Electronic Medical Records Implementation

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EMR Implementation

Prior to beginning of the client engagement, goals for implementation as well as initial training guidelines should be established. These guidelines will vary with each EMR system. There must also be provisions for ongoing training as there will be updates throughout the lifecycle of each EMR system. Other areas to consider will include a forms review and workflow, as well as a needs assessment, and current facility best practices. In addition, a gap analysis should be performed to determine areas where improvements can be made. The above considerations will be a determining factor in your EMR choice as well as technical requirements of each system under consideration.

It is best to get input from the staff currently performing certain tasks and involve them in the design phase. Most important is the need to attain buy-in from all stakeholders. Assess the level of proficiency in regards to computer use of each employee and address any training necessary to alleviate these deficiencies. During this time it is important to discuss the importance of staying with the practices' initial goals and requirements to eliminate scope creep, which refers to uncontrolled changes in a project's scope. Prior to go-live a reduction in the office work schedule should be considered.

The new realm of Healthcare Information Technology and particularly Electronic Medical Records/Practice Management (EMR/PM) presents issues which previously hadn't needed to be considered. While the goal of EMR implementation is increased efficiencies and patient safety there is always a potential for liability arising from incorrect data entry or transmission and/or incorrect medication dosages resulting in potential damages. This liability might also arise from a software malfunction within the system. The practice must ensure that their general liability insurance will cover damages as a result of technological errors. If not, the proper policy addendums must be made or appropriate policies must be procured. There are also extensive legal as well as compliance ramifications when dealing with third party business associates which must be addressed as well. On a positive note, some malpractice insurers do issue a substantial credit for the implementation of an EMR system.

Throughout the course of implementation, as well as post-installation there should be continual dialogue among all parties involved. This is especially true within the healthcare organization. Practice employees are a vital part of the implementation process and as stakeholders must be kept apprised of progress as well as all milestones reached, in areas that affect them as well as other facets of the project. In this manner an air of goodwill shall be fostered and the likelihood of any dissatisfaction which could sabotage the implementation will be mitigated.

During the course of implementation all phases of the project will be documented and presented to the practice upon satisfactory and successful completion. This documentation shall also pertain to the technological assets and well as network topology, which is the physical or logical arrangement and interconnections of the elements of a computer network. In this manner the organization will have appropriate information for management of their implementation should Oncore Associates not be engaged for continued support.

Technical Considerations for the Practice

Prior to beginning the EMR implementation process the technology infrastructure must be in place. Important consideration regarding security and workflow must be given to placement of hardware resources in all areas (registration, exam rooms, etc...). This is especially true when using a wired infrastructure so please involve your stakeholders in every pertinent phase as some physicians in particular, want to maintain good patient contact when entering data. Other items to consider include:

- Room dimensions, layout, and description of spaces
- Legacy practice management system, which an old computer system or application program that continues to be used, typically because it still functions for the user's needs, even though newer technology is available. It is recommended to use an integrated EMR/PM solution.
- Wired, wireless, or hybrid?
- Installation of a T1 line (recommended for smaller practices) which typically takes between 20 to 50 days.
- Current network hardware and topology (necessary if upgrade is not planned or to determine system compatibility)

If the practice already has a technology infrastructure in place it will need to be assessed for compatibility. Components needed for an EMR infrastructure include:

- Dedicated T1 connection for ASP model
- Business class broadband connection for client/server model
- Router with secondary WAN link (for ASP model)
- Business class broadband connection (for redundancy in ASP model)
- Cisco switch
- Cisco PIX firewall appliance
- Cisco Aironet access point for wireless connectivity (optional)
- Server running Windows 2000 or Windows 2008 Server
- x no. of client PCs running Windows 2000 Professional or Windows XP Professional
- x no. of UPSs (Uninterruptible Power Supplies) for each server and client workstation (optional in an ASP implementation as server and client workstations do not house the EMR data)
- x no. of cable drops for each examination room (optional – not required if implementing wireless capability)
- Fujitsu or other type of high performance scanner (necessary for conversion of paper records as well as future scanning needs)

In addition to the proficiencies in computer use regarding physicians and their supporting staff choices must be made regarding the manner of input to the EMR. There may be instances where you choose to implement a particular hardware setup alone or in concert with another. For instance, where maximum throughput is a requirement and space is not a consideration you may choose a wired network with a desktop pc. In a smaller exam room you may choose a wireless setup with a laptop, or tablet pc. What follows are your choices as well as their advantages and disadvantages.

Desktop pc

Advantages
- Low cost and widely available from a variety of sources.
- Because of their standardization, it is easy to obtain spare parts or to just replace a machine in the event of an extreme failure.
- Performance, reliability, and the ability to run a variety of software applications.
- Many homes are equipped with at least one PC; therefore users are already familiar with the platform.

Disadvantages
- Because of their stationary installation you must purchase a desktop pc for each examination room.
- Even though desktop computers are available in smaller sizes they typically take up more space than either a laptop or tablet pc.
- Additional equipment is needed to take advantage of voice as well as handwriting recognition software.

Laptop

Advantages
- Laptops are portable which allows a physician to open the EMR prior to entering the examination room.
- Portability of the laptop affords a smaller footprint during the patient encounter.
- This portability allows the laptop to be less obtrusive.

Disadvantages
- Though laptops are portable, they can become heavy when carrying them throughout the course of the day.
- Maintenance and repair of laptops tends to be more expensive.

Tablet PCs

Two basic types of tablets PCs are slate and convertible with both being truly portable and lightweight when compared to laptops. Typical weights are 3 to 4 lbs.

Advantages
- True portability.
- Doesn't require a keyboard. You input information on screen with a digital pen or stylus.
- Handwriting recognition software is excellent which is beneficial for physicians with poor handwriting.
- Tablet PCs with integrated dictation capabilities transcribes information directly into the patient record. This will eliminate transcription costs.

Disadvantages
- Writing with a stylus.
- Handwriting dictionaries do not have fully integrated medical dictionaries.

The technology infrastructure must be planned according to the delivery type of the EMR system. Client configurations are virtually the same with both delivery types. The major difference lies in the increased hardware requirements of the client/server model. With this in mind let us examine some of the major differences which will factor in your decision.

The Client/Server model is the more expensive solution to implement as it requires a dedicated server running Windows 2003 Server. These are high performance computers with full memory capacity and fast processors. Server costs with this configuration are usually $3,000 to $5,000 not including software. In addition to purchasing the EMR and server software the practice must factor for licensing fees and upgrades. These licensing fees also represent a significant financial investment. An advantage however, is that once the software is purchased you do not have any recurring costs unless an upgrade is released.

An Application Services Provider model does not require expensive server software nor does it require you to purchase EMR software. This application can be accessed by any Windows workstation, laptop, or tablet pc with web access capabilities. It also does not require the purchase of upgrades as they are typically included. This model is billed on a subscription basis with costs incurred for each client connection. These costs continue throughout the life of the EMR implementation. A disadvantage is that the aforementioned web access must be delivered via a minimum T1 connection which can be a costly recurring monthly fee. Also, when utilizing the ASP model your internet access become a mission critical component which should be supplemented with at the minimum a business class broadband connection for redundancy. This scenario should also be addressed as part of a Business Continuity/Disaster Recovery solution.

Data Backup and Recovery Strategies

Client/server

In this configuration the practice is storing the EMR data on their own servers. Data is backed up to either a DAT or an LTO tape drive with prices ranging from $500.00 to $4,000.00 or more depending on storage capacity. You must have a competent person to perform the backups and implement a strategy for storage and tape rotation. Best practices dictate that tapes be stored offsite and must be produced expediently in the event they are needed for recovery.

An alternative to this rather expensive solution is to utilize an online data backup service which will manage your backups remotely at fixed intervals. Your data can be stored in a HIPAA compliant facility as well as an additional facility for redundancy. This is an affordable strategy which requires no intervention on your part.

Application Service Provider

When you choose an ASP delivery model from your EMR vendor they will be responsible for the backup of your data. As with the contracted online data backup service your data is housed in a fully compliant and redundant data center. As a Business Associate under HIPAA regulations your EMR vendor must provide you with certification of this compliance.

Interfaces

There are considerations to be made in regards to interfaces which connect to equipment, labs, and e-prescribing networking companies.

Equipment Interfaces

Each specialty practice has certain equipment which must be interfaced with the EMR system. For instance, a cardiologist must be able to export data from an ECG into their EMR. Compatibility with your EMR solution is critical.

Lab Interfaces

There are several leading laboratories such as Quest Diagnostics and LabCorp which must be connected to the EMR. It is optimal that these interfaces be uni-directional so that your patient demographics may be pushed to the lab. These interfaces must streamline your laboratory workflow. Other desirable elements might include a “real-time” analyzer, automated medical necessity coding, and multi-site support. An additional desirable feature is the ability to perform remote order entry (this feature may be included within the EMR). The laboratory interface costs for any EMR system currently averages $1600.00 per interface, although some labs do wholly subsidize the cost in order to garner your business.

E-Prescribing interfaces

Although you may implement an e-prescribing via standalone software, for the purposes of this discussion, we will focus on the EMR connection. When considering the many features of an EMR system you must make sure your vendor is certified to connect to an e-prescribing network such as Surescripts. There are other vendors such as RxHub and ProxyMed but Surescripts is the industry leader having been tested and certified by a majority of chain and independent pharmacies.

Major advantages of e-prescribing are real-time access to eligibility, benefits and formulary information. In addition, prescription history and routing is included, the latter being a major component responsible for improved patient care as the possibility of medication errors is greatly reduced due to the elimination of potentially illegible handwritten prescriptions.

Scanning considerations for the implementation of EMRs

- Before beginning all records of patients who are no longer active (moved, deceased, etc.) should be purged, but not destroyed as your state’s retention laws must be taken into account.
- Records that remain should be thinned to remove older entries.
- Determine a scanning methodology.

Types to consider include:

1. Completely scanning all existing paper-based charts prior to going live.
2. Scan forward – All records from date of implementation going forward are scanned into the EMR. The remaining records are scanned as time permits.
3. Choose a timeframe for future patient visits such as; scanning the records of patients who will be seen a week from implementation.
4. Scanning records alphabetically (A-D, E-H, etc.) in phases.
5. Another method might be to use the EMR for 30 percent of visits on the first day (or every 3 patients), 50 percent the second day, 75 percent the third day, and 100 percent on the fourth day of use.

Legal and Compliance Issues

Legal

The EMR must meet the same requirements for record retention and confidentiality as that of paper records. The retention period varies from state to state so you must consult your local medical association and/or legal representation. Even though you have converted your paper records to an electronic format, retaining them for longer than necessary can lead to inefficiencies.

In regards to e-discovery, the EMR system must be able to produce the electronic record in its native format with metadata intact. This is because the native format contains information within the metadata such as time stamps, access logs, and other auditing information which would aid in the evidentiary proceedings. It would be most beneficial if the EMR itself could perform this task.

From a legal as well as compliance stance your EMR system must address the issue of PHI (patient health information) disclosure. Some EMR systems have the ability to fulfill the release of information (roi) within the system. Either your EMR will have built-in auditing capabilities or you must initiate them manually.

How does one authenticate an entry in an electronic record? This concern speaks to the quality and reliability of the EMR. It is most desirous if the EMR could authenticate that the physician on record is indeed the one that performed the examination and charted the results.

Physicians must also be cautioned against the use of the “copy and paste” method where a physician copies the notes of another physician into their own records for the patient. The concern about this practice is that while appearing complete, this copying method might be construed as failing to conduct an independent examination of the patient which would challenge the legal validity of the record.

Compliance

In the event you have chosen an ASP (application service provider) model you must realize that your EMR vendor is a Business Associate and as such is now subject to HIPAA privacy and security regulations just as you, the covered entity, must adhere to them. You must insist that your vendor provide documentation that attests to their compliance. This is extremely important as you must remember the ASP is charged with security and storage of your ePHI.

There are many security considerations which aid in the compliance of your practice as well as that of your EMR. A CCHIT certified ASP model will satisfy your security criteria as well as greatly enhance your compliance issues regarding HIPAA.

Financial Considerations

In addition to the cost of the EMR implementation and ongoing management of the I.T. infrastructure you must also plan for additional training if needed. This training may or may not be included in the EMR vendor's initial costs forecasts.

It is also vital that staff be aware that increased efficiencies may not be realized immediately following implementation as there will be a learning curve involved. In some instances your practice may have decided on a temporary reduction in patient visits during the implementation phase. Both of these scenarios will result in a temporary revenue reduction. This revenue reduction may be addressed through a business line of credit.

ROI

There are significant financials gains to be obtained by the implementation of an EMR system. In addition to the stimulus funds available through the American Recovery and Reinvestment Act (ARRA) the savings estimates for a single physician practice are approximately $10,000 per year as a result of e-prescribing alone. These savings are garnered from a reduction in phone calls and other time spent on the prescription process.

Savings are also derived from the elimination of paper forms, charts, and other materials associated with a paper-based practice. In addition you will enjoy significant savings from the elimination of chart pulling as well as recovery of storage space which previously housed your paper charts.

The return on investment realized from increased efficiencies and elimination of paper supplies is substantial enough that your practice might possibly recoup your investment in year one of implementation. These increased efficiencies may also allow you to see more patients per day which further enhances your revenue stream.