks after that. You may also plan on meeting on weekends to plan for the following week, adjust templates and work on a to-do list for the vendor.

Ensure that technical support is readily available. In most cases you should have a vendor representative onsite for a few days before your go live date and a few days after.

5.7 Maintenance

Allocate the necessary resources to ensure you are able to properly maintain your system. This especially includes regular maintenance on your computers by a local IT company. Continue with follow-up training and upgrades to your computer systems to take advantage of the latest technologies. No EMR system is ever fully implemented. It is, rather an ongoing process of building and improving on what has already been achieved, and on what will come.

Use an Excel® spreadsheet or similar system to track problems or bugs and share this information with the vendor so that each problem gets resolved and communication with the vendor is documented. It's very easy for requests for fixes of updates to drag on and never get done. Using a spreadsheet to track this can help you set and achieve goals for fixes and updates.

Once you've been using the system for a couple months you should perform a benefits realization study against your cost-benefit analysis to see which goals you've achieved and what still needs to be improved.

You may find that you are now overstaffed or that you aren't using some features as well as expected, or that you simply are not as productive as you thought you would be. Set new goals and adjust existing ones. Repeat this whole process again in 6-12 months.

Conclusion

The prospect of converting to Electronic Medical Records should not be frightening. Change requires careful planning and thoughtful execution. Selecting an EMR suited to your needs is only about twenty percent of the process.

Rigorous planning and allocating sufficient resources to the implementation process are two of the most important components of EMR conversion. In our own experience we have never come across an office that regretted their decision to move to EMR, despite the all challenges.

In our wired world of evidence-based medicine, the paper chart remains a bastion to a futureless past. The time to convert is now.

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What is the EMR Experts Network? The EMR Experts Network is a network of healthcare IT vendors that have been hand-selected by EMR Experts because of their great support, value and focus on research & development.

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Appendix A - Vendor Listing

As of 12/15/07

Company	Product	Website
7 Medical	7M PRM on demand	www.7medical.com
ABELSoft Corporation	ABELMed PM-EMR	www.abelmed.com
Acrendo Software, Inc.	A.I.med	www.acrendo.com
ActiveMD	ActiveMD	www.activemd.com
Addison Health Systems, Inc.	WritePad	www.writepad.com
Advanced Data Systems Corporation	MedicsElite (PM); MedicsDocAssistant (EMR)	www.adsc.com
AdvancedMD	AdvancedMD,AdvancedEMR	www.advancedmd.com
Aimset Corp.	AimsetEMR	www.aimset.com
Allmeds Inc.	APM; Allmeds EMR	www.allmeds.com
Allscripts	HealthMatics Electronic Health Record; TouchWorks Electronic Health Record	www.allscripts.com
Alpha iT	Universal e-Health MD	www.alpha-it.com
AltaPoint	AltaPoint Medical (PM); AltaPoint EMR EMR)	www.altapoint.com
Alteer Corporation	Alteer Premiere, Alteer Office	www.alteer.com
Altex Solutions	Charting Plus by Medinotes (EMR) PM - Lytec, Medisoft	www.altexsolutions.com
Altos Solutions	OncoEMR	www.altossolutions.com
Amazing Charts	Amazingcharts	www.amazingcharts.com
American Medical Records	ImagingEMR	www.americanmedicalrecords.com
American Medical Software	AMS	www.americanmedical.com
Amicore	Amicore Clinical Management	www.amicore.com
Amkai, Inc. Enterprise	AmkaiEnterprise	www.amkai.com
AMZ Access	CureAccess EMR	www.amzaccess.com
AntheSys. Inc.	TranzEMR	www.tranzemr.com
Assist Med	MediPort	www.assistmed.com
athenahealth, Inc.	athenaClinicals	www.athenahealth.com

Axolotl Corp.	Elysium EMR	www.axolotl.com
BizMatics	PrognoCIS	www.bizmaticsinc.com
Blueware	Wellness Connection EHR	www.blueware.us
BMD Services, Inc.	ePaperless Practice	www.bmdservices.net
Bond Technologies	Bond Clinician	www.bondclinician.com
Catalis	Accelerator	www.catalis.com
Centralx	HiDoctor 7.5	www.centralx.com
Cerner Corporation	PowerWorks	www.cerner.com
ChartCare	ChartCare	www.chartcare.com
ChartConnect, Inc.	ChartConnect EMR	www.chartconnect.com
ChartLogic, Inc.	ChartLogic	www.chartlogic.com
ChartOne	eWebView	www.chartone.com
Chartware	Chartware	www.chartware.com
Clinical NetworRx, Inc.	Clinical Master	www.cnrx.com
CliniComp Intl.	Essentris	www.clinicomp.com
ComChart	ComChart	www.comchart.com
Community EHR	xeniamed	www.community-emr.com
Companion Technologies	Companion EMR	www.companiontechnologies.com
Compulink	Laserfiche	www.compulink.com
Conceptual Mindworks Inc.	Sevocity	www.conceptualmindworks.com
CorEMR	CorEMR	www.coremr.com
CorrecTek Inc.	CorrecTek Inc.	www.correctek.com
Crowell Systems	Medformix	www.crowellsystems.com
CureMD Corporation	CureMD EHR	www.curemd.com
CyberRecords, Inc.	MediChart Express	www.cyberrecordsmd.com
Dairyland Healthcare Solutions	EMR	www.dhsnet.com
digiChart, Inc.	digiChart OB-GYN	www.digichart.com
Doctor Partners	DoctorsPartner EMR	www.emr-electronicmedicalrecords.com
DocuTAP	DocuTAP	www.urgentcareemr.com
Dyna Health LLC	Dyna Health	www.dynahealth.net
E Medical Solutions, inc.	EMR2	www.emr2.com
eCast Corporation	eCast; eCast Advance	www.ecastcorp.com
EClinicalWorks	EClinicalWorks	www.eclinicalworks.com

Eclipsys Coporation	Sunrise Ambulatory Care and Clinical Manager	www.eclipsys.com
edgeMED Healthcare Solutions, Inc.	EHR	www.edgemed.com
eHealthSolutions Inc.	SigmaCare	www.ehealthsolutions.com
Electronic Healthcare Systems (EHS)	CareRevolution	www.carerevolution.com
Electronic Pediatrician LLC	Practical Medical Record	www.electronicpediatrician.com
E-MDs, Inc.	e-MDs Solution Series	www.e-mds.com
EMedical, Inc.	EZ Medical Office	www.ezmedicaloffice.com
EmergiSoft	EmergiSoftED	www.emergisoft.com
EMR4Doctors	EMR4 CHARTS	www.emr4doctors.com
Encite Inc.	TouchChart	www.encite.us
EncounterNOTES Inc.	EncounterNOTES	www.encounternotes.com
Epic Systems Corporation	Epic Care AmbulatoryEMR	www.epicsystems.com
ePowerDoc, Inc.	ePowerDoc	www.epowerdoc.com
Ergo Partners	EMRitus	www.ergopartners.com
Ethidium Health Systems	Evolution EMR	www.evolutionemr.com
Experior Corporation	Experior	www.experior.com
GEMMS	GEMMS ONE	www.gemmsnet.com
GE Healthcare	Centricity EMR; Centricity Practice Solution	www.ge.com
GeniusDoc	Genius Doc	www.geniusdoc.com
gMed, Inc.	gCare	www.gmed.com
Greenway Medical Technologies	PrimeSuite 2007	www.greenwaymedical.com
Gscribe, Inc.	Gscribe	www.igsp.com
Health Highway, Inc.	Health Highway EMR	www.healthhighway.com
HealthCare Data, Inc.	Health Probe Professional	www.healthprobe.com
HealthLink Technologies	InTouch	www.getintouch.ca
HealthTec Software, Inc.	HealthTec EHR	www.foxmed.com
Healthvision, inc.	Healthvision (Basic and Full-Featured EMR)	www.healthvision.com
Helixys	ZipChart EMR	www.helixys.com
Hemidata	Hemidata EMR	www.hemidata.com
Henry Schein Medical Systems, Inc.	MicroMD EMR	www.micromd.com

Iatroware	IatroChart	www.iatroware.com
ICP	MedicallySpeaking	www.icp-tech.com
IDX	see Centricity	www.idx.com
iKnowMed	iKnowMed	www.iknowmed.com
iMed Software Corporation	iMed EMR	www.imedemr.com
iMedica Coporation	iMedica PRM	www.imedica.com
iMedx	iMed	www.imedx.com
IMPAC Medical Systems, Inc.	IMPAC EMR	www.impac.com
Infor-Med Medical Information Systems, Inc.	Praxis EMR	www.infor-med.com
InfoSys	CareVoyant	www.infosysusa.com
InSite Systems, Inc.	MD InSite	www.insitesys.com
Integrated Healthware, LLC	Physicians' Workstation Suite	www.ihealthware.com
Integrated Systems Management Inc.	OmniMD	www.omnimd.com
InteGreat, Inc.	IC-Chart	www.igreat.com
Integritas, Inc.	STIX EMR	www.integritas.com
iSalus healthcare	OfficeEMR	www.isalushealthcare.com
iSALUS healthcare	OfficeEMR	www.mostllc.com
ITD Unlimited, LLC	OpenEMR	www.openemr.net
JMJ Technologies, Inc.	EncounterPRO	www.jmjtech.com
Jonoke Software Development Inc.	JonokeMed	www.jonoke.com
jRW Inc.	ePatientChart	www.epatientchart.com
Kietra Corporation	XPR	www.kietra.com
Life Record Inc.	Life Record EMR	www.liferecord.com
LifeWatach Technologies, Inc.	LifeT.I.M.E	www.lifewatchinc.com
LoginClinic, Inc.	LoginClinic	www.loginclinic.com
LSS Data Systems	Medical and Practice Management (MPM) Suite MAGIC	www.lssdata.com
MacPractice, Inc.	MacPractice MD	www.macpractice.com
Marshfield Clinic	CattailsMD	www.marshfieldclinic.org
McKesson	Horizon Ambulatory Care	www.mckesson.com
MCS-Medical	mMD.Net EHR	www.medcomsys.com

Communication Systems		
MDoffice Inc.	MDOffice	www.mdbase.com
MDTablet, LLC	MDTablet	www.mdtablet.com
MedAffinity Corp.	Medinotes	www.medinotes.com
Medamation Incorporated	Medamation MD	www.medamation.com
MedAppz	MedAppz iSuite	www.medappz.com
Medaptus	Notes In Hand	www.medaptus.com
MedAZ.net	MEDAZ	www.medaz.net
Medcere	Medcere EMR	www.medcere.com
MedcomSoft, Inc.	MedcomSoft Record	www.medcomsoft.com
Medent	MEDENT	www.medent.com
Medepresence LLC	MedePresence	www.medepresence.com
Medical Club Inc.	Medical Club EMR	www.medicalclub.com
Medical Informatics Engineering	WebChart	www.mieweb.com
Medical Office Online, Inc.	Medical Office Online	www.MedicalOfficeOnline.com
Medical Records Online	Chart Online	www.mrocorp.com
Medical Technologies, Int'l (MTi)	Harmony	www.medtec.net
MedicalNotes.com	Medicalnote	www.medicalnotes.com
Medicat, LLC	Medicat	www.medicat.com
Medico System	Digital clinic	www.medicosystem.com
MedicWare	MedicWare EMR	www.medicware.com
Medinformatix Inc.	MedInformatix	www.medinformatix.com
MediNotes Corporation	MediNotes e	www.medinotes.com
Meditab Software, Inc.	IMS EMR	www.meditab.com
MedLink International, Inc.	MedLink EHR	www.medlinkus.com
Mednet System	Mednet	www.mednetsystem.com
Mednet System	emr4MD	www.mednetsystem.com
MedPlexus, Inc.	MedPlexus EHR	www.medplexus.com
Medsphere Systems Corporation	OpenVista EHR	www.medsphere.com
MedStar Systems, LLC	EMRWorks	www.medstarsystems.com
MEDSYS Technologies, Inc.	MARS	www.medsystechnologies.com
Medtuity, Inc.	MedtuityEMR	www.medtuity.com

Megatech International Corp.	DocPad	www.docpad.com
MercuryMD	MHR (Mobile Health Record)	www.mercurymd.com
meridianEMR, Inc	meridianEMR	www.meridianemr.com
MicrFour, Inc.	PracticeStudio	www.microfour.com
Misys Healthcare Systems	Misys EMR	www.misyshealthcare.com
Mountain Medical Technologies, Inc.	CYRAMED	www.mountainmeditech.com
NCG Medical Systems, Inc.	d-Chart	www.ncgmedical.com
NextGen Healthcare Information Systems, Inc.	NextGen EMR	www.nextgen.com
Nightingale Informatix Corporation	MyNightingale EMR	www.nightingale.md
Nopali inc.	Nopali EMR	www.nopali.com
Noteworthy Medical Systems, Inc.	NoteworthyEHR	www.noteworthyms.com
Nuesoft Technologies, Inc.	NueMD	www.nuesoft.com
OCERIS Inc.	FlexMedical	www.oceris.com
PatientKeeper, Inc.	PatientKeeper	www.patientkeeper.com
PatientNow	PatientNow	www.patientnow.com
Per-Se Technologies	Med-Axxis	www.per-se.com
Physician Micro Systems, Inc.	Practice Partner Patient Records	www.pmsi.com
Phyz Biz, Inc.	Phyz EMR	www.phyzbiz.com
PluralSoft, Inc.	Clinicio	www.pluralsoft.com
PowerMed Corp.	PowerMed EMR	www.powermed.com
Practice Partner	Practice Today (EMR)	www.practicetoday.com
Practice Velocity, LLC	PiVot Chart	www.practicevelocity.com
PracticeHwy.com, Inc.	eIVF	www.practicehwy.com
Prime Clinical Systems	Patient Chart Manager	www.primeclinical.com
ProPractica, Inc.	StreamlineMD	www.propractica.com
Pulse Systems Inc.	Pulse Patient Relationship Management	www.pulseinc.com
Purkinje, Inc.	CareSeries EHR	www.purkinje.com
Quincy Systems, LLC	MediTalk	www.quincysys.com
Reliance Software Systems, Inc.	Enterprise EMR	www.relware.com

RemedyMD	RemedyMD	www.remedymd.com
Roshtov Software Ind	Clicks	www.roshtov.com
Sage Software Healthcare, Inc.	Intergy	www.sagehealth.com
Sajix Inc.	Helix	www.sajix.com
Sapphire Enterprises	SapphireEMR	www.sapphireemr.com
Scriptnetics	Medscribbler	www.medscribbler.com
SequelSystems, Inc.	SequelMed EMR	www.sequelmed.com
SOAPware	SOAPware	www.docs.com
SoftAid, Inc.	The Medical Office Records	www.soft-aid.com
Solventus LLC	Aquifer.EMR	www.solventus.com
Spring Medical Systems, Inc.	SpringCharts	www.springmedical.com
SRS Software	SRS Chart Manager	www.srssoft.com
SSIMED, LLC	SSIMED EMRge	www.ssimed.com
STAT! Systems, Inc.	Q.D. clinical EMR	www.statsystems.com
Steadfast Data Systems Inc.	echarts4docs	www.echarts4docs.com
STI Computer Services Inc.	ChartMaker	www.perfectcare.com
Symmetry Information Systems	GMS/2	www.symmetryinfo.com
SynaMed	SynaMed	www.synamed.com
Synapse Direct	Synapse EMR	www.synapsedirect.com
Systemedx, Inc.	Clinical Navigator	www.systemedx.com
T System, Inc.	T System EV	www.tsystem.com
TetriDyn Solutions	AeroMD	www.aeromd.com
TheraManager LLC	Theramanager	www.theramanager.com
Turbo-Doc Medical Record Systems, Inc.	Turbo-Doc EMR	www.turbodoc.com
Ulrich Medical Concepts, Inc.	TeamChartConcepts	www.teamchartconcept.com
Unifi Technologies, Inc.	UnifiMed	www.unifitech.net
UTECH Products, Inc.	EndoSoft	www.endosoft.com
VantageMed	ChartKeeper	www.vantagemed.com
Vericle	Vericle EMR	www.vericle.net
VersaForm Systems Corp.	VersaForm	www.versaform.com

VersaSuite	VersaSuite	www.Versasuite.com
VipaHealth Solutions	SmartEMR	www.smartemr.com
Visionary Medical Systems, Inc.	Dream EMR	www.visionarymed.com
WEBeDoctor, Inc.	WEBeDoctor EMR	www.webedoctor.com
Wellogic	Wellogic	www.wellogic.com
WifiMed, Inc.	Tablet MD	www.wifi-med.com

Appendix B – Recommended Resources

The following websites are great resources for information on Electronic Medical Record software.

Certification Commission for Healthcare Information Technology (CCHIT)
www.cchit.org
Provides certifications for EMR/EHR software vendors.

Medical Records Institute
www.medrecinst.com
Managers of the EMR Road Show and the TEPR Conferences. TEPR Conferences are the largest EMR conferences, where most of the major vendors attend. EMR Road Show is a smaller conference put on several times a month in major cities. Many vendors have exhibits here and it's a great place to learn about EMR and see some of the vendors.

KLAS Enterprises LLC
www.healthcomputing.com
Consulting firm providing information on vendors, generally for hospital environments. Provide ratings and awards for most of the big name vendors.

AC Group
www.acgroup.org
Functionality reports and ratings on most of the major EMR products. Great resource organizations of all sizes.

Health Technology Review
www.healthtechnologyreview.com
An up-to-date list and reviews of EMR software vendors. Website includes a forum, product reviews, news and educational articles.

EMR Update
www.emrupdate.com
Largest forum on the web for Electronic Medical Records.

Doq-It
www.doqit.org
Provides vendor ratings and certifications

Microsoft Healthcare Users Group
www.mshug.org
Provides vendor product and support ratings.

Appendix C - Glossary

ADSL (Asymmetric Digital Subscriber Line): A type of DSL that uses copper telephone lines to transmit data faster than a traditional modem. ADSL only works within short distances because it uses high frequencies with short signals.

Ambulatory care: Any medical care delivered on an outpatient basis.

ASP (Applications Service Provider): A business that provides computer based services to customers over a network.

ASP (Active Server Page): A dynamically generated web page with ActiveX scripting, which executes on the server instead of on the Web browser (HTML). The Server executes the file and generates an HTML formatted page for Search Engine Spiders or Web Browsers for proper display.

BMI charts: Charts within EMR systems, which can manipulate data, perform calculations, and adapt to user preferences and patient characteristics; users may expect greater functionality from electronic BMI charts.

Capitated payments: Payment for healthcare services based on the number of patients who are covered for specific services over a specified period of time rather than the cost or number of services that are actually provided.

Citrix Server: A server solution, similar to Microsoft Terminal Services that provides remote access to clients via the web or to dummy terminals in a network.

CCHIT: Certification Commission for Healthcare Information Technology, the recognized certification authority for electronic health records and their networks, and an independent, voluntary, private-sector initiative.

Clearinghouse: A company that provides clearing and settlement services for medical financial transactions. Some of the more popular clearinghouses include Emdeon/WebMD, McKesson, and THIN.

Client-Server: A network architecture which separates the client (often an application that uses a graphical user interface) from the server.

Computerized Patient Record (CPR): Also known as an EMR or EHR: a patient's past, present, and future clinical data stored on a server.

Computerized Physician Order Entry (CPOE): A system used by physicians to electronically order lab tests, imaging and prescriptions

Continuity of Care Record (CCR): A new XML standard being developed for EMR software vendors which will theoretically allow patient data to be easily moved from one EMR vendor to the next in a structured database format.

CPT Code: A nationally recognizable five-digit number used to represent a service provided by a healthcare provider.

Digital Imaging and Communications in Medicine (DICOM): A standard to define the connectivity and communication between medical imaging devices.

Drug Formulary Database: An EMR feature used for electronic prescribing, electronic medical record (EMR), and computerized physician order entry (CPOE) systems to present formulary status to the provider during the prescribing decision.

E/M level coding: Evaluation and Management level coding–documentation of each visit which identifies each service provided during an office visit.

EDI: Electronic Data Interchange. Electronic communication between two parties, generally for the filing of electronic claims to payers.

Electronic Medical Records (EMR): A computerized record of a patient's clinical, demographic and administrative data. Also known as a computer-based patient record (CPR) or electronic health record (EHR).

Electronic Eligibility: an EMR feature which gives a payer access to deliver up-to-date insurance benefits eligibility information on patients.

Electronic Health Records (EHR): See *Electronic Medical Records (EMR)*

Explanation of Benefits (EOB): A statement from the patient's insurance company that breaks down services rendered at time of doctor or hospital visit and amounts covered by insurance provider.

Fee Schedule: A set maximum fee that an insurance company will pay a healthcare provider.

Fee-for-service: A health insurance plan that allows policyholders to pay for any provider service; submit a claim to the insurance company; and get reimbursed if the service is covered by the insurance provider.

First Data Bank: The leading provider of drug information. Provides context and integration information for healthcare of every type at every level.

Growth Chart: A feature designed for Primary Care or an EMR that can be used for pediatric patients. Age, height, weight, and head measurements can be entered over the patient's lifetime and charted on a line graph.

HCFA (CMS-1500 Form): The insurance claim form that a healthcare provider turns in to an insurance company

HIPAA: The Health Insurance Portability and Accountability Act of 1996 provides a set of federal regulations, which establish national standards for health care information.

HL7 (Health Level 7): part of the American National Standards Institute's accredited Standard Developing Organization (SDO);the Health Level 7 domain is the standard for electronic interchange of clinical, financial and administrative info among healthcare oriented computer systems. A not-for-profit volunteer organization, it develops specifications; the most widely used is the messaging standard that enables disparate health care applications to exchange key sets of clinical and administrative data. HL7 promotes the use of standards within and among healthcare organizations to increase the effectiveness and efficiency of healthcare delivery. HL7's international community of healthcare subject matter experts and information scientists are dedicated to the creation of a standard architecture for the exchange and transmission of clinical data.

Hybrid Record: when a provider uses a combination of paper and electronic medical records during the transition phase to EMR.

ICD-9: Internationally recognizable 3- to 5-digit code representing a medical diagnosis. Currently being replaced by the ICD-10 code.

IPA: Independent Physician Association or Independent Practice Association. Group of independent physicians which organizes to negotiate contracts with payers, and receive quantity discounts on products

Legacy System: Term used to describe an outdated system (usually hardware and software), i.e. old medical billing software system.

MEDCIN: Clinical documentation nomenclature designed to provide E&M level coding assistance to providers through the use of an extensive database for documenting patient encounters.

Multum: A popular drug formulary and alerts database.

National Provider Identifier (NPI): A unique number assigned to healthcare providers. Currently required for insurance billing.

Picture Archive Communication System (PACS): Used by radiology and diagnostic imaging organizations to electronically manage information and images.

Patient Portal: A secure web-based system that allows a patient to register for an appointment, schedule appointments, request prescription refills, send and receive secure patient-physician messages, view lab results, pay bills, and access physician directories.

Physician Practice Organization (PPO): An arrangement between insurers and healthcare providers in which providers agree to a discounted fee-for-service in exchange for more patients.

RAID (Redundant Array of Independent Disks): A way of storing the same data in different places on multiple hard disks. Often used on servers to provide redundancy in the event of a hard drive failure.

Remote Access: the ability to access a network or computer from a remote location, e.g. from home or another practice location which allows an EMR vendor to perform off-site system maintenance

SNOMED: (SNOMED CT) Systemized Nomenclature of Medicine Clinical Terms. The medical language standard which details health care terminology, providing comprehensive coverage for procedures, diseases, and clinical data. SNOMED CT helps to structure and computerize the medical record while allowing for a consistent means of indexing, storing, retrieving and aggregating clinical data across sites of care (i.e. hospitals, doctors offices) and specialties.

Stark Law: Part of the Omnibus Budget Reconciliation Act of 1989, the Stark Law prevents hospitals from purchasing EMR software and other equipment for private practice physicians in an effort to attract referrals.

SureScripts: Electronic exchange that links pharmacies and healthcare providers. Founded in 2001 by NACDS to make the prescribing process safer and more efficient.

SQL: Structured Query Language: A computer language used to store, manipulate and retrieve data stored in relational databases.

T1, T3 line: A high-speed internet connection provided via telephone lines often used by businesses needing internet connection speeds greater than DSL/Cable.

Terminal Services: Microsoft's method for remote administration tasks that delivers the Windows desktop and Windows-based applications to nearly any personal computing device, even devices that can't run Windows.

Thin Client: Also known as a “Dummy Terminal”; a network computer without a hard-drive which requires a constant connection to a server for operation.

UNIX: A network capable, multi-user operating system used for workstations and servers. Many old practice management, medical billing and EMR software were originally designed under the UNIX operating system.

UB-92 Form: Form designed for hospitals to file a medical claim with the patient's insurance carrier.

UPIN (Unique Physician Identification Number): Unique Identification number given to each healthcare provider. Frequently used in insurance billing and is currently being replaced by the NPI number.

Web-based EMR: See *ASP (Application Service Provider)*

XML (Extensible Markup Language): Used for defining data elements on a Web page and communication between two business systems. Example: Standard messaging system for an EMR to integrate with other software such as a practice management or drug formulary database.

Appendix D - Want a Successful Practice Management and EMR implementation?

Here are tips for a successful implementation:

- **Read your contract completely**. Ask your vendor questions. Ask for clarification on anything you don't understand early on in the process. Understand your responsibilities! Completion of this paperwork is required in most cases to get your system build moving.

- **Know your timeline!** Make sure your EMR vendor has clearly explained to you what deadlines you must meet to reach specific milestones. Beat or meet the deadlines. If you miss a date on the timeline, you can miss your installation date or possibly your training date. These days, many vendors are over-extended and have waiting lists of over 6 months, check to see what the current waiting list is with your vendor. In most cases vendors will not put you in the waiting list until your payment has been made.

- **Technology set-up is key**. Make sure you have your IT company/person thoroughly audit what equipment you currently have in your practice. Don't order any hardware until *after* your IT representative has spoken with your EMR vendor to make sure all hardware requirements are understood. Think about where you want your equipment. Once it's setup and installed, moving any computers could cause problems. Do you have lead-lined walls that can interfere with a wireless signal? If you are installing a wireless network make sure you complete a wireless site evaluation before you purchase the wireless hardware.

- **IT costs are usually at your cost.** The cost for computer hardware, networking equipment, network wiring, computer/network setup and ongoing IT support are almost always your sole responsibility unless specifically stated in the proposal or contract.

- **Implement a quality backup and security solution.** Fire, theft, natural disasters, viruses and data corruption are just some of the many threats to your patient records. Implementing a reliable backup and security (anti-virus, firewall and physical) system will help ensure that your data is always accessible and in the event something does go wrong, you're capable of recovering from it.

- **Travel expenses for your trainer in most cases ARE NOT included in the quote.** Unless specifically stated in proposal or contract. These costs are usually billed after the training is complete.

- **Be prepared for training.** If your vendor is providing you with onsite training make sure everything is ready before they arrive for training. Make sure the system is completely operational on all the computers in your office. Staff according to your

training schedule. This usually means seeing a lighter patient load or simply scheduling half days for training. Too often offices are not ready for training and end up spending valuable training time setting up templates or fixing computer/network problems.

Every effort should be made to ensure your implementation is a success. By following these tips, you can save time and money and have a better experience during your move to EMR.

References

1. Dr. William R. Hersh, “Medical Informatics: Improving Healthcare Through Information,” *The Journal of the American Medical Association,*
2. Ken Terry, “Exclusive Survey: Doctors and EHR,” *Medical Economics,* January 21, 2005, http://www.memag.com/memag/article/articleDetail.jsp?id=143144
3. Burt, Katherine W. and others**, “**Electronic Medical Record Use by Office-Based Physicians: United States, 2005,” January 11, 2007, *National Center for Health Statistics.* http://www.cdc.gov/nchs/products/pubs/pubd/hestats/electronic/electronic.htm
4. Richard Hillestad, “Rand Study on EHR’s,” quoted in “Public Health and Research,” *I Health Beat,* (September 15, 2005), http://www.ihealthbeat.org/index.cfm?Action=dspItem&itemID=114707
5. Gross, Grant. “US Bill Proposes e-Health Records Incentives*,” IDG News Service*, March 01, 2007 http://emradvice.wordpress.com/2007/03/02/us-bill-proposes-e-health-records-incentives/ (accessed March 3 2007).
6. “Majority of Consumers Believe Electronic Medical Records Can Improve Medical Care, Accenture Survey Finds,” *Accenture,* (July 20, 2005), http://newsroom.accenture.com/article_display.cfm?article_id=4236.
7. Steve Lohr, “Bush Vows to Back Digital Health Records,” *The New York Times*, January 31, 2005
8. John Hickner, “Missing Clinical Information”*, The Journal of the American Medical Association,* vol. 293, no. 5 (February 2005), http://jama.ama-assn.org/cgi/content/extract/293/5/617.
9. Healthcare Information and Management Systems Society, The ROI of EMR/EHR: Productivity Soars, Hospitals Save Time and, Yes, Money, ”http://www.himss.org/content/files/davies/Davies_WP_ROI.pdf.
10. Dr. Needle, Scott “Electronic Medical Records: Helping Keep Disaster at Bay,” *DM Review* ,(March 2006), http://www.dmreview.com/article_sub.cfm?articleId=1048527.
11. Gaul, Gilbert M.: “Revamped Veterans' Health Care Now a Model,” *Washington Post,* 22 August 2005, A01
12. Wang, Samuel J. MD, PhD et al., “A Cost-Benefit Analysis of Electronic Medical Records in Primary Care,” *The American Journal of Medicine,* April 1, 2003, Brigham and Women’s Hospital, Harvard

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The approach to the EMR world is truly to assist the private practice physician. Many of our contacts and clients have stated "they did not get into medicine to become an expert in Electronic Medical Records and installation"; "We got into medicine to take care of our patients" This is how EMR Experts, Inc. came about. Let the physicians take care of their patients; let EMR Experts, Inc. manage the EMR selection process, and vendor implementation.

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