White Paper:

Managing a Successful EMR Implementation

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Table of Contents

White Paper Objective: Help for the EMR Champions

The objective of this white paper is to help Electronic Medical Record (EMR) implementation champions understand the complexities of the EMR implementation process. In other words, this information is intended to help the heroes who face the daunting task of transforming the intricate processes of a physician practice from paper to electronic. We hope that this information will help you define goals and objectives, as well as implementation project deliverables, milestones and timing that will help you successfully implement EMR that is fully adopted and utilized by your intended users.

EMR Implementation Overview: Major Sections

Expectations: this section is designed to help the reader understand the importance of proper expectations within the practice and also contains some points on re-engineering improper expectations.

Goals and Objectives: this section is designed to help the reader understand the practice perspective regarding their decision to purchase the EMR and what the practice is trying to get out of the system.

Implementation Timeline: this section is designed to help the reader understand the complexity of the EMR implementation timeline and to help guide the reader to create an effective and accurate implementation timeline.

Phased Implementation Concepts: this section touches on two different concepts that can be used to help practices adopt the EMR and slowly transition from the paper workflow model to the electronic workflow.

HL7 Interfaces: this section contains information and recommendations regarding HL7 interfaces. Getting these interfaces working effectively in the EMR takes time, persistence and a basic level of HL7 understanding to communicate effectively between your vendor laboratory partners, should any issues arise.

Implementation Project Deliverables: this section contains information and suggestions regarding each deliverable in the implementation timeline. By reading through this section you will be able to understand each deliverable to determine how it can affect the overall implementation timeline.

The Perpetual Implementation: this section reinforces the need to have constant communication with the practice during the implementation and after they initially go live with the EMR. This section offers some suggestions in relation to the Phased Implementation Concepts. By employing the concepts of the perpetual implementation you will help the practice obtain a total solution.

Expectations

Ensuring that a practice has proper expectations will determine the successfulness of the EMR implementation. If a practice has expectations that are different from the implementer, sooner or later the implementation will go astray from the practice's expectations, which could lead to low adoption rates or underutilization. The objective of the implementer is to have the practice successfully adopt the EMR and help them to achieve their goals for EMR implementation and ongoing use.

Why practices choose to implement EMR

There are four main reasons practices choose to use electronic medical record solutions.

1. To improve patient care
2. To ensure patient safety
3. To improve the clinical efficiency of the practice
4. To improve the financial results of the practice

Defining the goals of your practice will help you to understand the implementation timeline and scope and will ensure that you are working towards the needs of the practice. Interviewing different people in the practice will help unite staff members and assist in gathering this information (see the section titled Workflow Analysis).

How practice expectations are created

The practice will develop expectations of the EMR system during the sales process. The EMR salesperson will have the opportunity to set proper expectations about the capabilities of the application. During any software demonstration is it critical for the salesperson to understand the needs and goals of the practice and develop proper expectations with the client with regards to timeframe, ease of deployment and adoption, and timeframes. Setting realistic expectations during the sales process will help to create a seamless transition between the sales and implementation processes.

Some examples of unrealistic expectations

A practice may wish to implement the software faster than it can reasonably be implemented. A successful implementation takes time and requires thorough investigation into the workflow of the practice. Implementing an EMR solution is not an "out of the box" solution. Some practices may feel that they should be able to install the application and immediately start to use it.

A practice may feel that it doesn't need the requisite amount of training to be successful. A practice might have three providers, but is trying to save money by only purchasing a limited training package from their vendor.   The reality is, some providers may prefer one-on-one training, instead of "classroom" style training, and this may lead to more required days of training to budget for with the vendor.

A busy provider may feel they don't need software training. They may believe that they will start using the system and that it will automatically do what they need it to "out of the box". This is an example of an expectation that should be clarified early on as well.

What can happen if unrealistic expectations are set?
EMR implementations can be complex and it is important that a practice understands the level of change that will be required when the EMR is deployed and is used in a live environment. Buy-in to changes is best obtained when the leadership within a practice is spearheading the change for the rest of the staff.

A practice may want an EMR solution solely for the purpose of document management. The only need they may have is for an electronic storage repository for the paper charts and incoming paper via mail and fax. While the practice may have acquired an application that does much more for them than only storing documents, it is important to help them achieve their goals without bias. It is also important to assess the needs of the practice and make appropriate recommendations with regards to adopting more capabilities of the EMR to improve practice efficiency and effectiveness.

EXAMPLE:
Let's use the example that the provider doesn't want to schedule time away from patients to attend a lengthy training session on the new EMR. The practice purchased 5 days of training but the provider informs you that he/sheshe will not be available one of the five days because of surgery and will only be available between scheduled patients the remaining four days.

When you inquire about this, the office manager explains that the provider is too busy to schedule time away from the patients and that the practice needs the revenue. The provider has explained that she will pick it up in the evenings and that she will have the office manager attend training work with the provider as needed.

If the provider does not adopt the EMR then the practice risks failure with the EMR. If the provider doesn't get the needed training to be successful then he/she will get frustrated. Left unresolved, the provider will not realize a return on investment and wonder why any of the effort was worth it.

SOLUTION:
To solve this issue, the implementer needs show sensitivity to the situation by understanding the concerns of the provider and practice. Does the implementer understand how much money is being lost by attending training as opposed to seeing patients? Does the implementer understand the commitment level the provider has towards patients? Does the provider offer alternative flexible times for training, outside of traditional open office hours?

To create a proper expectation with the provider, the implementer will need to draw on the goals of the provider. Consider that the two main goals of the provider are to make more money and to improve the quality of care that each patient receives. Using this information the implementer can show the provider that he/she understands the needs and goals of the provider. A conversation to help the provider understand that, by committing to be present during training, he/she will actually be investing in a tool that will enhance the patient care experience, while reinforcing optimal documentation and revenue capture. The vendor representative benefits from emphasizing the vendor's personal success with prior clients that were prepared, invested and committed to the phases of change that occur during the

initial adoption phase of EMR. As with any new investment, there is a learning curve that should be approached aggressively in the early stages.

While difficult to carve out the right amount of time, time and effort is critical if the EMR is to be successfully implemented. It is best to plan for success rather than "hope for the best" as a result. A fantastic point to return to is an analogy that most practices do not have a frame of reference on what it takes to implement an EMR successfully. Practice management systems have been in deployment for much of the last 30 years, and typically the administrative staff manages those types of implementations. An EMR is a provider tool, and so the success centers around the provider experience.

Goals and Objectives – Role Based Variations

Identifying your goals and objectives will help determine the implementation timeline. It will also provide you with the necessary measurements for success. Identifying the goals and objectives early on will ensure that what your EMR vendor delivers aligns with what the practice needs.

One important thing to consider in identifying your goals is that every staff member in the practice will have differing expectations of the system. While time consuming, it is invaluable to understand each person's wants and needs of the EMR. Interviewing each staff member is a good idea, if feasible, but a successful implementation can still be completed by understanding a particular group's needs. It may seem appropriate to only consult the providers or office manager when gathering goals, but this has the potential of compromising the implementation's success.

What goals am I looking to achieve?

A provider's goals for the EMR will be starkly different than the office manager. Those goals will be different than those of the nursing and reception staff. If you accommodate one group, but fail to accommodate another, then there is likely to be a disconnection in the workflow that could jeopardize adoption. It may seem appropriate to ensure that the provider's goals are met, but if the nurses underutilize the system because their goals weren't considered, it will cause problems for the provider.

A provider may have the goal of seeing more patients. It may be to document encounters more thoroughly. They may have a goal that the EMR should help guide them through an encounter so they don't forget something or, worse yet, do something that they are unable to bill for. It may be simply to go paperless because their competition is, or because they see advantages to patient care and safety.

Nurses have many different roles and responsibilities in a practice. Great care should be taken to understand these roles and effectively accommodate for their needs in the EMR. Nurses may have goals to prep patients more effectively for the providers. It may be to help them organize paper better. It may be to help decrease their day-to-day work volume.

An office manager will likely have needs very different from the clinical staff. It is a fine art to balance the goals of the administration and the goals of the clinical staff. The goal of the office manager may be to reduce staff. The goal of the physician may be to reduce the

reliance on paper charts. The goal of the billing manager may be to ensure proper diagnosis coding by the providers to secure maximum billing.

Whatever the goal, the responsibility of the implementation champions are to effectively gather this information and use it to build an effective implementation plan.

Implementation Timeline

Constructing an effective timeline will help the practice feel comfortable with the implementation project. It will also help both the EMR champions and the practice know what the next steps are so that the project doesn't stagnate. Understanding the goals and objectives of the practice in conjunction with a completed workflow analysis will help to create an effective timeline (see the sections on Goals and Objectives and also Workflow Analysis).

Implementation should be considered a project. Project/task management is a requisite skill in order to successfully track and plan for an effective implementation. Project management skills will also be useful when trying to manage multiple implementations at the same time. The implementation project has a creation date, a termination date and several deliverables and critical steps that must be met along the way. If an implementation lacks the appropriate project management or resources, then the project may lag in certain areas and end up taking longer than necessary. This will cause the practice to lose confidence in the implementation and may jeopardize the implementation.

A typical implementation for a single-provider practice can take 60-90 days to get all the requisite deliverables completed and be prepared for software training. For each additional provider, consider adding an additional 2-3 weeks to your timeline. While it may feel important to implement quickly, attention to detail is critical for a successful implementation.

A typical implementation project will consist of the following deliverables (some items may not be typical for each project):

- Defining a Physician Champion/Decision maker for the practice
- Defining a Clinical/Nursing Champion/Decision maker for the practice
- Detailed Practice Workflow Analysis
- Hardware Installation
- Software Installation
- Scanning Paper Charts
- Interfaces (Lab, PM, Device etc.)
- Device Interfaces (Vitals, Cardio etc.)
- e-Prescribing Setup
- EMR Conversion (If applicable)
- PM Data Dump
- Software Training
- Customizations (Clinical and Workflow)

Looking at these deliverables helps to frame the complexity of a typical implementation

project. Each of the deliverables needs careful consideration and planning. Software training is an especially important deliverable in the implementation timeline. The goals and objectives of the practice will help drive the training requirements. In order for software training to be successful the actual project deliverables should be incorporated into the training curriculum.

Understanding the relative difficulty in completing some of the deliverables will help you to plan for a successful project. For example, generally a lab interface will take 60-90 days to work out with the vendor so that it is ready to test and deploy. Also, effectively planning for the customizations deliverable could easily take 30-90 days.

In order to effectively plan each deliverable, take the time to understand what resources are available and what it will take to get each deliverable completed. Once the project timeline has been created, dates for each of the deliverables should be affixed and the final project should be submitted to the practice for approval. This will help to build confidence and trust in the EMR champions and serve as a strong roadmap.

An important concept to be considered in every EMR implementation project is risk management. When putting together a timeline, an effective EMR champion should count on some deliverables talking longer than expected and having to reset unrealistic expectations. There are several things that could derail a timeline, such as vacation, clinical conferences, weather conditions, third party vendor promises, etc. When planning any deliverable, ask yourself what could possibly go wrong and incorporate those potential delays into your timeline. Remember that successfully hitting the deliverables with a longer timeline is better than missing deliverables with a shorter timeline.

Phased Implementation Concepts

The EMR implementation will generally be replacing a paper process. Understanding the difference between the paper process and the electronic process will help you be successful in your implementations. When a practice replaces a Practice Management System there is generally little pain. This is because the concepts are similar between all practice management applications. The workflow is similar and users simply have to learn the new product's features and tools. This is not the case with implementing EMR for the first time. Implementing an electronic workflow solution will be completely new to the practice.

A practice will not generally fully adopt an EMR on a particular go-live date for seeing every patient, completely documenting encounters and using every feature in the application.

Initially, it will be a challenge for the practice, because it has the potential of slowing down everyday tasks. This is a natural part of learning new software and learning a new workflow. Defining user expectations and having an appreciation for each role in the practice during the implementation process will help you be successful.

One reason that expectations may struggle in defining the original project plan, is that a practice may feel they are not able to attend to as many patients as they were prior to the go-live date. A successful implementation targets these issues by helping the practice ease into the EMR while maintaining pre-implementation patient loads. Or, conversely, the practice may elect to sacrifice (and budget for) less patients during the initial first two

weeks of going live with an EMR.

A phased approach can be employed to help the practice ease into efficiently using EMR. A phased approach is a wise choice, and the expectation of a phased approach should be set early on in the implementation project. The objective of the phased approach is to allow the practice to use the EMR in a limited scope while they become familiar with the application in a live environment and to allow them to re-engineer their workflow in a methodic manner. There are two phased approach concepts:

- Phased Application Implementations
- Phased Usage Implementations

Phased Application Implementations

The concept behind this implementation method is that the practice will adopt all or most of the major features of the application initially, but in a phased approach. What this means is that, of the total daily patient load, only a fraction of those visits will be managed in the EMR. Each practice will differ on this, but, hypothetically, a practice could see all the new patients in the EMR, while maintaining the paper process for all established patients.

It may be that a practice receives 25 new patients per day. This may still be too much for the practice to handle in the EMR initially. Maybe only 2 new patients are handled initially and then that number is increased to 5 and then 10, etc. The practice can also choose specific encounters to get started with, such as a well child visit, or a routine physical examination. The initial encounter should be fairly routine and easy. This will help to ease any frustrations that may develop from using a new electronic workflow.

Phased Usage Implementations

The concept behind this implementation method is that the practice will adopt only selected features or modules of the EMR, in a phased approach, to solve some initial workflow and documentation goals.

The initial plan may be to get paper charts scanned into a document manager first. Once the charts are in the application, then the next step may be to utilize the lab interface so that requisitions can be sent out and results can be viewed in the EMR. Perhaps prescriptions requests and refills are adopted in the EMR or history information and vitals are captured. Maybe the last step is to ensure the providers documenting effectively in the EMR. Even the clinical documentation could be phased. Perhaps instead of trying to document everything, there is a simple charge capture sheet created for the provider.

Regardless of the method employed, proper expectations about the implementation need to be set with the practice. A phased approach obviously means that time will need to be taken to get the practice to fully adopt the EMR. This may take 90 days or it may take 12 months. The timeline for this should be set with the practice early on so that the practice and the EMR champions are on the same page. For more information on this please see the section titled The Perpetual Implementation.

HL7 Interfaces

Many of the deliverables in the implementation timeline involve interfacing to the EMR system using the HL7 (industry standard format of Health Language version 7) interfaces. At some point in your experience implementing the EMR, your laboratory, hospital, or other partner thatwill require the electronic submission or receipt of data to from your practice's EMR may be expected to coordinate. It is important to have a baseline concept of interfaces, how/when messages are being sent and received, in order to ensure no interruption in data transferring between programs.

Workflow Analysis – your tour guide

The workflow analysis will be your compass for the implementation project. A comprehensive workflow will help you better understand the deliverables and better implement the EMR software. Without an effective workflow analysis, it will be hard to understand the everyday tasks of the practice, and mapping the paper process to new electronic processes in the new EMR can be challenging.

Workflow Analysis Defined

The workflow analysis is the pre-implementation task of gathering information about the practice. This includes interviewing employees, understanding roles and responsibilities of individuals and groups, defining the goals and objectives of the practice and every aspect of the practice's daily routines.

Simplified, the workflow analysis is the process by which you ask "Why?" If you are interviewing a receptionist and they indicate that a particular task is done in a certain way, the workflow analyst would be interested in "*why*" the task is done that way. You would also be interested in what else that task effects. Identifying the EMR's potential to drive efficiency into any current, paper task, should be a constant theme in documenting the workflow.

Why analyze the practice?

Let's take the medical assistant. Generally speaking, the MA is responsible for taking the patient back to the exam room, collecting vitals and gathering history information from the patient. Prior to the EMR, a MA would collect this information on paper. The EMR champion may assume that there is no need to analyze this information and that the MA will simply gather the information in the areas provided in the application.

This assumption can be dangerous as there are several ways to collect history information. You can collect it directly into the History Recorder. You could create a History Template to help guide the MA as to the information they could gather. The practice could be OB/GYN and they may have an encounter template specifically designed to collect all the information for a pregnancy and from visit to visit. Provider information is complex. An EMR champion will improve his/her chances of success by understanding the information collection requirements to smoothly map paper collection procedures to the electronic fields in EMR.

Planning for a Successful Workflow Analysis

The first thing to remember in planning for a successful workflow analysis is to understand the importance of the analysis. If the office manager doesn't see the value of the analysis then they may not provide all the information needed to identify workflows. And securing the time needed with a provider to identify their work preferences is often challenging. If the practice doesn't understand the need, you may not be able to gather the information you need.

Find days that are less busy for the practice. Ideally you will want to schedule time with every employee so find days that are a little more relaxed for their role. This is often easier said than done, but if the practice understands the importance, then you will have better success. You will need to be prepared to gather documentation and have a plan for what you are looking for. Here are some suggestions of goals for the workflow analysis:

- Gather any piece of paper (original where possible) and clearly understand why it is used, what it is used for and what its life cycle is.
- Understand the responsibilities of each major role and group in the practice. Obviously this will differ from practice to practice so don't assume that a nurse for a general practitioner has the same functions as for a nurse for an orthopedist.
- Understand the preferred documentation styles of each provider and what their documentation habits are like.
- Understand the flow of the patient through the practice; from scheduled appointment to checkout and follow-up visits.
- Understand the new patient process as opposed to the established patient process.
- Understand the process of any paper that is coming into and going out of the office.
- Understand the goals and objectives for purchasing the EMR through the perspective of each major member/workgroup of the practice.
- Identify what current pain points exist in the current workflow and identify ways to help the practice be more efficient while practicing better care faster.
- Identify what processes are working well in the existing workflow and plan ways to capitalize on these.

You will need to be aware of the time the workflow analysis takes. Each practice is different and you should plan according to the volume of data collection you think you will need to be successful.

Using a Practice Layout Map

Ask the practice if they have a layout of the practice. Many practices will have a fire escape route on the wall that will show a diagram of the practice layout. If you can get a copy, that will help you understand the practice better. If no map is available, you might want to draw the layout freehand (see the Workflow Analysis appendix for a sample layout map). The practice layout map will allow you to analyze the flow of a patient through the physical layout of the practice. From this information you may determine that the patient flow is inefficient. You may also realize that some patients are in close proximity to sensitive information.

Another value the map offers is that you can identify the location of the IT infrastructure in the practice. The map will allow you to document where all of the desktops are located, where the printers and fax machines are located and where any network ports are located. This will serve as an invaluable tool in determining the hardware needs of the practice. You will also see where wireless access points are located to uncover any distance/connection issues.

From this information, you may find that the area where vitals are taken is located in an area where there is no computer or network access. In the paper world this is acceptable, but in the EMR world this will cause problems entering the information directly to the patient chart. You will want to eliminate any possibility of writing something on paper to enter into the EMR later. You will not be able to do this in every situation, but it is good rule of thumb.

Analyzing patient flow from the layout map may help you generate ideas to make the practice more efficient. You may find that a printer is too far away from the providers and that relocating the printers would help them save time.

Gathering Workflow Information

The need for gathering paper in the practice has already been mentioned, but it is important to understand the role that each piece of paper serves in the practice in order to determine how that paper will translate into an electronic process. Generally, a practice will have a new patient packet that will be filled out by the patient. What will be the workflow for getting that information into the EMR? How will that information be used in the EMR when it is entered? Who will enter it into the EMR?

Some paper will need to be a part of the patient chart. Some paper is temporary. You may notice that there are sticky note reminders for employees on their monitors that remind them to do something in a particular situation. Perhaps medication refill can only be given under certain circumstances; for example, the patient must have been seen within the last 90 days to get the script filled, otherwise they need to be seen by the provider before they can get the prescription.

You will need to be fairly granular in the information gathering process. You may find out what a particular document is used for, but will need to ask several follow-up questions to find out if the document is used in conjunction with other information, what the lifecycle of the document is, etc. Drill down until you feel that you clearly understand the workflow.

EXAMPLE: suppose that you are trying to understand the workflow of a nurse in a gastroenterology practice. The first thing that you may consider is asking the nurse what her core functions are. To this she offers the following:

- Call patients back
- Gather history information
- Phone triage
- Collect laboratory specimens
- Manage prescription requests

Based on this rudimentary information, how well is that nurses' role truly understood? Do you suppose that this information would be different if you asked the office manager what

the nurses' roles are?

Calling a patient back seems like a very simple task, one that might be overlooked by an EMR champion. While returning a patient call may seem like a standard task the EMR will handle, there are several things to consider, such as:

- What information needs to be gathered prior to calling the patient and where will it be located in the EMR.
- How will the nurse know to call the patient back if there is no sticky note?
- What computer will the nurse use to collect the information needed prior to the provider seeing the patient?
- How will the nurse indicate to the provider that the patient is waiting to be seen if there is no patient chart?

As you can see, there are several things that will need to be discovered and investigated. It is critical to understand every point in the office workflow that could potentially translate electronically into an EMR process.

Gathering Clinical Information

The most challenging aspect of the workflow analysis is understanding the collection of clinical information and the documentation preferences of the providers. It is vital to the success of the implementation that you accurately understand the methods of documentation and plan the clinical customizations in accordance.

Because providers are often challenging to reach for long periods of time, you may need to do some investigation on your own. A receptionist or office manager may be able to pull charts from each provider so you can determine how they document. You will need to ascertain if the provider dictates, types, uses a notepad to scribble notes, or checks off information on a paper template.

Once you understand the basic method of documentation (dictation, writing on progress notes etc.), you can start to find commonality between encounter types. For example, you may find that for a provider who hand writes progress notes for diabetes encounters, there are common systems that need to be reviewed. There are also common diagnoses, procedures, and plans. Patient education materials might be common among the encounters as well. With this information you can start to form the basis for an electronic template for a diabetes encounter.

It is critical to understand what information is important to the provider. If you were to look at a paper chart, you may see that there are two sides to the chart. Information on the right hand side of the chart is typically different than the left hand side. Maybe some paper in the chart is a particular color. Some of the documents might be listed according to type/tab, or organized chronologically. You must understand why a particular document is green and why some information is organized according to type because the provider will want similar representation setup within the EMR.

Office Politics

One of the values of being onsite for the workflow analysis is that you have the opportunity to see the behaviors and mannerisms of the employees that you interview. You will be able

to figure out those that are excited about the new EMR and those that are resistant to change. Perhaps administration chose the EMR solution without the input of clinical staff. Perhaps one provider is resistant to technology, while the other partners are excited about the EMR deployment.

Perceiving these issues while performing the workflow analysis will allow you to plan for potential risks. You obviously don't want your nursing super-user to be someone who resents the fact that the EMR is being implemented. Likewise, you don't want to start the first phase of implementation with a provider that is less than thrilled with the acquisition of the EMR system. Understanding the interoffice politics will help you to avoid potential pitfalls in the implementation.

Creating a Flow Diagram

Once you have completed the workflow analysis, a good practice is to translate the information that you gather into a flow diagram for the practice. This will show the practice your level of understanding of their workflow and allow you to make sure that everyone is on the same page. This will add a layer of professionalism and will help the practice feel like it had input into the planning. Providing a flow diagram will also motivate the office manager and providers to begin thinking about the workflow and they will start to evaluate efficiencies in the workflow.

Having a documented flow diagram also helps establish scope for the implementation project. For example, with a documented nurse station workflow that both you and the practice agree upon, scope creep may be reduced.

Mapping the EMR to the Workflow Analysis

Once the workflow analysis is complete, and the workflow has been documented in a flow diagram, you can begin to map the EMR to the workflow of the practice. There are two considerations when mapping the EMR solution:

- How can you adapt the current workflow to the EMR?
- What recommendations or suggestions should be made to alter existing workflows prior to mapping the workflow to the EMR?

Often the workflow of a physician office is based on familiarity and routine. Every practice will have a pain point that they live with because the routine offers a quantifiable level of success. Mapping an already challenging workflow to the EMR will only maintain the pain, not improve it. Part of the workflow analysis involves determining what areas of the workflow the practice wants to improve. An example would be a printer that is positioned too far away from the providers, causing them to spend extra time walking or waiting.

It is equally important to understand what the practice likes about their workflow. Things that are going well should be modified sparingly, being careful not to transform a positive workflow into something negative or painful. An example would be the way the provider documents. An example is if a provider can hand write a progress note in 5 minutes, but it takes 7 minutes to collect the same information in an EMR encounter.

Additionally, you may discover opportunities to improve the practice workflow that may be very helpful. Every practice wants to see more patients and improve care documentation.

If you can accomplish that by re-engineering aspects of the workflow, then take the time to update the work flow diagram and submit it to the practice for approval.

CAUTION: Moving from the paper world to the electronic world may be challenging for the practice. Implementing too many new workflow enhancements could be overwhelming and may jeopardize the success of the implementation. Do what you can to educate the practice on new workflows and work with them to make the deployment as pain-free as possible.

Overall, the workflow analysis will help you understand the practice so that you can effectively plan for the implementation project. From the workflow analysis, each of the implementation deliverables can be planned and delivered. Having completed a successful workflow analysis means that you will be intimately familiar with each employee and their roles and responsibilities, which will help you to create an effective onsite training plan. The workflow analysis will also help you understand the immediate needs of the practice, as well as the long-term goals of the perpetual implementation.

Implementation Project Deliverables

As discussed earlier, there are several deliverables in the implementation project. Each needs to be effectively planned for and executed, such as:

- Hardware Installation
- Software Installation
- Scanning Paper Charts
- Interfaces (Lab, PM, Device etc.)
- ePrescribing Setup
- EMR Conversion (if applicable)
- Database Setup
- Customizations
  - Clinical
  - Workflow
- PM Demographic Data Dump
- Software Training

We will discuss each of the deliverables and provide some recommendations for completing the tasks. Included will be points to consider, as well as potential challenges to factor into the implementation timeline.

Hardware Installation
Hardware is one of the first things to be assessed when implementing the EMR. Great care should be taken to ensure that all of the practice's needs are met. Understanding the practice goals will help you to determine the best hardware solution. Will the providers use tablets or wired machines in the exam rooms? What size server is needed to ensure continued and speedy access to the practice systems?

Another aspect to the hardware installation is making certain that the practice has a proper backup solution that is either sold, or recommended by, the EMR vendor representatives.

So as to not interfere with the implementation timeline, it is important to assess the practice needs early on in the implementation project. This will allow for the time needed to order and install needed hardware and keep the implementation plan on schedule.

Software Installation

Once the hardware is in place, the next step is to install needed software. When the server software and EMR software is installed you can do a simple network test to ensure that all the systems are connecting to the server correctly. Make this test part of the implementation process. This will help to ensure that you are prepared for software training and that no unforeseen problems are encountered during training.

You will also want to make sure that the server and machines have the latest software releases. The EMR software is always tested during the development process with the latest releases of operating systems. This includes Microsoft SQL Server.
If you are deploying the EMR across a RDP (remote desktop protocol) such as Terminal Services or Citrix, this would be a good time to do acceptance testing to ensure that the clients are connecting correctly, that the connections are configured securely and that network resources are available.

For those practices that choose a "hosted" EMR solution (ASP, Software as a Service), there may be less physical software and hardware to install, but emphasis will be placed heavily on the practice's secure access/speed to the internet, the provider's choice in laptop/desktop devices, scanners, etc.

Scanning Paper Charts

In planning for an effective implementation it is important to understand what the practice plans to do with their existing paper charts. Will they be kept onsite and archived according to established timelines and criteria? Or will the charts be scanned and housed into a document management system tied to the EMR? One of the main goals for acquiring the EMR may be to decrease the volume of paper charts on hand, allowing the practice to free up office space.

Here are a few questions that will help you plan for scanning:

Is the practice looking to scan charts on their own or outsource the scanning?

There are several large companies that scan physician charts professionally. This will allow the practice to continue to serve patients while someone else tackles the task of scanning. While this will add cost to the implementation, the return may be a good solution. Professional services will ensure that color images are correctly scanned. You may also have the scanning firm index each scanned document to ensure that nothing is lost or misplaced.

Some practices may want to scan their charts on their own. This is generally done by using the office staff to scan the charts as a project, or as an assignment over time. A good rule of thumb is to scan the charts when they are pulled prior to the patient appointment. If this is the case, then the charts can be prepared and scanned prior to the patient arrival.

How will the scanned information be accessible in the EMR?

Part of the planning for this project requires an understanding of where the providers will want to see information in the EMR. Typically, scanned images will be scanned into a document manager tied into an EMR that allows the practice to organize files into meaningful directories.

If the practice is managing the scanning themselves then they may want to consider scanning the chart as a single document. This will cut down on the time that it takes to scan the documents and store them in the EMR. On the other hand, a single document may make it more difficult for a provider to find the information quickly. It is good to understand the pros and cons of each decision made and how it will affect each user of the EMR.

If the practice is planning to scan the charts in themselves and have designated personnel for the project, training will be needed for this function. Securing the buy-in of the practice as to how the documents are stored and how to access the scanned paper charts will ease the transition from paper to electronic records. Another consideration is how much of the paper charts will be electronic. Depending on the practice preferences and needs, all, some or none of the type and volume of charts might be scanned.

Every specialty will differ in terms of information stored in the paper chart. Some charts may only have a few documents in the chart. Other charts may have more than a hundred documents in them. It is important to understand what information is critical to have and what information is less important.

Interfaces (Lab, PM, Device etc.)

Interfaces to the EMR are one of the deliverables in an implementation project that can take the longest, so it is wise to plan for them early in the implementation. Having the interfaces completed in time for the training phase will allow users to interact with all facets of the EMR. There are several different types of interfaces that a practice could purchase.

Lab Interfaces:

Lab interfaces are extremely important to providers as most practices that request labs and receive results manage the process outside of the EMR in a separate system. Integrating with lab systems and information into the EMR is a huge advantage to providers. Having this step completed in the EMR systems early on will help to solidify workflow concepts during software training and helps providers successfully adopt the EMR. A practice should confirm their EMR vendor's compatibility or availability with interfaces to other vendors.

Most lab interfaces to an EMR require the purchase of a license in addition to annual support and maintenance fees. The licensing fee for the lab interfaces will sometimes be covered by the lab company. The money that the lab company will make on requested lab panels will cover the costs of the interface fee. This avenue should always be investigated first. If that avenue fails, then the practice must consider paying the licensing fees.

Working out the payment of the interface may follow varied processes, depending upon the lab vendor themselves. The lab company will generally research the return on investment before agreeing to pay the fees. This may take time which will need to be considered in the implementation timeline. Once the payment issues are resolved, the actual setup and configuration can take several weeks as well. Your vendor implementation specialist can

guide the timeline during this process.

For those practices that chose a "hosted" EMR solution (ASP, Software as a Service), there may be fewer choices for interfaces depending on the hosted environment restraints such as dial-up modems not being available in most "hosted" environments.

CAUTION: Be careful not to over commit to a lab interface that has not been previously interfaced to your selected EMR. Most interfaces rely on the HL7 communication method to interface, but some require that programmatic modifications be made in the application in order to accommodate the interface. If you are unable to examine interface specification documentation and provide the necessary interface then be sure to consult your EMR vendor for help in assessing new interfaces.

Practice Management Interfaces:

Interfacing your practice management system to your EMR prior to training will allow users to understand the entire patient workflow from appointment, to visit, to billing. Another consideration is whether or not you are interfacing your PM with an EMR from the same vendor. Typically, PM and EMR interfaces through the same vendor require little time. Device Interfaces:

Device interfaces are relatively easy to install, as is connecting to the equipment. Where additional time and training may be required is in interfacing equipment that has never been interfaced with your selected EMR. Allow for extra time for the development and testing by your vendor, or ensure you are purchasing recommended devices that the Vendor has already certified.

ePrescribing Set up:

ePrescribing is the process of submitting electronic prescriptions to pharmacies. ePrescribing allows practices to securely send prescriptions that are clear and concise, thus decreasing the number of discrepancies and errors that may occur with faxing or hand delivering prescriptions. It also allows pharmacies to request refills for patients directly.

EMR Conversion (if applicable):

Generally, the EMR will be implemented in a practice that is currently using paper charts. The occurrence of replacing an EMR system is fairly infrequent. Occasionally you will find that a practice is using an EMR that they are not happy with, or that is only a partial EMR solution. Some physicians will try their hand at creating an EMR system and you will be replacing some form of electronic charting.

EMR conversions are unlike PM conversions. Because the replacement of the practice management system is common, the tools and methodologies employed to convert data are fairly routine. This is not always the case but is generally the case. Capturing clinical data is more complex and every company has a different solution. This makes mapping data difficult, but not impossible, and requires the practices involvement to understand how the old data is used, and how it would display in a new EMR.

It is not realistic to expect to accomplish a data conversion from an existing EMR solution to a new one and have that data represented as discrete data in your selected EMR. It will be

helpful to investigate what information can be printed or exported out of the existing system that can either be scanned or imported into your selected system.

Database Setup

In order for the practice to use the system, the EMR database will need to be set up and configured. This includes setting up the practice information, creating users and giving them varying access to the EMR depending on their role in the practice.

Something to consider is who will manage the EMR. Will the practice have an IT person that will be responsible for this? What happens if a user locks himself out of the EMR? Who is going to reset that for the user? If that person is someone other than you, it would be appropriate to schedule training for him so he knows what to do.

Setting up the database and training users on how to administer the EMR will take some time and will need to be considered in the total implementation timeline.

Customizations

When customizing the EMR for use by a practice, there are several things to take into consideration. Obviously one of the first things that need to be accounted for are the clinical customizations that need to be organized for the providers using the system.

Workflow customizations are just as important as the clinical customizations. Without the workflow customization, the clinical customizations will not be effectively utilized and the practice will become frustrated with the system.

EXAMPLE: A gastroenterologist is planning to use the EMR. The implementer creates a clinical template that the providers will use to collect information about a sigmoidoscopy procedure done in the practice. The patient is a referral from a general practitioner and the gastroenterologist wants to send the GP a thank you note that includes the results of the procedure. If the template was created to collect the clinical information, but the referral letter template wasn't created, then the EMR is only a partial solution for the practice.

Clinical Customizations:
- Clinical Wizards
- Form Encounters
- Text Encounters
- Encounter Reports
- History Templates

Workflow Customizations:
- Common Lists
- Letter Templates
- Referral Letter Templates
- Workflow Templates
- Immunization Templates
- Screening and Prevention Templates
- Goal Monitoring Templates
- Profile Graphs
- Clinical Dashboard Templates

- Prescription Templates
- Patient Education Materials
- Administrative Reports

Each EMR will differ in what customizations are available and how those are set up. Understanding the work styles of the individual providers will help you determine what areas of the EMR to customize and how to customize them.

Practice Management Demographic Data Dump

Prior to software training, patient demographics need to be transferred from the PM system to the EMR system. If the PM system is from a different vendor than your EMR, then planning and coordination from the PM vendor will be required.   This will typically need to be done in conjunction with the development and/or deployment of an HL7 interface.

It is important to do the data dump fairly close to software training so that the bulk of the patients are showing in the EMR system; this will help improve the realism of the software training by working in a live environment. The caveat is to not conduct the data dump so close to training that problems with the data dump cannot be resolved. After the data dump, it is a good idea to do some random tests of the data to ensure that the data is showing up correctly in the EMR.

Software Training

Software training is a critical milestone in a successful implementation project. Accurate planning for implementation milestones prior to the training phase will allow you to establish a realistic training launch. Conversely, your training launch date will help you manage your other project deliverables to ensure you meet your desired training date. Another reason to plan far in advance for training is simply to work around the providers' schedules. Many providers will be booked 4-6 weeks out. This may be conservative if you consider a specialist that is working in the practice and scheduling procedures. It is critical to get the providers committed to training early on.

One of the biggest challenges to successful EMR training is capturing the attention of the provider and clinical staff. Many will have the assumption that it will be an easy transition and they will learn it as they go. If the provider is unwilling to devote time to onsite software training, then the practice stands little chance of successfully adopting the EMR. (See the section on setting proper expectations).

Another challenge is creating a curriculum that will satisfy the needs of the practice. Since every user is different, and every user will utilize a different set of features, it is important to determine individual needs and goals early on so you can focus on those topics in training. There is little value in training a user on how to use interoffice mail if they have no intention of using it. (See the section on Goals and Objectives and Workflow Analysis).

The concept of the phased implementation needs to be taken into consideration for software training. If a practice is looking to phase into the EMR by adopting certain core features of the application first (phased usage) and then work on the next features over time, the dynamics and timing of training will vary. If the practice is slowly easing into the bulk of the functionality over time (phased application), then this training method will be quite different.

From the workflow analysis, you will be able to determine the roles and responsibilities of each employee and will better understand what their goals and objectives are. This information should be used to develop a curriculum that will suit the needs of the attendees. Once the curriculum or training plan is complete, you secure the buy-in of the practice early on. This will help you set proper expectations and help to increase confidence in the implementation plan.

CAUTION: It is unrealistic to expect that all features of the application and all aspects of workflow will be covered in the initial training. It is important to understand what the primary needs of the practice are and focus your initial training efforts on those primary needs. If you are phasing the practice into the EMR, which is recommended, then you will need to be prepared to provide successful initial training and subsequent training to help them fully adopt the EMR.

The Perpetual Implementation

In many complex software implementations the project management team will work to account for all of the major deliverables and plan for the contingencies and risks associated with the project with the anticipation that there will be a go-live date. Each implementation project typically has an absolute date for delivery and adoption, although EMR implementations rarely follow this philosophy.

A physician practice often becomes secure with familiarity and routine. The paper chart provides familiarity and a routine that is comfortable. You will find that there are generally pain points in the paper workflow, but the practice may live with them because the routine is more valuable.   Replacing this routine and familiarity is challenging and requires time to be successful.

The biggest problems with the phased implementation concept are circling back to follow up on how the phases were implemented and preparing for the next stage. The implementer must have a total plan to complete adoption for the practice. Otherwise, the practice runs the risk of becoming proficient in some aspects of the application, but not all of them. If the implementer doesn't help direct the practice then they may try to complete functions on their own. The user will either succeed (and potentially find ways to use the application incorrectly), become frustrated and inevitably discontinue use or continue to use the application in a limited capacity with low satisfaction.

A Parting Word

As an implementation champion, it is important to you will need to be perpetually implementing the EMR for the practice. New features and innovations are always being added to EMRs, and the practice may never investigate these options on their own. There are always ways to work with practices to help them be more effective with the EMR. The total satisfaction of the practice is directly linked to the level and quality of implementation.

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