Implementation of E-Prescribing

Daniel Z. Sands, MD, MPH, and Kate Galambos, RN, MSN, CPHIMS "Electronic Prescribing for the Medical Practice: Everything You Wanted to Know But Were Afraid to Ask"

Implementation is the process of putting a tool into practice, in the case e-prescribing. This process actually begins a month or more prior to actually starting to use e-prescribing in your practice and continues for several months following your first use of e-prescribing. Understanding the implementation process is important to achieve optimum results. For an overview of the implementation process, see Figure 7-1.

PRE-IMPLEMENTATION

Evaluating Readiness to Change

First you must decide whether your practice is ready to embrace a new technology. Introducing e-prescribing is not only a matter of changing the way you write prescriptions, but may change other aspects of your work flow as well. Both you and your practice need to be ready for such change.

As previous chapters have described, e-prescribing can improve practice efficiency, physician and staff satisfaction, cost-effectiveness of prescribing, record-keeping, patient safety, and patient satisfaction. In some cases, you may also qualify for incentives from payors. But it is essential to understand that introducing a new technology will affect many aspects of your practice. And with the implementation or e-prescribing and other clinical information systems, support staff as well as clinicians will feel the impact.

In addition to any direct costs you may incur, there will be time and effort spent learning how to use the new system effectively. Although some physicians feel that this transition temporarily affects their productivity, most practices introducing e-prescribing have little or no reduction. Many of the efficiency benefits of e-prescribing accrue only after several months as the system is primed with a critical mass of patient medications.

E-Prescribing Versus EMR
When considering implementing e-prescribing, it is worthwhile to compare and contrast this with implementing an EMR. Table 7-1 may help you in your decision process.

Table 7-1. Stand-alone E-Prescribing Versus EMR

Factor	E-Prescribing[1]	EMR
Cost	Low; may be subsidized by some payors	High
Implementation complexity	Mild	High
Impact on work processes	Low; similar form factor as prescription pad	Large; impacts every aspect of practice
Safety benefit	Significant	Highly significant
Improvement in record-keeping	Moderate	High
Productivity drop during transition	Little to none	Up to 6 months

Although an EMR has many benefits, many practices are not ready to dedicate the resources required or absorb the amount of work flow change necessary for an EMR. E-prescribing provides a reasonable alternative that produces many of the same advantages but with lower cost and complexity. There are a number of tasks you should consider before implementation of an e-prescribing system (see Table 7-2).

Table 7-2. Pre-implementation Task List

1. Evaluate readiness for change.
2. Perform a site survey.
3. Identify in-house champions.
4. Involve everyone!
5. Understand current work flow.
6. Collect practice data.
7. Address legal and administrative issues.
8. Get to know your vendor.

Perform a Site Survey
Your vendor will conduct an assessment of your practice prior to implementation. They will need to know the following (these may vary, depending on the specific product you will be implementing):

- Number of prescribers
- Number of other staff who will interact with the system (e.g., clinical nurses, practice assistants, secretaries)
- Practice management system-scheduling or billing system (more on this later regarding obtaining data)
- Network readiness
  - Is there a high-speed Internet connection?
  - Is there a wireless network?
- Other hardware
  - Number, location, and types of PCs
  - Number an types of handhelds already in use

Identify an In-House Champion
Someone in your office should be appointed as the project champion. The champion serves as the major source of encouragement for implementing and using e-prescribing. In some cases, this person will be the primary contact for the vendor. This person may also be the first person who is trained; Subsequent training can be performed by the champion.

The project champion may either be a clinician in the practice or the office manager. If it is a clinician, it may be wise to have someone else serve as primary contact for the vendor and staff trainer.

Involve Everyone
Implementing e-prescribing ideally involves the entire practice. Everyone on staff must be educated about the coming implementation. They must understand and be supportive of the goals for the e-prescribing system. It is therefore important to discuss everyone's concerns and ensure that they are engaged in the process. Each must be willing to spend the time necessary to make the best use of the system, which may involve training and adaptation of work flow.

Any clinician who writes prescriptions—including physicians, nurse practitioners, physician's assistants, and other clinicians—must be willing to undergo the training necessary to incorporate e-prescribing into his or her practice. Although it is possible for phased implementation among clinicians within a practice, universal adoption will enhance efficiency. The reason for this is that multiple providers within a practice might see any given patient, and if that patient's medication documentation exists both on paper and online, it may lead to errors and miscommunication.

Support staff, including practice assistants, triage nurses, clinical nurses, and anyone who interacts with patients or pharmacies around prescriptions, whether by phone, fax, or e-mail, must be involved so they can understand and incorporate the new work flow, which generally involves queuing prescription requests on the computer system.

Understand Work Flow
Analyze practice work flow around prescriptions, including writing prescriptions, accepting and compiling renewal requests, and approving renewals. Ask whether this workflow is the same for everyone in your practice. Create flowcharts that capture the process for prescribers and for other office staff. Examine the inefficiencies. Finally, work with your vendor to understand how work flow will change.

Collect Data
It will be important for you to understand how e-prescribing affects your practice. If efficiency is enhanced, then your investment was worthwhile. For example, you might save time in prescription writing or in not having to check and re-check payor formularies. You might see a decrease in your time spent communicating with pharmacies, and your staff might spend less time managing calls from

patients and pharmacies, which can free up your staff to do other things in your practice or may ultimately even reduce your staffing needs. If your efficiency should drop significantly but safety and patient satisfaction increase, then your investment may also have been worthwhile. However, if your efficiency were to drop significantly without recovering over time, and there were no corresponding benefits in safety or patient satisfaction, then this may have not been a worthwhile investment. For that reason, we recommend measuring certain parameters for between two and four weeks pre-implementation and then for several months post-implementation. Much of this data is very easy to collect through your practice management system, and others can be collected using simple data sheets that can be placed in clipboards at your telephone desk and through simple questionnaires (samples of data sheets and questionnaires can be found at the end of this chapter). Suggested parameters for measurement include:

- Number of patients seen per day (consider also differentiating between new versus repeat patients. Depending on your practice model, this difference can affect your work flow for new medications and refills, as well as influence the integration between your practice management and e-prescribing systems and affect your work flow for new medications and refills.)
- Relative value units (RVUs) per day
- Number of prescriptions written per day
- Number of prescription-related phone calls from
    - Pharmacies
    - Insurance companies
    - Patients
- Number of procedures performed per day
- Patient satisfaction with prescription management in the practice:
    - Accuracy of prescriptions
    - Prescriptions called in to pharmacy from practice
    - Handling of prescription calls within practice
    - Co-pay amounts (preferred and generic drugs prescribed)
- Staff satisfaction with prescription management
- Tracing of calls from patients or pharmacies about potential drug-drug or drug-allergy interactions

Take Care of Legal and Administrative Issues

In addition to the contracting issues discussed earlier in this manual, your vendor will have you sign an end-user license agreement, commonly called a *EULA*. In addition (or sometimes as part of the EULA), there should be a statement explaining what happens to your patients' data (i.e., does your vendor share or sell prescription data?), and how the use of that data is de-identified and protected with respect to HIPAA regulations. Your vendor will provide this to you.

Finally, determine how much the system will cost you in both direct (cost of system, equipment, etc.) and incurred costs (training time, ongoing cost of use, etc.). Be sure that your budget includes start-up costs, including the cost of computers, handhelds, wireless networking, Internet connectivity, and any other equipment. Typically, first year costs exceed the renewal costs.

Just as some payors are offering financial incentives to physicians who use e-prescribing systems, some are even paying the up front costs of e-prescribing for those physicians. Why are they doing this? E-prescribing leads to more cost-effective use of prescription drugs, which results in saving the payors money. Check with the provider representatives from the major payors in your area about the options that are available.

Get to Know Your Vendor

Make sure you feel comfortable with your vendor. Who will be working with you through implementation? Will different people be responsible for different parts of the process? Do you have a single point of contact if problems arise? Is there an avenue for giving feedback on the product?

IMPLEMENTATION

Implementation also involves a series of steps, including loading patient information; ascertaining pharmacy database; and performing installation, training and testing (see Table 7-3).

Table 7-3. Implementation Task List

1.	Load patient information
2.	Ascertain pharmacy database
3.	Perform installation
4.	Begin training
5.	Perform testing

Loading Patient Information

Before you can open a patient's record of medications and allergies and write or print a prescription, you need to identify the patient. In fact, your e-prescribing system may require additional patient information (e.g., social security number and perhaps even health insurance information) to proceed with eligibility verification.

Although this information may be manually entered as patients come in, that is highly inefficient and prone to errors. A better method is to transfer your existing patient database into your new e-prescribing system. Most vendors will take an extract of your patient database, which may be available from your practice management systems (billing or scheduling), or your hospital system (depending on your hospital's business relationship with your practice). This data can be extracted once, but as time goes on and patients change their contact or insurance information, or as new patients are added, the patient information in your e-prescribing system will no longer remain current.

For this reason, we recommend that you find out whether you can set up a real-time, bi-directional interface with your practice management system or hospital patient database, which will ensure that your e-prescribing system always contains the most current patient information. It may be available but only at an additional cost, but it is a worthwhile investment. If this is not available, inquire whether there is any other periodic synchronization process that you can use.

The importance of real-time, bidirectional interface differs between practice types. Intermittent synchronization may be adequate for practices such as internal medicine, which usually have a large proportion of repeat patients. But practices such as orthopedics, for example, which tend to have large numbers of new and referred patients, may need a real-time, bidirectional interface to avoid the constant need for duplicate entry of new patient information in both the practice management system and the e-prescribing software (see Table 7-3).

Ascertaining Pharmacy Database

After you write a prescription, you need to send it to a pharmacy. Make sure your vendor has dealt with any regulatory obstacles to e-prescribing in your state, including authorized conduits for e-prescriptions, custom-printed paper forms (for printed prescriptions), and other idiosyncratic state-specific regulations. (State medical societies and health plans can be useful in reversing legislation that is e-prescribing unfriendly.) Also, ensure that the system you use contains a database of all pharmacies in your area. Find out how often the vendor updates this database and how you can manually update any information that is not current. If yours is the only practice in your area that is using e-prescribing, you will need to be sure that your vendor has contacted the pharmacies you plan to send prescriptions to well in advance of your go-live date. Finally, confirm that the pharmacies will be ready and willing to accept your e-prescriptions. Some pharmacies are reticent to begin this process unless there are enough prescribers (or a single prescriber with large volumes) involved.

Perform Installation

Your vendor will perform most of the physical installation of the hardware and software. These are the things they may need to install (depending on your specific system requirements):

- High-speed Internet connection;
- Wireless network;
- Software on PCs, when needed; and
- Software on handheld computers.

Begin Training

Who will do the training in your practice, and how will it be done? Training methodologies include:

- Personal training; One trainer teaches one person
- Group training: A trainer teaches a group (small or large)
- Online training: Individuals can access self-paced training online.

Typically, training involves a variety of methods. Training requirements vary, depending upon the learning style, job description (which entails acculturated expectations about how training takes place), and computer experience with the systems that will be used. Make sure that your vendor offers a variety of training methods to accommodate your needs.

Remember that prescribers use a different part of the system than others in the office, so make sure separate training is available for both groups.

Often, a few people in a practice are trained initially and then are responsible for providing further training within the practice. This is called *train-the-trainer*.

Perform Testing

Before you begin prescribing, the vendor should perform tests to make sure that prescriptions can be created from all locations and by all devices within the practice. This includes ensuring that the printers are functioning appropriately and that the wireless network is working well throughout the practice (when needed). Sending some test prescriptions to your pharmacies is a wise step, if they are willing to participate with you in the testing.

POST-IMPLEMENTATION

Steps for post-implementation include communicating with and maintaining a close relationship with your vendor, continuing to collect data and also make improvements to your system, as well as plan for implementation of the next stage of information technology (possibly EMR) (see Table 7-4).

Communicate and Maintain Relationship with Vendor

Once your practice is e-prescribing successfully and the implementation project is completed, it is important that you continue to maintain communication with your vendor. Ideally, they will be in contact with you, but when you have problems or wish to give feedback, make the effort to contact them. It would be preferable if they accommodate either telephone or electronic contacts. Although there is a temptation to develop a workaround to problems you encounter, it is still important to discuss these problems with the vendor so they can provide solutions.

You should continue to assess your relationship with your vendor and how the system is working for your practice. Although it often is not easy to switch e-prescribing products, if you are very dissatisfied you should consider making a change.

Find out whether there is some sort of user group or forum, either in-person or online, through which users can share ideas with one another and give feedback on future product features (see Table 7-4).

Table 7-4. Post-Implementation Checklist

1. Communicate and maintain relationship with vendor
2. Continue data collection
3. Continue to make improvements
4. Make plan for implementation of next stage of information technology (possibly EMR)

Continue to Collect Data
As previously discussed, you should continue collecting data for several months following implementation in order to monitor the impact of your new e-prescribing system on efficiency, safety, and patient and staff satisfaction.

Continue to Make Improvements
Once you have completed a successful implementation, the work is not over. You can continue to improve work flow, upgrade software, etc. to maximize efficiency gains. Each change, however, should be carefully evaluated for its impact on each area of the physician office and prescribing process before the change is implemented. Data collected throughout the implementation process should help here, as well as the advice and experience of your vendor.

Plan for Your Next IT Project
E-prescribing is only one part of an IT plan for your office. Throughout this process we have suggested that you continue to evaluate how such a plan fits within your goal to move to a more completely automated care process for your patients. Any of these projects will require careful planning long before they are started so keep your team together and start the process now!

WIRELESS LOCAL AREA NETWORKS

A network is a connection among computers and devices (e.g., printers) within a defined area, such as an office or a building. Until recently, these networks required cables to connect the component of the network. Although adequate for fixed devices, such as desktop computers and printers, this limited the mobility of laptops, tablet computers, and handheld devices. A set of standards called 802.11 was developed to permit radio waves—similar to those used for wireless phones—to replace wires in network communication. Although there are variations of this, the most common types you will see today are 802.11b and 802.11g, but 802.11n and other technologies are on the horizon. To use a wireless network, devices need to have a wireless network card or have integrated wireless capabilities. One also needs a compatible wireless access point or a wireless router (see Performed a Site Survey above) plugged into the network, which sends and receives information. Devices can usually function within 100 to 200 feet of the access point, depending on the technology used and the configuration of your office. When range is a problem, additional wireless access points are required. The speed of a wireless network is not usually as fast as a wired network, but for most applications, it is adequate.

A wireless local area network permits computers and other devices to work together. Usually, the local area network is connected to the Internet, which permits your network to communicate with the millions of other computers and networks around the world. The connection to the Internet can be very fast (such as with a T3 or T1 connection) or moderately fast (such as with a cable modem or digital subscriber line [DSL] connection) all the way down to slow speeds found with dial-up. Most often, your office will be connected to the Internet using DSL or a cable modem. If you have a relationship with a hospital you may be lucky enough to have a T1 connection; otherwise the cost of such a connection may be cost prohibitive. Any of these, other than dial-up, are more than adequate for most application (see Figure 7-2)

Implementation		
Evaluate readiness to change E-Prescribing vs. EMR Perform Site Survey Determine Project Champion Involve Everyone Understand Work Flow Collect Data Legal and Administrative Issues Get to Know Your Vendor	Load Patient Information Ascertain Pharmacy Database Installation Training Testing	Communicate and Maintain Relationship with Your Vendor Continue to Collect Data

Figure 7-1. The Implementation Process

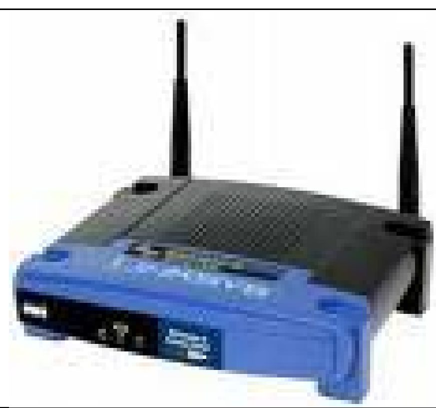

Figure 7-2. Wireless Access Point

Wireless Security
By default, 802.11 networks have little security, so that someone intercepting wireless transmissions can easily discover the private information that is being

communicated, including patient information, passwords, and other information. Because of this vulnerability, there is a security protocol called *WEP (Wireless Encryption Protocol)* that should always be used. Unfortunately, WEP is not impenetrable, so newer protocols, such as WPA and WPA2 are being promulgated. Unfortunately, the equipment needed to perform these advanced security protocols is currently more expensive. One other aspect of security that is important to understand is that transmissions over the Internet (even the wired parts of it) can also be easily intercepted; therefore, it is important that all transmissions are encrypted as they traverse the Internet.

Wide Are Wireless
In the future, we will be connecting to the Internet wirelessly wherever we are, even when we are not within the range or a wireless access point. This is already possible, as you may have discovered if you have ever used your mobile phone to send e-mail or instant messages. Although many phones can connect to the Internet for simple tasks, the newer generation of "smart phones" are robust devices that even permit Web surfing. Unfortunately, connectivity for most of these devices is much slower than DSL, cable modems, and T1 lines, making it cumbersome in most clinical environments.

Fortunately, there are new technologies available. Although they are quite expensive and not widely available yet, EV-DO is a technology that offers wireless connectivity to mobile phones at speeds approaching broadband. WiMAX is another technology that greatly expands the range of wireless networking so that users will not be so closely tied to a wireless access point, but it is not yet available widely.

SUMMARY

You should begin preparing for your e-prescribing implementation a month before the start date (see Table 7-5). Adequate preparation time is very important and should be coordinated closely with your vendor. Plan your activities for the three main phases of the project: pre-implementation, implementation, and post-implementation (see Figure 7-1). Be prepared to evaluate your progress and make adjustments as needed throughout the project. It is also critical to carefully manage relationships and expectations between your vendor, your in-house champion, and your staff throughout the project. Small problems can become big problems that can put the project at risk when not acted upon quickly. Close communication between everyone involved will be key. Be prepared to revise some work flow processes as you go along and as you discover more about your processes and the capabilities the vendor has to offer. Always collect the appropriate data before, during, and after the implementation as this will be useful not only for this project but also in planning other health IT projects. Finally, use lots of checklists, questionnaires, and written plans, such as some of those included in this book (Appendixes C to J) to further ensure project success.

Table 7-5. Implementation: Steps to Take

• Begin preparing for your e-prescribing implementation several weeks in advance of the start date • Plan your activities for the three phases of the project: pre-implementation, implementation, and post-implementation. • Manage relationships: your vendor, your in-house champion, and your staff. • Be prepared to revise some work flow processes. • Collect the appropriate data before, during, and after the implementation. • Use checklists, questionnaires, and plans to ensure project success.

APPENDIX J

E-Prescribing Implementation Checklist

Implementation is the process of putting a tool into practice. This process actually begins a month or more prior to actually starting to use e-prescribing in your practice and continues for several months following your first use of e-prescribing.

Use this checklist to track activities during the phases of the implementation.

Topic	Date Completed	Comment
Phase One: Load Patient Information		
End user license agreement signed		
HIPAA planning		Discuss with your vendor what happens to your patients' data and how it relates to HIPAA.
Costs:		
• Hardware		
• Connectivity		
• Network		
• Other equipment		
Patient database:		
• Data conversion		Most vendors will take an extract of your patient database, which often is part of your practice management systems (billing or scheduling) or available from your hospital system (depending on your hospital's relationship with your practice). This data can be extracted once, but as patients change their contact or insurance information, or new patients are added, the patient information in your e-prescribing system will no longer be current
• Bidirectional interface		We recommend you find out if you can set up a real-time *bi-directional interface* with your practice management system or hospital patient database, which will ensure that your e-prescribing system always contains the most current patient information. It may be available at an additional cost, but it is a worthwhile investment

Phase Two: Ascertain Pharmacy Database		
Insurance planning: Talk to provider representatives from major regional payors		
Check system database of pharmacies/how frequently it is updated		
Phase Three: Installation		
Install:		
• High-speed Internet connection		
• Wireless network		
• Software on PCs, if needed		
• Software on handheld computers		
Phase Four: Testing		
Testing • All locations • All devices • Wireless throughout		
Phase Five: Training		
Training: • Providers • Physicians • Nurse Practitioners • Physician's Assistants • Support Staff o Practice assistants o Triage nurses o Clinical nurses o Staff who interact with pts around prescriptions (phone, fax, mail)		
Workflow Redesign		Analyze practice work flow around prescriptions. Create flowcharts that capture the process for prescribers and for other office staff. Examine the inefficiencies. Work with your vendor to understand how work flow will change.

APPENDIX K

E-Prescribing Site Survey Questionnaire

TOPIC	DATE	RESPONSE
Number of physicians		
Number of associated staff		
Network readiness:		
• High-speed Internet		
• Wireless Network		
Other hardware: Number, location, type		
• PCs		
• Handhelds		
Identify the in-house champion		(Someone in your office should be the project champion. The champion serves as the major source of encouragement for implementing and using e-prescribing. In some cases, this person will be major contact for the vendor. This person may also be the first person who is trained; subsequent training can be performed by the champion)