A Toolset for E-Prescribing Implementation in Physician Offices

Prepared for:
Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
www.ahrq.gov

Contract No. HHSA 290-2006-00017, TO #4

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Preface

This project was funded as an Accelerating Change and Transformation in Organizations and Networks (ACTION) task order contract. ACTION is a 5-year implementation model of field-based research that fosters public–private collaboration in rapid-cycle, applied studies. ACTION promotes innovation in health care delivery by accelerating the development, implementation, diffusion, and uptake of demand-driven and evidence-based products, tools, strategies, and findings. ACTION also develops and diffuses scientific evidence about what does and does not work to improve health care delivery systems. It provides an impressive cadre of delivery-affiliated researchers and sites with a means of testing the application and uptake of research knowledge. With a goal of turning research into practice, ACTION links many of the Nation's largest health care systems with its top health services researchers. For more information about this initiative, go to http://www.ahrq.gov/research/action.htm.

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Chapter 1: How to Use the E-Prescribing Implementation Toolset

Prescription medications are among the most commonly used treatments in health care, but the process of managing written prescriptions and related telephone messages consumes substantial time for prescribers and their staff. Furthermore, these processes are prone to error and miscommunication, which sometimes result in patient harm.

Through the use of computerized systems, electronic prescribing (e-prescribing) systems have the potential to dramatically improve prescribing processes, such as reducing adverse drug events, and to save health care costs.[1] Federal regulations define e-prescribing as "*The transmission, using electronic media, of prescription information between a prescriber, dispenser, pharmacy benefit manager, or health plan, either directly or through an intermediary, including an e-prescribing network. E-prescribing includes, but is not limited to, two-way transmissions between the point of care and the dispenser" (Centers for Medicare &Medicaid Services. 42 C.F.R. Part 423).*"[a]

E-prescribing delivers information about medications (e.g. correct dosages and potential drug-drug interactions) at the point of care, allows prescriptions to be transmitted electronically, and provides instant access to formulary and benefits information. Together, many of these features can reduce the need for communication and coordination among prescribers, payers, and pharmacists, thereby increasing patient safety and enhancing efficiency. Physicians can e-prescribe using stand-alone systems or components of an electronic health record (EHR), as described in more detail in Chapter 4. If e-prescribing is part of an integrated EHR, then the system also can provide other types of patient information and tools for health care delivery, such as:

- Drug-lab alerts
- Encounter documentation
- Clinical decision support (diagnosis-drug)
- Medication reconciliation (especially during care transitions)

New payment incentives are in place to support e-prescribing and EHR adoption. Beginning in 2009, prescribers who use qualifying e-prescribing systems became eligible for bonus payments from the Centers for Medicare & Medicaid Services (CMS). Prescribers who do not prescribe electronically by 2012 will be subject to penalties by CMS. Beginning in 2011, eligible physicians who use qualifying EHR systems will qualify for additional payment incentives specified in the American Recovery and Reinvestment Act (ARRA), and e-prescribing is one of the criteria for determining whether physicians are making meaningful use of their EHR. CMS will introduce penalties for physicians who are not using e-prescribing beginning in 2015. These incentives are described in more detail in Chapter 2 of this Toolset. As a result of these incentive programs, physicians should consider whether adopting technology is the right decision for their office. By determining if health information technology (health IT) is a good fit within the next year or so, physicians will be positioned to take full advantage of these incentive programs,

[a] 42 CFR Part 423—Centers for Medicare & Medicaid Services (CMS) e-prescribing final rule

greatly offsetting the costs of implementing such systems while avoiding the penalties that follow for nonadoption.

Despite the many benefits of e-prescribing, there are numerous challenges in implementing e-prescribing systems and coordinating the diverse organizations that need to interact to make e-prescribing successful. Prescribers who adopt e-prescribing frequently struggle to use the technology as intended. Kaplan and Harris-Salamone (2009) note that the majority of health IT projects—including adoption of smaller-scale systems—fail in some way.[2] Failures are generally related to challenges in implementing and managing e-prescribing *processes* rather than to technical features of the system. The Office of the National Coordinator of Information Technology (ONC) cites the high rate of implementation failure as one of the major barriers hindering the adoption of health IT across the country.[3] Among the most common reasons for failure in e-prescribing implementations are lack of collaboration, coordination, and "buy-in" from staff who need to use the system.

Purpose of the Toolset

The purpose of this toolset is to provide your practice with the knowledge and resources to implement e-prescribing successfully. The toolset is designed for use by a diverse range of provider organizations, from small, independent offices to large medical groups. Larger organizations may have the staff and resources to carry out all of the activities described in the toolset with their own personnel. Smaller organizations are more likely to need outside help for many of the activities described, for example, from consultants or other organizations that provide support with health IT implementation (see Chapter 2). However, in smaller practices it may be even more important for the critical stakeholders, such as the lead practitioners and the office manager, to have a comprehensive understanding of the implementation process on which they are embarking.

The toolset is intended to support implementation of e-prescribing, whether as a stand-alone system or as a component of a full EHR. Adoption of EHR systems has been a goal of U.S. health care policy since 2004, and stand-alone e-prescribing is seen by many as a stepping stone to complete EHR implementation. Eventually, it is likely that efficiency benefits and policy incentives will make it untenable to practice medicine without an EHR. Thus, most providers should view decisions about EHR implementation to be about *when*, not if, they will adopt.

This toolset is also intended to support all stages of e-prescribing implementation, from the earliest planning to postimplementation monitoring and adjustment. The information and tools are designed for use by practices that are considering e-prescribing for the first time, as well as those that may already be in the middle of implementation. New and experienced users may want to use the toolset in different ways. For example, practices that are new to e-prescribing will likely want to read through the toolset from the beginning prior to starting any stage of the implementation process, while those who have already embarked on implementation may wish to begin with the later chapters and tools that are most relevant to their current stage.

The toolset should also be useful for providers who have already attempted e-prescribing implementation but did not succeed in achieving the full potential of the system. The toolset can help these practices take a fresh look at their implementation and redesign it in a way that helps them achieve more of the benefits and efficiencies of e-prescribing.

Who Should Use the Toolset

To begin using the toolset, you will need to identify the core members of your implementation team. At the outset, it is best to identify people within the practice to fill at least two key roles for planning:

- **The Provider Champion**: This person will act as the lead change agent within the practice organization. At a minimum, the champion will lead decision making during the planning stages, negotiating consensus among stakeholders. During implementation, he or she will maintain communication and enthusiasm among the other providers. The champion should be a respected and recognized leader within the practice as well as a practitioner who will ultimately use the system alongside his or her colleagues. Having a physician in this role is considered by some to be a critical success factor.
- **The Implementation Project Manager**: This person will drive the implementation process by tracking and supervising the activities that need to take place. In the planning stages, the project manager will ensure that the necessary information is gathered and provided to the key decision makers and that decisions are made in a timely and appropriate manner. During the later implementation phases, this person will, at a minimum, create and oversee the timeline for setup, training, and launch. In some practices, the office manager may step into the project manager role; in other practices, a reliable and respected consultant could fulfill this role. In rare instances, the same person may act both as champion and as implementation project manager.

These two individuals are the primary intended users of toolset Chapters 2 through 7. In many practices, this core implementation team will be supported through these planning steps by outside consultants, but the core team should nonetheless be driving the process and should be intimately involved with each of the steps.

Tool 1.1 is a roster tool that will help you identify the people who will comprise your implementation team. We will refer back to the team roster in several of the upcoming chapters, but we suggest that you review the roster and begin filling it out now so that you can start to identify others who should be involved in using this toolset. The roster is provided as a web page file, in hypertext markup language (HTML), which you can edit by copying the text from a web browser into your favorite document editor, such as Microsoft Word or Google Documents.

Contents of the Toolset: Chapters and Tools for Each Stage

The toolset consists of 11 chapters that provide guidance on topics ranging from determining what type of system to implement and selecting a vendor to planning the implementation process, launching the system, and determining if it is meeting the organization's needs. An

overview of the chapters is shown in Table 1.1. The toolset also includes specific tools to support planning and decisionmaking, such as surveys to determine whether your organization is ready for e-prescribing, worksheets for planning the implementation and monitoring progress, and templates for communicating the launch to patients. The formats of the tools include web pages (HTML), Microsoft Excel spreadsheets, Microsoft Word documents, and PDF files. Many of the chapters also include links to Web sites that contain additional useful information about implementing e-prescribing.

If you do not have the software to view these tools, you can find free readers online:

- For Microsoft Excel spreadsheets, go to: http://www.microsoft.com/download/en/details.aspx?id=10
- For Microsoft Word files, go to: http://www.microsoft.com/download/en/details.aspx?displaylang=en&id=4
- For Microsoft PowerPoint files, go to: http://www.microsoft.com/download/en/details.aspx?id=13
- For PDF files, go to: http://get.adobe.com/reader/

Table 1.1. Overview of toolset chapters

Chapter	Purpose
1. How to Use the E-Prescribing Implementation Toolset	Understand how to use the toolset
2. Background: What You Need to Know About E-Prescribing	Understand the basics of how e-prescribing works and what Federal policies, State policies, and local organizations may help you to implement e-prescribing
3. Laying the Foundation: Setting Goals and Achieving Buy-In	Set goals that will help you stay focused on the needs of your practice and gain the buy-in of key stakeholders
4. Assessing Readiness and Preparing for Major Process Change	Help your practice determine what type of e-prescribing system, if any, you are ready to adopt
5. Planning E-Prescribing Workflow	Understand current workflow and prepare to redesign it to maximize the effectiveness of e-prescribing
6. Selecting a System	Understand the factors you need to consider when selecting a system and vendor
7. Planning the Transition and Getting Started	Plan effectively for a smooth transition to e-prescribing
8. Configuring the Technology	Learn what you need to do to configure your e-prescribing system technology effectively
9. Training	Plan and execute the training you will need to take full advantage of your e-prescribing system
10. Launch	Prepare for a successful launch of your system
11. Monitoring Results and Remediating Shortfalls	Monitor your progress in meeting the goals you set for e-prescribing, and identify and solve the barriers to achieving the goals you set out

Call-out Boxes

In the toolset, we use the following icons and call-out boxes to describe tools and to highlight other key pieces of information.

A **Tools** box describes documents, spreadsheets, or external Web sites that are recommended for use as part of the main implementation process. The most important tools are provided as appendices in the toolset. Other tools can be accessed using a hyperlink to the tool's original source.

A **Links** box can be used in two ways. In early chapters, it can indicate how the results from your work in the current chapter will be used later in the toolset. In later chapters, the Links box can indicate how work from previous chapters can be used to complete the current step.

A **Best Practice Vignette** box contains examples drawn from successful practices.

A **Details** box indicates where you can go for additional background or information.

A **Tip** icon highlights methods or approaches that you may find particularly useful in executing the implementation step.

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Chapter 2: Background: What You Need to Know About E-Prescribing

As you start to plan for the adoption of e-prescribing in your office, it will help to understand the broader context for e-prescribing.

This chapter focuses on the following topics to get you started:

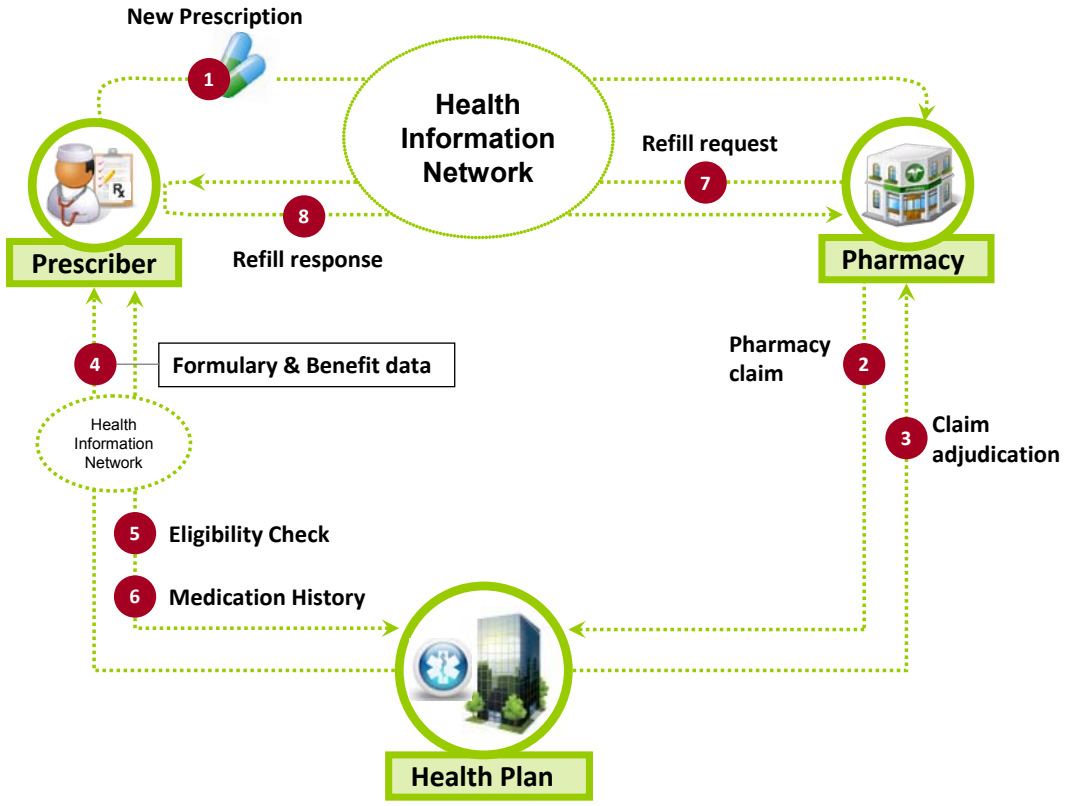
- What e-prescribing is and how it works.
- Supporting rules, regulations, and financial incentives.
- Regional initiatives and stakeholders.

The Basics: What E-Prescribing Is and How It Works

E-prescribing involves an electronic flow of information among several parties—most importantly, the prescriber, pharmacy, and health plan (see Chapter 1 for the formal definition of e-prescribing). Figure 2.1 depicts the information that is exchanged behind the scenes to make e-prescribing work. The paragraphs below explain each of the numbered transactions in Figure 2.1. Problems with any of these can affect the quality of prescriptions you receive.

1. New prescriptions are typically thought of as the main e-prescribing transactions. The prescriber selects a medication for the patient and indicates dosage, patient instructions and other related information. The prescription is then transmitted electronically to the patient's pharmacy. This electronic transmission is handled by an electronic prescription routing intermediary's health information network. This intermediary communicates with both the prescriber's software system and with the pharmacy's software system, so that the e-prescription arrives directly into the pharmacy management system. In pharmacies that are not yet enabled for electronic prescriptions, the prescription is converted into fax and the pharmacist manually enters the prescription into the pharmacy computer system.
2. At the pharmacy, if the patient has prescription drug coverage, the pharmacy sends a claim to the patient's health plan.
3. The health plan then sends back a decision, or "adjudication," with payment or rejection of payment as the result. If adjudication succeeds, the pharmacist can fill the prescription and collect the appropriate co-payment from the patient. Otherwise, the pharmacist may need to call back the physician to look for covered alternatives, if any.
4. To help the physician avoid these adjudication problems, e-prescribing systems often can download formulary and benefit information from the health information network for the health plans that cover their patients. However, not all health plans participate, and those that participate often do not include all the details needed to predict the patient's coverage at the time of pharmacy claim adjudication with complete accuracy.

Figure 2.1. E-Prescribing flow of information



5. In order to use this formulary information, the physician's software system must also check each patient's enrollment in a health plan, also called eligibility. This information is also transmitted via a health information network which acts as an intermediary between the prescriber's software and the health plan. When eligibility is confirmed, the e-prescribing system can then select the correct drug formulary and benefit information to display for that patient. The prescriber may be able to view information about formulary status, coverage tier, or alternative drugs in a specific class, depending on the level of detail that the particular health plan provides.
6. Some health plans also provide prescribers with "medication history" information, showing prior prescriptions that the patient has filled, sometimes displaying up to 24 months of the patient's prescription fill history.
7. When the patient's prescribed refills are exhausted, the pharmacy can initiate an electronic renewal request, also known to users as a "refill" request. The pharmacy makes the request in their pharmacy management system and the request is transmitted via the health information network to the prescriber's software system.
8. The prescriber views the request, and then sends a special refill response message back to the pharmacy to approve, deny, or deny with new prescription to follow, again via the health information network. If approved, the pharmacy can dispense more medication and more refills are potentially added to the prescription.

Supporting Rules, Regulations, and Incentive Programs

Several aspects of Federal and State law support the adoption of e-prescribing and health IT and also regulate the transmission, privacy, and security of patient data. Table 2.1 provides a brief summary of the basic legal framework of e-prescribing. Table 2.2 provides a brief summary of financial incentives for e-prescribing. Appendix A provides more detail about relevant legislation.

Table 2.1. Basic legal and regulatory aspects of e-prescribing

Aspect	Overview
E-Prescribing of Controlled Substances	The Drug Enforcement Administration (DEA) published an "interim final rule" that allows, but does not require, the e-prescribing of controlled substances. Although this rule went into effect June 1, 2010, EHR and pharmacy system vendors are still working to create systems that implement the approach authorized by DEA. Until such systems are implemented, prescriptions for controlled substances require a written signature. Printing the prescription from your system and signing it (rather than providing a hand-written prescription) is recommended so that these prescriptions are still recorded in the electronic medication list.
Privacy and Security of E-Prescribing Data Transmissions	The privacy and security rules resulting from the Federal Health Insurance Portability and Accountability Act (HIPAA) are the primary means for protecting patients' health information, including the data transmitted in e-prescribing. Because patient data is typically transmitted between different organizations, certain agreements are necessary to govern the flow of information exchange and protect patients' privacy and security: A vendor contract with the provider organization establishes terms under which e-prescribing system vendors build, maintain, or service the technology on behalf of the prescriber. The vendor contract should include a business associate agreement (BAA) between the provider and the vendor that limits the vendor's use of patient data to purposes that are consistent with HIPAA. A patient consent form may be used by providers in some cases, particularly to obtain patient consent for downloading the patient's medication history data, which would include prescriptions from other providers. The need to administer patient consent may also depend on State-specific privacy requirements.
State Law	All 50 States currently permit the electronic transmission and receipt of prescriptions. However, privacy laws and safeguards vary from State to State, for example, related to drugs used for HIV or mental health. Check with your vendor or your State health department to learn about special requirements for your State.
Requirements for Medicare Part D Prescription Drug Plans	Medicare Part D prescription drug plans are required to participate in e-prescribing, including making their patient formulary, eligibility, and medication history data available for provider access through e-prescribing systems.

Table 2.2. Financial incentives for e-prescribing

Incentive Program	Description
Medicare Improvement for Patients and Providers Act (MIPPA) E-Prescribing Incentive	From 2009-2013, "successful electronic prescribers" are eligible to receive a bonus payment from CMS. Starting in 2012, Medicare providers who are not successfully e-prescribing will receive a payment penalty. The schedule of incentives and penalties for e-prescribing under MIPPA is detailed in Appendix A.
Medicare and Medicaid Electronic Health Records (EHR) Incentive Programs	The Federal Health Information Technology for Economic and Clinical Health (HITECH) Act authorized $34 billion of incentive payments to qualified health care providers under Medicare and Medicaid for the adoption and "meaningful use" of certified EHR systems. These payments will amount to $44,000 per Medicare eligible professional through 2015, and $63,650 per Medicaid eligible professional through 2021. Several of the Stage 1 meaningful use criteria are related to e-prescribing, including the requirement to transmit at least 40% of eligible prescriptions electronically and the requirement to maintain an active medication list. **Medicare eligible professionals cannot participate in both the Medicare EHR Incentive Program and the MIPAA e-Rx incentive; however Medicaid eligible professionals can receive both a Medicaid EHR and the MIPAA e-Rx incentives.**
Local Incentive Programs	Many health plans and State-level organizations have offered their own e-prescribing incentive programs that may provide additional support for e-prescribing adoption. See Appendix A for more details.

Programs to Drive and Support E-Prescribing Adoption

To be successful, e-prescribing must be a community-based effort involving a critical mass of providers, health plans, pharmacies, pharmacy benefit managers (PBMs), and health IT vendors. Practices that are new to e-prescribing can look to successful national and local efforts to leverage best practices and identify successful ways to overcome challenges. In addition, there are new Federal initiatives to support EHR and e-prescribing implementation. These include the Health Information Technology Extension Program as well as other programs designed to spur health information exchange at the State, regional, and local levels.

Health Information Technology Extension Program

This program established Health Information Technology Regional Extension Centers (RECs) to offer technical assistance, guidance, and information on best practices to support and accelerate health care providers' efforts to become meaningful users of electronic health records (EHRs). RECs will support primary care providers in defined geographic service areas and engage in services that include provider outreach, education, and technical assistance. Because e-prescribing is required under the EHR Incentive Programs, your practice should be able to look to its respective REC to help facilitate the adoption and utilization of e-prescribing. REC services are targeted at providers eligible for incentive payments, but many are making their services available to all providers at a low cost.

To learn more about RECs in your area, as well as to find other resources about health IT, visit the Office of the National Coordinator for Health IT's (ONC's) Web site at http://healthit.hhs.gov/rec. Providers interested in working with a local REC should identify their local REC on the ONC Web site and review the services that may be available to support implementation of health IT, including e-prescribing, in their region.

Regional and National Initiatives Focused on E-Prescribing

Several networks exist to promote problem-solving, sharing of best practices, and other resources to support the advancement of e-prescribing within communities. Indeed, you may find that your e-prescribing peers are your greatest resource. Organizations including the eHealth Initiative, Agency for Healthcare Research and Quality (AHRQ), American Medical Association, and California HealthCare Foundation maintain online resources that can help with e-prescribing implementation and, perhaps more important, with identifying local initiatives for coordinating e-prescribing activities and tackling the issues that arise. AHRQ also has a number of complementary tools and resources available at http://healthit.ahrq.gov/tools that are useful for planning and implementing health IT.

If you already have a local e-prescribing initiative in your community, consider becoming involved with an advisory board or steering committee. If your community does not already have such a venue, you might benefit from working with the other stakeholders in your area to create a local initiative. At the outset of such an initiative, it is important to involve all the parties who will be important to its success (especially pharmacies) and to involve local champions who can provide trustworthy expertise. The following example illustrates a successful regional initiative.

State-level E-Prescribing Program

California E-Prescribing Consortium: The California E-Prescribing Consortium (CALeRx) is a statewide collaborative open to all health care stakeholders involved in e-prescribing. The Consortium and its three Workgroups (Regional Provider, Health Plan, and Pharmacy) meet regularly to address challenges in e-prescribing by identifying best practices and, if needed, identifying paths for resolving problems. The Consortium also provides educational resources and communications tools for e-prescribing.

Making this investment in understanding your own local e-prescribing environment will be beneficial as you move on to set goals, select, and implement an e-prescribing system or a full EHR system for your organization.

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Chapter 3: Laying the Foundation: Setting Goals and Achieving Buy-In

Once you understand the broad e-prescribing landscape, you are ready to set goals for e-prescribing in your own practice. Setting goals and managing expectations for e-prescribing is key to ensuring a successful implementation.

Goals will provide the focus and direction you and your practice will need throughout the upcoming time of change. The implementation process will take time, especially for users to become comfortable with the technology and for work processes to be adjusted to the requirements of e-prescribing. Having clear goals and realistic expectations helps to ensure that the team will persist in achieving these changes because they know why the changes are occurring. Further, discussion of goals and expectations can ensure that stakeholders are "on board" with the changes, have reasonable expectations regarding the disruption of existing routines, and are ready to recognize the changes when they occur.

The goal-setting process should generally be led by the person who will lead the implementation team and have primary ownership of the implementation process. This person should be assisted by others on the implementation planning team.

This chapter includes a series of steps that will help you to identify specific goals, prioritize important and feasible goals, decide how to measure your success in achieving the goals, and then select the goals:

- Step 1: Review goals that can be achieved with e-prescribing
- Step 2: Choose the four or five goals that are most important to your organization
- Step 3: Engage stakeholders in assessing your priorities
- Step 4: Determine explicit targets and a feasible measurement plan for each goal
- Step 5: Communicate the final goals

Tool 3.1 provides a worksheet for each stage of the goal-setting process and a poster to communicate your goals to everyone in the practice. The worksheet is provided as a web page, which you can copy and paste into your favorite document editor. When you've finished the worksheet, paste your final goals into the poster template, which is provided as an 11x17-inch PowerPoint slide that you can take to a print shop and have further enlarged. (See the worksheet for more tips on printing the poster.)

Step 1: Review Goals That Can Be Achieved with E-Prescribing

First, you should read about goals that are commonly considered achievable with e-prescribing. Below are some examples, but this list is not exhaustive. Review these with an eye towards choosing goals that are important to your practice.

1. **Reduce medication errors.** There are many ways in which e-prescribing can reduce medication errors and the adverse drug events that may result. At its most basic, e-prescribing can eliminate problems with illegibility from hand-written prescriptions and problems of selecting invalid dosages. Oral miscommunications regarding prescriptions can also be reduced, as e-prescribing decreases phone calls between prescribers and pharmacies. Warning and alert systems are provided at the point of prescribing. E-prescribing systems can enhance medication management through clinical decision support systems that check the patient's current medications for drug-drug interactions, drug-allergy interactions, body weight and age- appropriate dosing.
2. **Reduce the time spent on phone calls, faxing, and callbacks to pharmacies.** E-prescribing can reduce the volume of pharmacy callbacks related to mistaken prescription choices, or questions about formulary and pharmacy benefits. Prescribers can save time and resources spent on faxing prescriptions. Available dose forms are readily apparent, and this can potentially prevent callbacks.
3. **Streamline prescription renewal authorization.** With e-prescribing, renewal authorization can become more automated. With only a few clicks, prescribers (or, in some cases, their assistants) can complete renewal authorization tasks, document that activity, and create related staff orders.
4. **Increase patient convenience.** By eliminating or reducing the time involved to drop off and pick up a paper prescription, e-prescribing may help reduce the number of unfilled prescriptions.
5. **Increase the use of more-affordable medication options.** E-prescribing can help to identify generic and other lower-cost therapeutic alternatives at the time of prescribing. Patient compliance with medications may be improved as a result.
6. **Reduce prescription drug misuse and abuse.** E-prescribing gives the prescriber access to the patient's external prescription history and information at the point of care. This can improve identification of cases of potential prescription drug misuse and abuse.
7. **Increase prescriber convenience and efficiency.** Improved prescriber convenience can be attained when using a mobile device (e.g., laptop, or personal digital assistant (PDA)) and wireless network to write or authorize prescriptions.

Tip

E-prescribing probably won't help you see significantly more patients in a day. However, e-prescribing can save time for your staff by minimizing telephone calls for medication renewals, retrieving medical records for renewal requests, and notifying the pharmacy about prescription renewals.

Step 2: Choose the Goals That Are Most Important to Your Organization

Think about your own practice environment and priorities. Then choose the four or five goals for e-prescribing that are most important to you. These should be goals that would help you to improve patient care, your performance as a practice, or the daily work of your practice. Write these goals down on the worksheet provided in **Tool 3.1**.

Step 3: Engage Stakeholders in Assessing Priorities and Narrow Goals

Which groups of clinicians and staff should be involved in discussions about goals for e-prescribing? Determining which stakeholders to engage should be based, in part, on who has relevant expertise, which is typically anyone whose job is affected by current prescribing processes, whose job will be affected by e-prescribing, or who will be involved in the implementation process (e.g., the office manager). It is important to engage these stakeholders is discussions about goals, both because they have relevant knowledge and because involving them will help foster their buy-in. Use the Team Roster tool (**Tool 1.1**) to identify and note all of the key stakeholders in your practice.

The Team Roster tool that you started filling out in Chapter 1 (**Tool 1.1**) will be used now to help you identify stakeholders and additional team members to help with goal-setting tasks.

The starting point for discussions with stakeholders is to identify what they consider to be the most important problems with the current prescribing process. Ideally, stakeholders should measure or estimate the effects of these problems in order to determine whether improvement is needed and to be able to document improvement that may come about by changing the process. Once these problems have been identified, the discussion should address how the process can be improved and the anticipated outcomes that would result. At later stages in the process, the goals you identified above may change, and you may want to rewrite the list. In addition, patients could be considered stakeholders for e-prescribing. Speak with patients to understand what problems they have with prescriptions from your office and what they would prefer to see improved. The objective of these conversations will be to narrow your initial list to two or three goals. Write these goals down on your worksheet (**Tool 3.1**).

The process of assessing existing workflow in Chapter 5 may reveal additional issues that may influence your practice's goals for the system. You may wish to revisit the goals after assessing workflow.

Chapter 6 discusses choosing the best system for your practice. The list of goals that you produce will inform your choice of system.

Step 4: Determine Explicit Targets and a Feasible Measurement Plan for Each Goal

For each goal, we suggest you set a specific, measurable "target" for what level of performance can be achieved to improve the existing conditions. The measures or estimates associated with current problems in the initial discussions with stakeholders can be used as a starting point for setting these targets. Review the example in Table 3.1 below and select targets at a similar level of specificity for your goals. Write these in on your worksheet. Note that, anecdotally, many practices have succeeded in phone calls reductions as large as those shown in the table.

Table 3.1. Examples of goals and targets

Goal	Target
Reduce pharmacy phone calls and faxes	75 percent reduction in six months regarding prescriptions
Reduce patient calls for renewals	75 percent reduction in six months regarding prescriptions
Reduce time on prior authorizations	75 percent reduction in six months regarding prescriptions

Chapter 11 goes into detail on measuring your goals and what to do if you don't meet them on the first try.

Next, you will develop your "monitoring plan." This means you will determine how you will measure the progress of your e-prescribing effort in reaching the explicit targets of your goals. As you'll see, we recommend keeping it simple!

What needs to be measured in order to demonstrate that e-prescribing has met the explicit target of a goal? Start by brainstorming with your team on everything that could be measured. Don't worry about the feasibility of any measurement at first. You will assign feasibility at the very end of this step. Think broadly for now. Measures of success can come from many categories, including—

- Clinical outcomes, e.g., reduced medication errors
- Patient and provider attitudes and adoption, e.g., increased patient and provider satisfaction

- Workflow or financial outcomes, e.g., reduced number of pharmacy phone calls, increased incentive payments

Also, don't get hung up on statistics, sample size, and other complicating factors. We recommend using quantitative as well as qualitative measures. Quantitative measures are particularly appropriate for clinical, workflow, and financial outcomes and can provide an objective way to assess changes in processes and outcomes before and after implementation of e-prescribing. Qualitative approaches can provide you with a deeper or richer understanding of the success of your efforts. Qualitative measures can include anecdotes and stories that resonate with your experience.

If you are operating within a larger facility, such as a hospital, there may already be data available that will be useful to you. Find out what data are being collected, especially in "pay for performance" programs (i.e., programs that tie physicians' financial incentives to patient health outcomes), and determine whether any can be used as an evaluation measure. For instance, if someone in your facility is gathering data on patient satisfaction, the data may indicate whether patient satisfaction increased following implementation of e-prescribing. Also, once you have selected an e-prescribing system, consider asking your vendor about what data *they* can provide to help you measure success. Most e-prescribing systems are able to generate automated reports.

Table 3.2 below shows some examples of goals, targets, and associated monitoring plans. If your goal and explicit target is to have a 75 percent reduction in pharmacy phone calls, then the monitoring plan may be to measure the difference in pharmacy phone calls logged on a spreadsheet by administrative staff before and after implementation. If your goal is to change patient attitudes, such as having the majority of your patients view your practice as taking their health care costs seriously, then your monitoring plan may be a pre- and post-implementation survey of patients in the waiting room in which patients are asked "Do you believe our practice wants to reduce the cost of your health care by providing lower-cost medicines when they are available?" As an example of a qualitative measure, if you decide that a goal is to make it easier for prescribers to write a prescription when not in the office, then the monitoring plan may simply state that "providers will generally agree that e-prescribing makes it easier for them to write prescriptions when they are not in the office." (Note, however, that this outcome also can be measured quantitatively if included in a survey of user attitudes, for example.)

Finally, consider feasibility. Feasibility is usually determined by having sufficient staff and opportunities to collect the data. For example, to determine whether e-prescribing has reduced adverse drug events, your practice must have staff with the skills to perform chart abstractions, which can be time-consuming and expensive. Apply a grading scale (1= very feasible, 2 = moderately feasible, 3 = not very feasible) in the last column. Be sure to discuss feasibility with the stakeholders in your office who will be assigned responsibility for monitoring.

Table 3.2. Example goals with responsibilities and feasibility assessments

Goal	Target	Monitoring Plan	Assigned Responsibility	Feasibility
Reduce pharmacy phone calls regarding prescriptions	75 percent reduction in six months	Phone logs before and after implementation	Front office staff	2
Reduce patient phone calls for renewals	75 percent reduction in six months	Phone logs before and after implementation	Front office staff	2

Consider modifying any measurement plans that are determined to be only moderately feasible or not very feasible. For example, if it is not feasible to maintain phone logs for extended periods of time both before and after implementation of e-prescribing, you might consider creating phone logs for a more limited period of time, such as a month or even a week prior and postimplementation. If you cannot make modifications easily, you should probably consider focusing on alternative goals or targets.

Step 5: Communicate the Final Goals

When you have finished all the previous steps, fill out the poster in **Tool 3.1**. Assign a start date for each type of data collection. Table 3.3 provides examples of goals and plans. Post regular progress updates (e.g., quarterly) so that stakeholders can see how you're doing. We suggest adding a column or replacing the "Start date" column in Table 3.3 showing the current results of monitoring and distributing the table to key stakeholders.

Table 3.3. Examples of goals and plans

Goal and Explicit Target	Monitoring Plan	Assigned responsibilities	Start Date
Decrease the number of calls to pharmacies by 75 percent in six months	Log of pharmacy phone calls using spreadsheet	Administrative staff maintains log; office manager tabulates and reports results monthly	September 1, 2011
Over 50 percent of patients will report greater convenience with medication refills	Patients will rate convenience at baseline and after six months, using brief, paper-based office survey	Receptionist provides and collects one-page survey to patients; Dr. Jones tabulates and reports results	October 1, 2011
At least 75 percent of physicians will report spending less time on phone calls, faxing, and callbacks to pharmacies	Physicians will report a perceived lower volume of pharmacy callbacks related to handwriting legibility, mistaken prescription choices, formulary, and pharmacy benefits	Physicians meet in six months to discuss their experience with e-prescribing	October 1, 2011

Chapter 4: Assessing Readiness and Preparing for Major Process Change

Adopting e-prescribing is a major endeavor. Once you have established your goals for e-prescribing, you need to take stock of your organization and its resources to determine whether you are ready to make this change. Only then can you make an informed decision regarding which type of e-prescribing system (a) meets your practice's goals and (b) can be implemented successfully in light of your organization's readiness for change. You also may find that your organization is not yet ready for e-prescribing and thus needs to take remedial steps to get ready before attempting to adopt either type of system.

This chapter walks you through several steps to help assess your readiness for e-prescribing:

- Understand the differences between an electronic health record (EHR) system and stand-alone e-prescribing.
- Determine whether you are ready for health information technology (IT).
- Ensure that e-prescribing users have the necessary computer skills.

An Electronic Health Record System Versus Stand-Alone E-Prescribing

Determining your practice's readiness for e-prescribing could be thought of as answering two separate questions—(1) Is your practice ready for any e-prescribing system, and, if so, (2) Is it ready for the more fundamental changes needed for a full EHR system or is it better prepared for a stand-alone e-prescribing system? Therefore, if you are not using e-prescribing today, the decision is essentially a choice among three options: (1) ready for stand-alone e-prescribing, (2) ready for a fully integrated EHR system, or (3) not yet ready for e-prescribing of either sort.

This chapter features a readiness assessment tool that will help you make this three-way decision. However, before starting this detailed assessment, you first need to understand the differences between stand-alone e-prescribing systems and EHRs and to consider how each would fit with the goals you identified in Chapter 3, as well as your practice's long-term objectives. Table 4.1 compares stand-alone e-prescribing and EHRs in terms of their cost, requirements for implementation, and impact on your practice.

Table 4.1. Requirements and impact of stand-alone e-prescribing versus EHR

Factor	Stand-Alone E-Prescribing System	EHR System with E-Prescribing
Cost	• Hardware/software: $2,500–$3,000 or less per year per prescriber for licensing and support[4] and up to $700 per prescriber per year for maintenance after the first year.[5] Additional costs may include data integration and enhanced reporting.	Hardware/software: $25,000–$45,000 per provider with $3,000–$9,000 per year for maintenance, training, and support.[6,7]
Difficulty of Implementation	• Affects fewer processes or staff • Affects few external integration points. Platform is typically similar to written prescription pad. Limited setup required (e.g., drug and sig[a] favorites lists). • Shorter project timeline	• Affects all processes, including billing, and affects most staff • Affects multiple external integration points (e.g., lab, hospital, radiology) • Significant shifts in how care is provided and documented • Long and labor-intensive setup
Eligibility for Incentives[b]	• Qualified systems are eligible for MIPPA incentives. Many local initiatives also subsidize e-prescribing. • Systems certified as meeting meaningful use criteria in combination with other modules of EHR can qualify for ARRA incentives	• Systems that are certified to meet all meaningful use criteria can qualify for ARRA incentives
Migration to EHR	• Does not always allow for easy transitions to a full EHR	N/A
Workflow Impact	• May not interface with existing practice management software, requiring staff to enter patient data into two systems • Writing new prescriptions has minimal effects on workflow; effects are larger for prescription renewals	• Requires analysis of current work processes and major changes in workflow
Safety benefits to patient	• Can reduce medication errors due to illegible handwriting • Alerts include checks for drug-drug interactions, appropriate dosing, and drug-allergy contraindications when writing new prescriptions, although offers fewer alerts than fully integrated EHR • Can display past prescriptions from patient claims data, which can be used to assess compliance and potential overuse or abuse • Increases patient convenience, which may improve compliance	• Same benefits as stand-alone e-prescribing for patient history and formulary compliance, plus: • Can provide alerts based on drug-disease interactions (e.g., drugs contraindicated in renal disease), conditions (e.g., pregnancy), and drug-laboratory interactions (e.g., drug-dosage adjustments for renal insufficiency) • Can provide dosage calculations based on patient age and weight • Increases preventive care by providing reminders • Can provide other decision-support tools at the point of care • Enables remote access to patient information • Some systems provide resources to deliver patient education

Table 4.1. Requirements and impact of stand-alone e-prescribing versus EHR (continued)

Factor	Stand-Alone E-Prescribing System	EHR System with E-Prescribing
Effects on office efficiency	• Can provide a full list of the patient's prescriptions printed and stored in the chart • Eliminates or reduces chart pulls for renewal requests • Allows prescribers to check patient formulary and choose alternative medication on the spot	• Same benefits as stand-alone e-prescribing for patient history and formulary compliance, plus: • Eliminates manual effort to find and retrieve paper charts • Built-in templates designed for different specialties make storing and finding data more efficient • Provides coding systems that facilitate selection of correct billing codes for patient encounters
Impact on productivity	• Little to no effect on productivity during ramp-up	• May reduce productivity for 6 months or longer.[8] However, more recent studies have documented net increases in productivity after a ramp-up period.[9]

[a]The Signatura or "Sig" is the patient instructions part of the prescription. It includes at least the quantity and frequency to take and other special instructions

[b]See Chapter 2 for explanations of MIPPA and ARRA.

Readiness for Health Information Technology

You might be leaning toward stand-alone e-prescribing or an EHR system based solely on the system features described above or the incentives reviewed in Chapter 2. However, before purchasing a system, you need to assess whether your practice is ready for either type of system.

Factors Affecting Readiness

There are a variety of factors that influence readiness for e-prescribing (or for that matter, for any large-scale organizational change). Many key factors are described in Table 4.2. Ensuring that these and other factors are in place will smooth the implementation process and enable your practice to reap the benefits of e-prescribing. Some dimensions of readiness include the following:

- Does the practice have specific, measurable goals that are linked to adoption of e-prescribing or EHR?
- Is there an influential champion for the technology?
- Do members of the practice understand how e-prescribing will affect their work and patient outcomes?
- Do members of the practice have a realistic understanding of what will be required to implement e-prescribing?
- Are members of the practice committed to successful implementation?
- Does the practice have experience with implementing information systems?
- Is practice leadership willing to provide the necessary resources (financial and time) for successful implementation?
- Does the practice have sufficient internal or external IT staff to assist with the implementation and provide ongoing technical support?

Using a Readiness Assessment

A number of surveys have been developed to help practices evaluate their readiness for EHR or e-prescribing.[b] However, none of the available surveys were geared for the decision that providers face between EHR and stand-alone e-prescribing. To meet this need, we adapted existing tools to create the Readiness Assessment spreadsheet in **Tool 4.1**. Completing this survey will help you get a sense of which system is best suited for your practice and whether you are ready to begin the implementation process, or whether there are particular issues that need to be addressed first.

Tool 4.1 provides a **Readiness Assessment** spreadsheet. Its questions can be answered in a group meeting, or it can be handed out and completed by individuals. The last page of the spreadsheet automatically tallies the answers entered for each question. Detailed instructions for completing the Assessment and interpreting the results are in the text below.

There are different ways to complete a readiness assessment, and there is no single correct approach—each method has strengths and weaknesses. However, in all cases, it is a good idea to get input from multiple stakeholders who will be affected by the new system. One strategy is to discuss the questions in a group and come to consensus on a response for each question. Alternatively, members of your practice can complete the instrument independently. One person would then summarize the results by calculating the average score for each question across all members of your practice as well as the range of scores for each question.

Interpreting the Scores. There are no hard and fast rules for interpreting the readiness assessment ratings. For example, there is no objective number of responses that can be taken to mean that your practice is ready (or not ready) for e-prescribing or EHR. Instead, the ratings should be viewed as a way to guide your decision about what type of system to implement and to identify the remediation steps that may be needed prior to adopting a system.[c] If your ratings reveal a lack of readiness in any of the "deal breaker" areas, it is particularly important to address and rectify these issues before moving any closer to planning to adopt health IT of any kind.

If individuals complete the survey independently, it also is important to pay attention to the range of answers, which indicates the amount of consensus among stakeholders. If there is a lot of variation among members in response to particular questions, additional analysis or discussion may reveal the reasons for these divergent views and/or whether there are issues that need to be

[b] One such survey is the Community Clinic EHR Readiness Assessment, developed by Object Health. This survey was the primary source for Tool 4.1. This instrument, as well as other readiness assessments are available in the Health IT Survey Compendium at http://healthit.ahrq.gov/tools.

[c] If your responses indicate that your practice might be ready for EHR, we recommend that you complete an additional readiness assessment that was designed specifically for electronic health records. In addition to the Community Clinic EHR Readiness Assessment mentioned earlier, the Info-Tech Research Group EHR Readiness Assessment Questionnaire provides a comprehensive set of readiness areas to evaluate with respect to electronic health records (available at http://www.norc.org/6275/Module2/EMR%20Readiness%20Assessment%20Questionnaire.pdf).

addressed with different groups of staff (e.g., clinical and administrative staff, or staff with more versus less experience with computers).

Even if you determine that your practice is ready for health IT, responses to the readiness assessment can point to areas that need to be addressed prior to starting the implementation process.

Your Readiness Assessment results will inform the subsequent steps of implementation, especially the selection of a specific EHR or e-prescribing system (**Chapter 6**). Also check whether you need to revise the goals you set out in **Chapter 3**. Do your goals still appear feasible? Or, on the other hand, could they be more ambitious? If you do need to adjust your goals, be sure to communicate this change with all of your key stakeholders. Making such early, well-justified course corrections should help to bolster confidence in the project.

What If You Are Not Ready?

If you find that your practice is not ready to adopt e-prescribing or EHR, it is advisable to postpone your implementation efforts and to work instead on developing the areas that will prepare your practice for health IT. Your answers to the Readiness Assessment questionnaire can point to the areas on which to focus your efforts.

If your practice is not ready for EHR but is ready for a stand-alone system, then it makes sense to start with a stand-alone e-prescribing system that can be easily integrated with an EHR down that road. In the interim, your practice should work on readiness for an EHR by targeting the barriers identified in your answers to the readiness survey. Even if your practice is ready for EHR, your responses to the readiness assessment may reveal organizational changes that are needed for the implementation to be successful.

Do Users in Your Practice Have the Computer Skills They Need?

Ensuring that e-prescribing users have the necessary computer skills is an important aspect of successful implementation of e-prescribing. However, the level of computer skills among staff is generally is not a factor in determining whether or not to adopt a system, but instead should be considered part of the training process. Users who do not have sufficient experience or comfort with computers may need supplementary training prior to adoption. This topic, along with a tool for assessing computer skills, is discussed in Chapter 9. If you are concerned that the majority of staff who will be using e-prescribing lack basic computer skills, it may make sense to conduct the skills assessment now so that you have enough time to plan for and provide appropriate remedial training.

Chapter 9 discusses the topic of assessing your staff's computer skills and remediating key skill deficiencies.

Chapter 5: Planning E-Prescribing Workflow

In general, there are three main processes involved in handling prescriptions: (a) new and renewal prescriptions originating during a patient visit, (b) renewal prescriptions originating from the pharmacy by fax or by phone, and (c) problem handling, such as phone calls from pharmacy to clarify prescribing issues related to patient coverage or medication safety. Every practice has a unique workflow for handling prescriptions, with specific people carrying out different tasks, such as receiving requests, writing prescriptions, transmitting prescriptions, and managing records. Replacing paper with electronic prescribing will inevitably change the way prescriptions are handled in your office. To gain efficiency, quality, and safety benefits from e-prescribing, you need to understand your office's current prescription handling processes so that you can plan to put the technology to the best use.

This chapter explains:

- How to critically assess your practice's current processes for writing new prescriptions and processing renewal requests by analyzing the workflow.
- How to identify opportunities to improve workflow through e-prescribing.
- Techniques for identifying opportunities for improvement.
- How to design a new workflow to best capitalize on e-prescribing.

Understanding your current workflow will enable you to make e-prescribing plans that will work successfully with available staff, space, and technology resources. Planning your workflow before you select an e-prescribing system may help you choose a system that can support the workflows you need.

Understanding Prescribing Workflow

A workflow is the set of tasks used to reach a specific goal, such as getting a patient started on a new medication. A workflow consists of a sequence of steps carried out in a specific order. The completion of these tasks can be affected by many factors, including the staff involved, materials and equipment needed, methods used, physical environment (e.g., the layout of the site where the process occurs), and relationships with external organizations involved (e.g., pharmacies and health plans).

A key aspect of workflow is information flow. For example, to complete a medication renewal, many pieces of information are needed including who is requesting it, who is the patient, what is the medication, how many days of medication are needed, and where the prescription should be sent. The right information needs to flow to the people who will complete the job.

E-prescribing systems should help you manage information flow to create a safer and more efficient prescribing process. Therefore, it's important to choose an e-prescribing system that can fit with (and improve) your current workflow. By analyzing your current prescription workflow, you identify when, where and how prescribing takes place, who is involved, and how

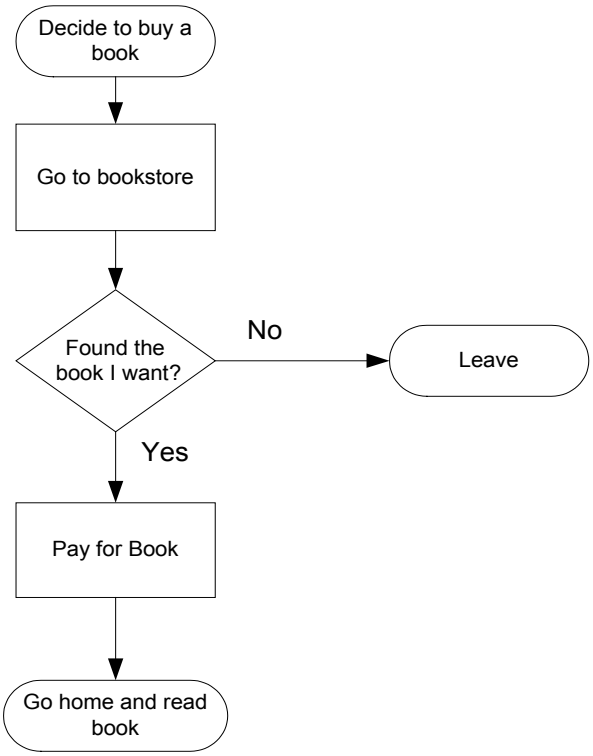
information regarding the prescription is used in this process. It's far better to conduct this analysis early in the implementation process in order to predict and avoid problems upfront.

The process of assessing existing workflow may reveal additional issues that may influence your practice's goals for the system. You may wish to revisit the goals after assessing workflow. See Chapter 3 for goal-setting process.

In Chapter 6, you will use the results of your workflow analysis to help select an e-prescribing system that will support the workflow you have designed.

People who have studied workflow in many industries have found workflow diagrams (also known as flowcharts) to a very useful tool. By describing the set of tasks and their sequence in a clear visual manner, you can be certain to consider all the relationships involved. A workflow diagram displays a set of processes or tasks (which each consume time) as rectangular boxes with arrows connecting them to describe the sequence in which the tasks are performed. Other symbols often used are a diamond shape to identify a decision or choice and an oval to indicate the beginning or end of a sequence. An example is shown in Figure 5.1.

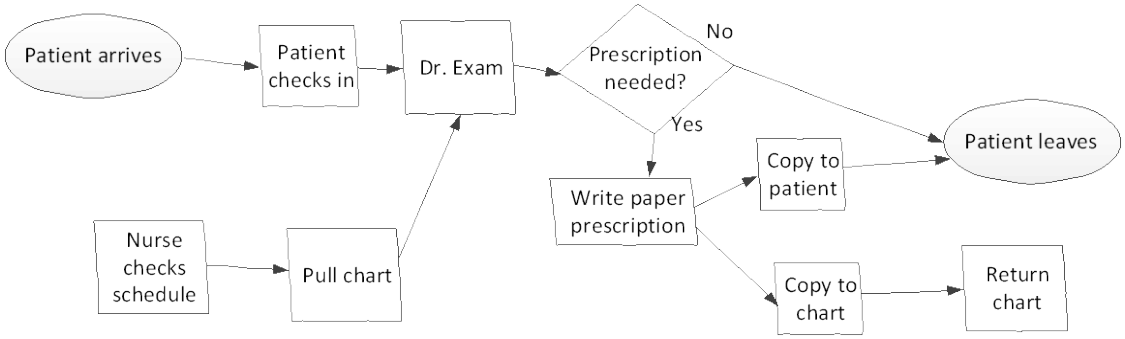
Figure 5.1. Example of a workflow diagram



In addition to showing a sequence of tasks, a workflow diagram can describe the flow of information or materials. Anyone who knows the sequence of processes can create the workflow diagram. In the workflow diagram, the sequence of steps is usually shown flowing downward or left-to-right. You may also see diagrams that group tasks according to who is doing them. For example, tasks for physicians, nurses, and clerks could each be shown in separate "lanes" to distinguish the type of person doing each task. Such diagrams are sometimes called "swim lane" diagrams because they are similar to the lanes of a swimming pool.

Diagrams can be hand-drawn and need to be only as detailed as will be useful. For example, a high-level workflow diagram for a patient visit might be similar to Figure 5.2. A list or table might also be used instead of a workflow diagram.

Figure 5.2. Prescribing workflow as an initial hand-drawn example

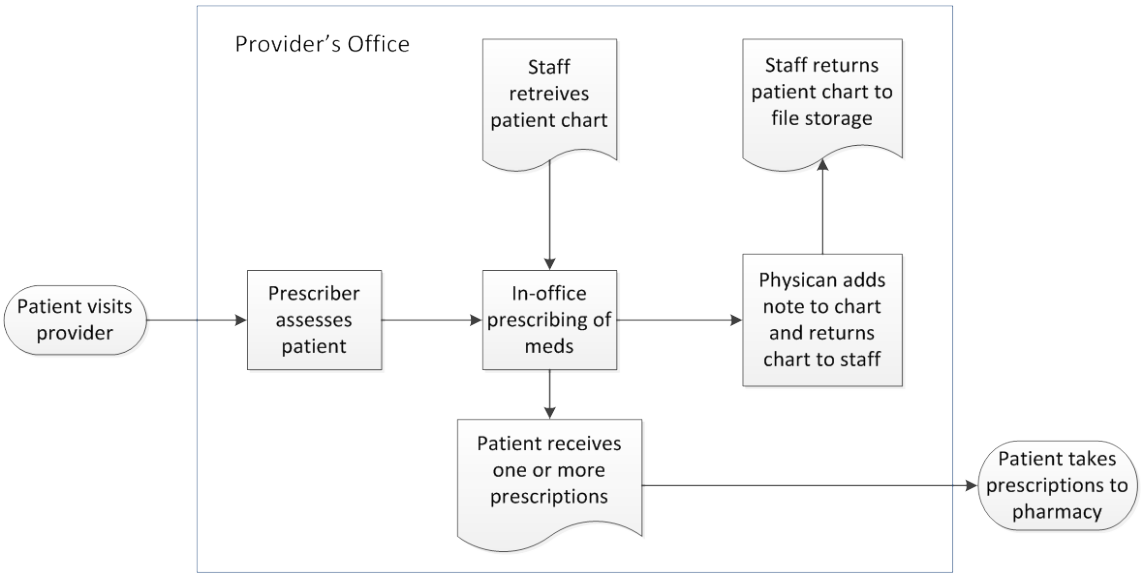


Figures 5.3 and 5.4 show flowcharts for two of the main prescribing processes: (1) in-office prescribing and (2) handling renewal requests or prescription problems. Figures 5.3a and b depict examples of these processes using conventional paper prescription systems. Figures 5.4a and b illustrate these processes using e-prescribing.

The diagrams are intended as an aid to thinking through steps in the current system and the future one. Each office will have a somewhat different system, and the workflow diagram describing your site will not be identical to these. Your office's workflow diagram may have more detail than shown here. The detail must be sufficient to help identify problems and opportunities for improvement.

Tool 5.1 contains Figures 5.2 through 5.4, with verbal explanations for each element in the diagrams. You can use these example diagrams to create your own prescription management workflows. Software applications such as Microsoft Visio can be used to create the diagrams, but hand-drawn versions are equally effective.

Figure 5.3a. Prescribing workflow in a paper system: an example



Flowcharts usually indicate the sequence of events from the top down and from left to right. The workflow diagram can include graphics such as an icon for the provider, a person in a white coat for example, or can use a simple combination of boxes and arrows. The flow can be arrows indicating the sequence of events or various lines indicating the movement of information vs. the movement of medications. Diagrams can also use loops to indicate that events are repeated.

Figure 5.3b. Renewal workflow in a paper system: an example

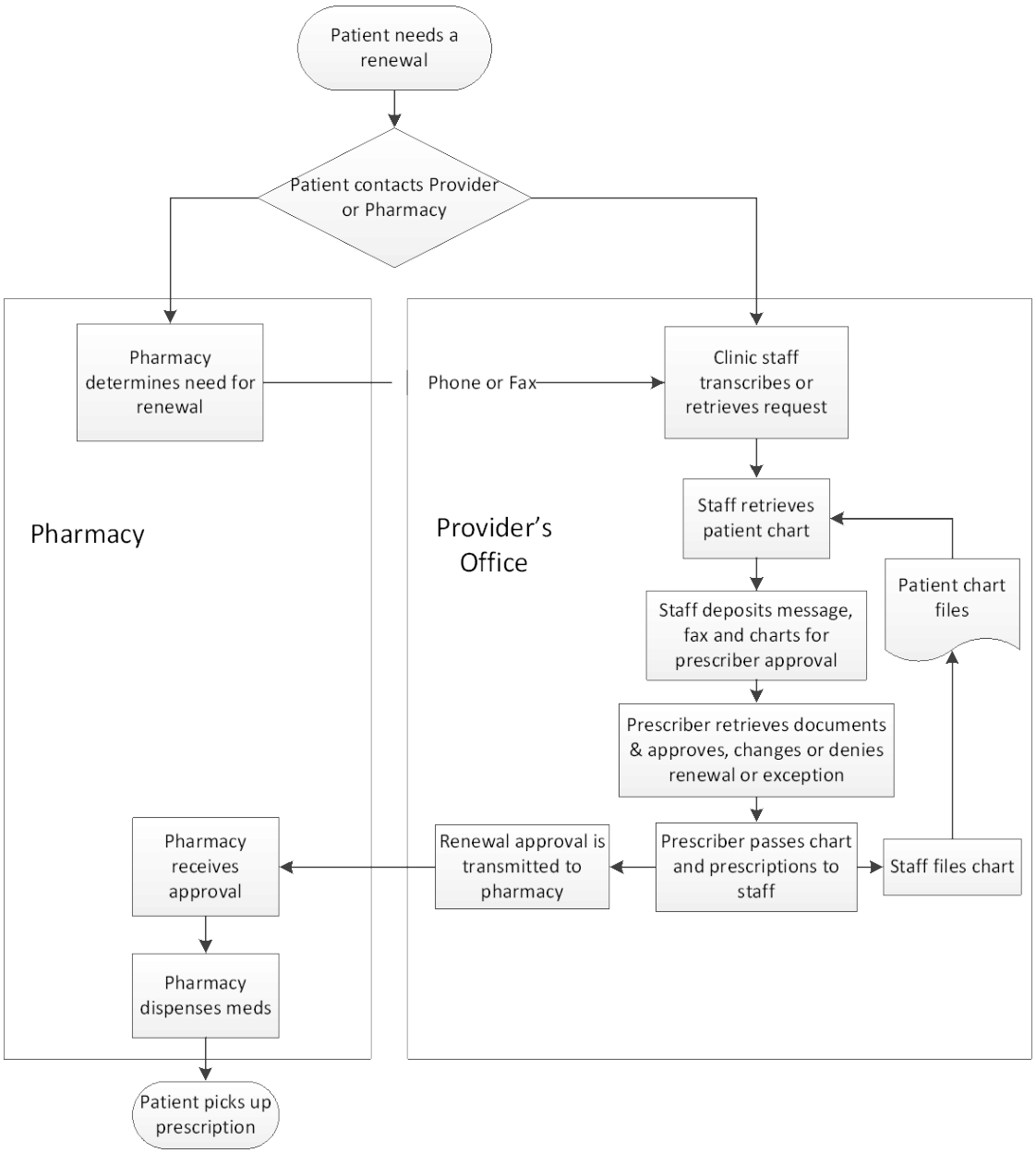


Figure 5.4a. Prescribing workflow in an electronic prescribing system: an example with staff delegation and e-prescribing–enabled transmission

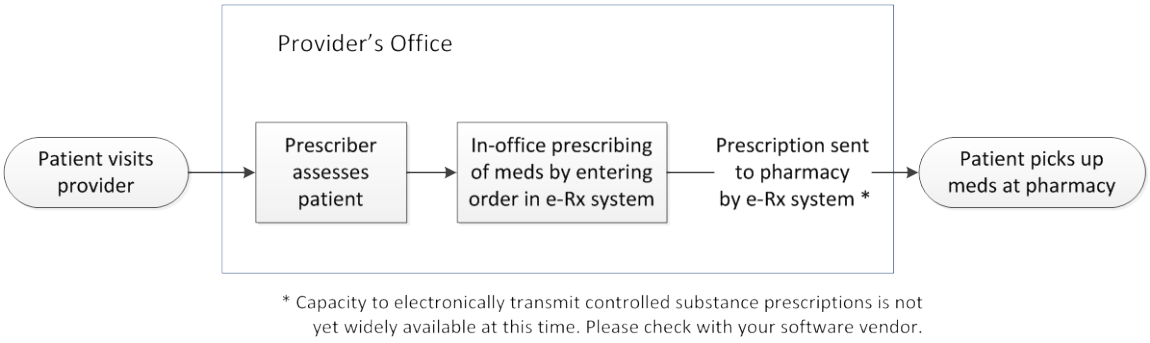
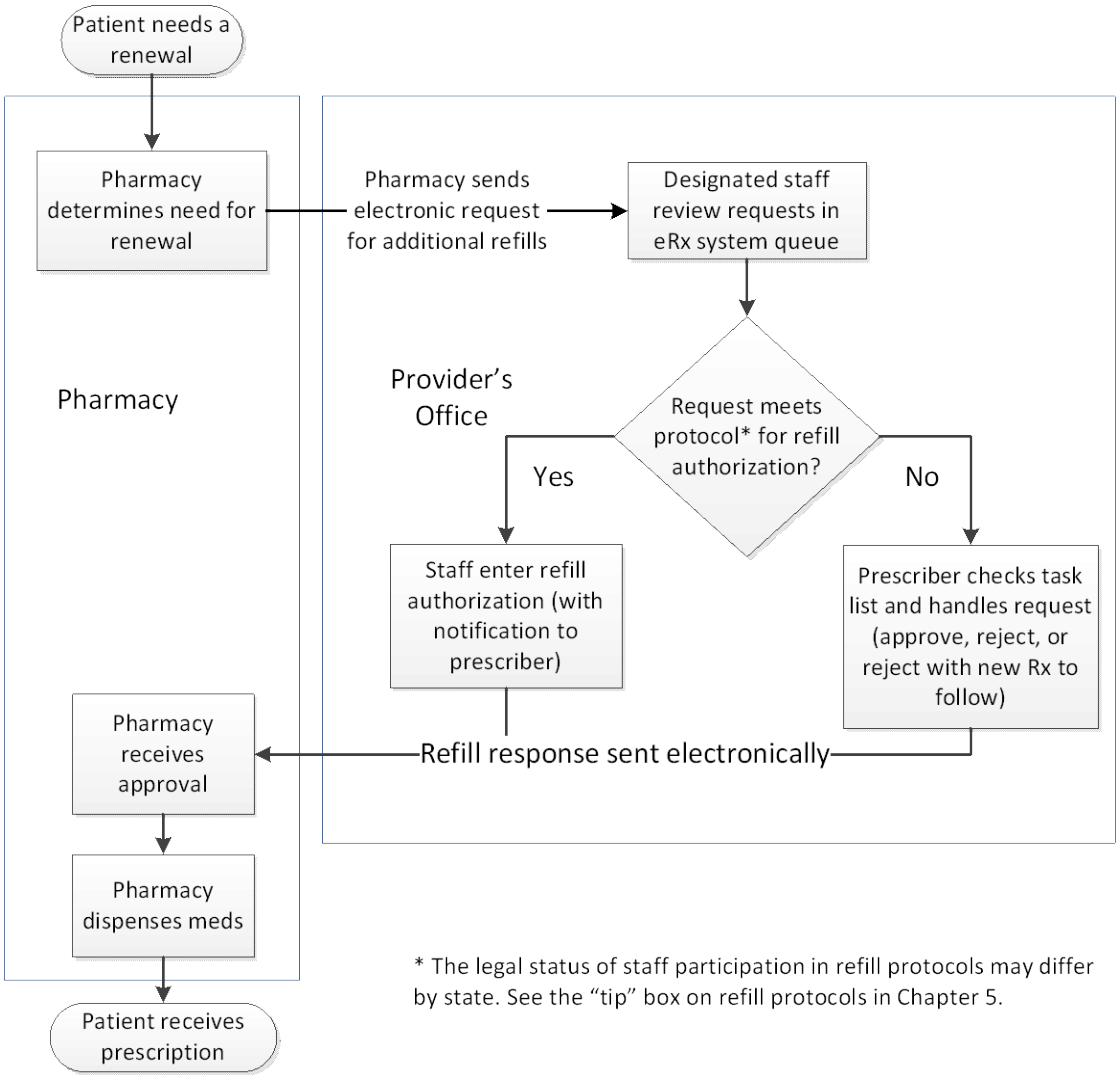


Figure 5.4b. Renewal workflow in an electronic prescribing system



Your diagrams do not have to be developed using software. They can be simple sketches created with a pencil and paper. In fact, the process of drawing on paper can help you think through all the steps, their sequence, requirements, and the relationships. The point is to create some form of visual aid to help your understanding of the workflow.

How to Assess Your Existing Prescribing Workflow

Documenting your existing prescribing workflow will help you examine what is happening in your office and diagnose any workflow problems from the perspectives of those who are part of the workflow, as well as those who are affected by it.

As you assess your workflow, keep the goals of your analysis in mind: (1) to identify criteria for choosing the most-suitable e-prescribing system (software and hardware) and (2) to identify improvement opportunities in your workflow that would benefit from process redesign and/or staff training in addition to the computerization of tasks.

The following steps have proven useful for assessing current workflow at many clinics. Follow these steps as you generate a workflow diagram to describe your practice's current workflow, with a focus on achieving the two goals mentioned above. A detailed table can also be used to list the various tasks, as shown in Table 5.1 below. Some people find tables preferable to diagrams. Diagrams are better to describe relationships between processes while tables are useful for organizing details.

1. **Make one person responsible.** This "workflow coordinator" will play a key role in the transition to e-prescribing. It's helpful for this person to be familiar with current office processes, although he or she does not need to be the leading expert in the office. The coordinator must have time available over several weeks for the project, as well as an ability to organize materials related to the transition. The coordinator would take the lead on the following steps.
2. **Gather information on the current workflow.** First, the coordinator should observe all the people involved with prescriptions and take notes on what they do, such as talk to patients, respond to requests, and communicate with pharmacies. It's important to capture all the steps. The coordinator should observe staff who register patients, check insurance, pull charts, make appointments, verify patient medication and allergies, handle phone calls from pharmacies or patients, handle faxes, do prior authorization, do billing, and transcribe visit notes. During the observation process, the coordinator should ask clarifying questions about the purpose of each step in the process.
   While observing and documenting the workflow, ask the following questions:

   - What problems or frustrations do people experience in the current workflow? What complaints do you hear?
   - Where are the bottlenecks or time delays?
   - Where in the process are the opportunities to reduce costs or to achieve a higher return on investment from e-prescribing?
   - Where are quality and safety problems (or potential problems) likely to occur in the current process, and how do you create changes improving quality and safety?

3. **Organize the information into basic processes.** As stated before, there are three main processes involved in handling prescriptions: (a) new and renewal prescriptions originating during a patient visit, (b) renewal prescriptions originating from the pharmacy by fax or by phone, and (c) problem handling, such as phone calls from pharmacy to clarify prescribing issues related to patient coverage or medication safety. Each of these basic pathways will be detailed separately. However, each of these basic processes can have subprocesses or alternative pathways for handling different situations. Subprocesses to be identified include controlled-substances prescribing, "just in case" prescribing, providing free samples to patients, responding to patient inquiries, and providing other medication information, such as for care management. Additional questions to consider are:

    - When a prescriber practices in more than one office or is on vacation, how is prescribing or renewal approval done?
    - Does your practice allow delegation of certain prescribing tasks to qualified staff?
    - What exception situations occur in your office, e.g., prior authorization, patient or other provider inquiry about a patient medication list, or pharmacy callbacks regarding coverage problem or safety alert?

Each of these work processes will involve unique ways of processing, transmitting, and documenting the prescription and will have different requirements in terms of staff, equipment, and location, all of which you should plan for and document.

Summarize the sequence of tasks in a workflow diagram. The next step is to summarize the sequence of tasks. We recommend using a workflow diagram to capture a high-level picture of the task sequences and then using a table (step 5) to capture more details of each task. It's a matter of judgment as to the level of detail used—too much detail is overwhelming, but too little detail may miss critical issues. The simplified example in Figures 5.3 and 5.4 probably represent the minimum level of detail needed to be useful. A workflow diagram of current workflow can be useful for sharing information among team members. Later, a workflow diagram of planned flow can be used for discussing how the prescribing process might function in the future. The workflow diagram can include details regarding the flow of information, the movement of people, and the use of equipment. With so many possibilities, the person doing the workflow diagram must decide what detail to include and what to exclude. Often, multiple versions will be done until the important facts have been captured.

Diagrams can be done at multiple levels. You can first do a macro-level workflow diagram to show main tasks and performers, and then, for key tasks or for complicated tasks, draw a more detailed subdiagram to depict parts of a task.

Whether or not you decide to use a computer program to draw your diagrams, it's often best to start with a sketch on paper. One good approach is to make this sketch on a large paper flip chart in a meeting with the people involved in a particular process. This will allow you to get immediate feedback and validation as you discuss how each process actually works. Also note that different staff members may have different perceptions of the process. The facilitator should be empowered to listen to these differing points of view and to develop a description that can blend them.

Summarize details in a table. Information about the sequence of tasks for each prescription process can be summarized along with additional details in a table (or computer spreadsheet). Table 5.1 is an example for a renewal request process. The columns represent:

a. Task number, an outline of the various tasks or steps. You can use decimal digits to show alternative steps, such as numbering 3.1, 3.2, and so on.
b. Task, a descriptive name to show a step in a prescribing process
c. Task type, to group similar types of tasks that might imply different roles or be addressed through similar workflow redesign principles, such as reducing handoffs. Example task types include transcribing, handing off information, and making clinical decisions.
d. Description, details on how the task is performed
e. Inputs used to do the task
f. Outputs as a result of the task
g. Other columns could be added as needed

Tool 5.2 is a set of three example workflow analysis tables, each representing a distinct prescription-related process:

- Renewal handling without e-prescribing and without staff delegation (via protocols or standing orders)
- Renewal handling without e-prescribing, but with staff delegation
- Renewal handling with e-prescribing

These examples are only meant to get you started. You can modify them by copying the content and pasting it into a spreadsheet or document editor program. Or you can start from scratch to document your unique work process.

For additional guidance on workflow analysis go to the Workflow Assessment for Health IT toolkit available at http://healthit.ahrq.gov/workflow. The toolkit is designed to assist small and medium sized practices in workflow analysis and redesign before, during, and after health IT implementation. It includes tools to analyze workflow, examples of workflow analysis and redesign, and others' experiences with health IT and workflow.

Table 5.1. Example of a workflow analysis in table format*

Step No	Step	Performer	Step Type	Description	Documents	Key Information
1	Retrieve renewal request message(s)	Office Staff	Receive and tran-scribe	Take or retrieve fax or phone message from a pharmacy or patient to request medication renewal; if phone, transcribe message to a note; call pharmacy to clarify request as needed	Request fax or phone message	Telephone message transcribed to notes
2	Retrieve patient information	Office Staff	Search / retrieve	Pull patient record and/or look up in practice management system; confirm that patient has established care with your office.	Patient record	Patient identity for matching to paper record or EHR record.
3	Deposit message and record for prescriber	Office Staff	Handoff	Put request in queue for provider	Patient record, request	Patient ID, date of request
4	Prescriber retrieve message and record	Prescribing physician or nurse practitioner	Search, review	Look at materials received, generally first come, first served.	Patient record, request	Medical records, details of request
5	Prescriber approve or decline request or change medication	Prescribing physician or nurse practitioner	Decision	Decide on request by looking up information such as last visit, lab results, current medication list, insurance coverage; complete prescription	Patient record, request	Prescription written,note re order
6	Give prescription and record to office staff	Prescribing physician or nurse practitioner	Handoff	Give all materials to staff	Patient record, prescription	Prescription details
7	Update record	Office Staff	Data entry	Add information to patient record	Patient record and order copy	
8	File patient record	Office Staff	Filing	Move patient record to file area	Patient record	
9	Transmit to pharmacy	Office Staff	Proces-sing	Transmit to pharmacy via fax or phone	Prescription	Pharmacy information including name, address, phone number

* This table shows the first workflow scenario from Tool 5.2. It represents the example of a workflow for handling refill requests received by phone or by fax before the implementation of e-prescribing

Identifying Opportunities for Improvement and Defining the New Workflow

While thinking through your current and future prescribing workflow with the diagrams and spreadsheets, you should be able to identify potential improvements. Problems with the current system should not be perpetuated into the future. The change process is an opportunity to

improve. Improvement and definition of the new workflow are accomplished through the following steps:

Identify improvement opportunities and define the new workflow:

1. **Identify problems and waste.** Identify the points where delays and waste occur. You can identify these by looking for unnecessary steps, such as gathering duplicate or unnecessary data. Some current tasks can likely be eliminated. Consider the potential effects of eliminating a step. If there is no negative impact, the step can probably be eliminated in the new system. Other wasteful steps to look for include gathering data that is never used, duplicating forms, repeating questions for patients, and storing paperwork unnecessarily.
2. **Identify changes.** Identify all the steps that will be changed by e-prescribing. These are likely to include those steps that use the computer system, but may also include other non–computer-related tasks.
3. **Identify important features in your prescribing practice.** Consider what e-prescribing features are likely to be important to you and the staff who are involved in the prescribing processes. For example, if you often renew multiple prescriptions for a patient at one time, you should note efficient renewals as one of your priorities**.**
4. **Define the new workflow.** Define a new e-prescribing workflow and summarize it in a new workflow diagram and spreadsheet. Note the differences between your current and future workflows. You will refer to the proposed workflow as you select and implement your e-prescribing system.

As you implement e-prescribing, continue to refer to and refine the new workflow:

5. **Plan transition.** Plan the change from the current system to the new one. This is discussed in Chapter 7, but you need to identify where the workflow changes occur and whether there are any intermediate transitional changes, as well as the time sequence of changes.
6. **Review and approvals.** Review the proposed new e-prescribing system, particularly changes and new assignments, with management and all concerned parties to ensure that all issues have been resolved, to gain consensus on key decisions, and to ensure readiness to implement.
7. **Modify pharmacy and patient behavior.** Renewal requests that continue to be faxed in from pharmacies or phoned in by patients can require additional time so that clinic staff can manually input the renewal information into the e-prescribing system. Another problem arises when a pharmacy sends multiple requests for the same prescription renewal, forcing staff to spend extra effort to sort out whether each request is a duplicate. These potential problems can be addressed proactively at the workflow redesign step, for example, by including steps to immediately engage any pharmacy that sends multiple renewal requests after too short an interval.
8. **Continuous improvement.** It is likely that there will be additional changes to the workflow after the transition. Opportunities for improvement always exist. It’s a good idea to periodically review the design of your practice’s workflow and to look for additional ways to reduce costs and improve quality.

Techniques for Identifying Opportunities for Improvement

Implementing a new technology should not reinforce bad habits. The transition to e-prescribing provides an opportunity to improve efficiency and quality. Several techniques have been used successfully to identify opportunities for workflow improvements. This needs not take much effort, but is time well spent.

- **Focus group.** This approach involves gathering people together to discuss a particular problem, share ideas in a forthright and open manner, and document the results in an organized way. A leader organizes the discussion and documents the results. It might be useful to gather a group of employees for an offsite discussion of the workflow and opportunities for improvement. If the clinic staff is small (less than 10 people), it might be feasible to have such a meeting with all the staff.
  - Sometimes such discussions are more effective without the manager or owner present. People may be more willing to express opinions or offer very new ideas if the boss is not there. Also, it is important to document the discussion for later follow-up. A paper flip chart can be useful for recording the list of ideas generated.
- **Generating new ideas.** It is best to have people generate ideas independently – either before or at the start of a meeting, and then discuss and share those ideas with the group. Pooling ideas from individuals working alone produces far more ideas than having those same people generate ideas in a group, even after excluding redundant ideas. People can be asked to list all the ideas they can think of at the start of a meeting. Those ideas are then discussed by the group in order to narrow the list to the most appealing ideas for further consideration.
- **Comparisons.** There may be other clinics in your area that would be willing to share the ways in which they have organized their workflow or implemented e-prescribing. While you may not want to duplicate what they are doing they may be a source of useful ideas or potential changes to parts of your workflow or physical arrangement.

For information on additional techniques go to the Workflow Assessment for Health IT Toolkit at http://healthit.ahrq/workflow and review the Workflow Tool Examples or All Workflow Tools sections of the toolkit.

Taking Advantage of E-Prescribing Features in Workflow Redesign

Below are best practices and lessons learned about designing new workflows using e-prescribing. These recommendations were gleaned from interviews with providers and staff as

well as observations of prescription-related workflow in five purposefully selected exemplar e-prescribing practices. These practices had both high levels of e-prescribing use and innovative implementation processes.

Workflow changes should include process redesign, process standardization, and integration with care delivery. Successful use of any information technology, including e-prescribing, will require changes in the tasks performed as well as workflow. Redesign includes changes to prescription renewal processes with involvement of the supporting members of the health care team, careful design of the lists of commonly used medications, development of methods for recording the use of pharmaceutical samples, changes in processes for interacting with pharmacies, and documentation of prescriptions requiring "wet signatures" (i.e. Schedule II medications). Many e-prescribing systems provide features to enable assistance from delegated support staff in the office, for example in creating new prescriptions or refill requests and queuing them for review and approval by a prescriber.

Substantial productivity gains can be realized by standardizing previously diverse ways of working. This will initially take time and training, but is necessary to ensure that clinical information can be consistently stored and exchanged in electronic systems. Workflow changes should fully integrate all aspects of care delivery, for example, by using the e-prescription system as a mechanism for care management. When a patient is requesting a medication renewal, the e-prescription system will facilitate easy look-up of care information, such as last visit, lab results (if e-prescribing is part of an EHR) and a current medication list, to ensure that quality medical actions are taken (such as requesting patients to return for a visit). Integration of all the staff's workflow into a single electronic system will also increase learning among practice members and increase quality of care.

Protocols for staff delegation may help to realize efficiency gains. Some practices have developed written protocols—essentially standing orders—for non-physician members of the health care team to take actions such as approving pharmacy refill requests. In general, the protocols specify the kinds of prescriptions that may be renewed and under what conditions. Typical renewal protocols include conditions, drug list, visit information, and other items that should be checked. The protocol may also describe the typical workflow or provide a list of tips and basic skills for use with the e-prescribing system. According to the experiences of successful sites, these protocols are living documents that will need to be tailored to particular practice settings. Developing them will require a significant time investment. However, by using these protocols, successful sites have improved refill turn-around time and decreased the message burden on doctors. The protocols have also provided a working start for other care management system changes.

Legal status of prescription renewal protocols.

Pharmacy laws differ by State in the U.S., thus it's important to understand the legal status of your prescription renewal process within your own State. The National Association of Boards of Pharmacy has links to each State's pharmacy board, which may be one place to look for access to your State's pharmacy laws. These links are available at http://nabp.net/boards-of-pharmacy/.

However, the following general principles may help to guide your considerations about refill protocols. First, the act of authorizing additional refills, even when the drug regimen is unchanged, is still a prescription order that must be issued under the responsibility of a licensed prescriber. Refill protocols may qualify as standing orders, but in general it's best if a patient-specific order for use of the protocol is placed in the chart of each patient that it should apply to. In addition, if unlicensed support staff is to assist in applying the protocol, they should not be asked to make clinical judgments. For example, a protocol authorizing refills if a patient's blood pressure is "under control," or even under a specific threshold, may require substantial review of the medical record and clinical judgment regarding the values to consider. Thus, any refill protocol for unlicensed staff should be based on highly specific parameters that don't require clinical interpretation (e.g., drug names, specific laboratory values, and specific time frames).

Workflow changes should focus on the practice's key business needs. A group practice might seek to redesign its practice to improve efficiency for physicians and use prescriptions as a step in the direction of care management. In this case, e-prescribing workflow would be designed to enable staff to support a protocol-based renewal process in which doctors are tasked with follow-up reminders. A geriatric practice, on the other hand, might focus on the effort involved in obtaining and updating complete documentation of medication lists; in this case, e-prescribing redesigns might take advantage of the ability to download patients' medication claims history for more efficient and accurate medication reconciliation.

Changes to the workflow create new working relationships and trust. Systems redesigned with e-prescribing facilitate the delegation of work to supporting staff or retraining of staff for certain tasks, such as prescription renewal processing. In such a transition, all staff is affected and exemplary practices by dedicated qualified staff can be made standard practice by all staff as they learn the e-prescribing process. Workflow change can increase the quality of care provided to patients by providing employees with better knowledge of drugs and insurance formulary coverage information. Building trust for new working relationships is critical to successful workflow change associated with adopting health IT.

Chapter 6: Selecting a System

Once you have established your goals for e-prescribing and have determined that you are ready to move forward, it is time to select a system. Selecting a system is no easy task. It involves searching out vendors who offer a solution that will do what you need to fulfill your goals at a price that fits your budget. In addition, the right system must be supported well, and the training has to hit the mark.

Making the right decision from the start will avoid problems and delays later. Once implementation begins, changing vendors is difficult. It *can* be done—and in some cases it *must* be done—but changing vendors tends to cause a great deal of extra expense and delay.

This chapter is intended to provide some guidance to help you navigate the process by explaining:

- How to compare system features
- How to compare vendors
- What you need to know when negotiating a contract

Comparing System Features

In order to compare systems, you need to take inventory of what you want the e-prescribing system to do. This is the point at which you review your goals for e-prescribing, as well as the workflows that you expect to have after e-prescribing is implemented. This step is particularly important if you don't have previous experience with health IT.

Determining the features you need in your e-prescribing system should be driven by the work you did in Chapter 3 establishing goals and the desired workflows that you outlined in Chapter 5.

Begin to find out what your options are for e-prescribing features by examining some example systems, talking to vendors, and reviewing the features shown in Tool 6.1. Once you have a sense of the features available, make a list of those that are required to enable your desired workflows. This would constitute your "must-have" list of features. Also talk to your peers to find out their experiences. They can serve as an excellent resource for guidance on which systems to look at first and what features they found to be essential.

Tool 6.1 provides an e-prescribing vendor assessment tool developed by Community Care of North Carolina and Point-of-Care Partners, LLC. The tool is a spreadsheet format that enables you to rank a broad variety of e-prescribing functionalities and vendor characteristics in terms of their importance to your office. The tool then helps you compare different vendors' products according to your office's needs and priorities.

Ranking System Features

To find the e-prescribing system that will best fit your office, it is important to rank the system features and vendor qualities that are most important to you, your office, and your goals. Tool 6.1 is designed to help you with a feature-based comparison of systems. If you have decided to select an EHR system, rather than stand-alone e-prescribing, the decision can be more complicated, and you may want to use additional resources or consider hiring a consultant who can guide you through consideration of other features, such as ordering tests, that are beyond the scope of this toolset.

Requirements for Medicare E-Prescribing Incentive Program

One critical factor to consider is whether the system will meet the minimum requirements defined for the Medicare e-prescribing incentive program, specified in the Medicare Improvements for Patients and Physicians Act (MIPPA) described in Chapter 2 and Appendix A of this toolset.

Please note Chapter 2 for more information on e-prescribing incentives.

To qualify for the MIPPA incentives, e-prescribing systems must meet the requirements of PQRI measure #125[d], which are:

- Generating a complete active medication list
- Selecting medications
- Printing prescriptions
- Electronically transmitting prescriptions
- Conducting safety checks
- Providing information on lower-cost alternatives
- Providing information on formulary or tiers

[d] See https://www.cms.gov/ERxIncentive/03_How_To_Get_Started.asp#TopOfPage

Most stand-alone e-prescribing systems and most EHR systems with an e-prescribing module will meet these criteria. However, it is recommended that you specifically ask the vendor whether its system qualifies for the MIPAA incentives. We recommend that you ask for the response in writing as well.

Requirements for the Medicare and Medicaid EHR Incentive Programs (EHR Incentive Programs)

The criteria for the program's first stage establish the requirements for a physician to meaningfully use an EHR and the certification requirements that an EHR or module of EHR functionality (such as an e-prescribing or lab-ordering system) must meet.

We encourage you to learn more about these requirements in order to be better prepared to select a system that meets those requirements and to know how to use the systems in order to qualify for the Federal incentives, if that is your goal.

Certification

The Federal EHR Incentive Programs authorized by HITECH (explained in Chapter 2), have a set of minimum requirements that the e-prescribing vendor system must fulfill for their use to qualify for the incentive payment. Certification is a process whereby the vendor systems are inspected for their fulfillment of the minimum requirements.

Currently, there are no industry-standard certifications for stand-alone e-prescribing systems, although ONC is developing modular certification standards for the HITECH program. The e-prescribing routing networks do conduct certification to ensure that e-prescribing systems are properly handling and displaying formulary, benefit, eligibility, and drug history information during prescribing. However, this shouldn't be confused with other types of certification.

CCHIT. Many EHR systems are certified by the Certification Commission for Healthcare Information Technology (CCHIT). This private nonprofit organization has been selected as a certifying entity for the EHR Incentive Programs described in Chapter 2. CCHIT certified products are listed on their Web site. It is likely that other certifying organizations will be identified as the program is fully developed. CCHIT has announced that it will offer modular certification. This means that stand-alone e-prescribing systems, if certified, could be used in combination with systems delivering other EHR features, thus giving providers more choice in creating a complete and certified EHR solution. Therefore, it is fair to ask both stand-alone e-prescribing and EHR vendors about their plans for meeting the certification requirements, currently and in the future. You may wish to obtain the vendor's response in writing as well.

Table 6.1 outlines additional questions that will help you judge whether an e-prescribing system under consideration will help you to meet your goals.

Table 6.1. Questions to ask about an e-prescribing system

	Goal	Considerations and Questions for the Vendor
1	Improve safety and quality of care	Are drug alerts (including drug-drug interactions, drug-allergy alerts, and drug-dosing alerts) appropriate and kept updated? Does the system provide pediatric dosing, and safety reporting (especially drug combination reporting)? Is it possible to write conflicting *Sigs* (patient instructions) in different fields and if so, how this can be prevented?
2	Reduce pharmacy phone calls	Are the formularies you would use most often available and complete, including preferred alternatives and prior authorization status? If not, can the vendor work with your health information network or assist in contacting the health plan to obtain this information?
3	Automate prescription renewals and authorization	Assess the ease of processing renewal requests. Can renewal requests be queued for approval by the physician? Are the allowable role definitions suitable for your office configuration and workflows? Do all renewal request denials allow for a denial code and free text explanation so that the patient knows what his or her next steps are, and are denial codes reportable?
4	Increase patient convenience	Does the system allow a "receipt" for prescription and/or care information to be printed for the patient? How quickly and consistently are the e-prescriptions delivered to local pharmacies? How effective is the vendor's help desk at resolving delivery and other support issues? The formulary considerations listed for Goal 2, above, also will impact patient convenience.
5	Increase use of lower-cost drug substitutions	Does the system indicate when generic alternatives are available? Can medications be found equally well using their generic or brand name? See also formulary considerations listed for Goal 2, above.
6	Increase prescriber convenience and efficiency	Assess wireless capabilities of the system. Can you use a PDA, tablet computer, or smartphone from anywhere within your office or outside your office to access the system? Can you access the e-prescribing system from any computer connected to the Internet (including from home, a second office, or the hospital)?

Comparing Vendors

In addition to comparing the features of e-prescribing systems, it is also crucial to compare the organizations that stand behind these products. This section reviews some of the vendor characteristics that are important to consider.

Local Presence

Health care differs substantially across localities in the U.S., thus, it makes a big difference if the vendor has a local office and support staff and local references. Make sure your vendor has both. A local office and support staff will ensure that you have knowledgeable resources nearby to assist you when something goes wrong. It is not uncommon for there to be a few problems when implementing any new technology, and e-prescribing is no exception. Having reliable local support staff will enable you to learn to use the system more quickly and minimize downtime due to problems, especially in the initial stages of implementation.

Always ask for local references. The experiences reported by trusted peers can provide invaluable information regarding how the vendor has worked with other offices in your area. Create a list of questions to ask the references that will give you a sense of the vendor's capabilities for implementation and support, such as:

- How easy was it to integrate the system with any other systems you maintained in the office?
- Was the vendor's training adequate for prescribers? For office staff?
- What problems occurred after training and how was the vendor's response?

It is a good idea to get two to three local references, if possible. Speaking to multiple references will give you a range of opinions regarding how the vendor performs in your area.

Vendor Training and Support

You should also consider how skilled the vendor is at training. After all, good training for your key staff will give you the best chance at a successful launch. Poor training, including incomplete training, will undoubtedly do the opposite. E-prescribing system implementations can fail because of poor training. Do not believe vendors if they say, "Our system is so easy and intuitive that you really don't need training." All users of the e-prescribing system need some level of initial training.

Ask the vendor to describe all training details, such as:

- Typically, how long are the training sessions for an office the size of mine?
- Does the trainer stay on site after "go-live"? If so, for how long?
- Is there a charge if we need additional ("refresher") training or if I add staff?
- Do you offer remote/online training? If so, what is the cost?
- Are there user manuals we can have ahead of the training?

Knowing the answers to these questions will better prepare your office in planning and preparing for the training sessions.

Vendor support is just as important—not just any support, but knowledgeable, personable, available, and local support. References will be your best source for how a vendor has delivered on this measure. In addition, ask for a copy of the vendor support protocol and ensure that you and your staff are comfortable with it. Review the protocol for answers to the following questions – or, if the vendor does not have a protocol, be sure to ask the vendor about these aspects of support:

- What are the hours that support is provided during both working and off/weekend hours?
- How are unresolved issues escalated within the vendor organization?
- How does the vendor work with health information networks to resolve issues?
- How and how often will you be informed of the status of issue resolution?
- What happens when an issue can't be resolved?
- How many full-time support staff does the vendor have?
- How long has staff been with the company?
- Are support staff company employees or contractors? (It is generally better to have both trainers and support staff who are employees, rather than contractors, of the vendor. Employees usually bring a greater sense of loyalty and responsibility to the overall product experience.)

Types of Access Supported by the Vendor

Improving provider convenience and efficiency is often a key goal for e-prescribing. It is important to determine whether the vendor can provide the access your office needs and to find out the cost to do so. For example if you are using a PDA, tablet computer, or smartphone, you may need equipment to configure a secure wireless network within your office. The cost of this network should be included in your considerations. Most physicians will also need access to the e-prescribing system from home, remote practice locations, and hospital computers. Examine how the vendor can provide this access as well, for example via a "virtual private network."

Verification of Services and Associated Costs

The price a vendor quotes may not always include all the fees you'll typically incur when completing installation of your system. Some topics to address with your vendor include:

- **Integration.** Stand-alone e-prescribing implementation requires you to establish a link to your practice management system (PMS) to obtain patient demographic information. If you have a widely-used PMS, the interface costs are likely to be included as part of your overall fee. If you have a highly customized PMS, you are likely to incur some additional fees, so it is important to discuss the amount of any fees up front. Be sure to specify the version number of your PMS system.
  Most offices find that ongoing (as opposed to static or one-time) integration works best for their needs. This will allow new patients to be added from your PMS and appear immediately on the e-prescribing system, avoiding duplicate entry. Make sure to ask if there are any fees associated with your integration whenever your PMS is upgraded. These should be included in the monthly maintenance fees, but this is not always the case.
  If you are implementing a stand-alone e-prescribing system, you'll need to consider what EHR systems it can integrate with and at what cost. Alternatively, if integration costs are too high, you can opt to implement an EHR that includes e-prescribing.
- **New hires.** If you're planning to add one or more prescribers to your practice in the near future, ask about any additional costs for training or equipment (e.g., PDAs) for the new hires. Vendor fees are usually broken down into initial (first year) and ongoing (year 2+) fees. The fees can be based on an office but are usually based per physician.
- **System upgrades.** Be sure to ask about system upgrades—specifically, whether there is a fee for upgrading your system, whether upgrades are performed remotely or on site at your office, when upgrades typically are scheduled, how much system down time (if any) is associated with the method the vendor uses, and whether there is any training associated with the upgrade. Always review what is included in the upgrade in terms of new functionality and corrections to known software errors. Depending on the extent and nature of these items, it may make sense to involve your super user to train staff internally on the upgrade changes if they are not offered at no additional cost by your vendor (see Chapter 7 for more information on super users).
- **Data storage and backup.** It is important to find out whether data backups are included and, if so, at what cost. In addition, ask the vendor if the data are stored locally or

remotely, how often the data are backed up, and what the vendor's disaster recovery plans are, should their data center experience prolonged downtime or loss of data.

Vendors' Capacity for Ongoing Evolution of their Systems

With health IT, it is always a good idea to keep in mind future changes in order to have a smooth and efficient transition from your current e-prescribing system to your next system, whatever that may be. You should have an open and honest dialogue with your e-prescribing vendor. Ask the vendor about their policies and costs regarding (1) integration with EHRs (if implementing a stand-alone system) and (2) generating historical e-prescription data files that could be uploaded into another system, should a transition be required.

The data file is crucial to transitioning from a stand-alone e-prescribing system to an EHR system because it can enable you to upload the e-prescription data file from your stand-alone system into your EHR. Be sure to ask your vendor if it can export data for transitioning to another system and, if so, what fees they charge, if any. If your vendor won't integrate or charges a substantial integration fee, look elsewhere.

There are many systems to choose from that offer this service for a reasonable fee. This service can be offered free of charge or may incur a charge that typically does not exceed $500. Note that even if the vendor will integrate data from a stand-alone system with an EHR, the transition may not be entirely seamless. It is common to have some data mismatch issues, for example, if the stand-alone e-prescribing system does not have all the data fields that an EHR system has or vice versa. This can result in some data being imported to the wrong fields or not imported at all; these data may or may not be significant for patient care. Table 6.2 describes some additional issues for consideration when evaluating a vendor.

Contract Negotiation

After you've selected a vendor and come to general terms on price, contract negotiation remains as the last step. This chapter has described many issues that you should keep in mind as you are formalizing your relationship with the vendor. All the important features or services that your vendor has promised or that you have negotiated should be incorporated into the contract document.

As with any contract, you should seek legal counsel and review. However, your lawyer isn't going to know all the promises that were made along the way. Thus, you should keep a list of verbal agreements regarding important features and services that the vendor will provide. Discuss these with your lawyer and make sure they are included in the document. Your lawyer will advise you of important considerations included in the document and recommend the best course for your interests.

Several specific stipulations to consider including, pertain to:

- Meeting e-prescribing certification criteria required by 2011 to qualify for EHR Incentive Program payments.

- The level of training provided in terms of the number of on-site training days (e.g., at least two days), the number of people who will be trained, the topics discussed during training, and provision of refresher training.
- Costs for the interface to the existing practice management system and for modifications that may be needed when the system is upgraded (ideally, there should be no additional cost to your practice for system upgrades).
- Affordable costs for on-site support (ideally, on-site support should be available free of cost).
- Limits on license fee increases (e.g., no more than 5 percent per year). If hardware and equipment are included, make sure that the contract addresses replacement conditions and maintenance responsibilities.

Chapter 9 provides more information on what topics the vendor should address in training.

While you should think of the relationship in the longer term, the contract must include the possibility of termination. This may include requirements regarding how long you are obligated to pay the vendor if you aren't happy with the system, whether it requires a breach of the terms to terminate your agreement, and whether you will still be obligated to pay for this system if you join a larger group that already has another system.

Some contracts include terms that prohibit you from telling others, who may be trying to make a system selection decision themselves, about your experience with that vendor. Such terms should be stricken—and might also be considered a "red flag" concerning the vendor. You should always be free to tell others about your experiences, good and bad, so that they can make informed decisions.

Table 6.2. Additional issues to consider in evaluating a vendor product

Pharmacy Selection	Can you easily search and locate pharmacies that are electronically connected? Does the system accommodate different fulfillment pharmacies for different medications, e.g., one pharmacy for maintenance medications and a different pharmacy for single-fill medications? Can you customize pharmacy names? How often do you get pharmacy directory updates from the vendor? Does the system automatically reconcile information? Are mail order pharmacies supported for new prescriptions and e-refills? Is it easy to identify mail order pharmacies in the pharmacy directory?
Prescription Log Queue	One of the most helpful features of the system is to display the status of the prescription once it is sent by the prescriber. Does the prescription log queue display complete details in a user-friendly manner?
Usability	Usability is also critical. What distinguishes really good systems is how easily they can be used to perform the most common tasks. The navigation should be consistent from screen to screen and intuitive. Other aspects of usability related to the medication database, favorites, medication history, and formulary and benefits are discussed below.
Medication Database	How often does the vendor update its medication drug database, and do they automatically distribute updates to you or are practice staff responsible for doing so? Review the medication database content to ensure that you can find the drugs you frequently prescribe. Create dummy prescriptions for some of these medications, reviewing the various components of the medication module. Test the ability to generate unambiguous prescriptions and appropriate dosing instructions, particularly for medications with complex instructions.
Favorites	How does the system handle construction of “favorite” prescriptions? Having a good list of favorite prescriptions can greatly speed your prescribing by creating a fully specified prescription essentially with one “click.” Can “favorites” be set for the entire practice or for groups of prescribers? Can each prescriber have his or her own favorites? Can these be configured in advance vs. or are they simply based on what is being prescribed frequently? Is it easy to use the favorites lists in the usual prescribing workflow?
Product Demonstrations	Always request a detailed product demonstration. Insist that it be live so that you can see connection speeds, and always ask if you can test it yourself. It is a good idea to schedule several vendor demonstrations close together. This will allow the characteristics of each to be fresh and more easily comparable. Don’t forget to ask if there is a free trial period.
Documents	The vendor should provide a project plan and roles and responsibilities documents, even for e-prescribing stand-alone implementation.
Medication History	How easy is it to view both the prescriptions written locally and those from your health information network, reflecting prescriptions written by physicians in other practices? Can you easily distinguish between the two? Please note that medication history provided by your health information network will not typically include certain drug classes, such as HIV/AIDS and mental health. Ask your vendor to provide more details, as this can vary by health plan. Can medications on the medication history list be imported into the patient’s medication list? Is medication history information available when approving refill requests?
Formulary and Benefits	Are your most common health plan formularies and benefit information available and complete? Is it easy to locate and access the feature or do you have to navigate to other screens? Is the information provided at useful times during the prescribing process (e.g., formulary icons are next to drug names in the initial medication search, suggested alternatives are provided after drug selection)? Are alternative medications on formulary provided and is it easy to modify the prescription with one of the alternatives? Is formulary information available when approving refill requests?
Schedule II-V Medications	Does the system meet requirements for electronic submission of new and renewal Schedule II-V prescriptions in accordance with Federal Drug Enforcement Administration rules as well as the Board of Pharmacy rules and regulations in your State? Note that some States do not allow electronic transmission of Schedule II-V prescriptions as of the publication of this toolset.

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Chapter 7: Planning and Preparing for the Setup and Launch of E-Prescribing

Once the system has been selected, the next step is to carefully plan the transition process that will get you to a successful launch. The transition involves many steps that need to be accomplished by many people. Planning exactly who will take charge of each step and creating a timeline that delineates the steps is critical to getting through the implementation process without major delays.

This chapter will help you plan the transition to e-prescribing by explaining how to—

- Create a transition team.
- Create a transition plan and timeframe.
- Plan for hardware and Internet needs.
- Communicate your plans to patients, pharmacies, and health plans.
- Plan for "downstream" issues.

Creating the Transition Team

E-prescribing will affect many of the staff in your office. In the earlier stages of implementation (goal-setting, readiness assessment, work process assessment, and selecting a system), you should have already identified your core team and the individuals in your offices who can represent the job roles that will be affected. Now the actual transition will require an even broader range of staff to ensure that people with diverse skills and perspectives contribute to the process. Participation also contributes to staff awareness and buy-in for the move to e-prescribing.

Therefore, an initial step in the planning process is to form a transition team. To complete this step, refer again to the Team Roster tool (**Tool 1.1**). We recommend using the same core team (the implementation leader, physician champion, and implementation manager) to lead the transition process. Participants representing nursing, telephone staff, and front desk staff are also important players on the transition team. Review your assignments for each of these roles. If any of the team members are not able to fulfill their roles, discuss with them how they might contribute more fully, or consider replacing them. Larger offices may be able to create subgroups of the transition team to focus on specific tasks or individual parts of the transition.

Chapter 1 introduced the **Team Roster** tool (Tool 1.1). The subsequent chapters instructed you to designate team members including the project leader, physician champion, and project manager, as well as representatives of the stakeholders who will be affected by e-prescribing, including nursing staff, the practice ownership or top management, and other major groups, if any. (If you did not use the Team Roster, please see Chapter 1 for instructions.)

Now, review your latest Team Roster. Check whether any of the core team or stakeholder assignments need to be changed. **Then fill in the last section with the people who should be assigned to each of the additional transition team roles.**

The transition team also requires several critical new roles, particularly for information technology (IT) support and training. In larger offices, these roles may be filled by employees of your organization. Smaller offices should strongly consider securing outside help from experienced IT support professionals, beyond the support that the vendor would provide. Most vendors are not capable of understanding and addressing problems that may arise due to the network, hardware and software configuration within your own office. In a growing number of regions in the United States, implementation professionals are being supplied by local initiatives, professional societies, medical associations, and/or the Health Information Technology Regional Extension Centers. The vendor of your system may also supply staff for training, and they may be able to recommend IT support consultants.

The Implementation Manager

The implementation manager is responsible for assigning ownership and tracking completion of the transition tasks. This person will report back to the team on how the process is progressing, what challenges have been overcome, and what challenges lie ahead. The team can then plan how to best address those challenges as a whole.

Differences in Implementing EHR-based versus Stand-Alone e-Prescribing

Although planning the implementation of a stand-alone e-prescribing system is not as complex as planning for the implementation of an EHR, there are similarities. The transition team should still meet at least four or five times to ensure that the steps outlined here are understood and followed by the appropriate team members. For small offices, the team might involve all of the current staff. Larger offices will be able to allocate individuals with specific expertise in areas such as renewal processing and staff with particular technical experience (see Team Roster). Regardless, the team should meet regularly to revisit the transition timeline and discuss how and when tasks should be executed, how to adapt to the new workflow changes, and how to solve problems that inevitably occur.

Selecting Your Super Users

A “super user” is essentially a resident expert in your organization who others can turn to for help in using the system. Before the start of training, and ideally before system setup, you should identify at least one technically adept person to be a super user for each job role associated with using the system (e.g., physicians, telephone staff). In many cases, the provider champions will also be super users, but you will generally need more super users than champions. Super users should receive earlier and more intensive training, and they will build their knowledge base further post-launch as they help others to troubleshoot.

Super users should be chosen carefully. They need to have both good technical skills and the ability to help others solve problems (rather than just solving others’ problems for them). Depending on the size of your office and number of staff, you may identify super users for each type of user in your practice (e.g., prescribers, clinical support staff, and nurses). Smaller offices will want their super users to be skilled in multiple areas of the office workflow. The super user should be able to address simple to moderately complex problems before a support call is made to the vendor. If the super user can’t provide a quick answer to the problem, he or she should also be able to facilitate the process of getting help from the vendor. Super users are vital to both large and small office transition teams. It is a good idea for large offices to have several super users, perhaps with particular sub-areas of expertise. Super users may or may not need to be involved on the team planning the implementation.

Creating the Transition Plan and Timeline

You should create an implementation plan to include a timeline of the major implementation events. Many of these events will require your vendor’s access to either your office or your staff. Your vendor should provide you with a timeline or at least a listing of these events—insist on it. In many cases, your contract with the vendor will also include key milestones related to your responsibilities and theirs. Regardless, creating your own implementation plan and timeline will ensure that you always know where you are in the process and how close you are to completing it. The schedule should include dates that both you and the vendor can adhere to. Knowledge that you are closely monitoring the process will keep your vendor alert and show that you are very engaged in the process.

All members of the transition team should be familiar with the implementation timeline and should review it to identify task dependencies and the lead times needed for each task. This is crucial to staying on schedule. Often the vendor will rely on the practice to arrange details such as ordering high-speed Internet service or obtaining permission from the building supervisor for access to certain areas for equipment installation. The team should prepare a list of questions regarding what the vendor is going to need and when they will need it for each step in the process.

Delays can cause a schedule to slip, sometimes quite a lot, because vendors may move resources on to other commitments. If you can stay on schedule, on the other hand, you are more likely to keep resources committed to your office. Inevitably, there will be some delays, but try to make sure that your office does not cause unnecessary delays. Plan to have your office and staff available as required and the necessary hardware and network infrastructure in place and ready.

Timeline Tools

The Health Alliance Plan of Michigan has created a timeline (**Tool 7.1**) that their team uses to monitor the progress of each practice throughout the stand-alone e-prescribing system implementation process. This form helps them to identify where the process may be lagging and helps guide their use of resources.

The Oregon Community Health Information Network (OCHIN) has created a very useful tool specifically for EHR implementation (**Tool 7.2**). This guide identifies the major and minor tasks and those responsible by month for the six months prior to implementation. It also identifies tasks for the final week prior to go-live as well as post–go-live tasks.

Integrated Healthcare Associates (IHA) of Michigan has also developed a simplified timeline for EHR implementation at their independent physician association-owned offices (**Tool 7.3**).

You'll need to establish a launch date with your vendor and your transition team. The launch date needs to be late enough to accommodate the setup and training work described in the following chapters, but it may also be determined by other considerations, such as meeting deadlines for obtaining incentive payments. In some cases you may need to work backwards from the target date to establish other important dates and milestones. Please see the timeline tools for specifics.

Setting a launch date is critical to getting the implementation process right. Chapter 10 provides more detailed guidance on the final preparations you should make prior to your system launch, including notification letters for patients and pharmacies that you're making the change to e-prescribing. If you preview these tasks now, it will help you plan who should lead these tasks and when to start working on them.

Planning for Hardware and Internet Needs

When you signed the contract with your e-prescribing vendor, it specified what equipment was included. Typically, the vendor's package includes hardware such as PDAs, printers for prescriptions that will not be sent electronically, wireless routers, and desktop computers or laptops.

Workflow Changes

The e-prescribing workflows you identified in Chapter 5 will give you a map of the hardware and Internet needs for your planning. When examining the workflows, you should review who on your staff needs access to the system and then determine where in your office they will use the system, thereby identifying where you'll need network connectivity as well as computers.

Printers for non-electronic prescriptions will need to be connected to the appropriate computers or be part of a wireless network.

Your IT staff and your vendor can use the workflow analysis to properly configure your office for the new e-prescribing workflows. Ideally, the hardware and connectivity should be configured 2 months prior to launch.

Getting the new e-prescribing workflow right is essential to a successful implementation. Please see Chapter 5 for more information on how to get started with assessing your current workflow and determining your e-prescribing workflow changes.

High-Speed Internet Service

It is very important to fully understand what is not included in your contract with the vendor, especially with respect to high-speed Internet service. If you need to add high-speed Internet access, try to schedule its installation at least two weeks before the vendor needs it. If you need to purchase hardware (e.g., desktop computers, laptops, or handheld devices), also try to have it purchased and in the office two weeks prior to when it is needed for the implementation. This is a good time to revisit the workflows to make sure that these system-access points are going to work for your needs. Modify the workflow at this point, if needed, and if the transition team agrees to the change.

Practice Management System Data

E-prescribing implementation also requires you to establish a link to your practice management system (PMS) to obtain your patients' demographic information. The PMS integration should be completed well ahead of launch, generally after Internet installation and hardware setup are complete and before training begins. For stand-alone e-prescribing, the training period can be short, and so a week or two of lead time may be all that is necessary. However, EHR systems require much more extensive training and it's a good idea to complete data imports or interfaces at least two months ahead of the anticipated launch.

Communicating Your Plans to Patients, Pharmacies, and Health Plans

As soon as you have made a concrete plan for e-prescribing implementation, we recommend that you communicate your intentions to the organizations that could benefit from having advance notice. E-prescribing must be a community-based effort among providers, patients, health plans, and pharmacies (note Chapter 10 for more details), but pharmacies and health plans may need more warning in order to prepare their own systems. Providing early notification to patients may also help you to respond to any patient concerns.

Pharmacies

For pharmacies, you may want to take a first-person approach by calling the top 20 or so pharmacies that your patients use. This method allows an opportunity for pharmacists to ask any questions about the implementation and for you to learn if they are capable of receiving prescriptions electronically. In addition to calling your top pharmacies, it is a good idea to send letters to area pharmacies informing them of your e-prescribing connectivity. Make sure to mention your projected go-live date in your communications.

In addition to informing pharmacies about your plans, you may wish to tell pharmacies that there is a toolset available to assist them with implementing e-prescribing. The Agency for Healthcare Research and Quality (AHRQ) has prepared a companion to this toolset for pharmacies, entitled *A Toolset for E-Prescribing Implementation in Independent Pharmacies.*[e]

Tool 7.4 provides a letter template to let your most important pharmacies (e.g., the top 20 pharmacies that your patients use) know that you are going live with e-prescribing. By giving the pharmacies advance notice, they can make any necessary arrangements to have their system accept your e-prescriptions and to send you renewal requests. They can also prepare their staff to make a smoother transition. You can edit the letter by copying and pasting the content into your favorite document editor.

Times Are A-Changing!

E-prescribing was launched in a practice two years after implementation of its EHR. Prior to the launch, a staff member called forty of the pharmacies used most by the practice's patients. The staff member let the pharmacy know that e-prescribing would be starting, asked if the pharmacies were already receiving e-prescriptions, and if not, reminded them to start looking in their queues. Following the launch of e-prescribing, patients were happy with the service, and there were no reports of lost or missing prescriptions or long waits.

Electronic Prescription Health Information Network

The health information network or routing intermediary connects providers using e-prescribing applications to pharmacy and PBM data. Prior to e-prescribing implementation, it is important for you to engage with your community pharmacies and intermediary to ensure successful bidirectional transmission of scripts and refill requests. While many pharmacy chains and even independent pharmacies may be part of a specific network today, many are not yet actively receiving or transmitting scripts electronically, hampering the value of e-prescribing for

[e] Patel MH, Reynolds KA, Belson D, et al. A Toolset for E-Prescribing Implementation in Independent Pharmacies (Prepared by RAND Corporation under Contract No. HHSA 290-2006-00017I, TO #4). AHRQ Publication No. 11-0101-EF. Rockville, MD: Agency for Healthcare Research and Quality. September 2011.

the provider. Your own providers will also need to be registered as prescribers with the e-prescription routing network that will transmit the prescriptions and that will transmit refill requests from pharmacies back to your office. This often requires reconciliation of provider names, addresses and identifiers, compared with information that the network may already have from public sources of physician information or from the same prescribers having registered based on their work at other locations.

Sending a letter to your most important pharmacies should be just one part of your overall strategy to communicate your change. For more information about forming a communication plan, see Chapter 10.

Health Plans and PBMs

One of the primary benefits of e-prescribing lies in having access to formulary, eligibility, and medication history data from your patients' health plans and PBMs. Your e-prescribing vendor should establish the linkages to obtain this data, but many health plans have been slow to make their data available through their PBMs and health information network. Medicare Part D plans are required to make such data available as of April 2009, and it is hoped that the remaining health plans will follow suit, but, absent of a mandate, many health plans are waiting for more providers to start e-prescribing before making the investments needed to provide this data. Thus, we recommend also sending a letter to the health plans that cover the majority of your patients, informing them of your plans. Your letter can point out that they stand to benefit through increased generic use, formulary adherence, and improved patient safety through reduction in errors.

Planning for Issues after Go-Live

In planning ahead, resources should be made available during and following implementation to address any challenges that arise either within the practice or with community and vendor partners. After go-live has occurred and providers are comfortable with the system, additional workflow and process refinements (e.g., with handling refills and prescribing controlled substances) can be addressed by working with vendors, health plans, or other parties to reach solutions that are acceptable to all stakeholders. Many of these issues are addressed in Chapter 10.

The section on Troubleshooting in Chapter 10 describes some of the issues that practices encounter after implementing e-prescribing.

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Chapter 8: Configuring the Technology

Once you've decided on an e-prescribing vendor and agreed to a contract, you are now ready to configure the technology. Although your vendor will probably lead you through this process, there are steps you can take to make sure the setup goes smoothly and is customized optimally for your office. The vendor needs to know how you prescribe, to what pharmacies, and how you'd prefer alerts configured.

A proper setup process will ensure that you don't have to make many adjustments later. This step, if done correctly, will also shorten the learning curve and allow you and your staff to start gaining the efficiencies of e-prescribing much sooner.

This chapter explains what you need to know to—

- Determine roles and configure access rights.
- Customize your e-prescribing system to your office.
- Test the system.

Determining Roles and Configuring Access Rights

One of the first tasks in configuring the technology is to define access rights for the users of the e-prescribing system. This involves identifying an administrator (typically an office manager or supervisor) who will define and administer the access rights for the office. The administrator should list the people who are involved in the new e-prescribing work processes that you outlined in Chapter 5. Based on these workflows, the administrator can decide what access or security levels are appropriate.

Review the e-prescribing work processes that you outlined in Chapter 5. List the people in your office who will be users of any e-prescribing functions. Each of the users will need access to the system appropriate for their responsibilities. After evaluating the new e-prescribing workflows along with identifying who is staffing each function, you will be able to determine what access or security levels are appropriate for each user. If you skipped Chapter 5, this is a good time to go back and complete the workflows in order to properly map out who needs what level of access for the functions necessary for e-prescribing.

The ability to prescribe electronically must be given only to those physicians, physician assistants, and nurse practitioners or others who currently prescribe in your office. For support staff, user rights need to be carefully tailored for the tasks that each will take on, for example, staff members who will process refill (renewal) requests from the pharmacy will need access to enter these requests and at least to queue them for authorization by the prescriber. Access rights should also account for users who will need to perform multiple jobs if someone is out of the office. This is especially important for super users, who typically are experts in several functional areas.

As staff join and leave the practice, the practice manager or a designated system administrator will need to maintain personnel information and access rights. This is important in case you are audited and also makes it much easier to interpret usage reports generated by the e-prescribing system that show how the system was used during the reporting period. It is a good idea to ask all prescribers review these reports in detail, as often as daily during the first week after launch and then weekly or biweekly during regular practice meetings. Reviewing usage reports is the best way to catch inappropriate use and potential abuse of the e-prescribing system.

Determine Where E-Prescribing Tasks Will Be Performed

You also need to ensure that your e-prescribing system is configured to provide the kinds of access that you will need. The best way to determine access needs will account for the access offerings your vendor provides combined with an understanding of the ways in which your office prescribes prior to implementation. An access offering is the different ways your vendor provides for accessing the e-prescribing system. Examples of different access methods are a wireless PDA, a desktop computer within your office, a home or hospital computer, or a tablet computer.

For writing new e-prescriptions in exam rooms, handheld devices such as PDAs, tablet computers, and smartphones are generally preferred. Strategically placed computers, inside or outside of exam rooms, can also support e-prescribing well and mitigate the need for handheld access. For accessing a full EHR, desktop computers with larger monitors may be preferred in the exam room, enabling more data to be reviewed at once, but handheld devices may also suffice. For prescription renewals, Web access through desktop computers is generally sufficient. The transition team, along with your vendor, will need to make the type and placement of devices an area of acute focus during the planning process.

When configuring the technology for your office, revisit the workflow plans you made in Chapter 5. Which personnel will be involved in what tasks and what devices to they need to interact with the system? Modify any aspects of the plans that do not appear realistic based on what you now know about the system. Also review the timeline you created in Chapter 7 (for example, using **Tool 7.1** for stand-alone e-prescribing). Your timeline should be used to monitor progress in configuring the technology for your office.

Customize to Your Office

You can customize your e-prescribing system in several ways to meet the needs of your office.

Office Information

Make sure that your office information, including practice name, office address(es), phone numbers, physician names, ID numbers, and State license information, is complete and accurate with your vendor. Inaccurate information can cause mismatches at the pharmacy, leading to

delays or even an inability for pharmacies to send you renewal requests. The information you provide to your vendor should be similar, if not identical, to what is on your prescription pad. Do not include a business address or contact information, as this can lead renewal requests to be sent by fax rather than electronically due to potential confusion, should you have multiple office sites. By not providing that information, you will in essence funnel all your renewal requests electronically to your e-prescribing system, where they can be processed from any of your sites. Your vendor is responsible for giving the health information network your information so that pharmacies can see that your practice is now using e-prescribing.

Populating Patient Information

Having accurate and timely patient information in your system is critical to matching the patient's identity with the health information network. This match enables an insurance eligibility check, and it allows the patient's formulary information and prescription fill history to be delivered for consideration during the visit.

An interface between your practice management system (PMS) and your e-prescribing system will allow patient updates to be available right away for most types of interfaces. There are two options for linking your PMS and your e-prescribing system, depending on the type of system you have:

- **One-time download:** In most cases, the link to the PMS involves a one-time download of certain pieces of patient demographic information.
- **Ongoing interface:** If you have a particularly active practice and are adding new patients regularly, you might want to configure an ongoing interface between your PMS and e-prescribing system, which would allow you to see any new patient added to your PMS on your e-prescribing system. Whenever you update one system, the other is automatically updated.

In Chapter 6, you noted the version number of your current practice management system (PMS) and checked its ability to interface with the e-prescribing systems you were considering. Now that it's time to actually create the interface, have your PMS name and version number on hand for discussions with your e-prescribing system vendor. It may be worth double-checking the version number by calling your PMS vendor.

Regardless of the PMS interface, reviewing patient demographic and insurance information at check-in saves administrative tasks further along the patient workflow.

Establishing a List of "Favorite" Pharmacies

Most e-prescribing systems utilize a series of "favorites" lists. These commonly include the pharmacies and drugs that your practice uses most often. The pharmacy list will allow you to quickly locate a pharmacy to receive the electronic prescription. The favorites list allows you to narrow your search to a much smaller list of pharmacies (your pharmacy "favorites"). Once you've prescribed a medication for a patient, the e-prescribing system will remember that

pharmacy for that patient and default to it the next time that patient comes in to the office. However, if the patient wishes to fill his or her prescription at a different pharmacy, the favorites list will help you select another pharmacy. You will have the option of adding new pharmacies to the favorites list as well.

You don't want to add pharmacies to your favorites file unless you write prescriptions to them on a fairly regular basis. Otherwise, there won't be much difference or efficiency gain from searching for a pharmacy in the larger pharmacy file versus the pharmacy favorites list. A patient's preferred pharmacy (i.e., the one he or she used on the previous visit) will still be the default pharmacy for that patient, whether or not the pharmacy is listed on the favorites list.

When preparing your list of favorite pharmacies, don't worry about whether the pharmacy can receive prescriptions electronically or not. If a pharmacy can't receive e-prescriptions, the vendor (or health information network) automatically converts the e-prescription to a fax and sends it to the pharmacy that way. The method of delivery will be invisible to you. However, should there be a problem, it is important to know how to look up whether a pharmacy is enabled to receive e-prescriptions. This may help resolve any support-related issues.

A good time-saving tip for configuring favorite pharmacy lists is to ask your front office staff to check and verify patients' pharmacy information along with their demographic and insurance information during sign-in. You will then have the information you need to easily create the favorites list in the system.

Favorite Prescription Lists

Organize your "favorite" prescriptions as well. This step is crucial to achieving significant time savings from e-prescribing. Your system may support making a favorites list for all prescribers, separate lists for each prescriber, or both. In either case, the following steps are recommended:

- Record the details of the top 20–30 drugs that you prescribe most often and the way that you typically prescribe them. Include all the details, such as strength, form, days' supply, and sig that you would include on the prescription itself. Note that not all e-prescribing systems allow the sig to be stored as a favorite. Sometimes sigs must be constructed from drop-down lists.
- Next, give each of the favorite prescriptions a name. This can be whatever you'd prefer. In most systems, "favorite" names may be entered as an acronym followed by dosage information, for example "Atenolol 50 mg, 1 tablet daily" might be abbreviated "ATEN5." Abbreviated medication names may be especially useful if e-prescribing is used on a handheld device.
- Check the final favorites list to ensure that all data elements are accurate.

Most e-prescribing systems can also retrieve the prescription details for each drug that you have previously prescribed. For example, the fluoxetine prescription details for Mr. Jones will be preserved and available for reuse when you call up his patient file.

As you become more proficient in using the system physicians may start adding frequently prescribed medications themselves during patient encounters or communicate to staff when a new medication needs to be added.

Don't make the favorite pharmacy and prescription lists too long. Prescription lists should typically include 20–30 items for most practices and pharmacy lists should be about the same, depending on your area. Large metropolitan areas may require a larger favorite pharmacy list. If prescribers are entering their own favorites, it's a good idea for the physician champion to check these periodically to ensure appropriate usage.

My Favorite Medications!

One community practice found it cumbersome to search for medications on their PDAs because the drug names and quantities did not fit on the screen, and reading the full information required scrolling. By creating a favorites list, they were able to abbreviate the drug names and individualize the dosing information of frequently prescribed drugs, thereby reducing the number of work steps required to complete a prescription request.

Renewal Protocols

Renewal protocols are simply the directions to staff for processing certain prescription renewal requests. These protocols will essentially indicate to your staff how and if they should process a renewal request or if they should place the request in the queue for physician processing. These will provide your renewal processing staff a road map for handling most of your renewal requests in an efficient and organized manner. The renewal protocol list should probably start with your medication favorites described above. These are the medications most commonly prescribed by your office and will likely constitute the majority of renewal requests. As you process more and more renewal requests, the need for additional renewal protocols beyond the favorites list will be quite obvious. Add more as needed. Your practice also may wish to establish different renewal protocols for community and mail-order pharmacies. The protocols could address topics such as how frequently staff should check for pending renewal requests, the turnaround time for responding to renewal requests, how to deal with problems such as nonelectronic or duplicate requests, and other aspects of the workflow associated with renewals identified in Chapter 5.

Chapter 5 contains more detailed guidance on how to create protocols for prescription renewals, in keeping with your other work processes. See especially the "Details" box regarding the differences among States in the legal status of staff participation in prescription renewals.

Testing the System

Software testing and setup are typically performed by your e-prescribing vendor, and you will also have a chance to test the various system features during early training with your super users. However, you and your transition team should insist on testing the equipment as well.

Create a set of test "scripts" that represent each of the workflows you will be handling with the system. For each workflow, include important variations, such as prescribing controlled substances vs. non-controlled substances or renewals to be approved vs. those to be rejected. Use these scripts to test each possible workflow variation as part of the testing process. This approach will increase the likelihood that you have tested the system thoroughly.

Make sure to test each of the access points. This means each desktop computer, both at the practice and off site, and each handheld device should be tested. Even if the computers are all the same model and have the same specifications (e.g., operating system, processor, software), they should still be checked individually to make sure that they have connectivity to the Internet, that the application displays correctly, and that the monitor, keyboard, printer, and mouse all function properly. This step will help eliminate potential delays from faulty equipment, which could delay going live.

If you are using handheld devices (e.g., PDAs or smartphones), then most likely you have a wireless network. Each of the devices needs to be tested in each of the exam rooms where they will be used. Make sure to test in the physician offices, break room, or any other areas where they might be used. If your office has "dead spots" where you have a poor wireless signal, your IT support staff should install a signal booster.

If you're maintaining a separate PMS, testing the PMS interface is a key step before go-live. Choose 10–15 patients from your PMS and check the e-prescribing system to make sure the information for each patient is in complete agreement. You should not send test prescriptions to pharmacies, but rather print the test prescriptions in the office.

If you experience any problems during testing, contact your vendor right away. Document exactly what happened, when it happened, who was involved, and, when possible, provide screenshots of error messages or of the process leading up to the error. The more information you can provide your vendor, the easier it will be to resolve problems when they occur. This is true not just for problems found during the implementation process, but after you go live as well. Should you have a problem with any equipment, make sure to let the vendor know as soon as possible. When the equipment is fixed or replaced, make sure to test the new equipment prior to putting it into use. This ensures that all your system access points will be available for training and go-live.

Chapter 9: Training

Now that you have selected your system, planned the transition and any work process changes that will be needed, and started the system setup, you are ready to train the members of your practice for the transition to e-prescribing.

Perhaps no area other than system selection and workflow planning is as important to ensuring a successful e-prescribing implementation as training. If you don't know how to use the system, you are likely to use it incorrectly, causing problems for your patients, staff, and pharmacies. Aside from helping you avoid mistakes, good training will allow you to gain the benefits of e-prescribing for improved office efficiency.

This chapter focuses on—

- The scope of the training
- Training in computer skills
- Initial training for e-prescribing
- Ongoing refresher training
- Remedial training

Scope of the Training

Depending on the skills of those in your practice, training might be needed in any or all of the following areas:

- Basic computer skills
- Use of the e-prescribing system (usually provided by the vendor). Make sure this includes all aspects of the program, including how to use formulary and medication history information
- Generic medication names (for ease of searching)
- Orientation to new workflows
- Orientation to the value of the new technology to the practice

Below are some key areas to think about as you as plan the training for your office. These are the areas that you need to make sure the vendor addresses:

- Everyone needs to attend training, even your busiest providers. A breakdown in adoption and usage by even one member of your staff can cause a serious erosion of confidence office-wide.
- Everyone needs to be trained at approximately the same time. While you will want your super users to be pretrained to test the system and identify software errors and necessary workarounds a few weeks ahead of go-live, all of your staff, particularly providers, should be trained either right before or on go-live day. Some physicians find that closing their practices during full training provides the best learning environment.

- Plan for the training to last several days. While the formal training (possibly in a classroom) will last only a few hours or a day, the training period will go on for several days. This is where your super user(s) will help. They will effectively fill in any gaps your staff have from the formal training as the staff use the system.
- Plan for periodic refresher training. Not only will the staff learn new aspects of the system, but they will more thoroughly understand each other's jobs and the impacts the system has on them. In addition, new releases of the e-prescribing system will come out with new functionality. Depending on the depth of the changes, refresher training will need to be provided by a trainer from the vendor or, if the changes aren't too broad, by your super user(s).

The transition team will need to work with the vendor to establish training dates. Staff training is usually held the day of launch for stand-alone e-prescribing systems. EHR training is usually conducted one month ahead of launch and can be broken down into functional components (i.e., lab, e-prescribing, and notes, among others) depending on the size of the staff and your implementation schedule.

Role of the Super User

The super user(s) who you identified for your transition team (see Chapter 7) will need to receive more advanced and intensive training in using the system from the vendor so that they can serve as a real-time resource for troubleshooting after implementation. Although the formal training should be provided by the vendor, super users might work with the vendor to plan the training for the office. Super users will need to be available to spend time with each user on a recurring basis (at least weekly) during the initial few weeks after go-live. In addition, super users will need to be trained in advance of the formal office training so that they can test the system after installation. This will ensure that the hardware and software, including any necessary workarounds, are ready for office go-live. Ideally, super users would be trained and be able to use the system for 1-2 weeks prior to office go-live.

Revisit the super user assignments that you recorded on the Team Roster Tool in Chapter 7.

Facilitating Training

Many practices have found it helpful to provide time and space to experiment with the new system before the go-live date. It is a good idea to have at least one dedicated device (either a desktop computer or handheld, depending on the system) for users to practice with prior to going live. A training room with multiple stations can provide users with access to test patients and practice using the prescribing system before going live.

Using paper prescribing systems simultaneously with the new electronic system is not recommended because each use of a paper prescription reinforces the old process while the new habits learned in training erode. Since it will take some time for users to get accustomed to the new system and the new work processes required to use it effectively, you should prepare for a reduced patient workload during training and initial implementation. It is a good idea to make sure that super users have enough of a reduced workload that they will be able to offer ongoing assistance and troubleshooting to other users.

Work Process Changes to Be Addressed in Training

You will need to ensure that the staff who will be using the system or whose jobs will be affected by it are trained on the work process changes you identified in Chapter 5 and that new roles are clearly defined. For example, if you decide to use protocols to delegate some prescription-related work to clinical support staff, you should plan to go over these protocols with those who will use them before going live. Pilot testing such protocols with practice data prior to going live is a good idea.

Some work process changes that may need to be addressed during training include:

- Documentation of prescriptions that will still be hand-signed. A best practice for handling Schedule II-V medications that still require a "wet" (hand) signature is to use the e-prescribing system to write the prescription and then print the prescription for signature. This will ensure that you can use the system for drug-drug, drug-allergy, and drug-formulary alerts. This process also ensures that the system contains a complete record for future reference and interaction checking.
- The use of protocols for staff authorization of prescription renewals (example protocols are provided in Chapter 5).
- Protocols for handling decision-support messages (such as drug-drug interactions, allergies, prior authorization, and medication costs).
- How to handle mail order pharmacies, including "split prescriptions," which are necessitated when a patient will need a small (1- or 2-week) supply of a medication while awaiting mail order delivery.
- Processing renewal requests from pharmacies.
- Documentation of the use of medication samples.

Training needs to be linked to the work process changes that you have planned to make the best use of e-prescribing. Please see Chapter 5 for more information on work process redesign.

Some staff members may know medications only by their brand-name designations, and some e-prescribing programs require use of a generic name when searching drug databases. If your system has this requirement, all practice members who will be using the system should be familiar with the generic names of the medications typically used in the practice (at least the top 20 to 30). A physician or nurse super user can give a brief orientation to this information, and

cheat sheets listing these medications should also be provided. In some systems, the "favorite" prescription lists you entered during system setup (discussed in Chapter 8) might help to enable drug lookup by brand name.

Training in Computer Skills

An important step before training begins is to assess the computer skills of those in your practice who will use the system. Users who do not have sufficient experience or comfort with computers may need different training prior to adoption and additional support after implementation.

A computer skills assessment can be used to identify areas where people in your practice may need additional training prior to beginning to use the e-prescribing program.

Tool 9.1 is a survey for assessing basic computer skills. Use the results of this assessment to identify members of your team who may need additional assistance during implementation. Rather than adding up a score, you may want to scan the responses for individuals who rated themselves "Not at all confident" for a large number of skills or for skills that will be key for their job role. Some of the skills in the survey might indicate specific areas for remediation; others would be more general indicators of poor computer skills.

Those members of your practice whom you identify as lacking basic computer skills (e.g., how to use a mouse or how to conduct an online search) will need additional training and basic instruction in computer usage. After implementation, you should be sure to check in with these practice members to verify that their computer skills have improved and that they are able to use the new system.

Practice members who lack basic skills are likely to need more time to learn the tasks identified in this chapter that require intermediate or advanced skills.

Initial Training

The objective of initial training is to allow users to develop familiarity with key features of the software. Training should start with new prescriptions and then move on to handling renewal requests.

Please see Chapter 11 for more information on why it is important to start first with new prescriptions before moving on to handling renewal requests.

Users should develop a clear and consistent knowledge of the reliability of formulary information and allergy information. Proper usage of free-text and structured data fields is also crucial. The sig field should be used only for instructions to the patient, not for text notes to the pharmacist, as these are sometimes printed on the medication containers and may have to be edited by the pharmacy. Conversely, the "notes" field that is present in many e-prescribing systems should only be used for notes to the pharmacist and not for patient instructions because the pharmacy system may automate handling the sig field, making it hard to notice conflicts in the notes field. In EHRs, information about patients' allergies is most likely available. In stand-alone e-prescribing systems, allergy information may need to be entered manually to trigger drug-allergy alerts, although usually this information persists so that it doesn't need to be re-entered.

Organizing the Training

Since different types of users (prescribers, other staff) will use the system in different ways, you should plan to conduct the training in small groups of common users. Training approaches should be a mix of both "classroom" and "on-the-job" training. It is essential that all users, especially all physician users, have actual "hands-on" experience with the system during the training period. The training should include a presentation on each task that will need to be completed by the user, practice use of the system to accomplish the task (under the supervision of the trainer), and on-the-job observation and assistance during the initial go-live period. When learning a new technology, new users will benefit from using the program themselves rather than simply watching someone else do what needs to be done.

The initial training session should take approximately two to eight hours for each group of users (depending on how they use the system and on prior levels of training or experience with computer use). Trainees should be uninterrupted by patient appointments or calls during training.

Topics to include in the initial training include the following:

- Log-on and security
- Configuring new records
- Basic system use (selecting and transmitting prescriptions)
- Customizing the "environment" (e.g., creating short cuts)
- Creating lists of (1) "favorites" or frequently used medications (customized to each prescriber) and (2) preferred pharmacies
- Establishing standards regarding where and when free text can be used
- Generic and brand medication names
- Responding to alerts
- Addressing common problems with processes (e.g., patients continue to call the practice for renewal requests) and the system (e.g., "lost" prescriptions, see Chapter 10 for a more complete list of common problems) as well as avoiding the use of dysfunctional workarounds.

Training Prescribers

If you're planning to use e-prescribing during the clinical encounter, prescribers need to be trained on how best to incorporate the use of the technology without interfering with their patient relationship. This is a common concern and often cited as an issue by prescribers who are not using the system as designed. Remember, in the initial implementation phase, it is likely that encounters will take longer. Scheduling fewer patients and alerting patients to the potential for delays will help take some of the pressure off prescribers and other members of the practice. Communicating your plan to implement e-prescribing to pharmacies, health plans, and patients, as described in Chapter 10, will also ease the transition.

Training Other Users

Practice members will need to be trained to respond to decision support information provided by the system. For example, e-prescribing systems typically provide formulary information, general recommendations about common formulary choices, current insurance information, and current allergy information. If clinical support staff or other non-prescribers will be using the system, they will need to be trained in the use of protocols for handling the messages generated around medication costs, such as alerts for potential generic substitutions or for preferred branded medications, allergies, or drug-drug interactions.

"Cheat Sheets"

All users of the system should be provided with "cheat sheets" listing the steps for common processes that they will need to complete (specific to their work with the system). For example, a cheat sheet for prescribers could provide step-by-step instructions for a new prescription, a new prescription requiring a tapered dose, documenting the use of samples, and handling a Schedule II-V drug requiring a wet signature. These will probably need to be used less frequently over time.

Practice Sessions

Users also need to develop facility with the program. Preferably, users should have about four hours to practice using the system prior to going live. This includes working with test patients and test cases, often provided by the vendor, similar to those that would be seen during normal system use. Users should know what results to expect and how to respond to unexpected results. Super users should be very involved during this practice session to help build staff confidence and preparation.

Table 9.1 describes typical training curricula for initial training.

Table 9.1. Types of initial training

Topic	Type of Training	Amount of Time Needed	Location	Trainer
Basic Computer Skills	Hands-on session allowing participants to work directly with a computer or handheld device	Two hours	Classroom, possibly after hours	
Basic System Use	Session with test patients to get users comfortable with the system. For each test patient, observe each user generating new prescriptions, sending prescriptions, and handling refill (renewal) requests (as indicated by their job responsibilities).	Four hours	Classroom	Vendor and super users
Generic Medication Names	Training for those who will generate prescriptions (i.e., prescribers, staff handling renewal requests), focusing on medications commonly used in practice and providing a medication "cheat sheet"	One hour	Classroom	

Ongoing Training Refresher and New Personnel

Periodic refresher classes can be used to train any new users who start working at the practice after the initial training period as well as continuing to develop the skills of those already trained. All training materials, such as handouts and tutorials, should be easily available to any user of the system at any time, either through printed notebooks or through computer files that are locally accessible. These training sessions and refresher classes will need to address the same content as the initial training and should require new users and those needing refreshers to use the system rather than simply watching an already trained and skilled user.

Ongoing training also may be needed if updates to system software result in significant changes to how the system operates.

Remedial Training for Struggling Users

As members of your practice begin to use the system, you may find that users progress at different speeds—i.e., some users will "get it" more quickly than others. However, staff members who appear to be slow to adopt the system may be exhibiting resistance, given that e-prescribing can radically change how they perform some aspects of their jobs. Some staff also may feel threatened by the system if they anticipate that e-prescribing will make their jobs expendable.

If staff members are having difficulties with the system, it is important to identify early whether this is due to a lack of knowledge or skills or resistance to the change. For the former group, scheduling refresher training or working with a super user can help. Generally, prescribing staff should be retrained by the vendor, if possible, but bringing the vendor in for retraining can be costly. Non-prescribing staff usually can be retrained by internal super users. However, if you've just launched your system, even a super user might not be quite ready to train others. Therefore, it may be necessary to borrow an experienced prescriber from another

site or to bring the vendor back for additional training—and to plan for any additional cost associated with this service. You can use the trainers' time more efficiently by preparing users' questions and problems in advance.

If you suspect resistance from staff members, or if you find that staff are using workarounds to circumvent use of the system (such as writing paper prescriptions or failing to follow other protocols), sit down with them and explore the reasons for their reactions or behavior. This may be a good time to reiterate the benefits of e-prescribing discussed in Chapter 1, that e-prescribing is meant to make the staff member's job better and more efficient, streamline existing functions, and improve safe prescribing practices. If staff report that they are using workarounds to deal with inefficiencies imposed by the system, then you should investigate and remediate such problems. Chapter 11 provides guidance on problem monitoring and remediation.

Chapter 10: Launch

The launch of any technology can create equal measures of excitement and anxiety. Launching an e-prescribing application in your office is no different. After the weeks of planning, system configuration, and training, you're now approaching the day when those efforts will be put to the test. In the best case, all will go smoothly. However, if things don't work out exactly as planned, you need to be prepared to address problems that arise.

This chapter will help you make final plans for your launch or "go-live" day and prepare you to deal with possible glitches or unanticipated problems. The chapter focuses on—

- Finalizing the launch date
- Announcing the launch to pharmacies and patients
- Providing training and final setup for launch day
- Scheduling and staffing on launch day
- Encouraging good e-prescribing habits
- Troubleshooting problems that commonly arise after launch

Finalizing the Launch Date

In your initial planning process (Chapter 7), you would have set a target go-live (or "launch date") date based on the schedule for system setup, training, and other factors. As these preparations come to an end, it's time to set a final launch date, adjusting for any significant delays you've encountered or other factors, such as vendor resource availability.

In selecting a final launch date, you should, of course, avoid days when a lot of staff might be absent or when you experience higher than normal patient volume. You also might be better served to go live on a Tuesday or Wednesday. This avoids launching on Mondays and Fridays, which are the busiest days of the week in most practices. Launching on Tuesday or Wednesday can give the staff a chance to work with the system for several days before the weekend.

Preparing Pharmacies and Patients: Announcing the Launch

Communicating your plans to patients and pharmacies is an important step in preparing for launch.

If you followed the advance planning steps outlined in Chapter 7, you will have spoken to and sent a letter to your local pharmacies announcing your intention to begin e-prescribing. Now that you have a firm launch date, however, it is a good idea to call the pharmacies that your patients use most often to update them on your plans. This personal contact will allow pharmacists to ask questions about your system and will give you an opportunity to ask about their preparations for e-prescribing, both for new prescriptions and refill requests. Even if you had already announced your intent to e-prescribe to these pharmacies during your work in Chapter 7, it's a good idea to contact them again to inform them of your final launch plans.

Chapter 7 contains recommendations and a sample letter for making an initial announcement to pharmacies about your practice's plans to use e-prescribing. The advance notification can help pharmacies to prepare their own systems, especially for interfacing with the health information network (the routing intermediary).

Pharmacies. Many pharmacies can receive e-prescriptions directly through their computer systems, helping them fill prescriptions more quickly and accurately. Others are not yet enabled to receive e-prescriptions directly; for these, the health information network converts an e-prescription to a fax. In talking with the pharmacies that your patients use most often, ask whether they are enabled to receive e-prescriptions directly. If they have converted but don't have much experience, you may want to prepare for more troubleshooting (see next section).

It is especially important to negotiate a strategy for handling refill requests with your top pharmacies. Electronic refill requests can be an important way to improve your own medication management processes (see Chapter 5), but pharmacies sometimes resist generating these refill requests due to the transaction fees that they are typically charged and due to differences among pharmacy computer systems. In particular, chain pharmacies may have less leeway than independents to adapt their processes to your renewal request procedures. On the other hand, independent pharmacies have tended to lag in adopting electronic renewals because their smaller size tends to make them more sensitive to transaction fees.

To establish e-prescribing transactions with mail order pharmacies, it is probably best to talk with your e-prescribing system vendor rather than the pharmacy. Essentially all mail order pharmacies are capable of conducting e-prescribing transactions but vendors must connect to them through an intermediary system that is separate from the one they use for retail pharmacies and many vendors have not yet obtained certification for some transactions through that system, particularly for refill (renewal) requests.

Strategy Negotiation

After launching an EHR with e-prescribing, a large medical group configured a centralized office to handle refill requests for all of their sites. However, despite outreach, many local pharmacies continued to fax refill requests. Because the EHR still needed to be updated when refills were handled by fax, the refill office started to become overwhelmed with faxes. In response, they established a policy of processing electronic refill requests first, with requests transmitted by fax processed later in the queue. This policy was communicated to pharmacies via email, and at least some responded by converting to electronic refill requests.

Table 10.1. Best-practice recommendations for pharmacy communication

- Telephone your patients' frequently used pharmacies to communicate your launch date and find out how prepared they are.
- Send all pharmacies you interact with an email message or letter to announce your launch date and your preferences for refill requests. Providing guidelines in writing may serve as a reference tool for pharmacies.
- Consider giving priority to refill requests that are transmitted electronically.
- Follow up verbally to offer continued encouragement to less-experienced pharmacies during the e-prescribing transition.
- Process renewal requests in a timely manner.
- Limit e-prescribing to prescribers
- Enable decision support tools, such as alerts and error-checking
- Monitor activity reports regularly

Tip

Provide simple and succinct guidelines to pharmacies to communicate how renewal requests should be submitted to receive priority processing.

Patients. We recommend the following practices when communicating your launch to patients:

- You may want to send patients a brief letter, especially if you have many elderly patients. This sort of change represents a shift in their routines that can sometimes be confusing and frustrating.
- Patients should be reminded of the e-prescribing process when they are in the office. Patients should be instructed to have their pharmacies communicate requests for additional refills to the medical office; patient phone requests simply for refills should no longer be accepted. Patients should also be informed about how you handle refill requests when a follow-up appointment is due or overdue. One potential policy for handling pharmacy refill requests when the patient is due for an appointment is to authorize a single refill and at the same time asking staff to schedule the follow-up appointment. If patients subsequently fail to follow up, a denial can be issued along with a note to the pharmacist explaining the reason for denial.
- The switch to e-prescribing and policy for prescription renewals can be communicated to patients via wall posters or flyers, outgoing voicemail recordings, or printable materials. Recording a message about refill requests on your phone system is particularly useful if you have an option on your phone for prescription renewals.
- Patient notification cards can be given to patients during a visit when a prescription is transmitted to remind them that their prescriptions are being sent electronically to pharmacies, using Tool 10.2. Patients can then use cards to remind pharmacists to check their computers for e-prescriptions.

Tool 10.1 is a colorful flyer for patients that announces your e-prescribing launch and gives tips for dealing with e-prescriptions, such as expecting a transmission delay of up to 20 minutes. A large-print version is provided for elderly patients (2 pages) and Spanish translations are provided for both. (English, English large-print, Español, Español - Impresión en tamaño grande)

Tool 10.2 is a prescription-sized handout that you can give to patients during the visit if they have received an electronic prescription. One side reminds the patient to pick up his or her medication(s) and the other side tells the pharmacist that the patient received an e-prescription and how to find the prescription in their system if they're not familiar with e-prescribing. The handout is provided as a Microsoft Word document that you can edit to customize for your practice. The document contains Spanish translations on additional pages so that you can mix and match Spanish and English for either patients or pharmacies.

It won't take too long before patients and pharmacists adapt to the change, but have patience and be aware that some will adjust more quickly than others.

Providing Training and Final Setup for Launch Day

There are different techniques for providing training and technical support when launching e-prescribing, and your vendor's approach may depend on the type of software your practice is using, as well as cost considerations. Training is important for everyone in your office who will be using the e-prescribing system. Chapter 9 describes the training process in detail.

During in-person training, which typically occurs on launch day, the trainer will usually be in the office for either a half or a full day. The longer the trainer can be present after go-live, the better. An on-site trainer can show the administrator or super user(s) how to handle tricky or unanticipated situations and can help prevent physicians and staff from reverting to paper prescriptions.

Launch day is also the ideal time to configure and/or tweak any of the preferences you have configured so far. Your prescription or pharmacy favorites list is key to learning and prescribing on the system quickly. If you become aware that drugs that you prescribe commonly aren't on the favorites list, add them now. Most systems will allow you to add favorites during the prescribing process (ask your vendor for details how to do this), so you can always add more.

Whatever technique your vendor uses for training, be patient on launch day. Change inevitably brings to light new issues that will need to be resolved.

Scheduling and Staffing on Launch Day

It is a good idea to reduce or minimize the patient load on launch day. If this isn't possible, it is even more important to have a trainer on site all day.

Tip
On launch day, have fewer patients and more patience.

It also is advisable for all staff to be working on launch day. If this isn't feasible in your practice, you may need to have a second launch day for those unavailable to work on the original one—depending on the number of staff involved, their role in using e-prescribing, and their computer skills. However, instead of having a vendor trainer on site, your practice's super user(s) may be able to fill that role.

If a second launch day is needed, try to schedule it as close in proximity to the first launch as possible, and no more than a week apart. This will get all staff going at approximately the same time and on a similar learning curve and will minimize the period when your practice will need to have two parallel processes for handling prescriptions—paper and electronic.

Tip
If some sites in your medical group have already rolled out e-prescribing, consider "borrowing" a prescriber from one of these sites for launch day. This experienced user can serve as an additional super user and can help keep up the patient load.

Encouraging Good E-Prescribing Habits

Adoption of e-prescribing is more likely to be successful if prescribers use good e-prescribing habits from the start. Beginning on launch day, prescribers should adhere to the following procedures.

Table 10.2. Habits of highly effective e-prescribers

- Submit prescriptions during each patient's visit; don't "batch" submissions to complete later in the day
- Bundle multiple prescriptions for a single patient
- Process refill requests in a timely manner – generally within 48 hours
- Enable decision support tools, such as alerts and error checking
- Limit e-prescribing to prescribers, and monitor activity reports regularly

Submit e-prescriptions at the point of care. One good habit is to submit prescriptions during each patient's visit rather than batching e-prescriptions at the end of the day or at some other breakpoint. Batching e-prescriptions is problematic because it creates delays for patients in getting their medications. It also creates more work for prescribers and office staff because the prescription must be captured during the office visit and then re-entered into the e-prescribing system later. If the drug is not covered by the patient's formulary drug list or if the prescription generates a potential drug-drug interaction or other contraindication, the patient will need to be called. Not only is this inefficient, but it undermines the primary benefits of having the patient's formulary and medication history available for consideration at the time of prescribing.

Process renewal requests in a timely manner. It is also important to process renewal requests in a timely manner out of courtesy to both your patients and the pharmacists who send the requests. In addition, if your practice is slow to respond, you will get follow-up requests from the pharmacy, perhaps by phone or fax, which will increase work for your staff to reconcile these requests with those submitted through your system. If your practice is consistently slow or nonresponsive, your vendor might disable your receipt of e-refill requests, resulting in their reversion to faxes, and creating additional work for you and your staff to reconcile with the e-prescribing system.

Bundle multiple prescriptions for a single patient. While making a general practice of batching prescriptions can cause problems, it is helpful to "bundle" multiple prescriptions for a single patient. In other words, submit multiple prescriptions together and let the pharmacist know that there is more than one prescription for the patient. Some systems have a free-text field that can be used to tell the pharmacist "1 of 3," "2 of 3," and "3 of 3," for example. If patients have prescriptions for controlled substances as well as regular medications, the prescriptions for non-controlled medications can be still sent electronically rather than printing all of the prescriptions.

Use your system's clinical decision support tools, such as alerts and error checks. Most e-prescribing systems have clinical decision support tools, such as checks for drug-drug or drug-allergy interactions and appropriate dosages. Use of these features can reduce possible adverse drug events. Your office administrator should ensure that these alerts are enabled on your system. If some prescribers feel that there are too many alerts, most systems allow you to tailor the alerts (e.g., limit alerts to severe contradictions).

Prescribing should be limited to prescribers and monitor use of the system. Your practice should institute procedures to prevent abuse of your system. Access to prescribing features should be limited to prescribing staff, with the possible exception of renewal processing.

Giving blanket prescribing access to nonprescribing staff creates obvious risks for abuse—for which your prescribers will bear sole responsibility. E-prescribing can enhance prescribing security, and assigning access rights carefully is one way to capture those benefits.

Your office administrator should review the access rights of your staff and verify that they can perform all of their required tasks on the system as defined in the process flow charts. If not, he or she should make the necessary changes (see Chapter 5).

All prescribers should review the e-prescribing activity report. They should carefully review all prescriptions written under their access ID and immediately investigate any anomalies. Review of the activity report should occur daily for the first week or two after go-live. After that, weekly reviews should be sufficient. This type of review also should be a part of the learning process for any new prescribers or other staff who have access to the e-prescribing system. Staff should be informed that activity reports will be monitored for inappropriate use.

When reviewing reports, special attention should be paid to Schedule II-V medications. Even though this class of medications can't be sent electronically to pharmacies in most States (as of the publication of this document), prescriptions for Schedule II-V medications can be written on the e-prescribing system, printed, and signed. Contact the Board of Pharmacy in your State for more information.

Many e-prescribing systems also allow views of your users' prescribing habits. This report should be part of the vendor's managed care reporting suite. Evaluating these reports may allow your practice to negotiate better terms with the managed care health plans that you accept.

Troubleshooting Common Problems

The planning guides in Chapter 7 are based on other organizations' experiences with adopting e-prescribing and other health IT applications. The guides are designed to facilitate a smooth implementation process, from vendor selection through launch. Nonetheless, even practices that follow a comprehensive plan may not be able to predict every potential issue, and your practice may experience glitches, particularly early in the launch process. Common problems include reports of missing prescriptions, inefficient workflows, lost Internet connectivity, and continued use of paper prescriptions. Here are descriptions of these problems and suggested ways to deal with them. It may be worthwhile to create a "cheat sheet" that lists common problems and solutions and post a copy near each computer.

The pharmacy reports that a prescription is missing. It is rare for an e-prescription sent from your system not to be delivered to a pharmacy. While there could be occasional delays in linking to the pharmacy network, this shouldn't affect fulfillment. However, because e-prescriptions don't yet represent the norm, they can be missed. In many cases, the pharmacy staff may have overlooked an e-prescription that was successfully delivered to the pharmacy's system because they are unfamiliar with the new processes for locating electronic prescriptions or because the pharmacist on call may not be the regular pharmacist and thus be unfamiliar with the system.

Therefore, the first course of action is to call the pharmacy to ask them to check their system again—reminding them that the prescription wasn't faxed but sent directly to their pharmacy system. You should avoid re-sending the prescription because this could cause drug alerts to be generated, indicating a duplicate prescription. Pharmacy staff may also need refresher training on e-prescribing (for instance, a reminder to check their e-prescribing queue) until they are accustomed to receiving prescriptions on their pharmacy system.

If the prescription has not been received within the pharmacy system and was not overlooked as described above, this may point to a technical issue within your e-prescribing system, with your vendor's connectivity to the health information network, or with the pharmacy's internal network. The tip box below provides steps to follow in cases of prescriptions that are truly "lost."

Get Help with "Lost" E-Prescriptions

If an e-prescription appears to be lost in transmission:

1. If your prescribing system allows, review the prescription to confirm that it was successfully transmitted via e-prescribing and not delivered by fax or other means. To help in tracing it, write down the exact time it was transmitted.
2. If the pharmacy calls to request a verbal approval of a medication that you prescribed electronically—or if you are contacting the pharmacy due to a patient-reported issue—ask the pharmacist to check the pharmacy's system to ensure that it was not missed.
3. If the prescription is not found by the pharmacist, it may indicate that there is a technical issue. Provide the pharmacy with a called-in or faxed replacement prescription (rather than trying to send another e-prescription) so that the patient's needs can be met immediately.
4. As quickly as possible, contact your vendor to open a support case and ask that it research and address the incident. Make sure to provide as much specific information as possible about the problem, including date, time, pharmacy name and location, pharmacy contact name, prescribing physician, patient name, and medication name. Rapid reporting of the incident is key to resolving these issues.
5. Your vendor will work with the health information network, to determine whether the issue is technical or related to human error. If human error is the cause, the pharmacy headquarters and/or system vendor will be notified that additional e-prescribing training is needed in the pharmacy. This will help ensure that future e-prescriptions are handled smoothly. It is critical to log a case with the vendor and follow up to ensure that all stakeholders are involved, are aware, and take the necessary steps to mitigate or prevent the issue. This will not only help your office with future e-prescriptions to this pharmacy but other offices as well.

Workflows are inefficient. Inefficient workflows should become evident fairly quickly after you launch. For example, it may become apparent that you need additional hardware, such as another printer in a different location. The transition team should be able to compare the anticipated workflows for e-prescribing (Chapter 5) with the actual workflows after launch, and this comparison may suggest further adjustments. However, some inefficient workflows may be unanticipated, and you may find that users are adopting workarounds or circumventing e-prescribing protocols as a result. For these, you will need to diagnose the cause of the problems and identify possible solutions.

Your practice loses Internet access. Interruptions in Internet service are one of the more common problems requiring a contingency plan. Your practice should identify your options and establish procedures, in advance, for what prescribers will do if your Internet connection is

unavailable (e.g., prescribers may still use the e-prescribing system and just print out the prescriptions). If your system can't be used for an extended period of time, then you should call your Internet service provider for support and batch prescriptions for later processing—or prescribers may need to bring out those prescription pads. If you know that the outage is going to be prolonged (more than a day), you also should call your high-volume pharmacies to let them know of the outage.

Frequent pharmacy call-backs for errors or insurance problems. Pharmacies often need to call physicians back for prescriptions with errors in dose forms, quantities, patient instructions, and other details. E-prescribing should help prevent these but, in some cases, it can cause new errors due to stray clicks and other challenges with the user interface. In some systems, templates or "favorites" for commonly prescribed medications that enforce valid combinations may help to avoid these problems. Similarly, e-prescribing systems should ideally present formulary information to prevent call-backs due to non-covered medications. However, systems can fail to retrieve the patient's insurance eligibility information, which then makes it impossible to match the patient with their pharmacy. If your system fails to display formulary information for a patient or it displays information that turns out to be inaccurate, contact your vendor to investigate how this occurred – does the health plan provide this information and if so did the patient's eligibility transaction fail? If the latter, check whether correcting the patient's name or other information might better-identify them.

It's also important to set some policies for addressing the prescribing errors that you identify through a pharmacy call-back or simply through your own diligence. Best practices include (1) calling the pharmacy to alert them to the error; (2) sending a corrected prescription electronically, and (3) cancelling the prescription sent in error. The e-prescribing network companies are scheduled to implement new transactions that would enable prescription changes and discontinuations to be transmitted to the pharmacy. Until then, however, these corrections need to be handled by telephone, even if you realize that you made an error immediately after transmitting the prescription.

Concluding Thoughts on Troubleshooting

The issues describe above are some of the most common problems that arise after launching e-prescribing, but there are other potential glitches that may occur. Don't hesitate to call your vendor to troubleshoot the issues that you encounter early on. Taking the time to call your vendor when a problem arises can help you resolve the issue more quickly and determine whether it is indicative of a more significant problem. Resolving problems quickly can also prevent users from developing bad e-prescribing habits that are hard to break.

Remember that all health IT implementations are likely to encounter bumps in the road. However, in some cases, problems with hardware, software, training, staffing, or other issues are serious enough to warrant relaunching the system. Relaunching simply means that you temporarily take a step back and revert to old prescribing methods (prescription pads) to examine what didn't go well during the initial launch, correct those issues, and try again. While relaunching the system may sound discouraging, being willing to halt the implementation when necessary shows a keen understanding of your office and its vulnerabilities. If major problems are preventing your practice from launching successfully, stop to resolve the problems, and start over.

Make It Fun!

Making the launch fun can ease some of the anxiety associated with implementing a new system. For example, one practice used a construction theme on launch day. Staff members wore hard hats, and the waiting room was decorated with “under construction” signs and yellow construction site tape. Another practice designed t-shirts that all staff members wore on launch day. Your staff may enjoy coming up with a theme and putting it into action. Using a theme is also an upbeat way to communicate to patients that the practice is undergoing change and to prepare them for new routines.

Chapter 11: Monitoring Results and Remediating Problems

Monitoring and remediation are arguably the most important implementation steps, yet are frequently overlooked. New information systems often fail to function as well as expected, with the result that they fall short of the original goals. Furthermore, people often get so involved in the details of implementation that they fail to actually monitor whether their original goals are being accomplished. This chapter will describe an approach that you can use to monitor results, diagnose problems, and identify solutions.

Monitoring Results

The areas that you decide to measure and monitor should be directly related to the goals that you originally set out for e-prescribing. Now you or someone in your practice will need to compile data on these measures, review the results, and decide whether or not action is needed to achieve (or better achieve) your original goals.

For Step 4 in Chapter 3, you planned how you would measure each of the important goals you defined for your e-prescribing effort. Please refer back now to the goals and measurements that you defined.

In addition to using the measures that you identified in Chapter 3 to monitor progress on your goals, it can be useful to keep a record of other issues that arise.

Diagnosing Problems

In health care, we understand that simply treating the symptoms does not necessarily treat the underlying medical problem. The same will be true if and when you experience problems achieving your goals with e-prescribing: you cannot just fix the symptoms but must dig down to understand the origin of the problem.

We suggest addressing and fixing the problem by using the basic steps of root cause analysis, which aims to understand and remediate problems by identifying the root causes of the problem. We recommend that you form a group of your stakeholders (e.g., physicians, nurses, administrators, patient advocate) to work through this process. The overall process is outlined in Table 11.1.

Table 11.1. Steps in root cause analysis

Step 1	Define the problem, i.e., what has gone wrong
Step 2	Gather evidence that there is a problem
Step 3	Ask yourself why this happened and identify the reasons
Step 4	Decide what can be done to reduce the chances that the problem will recur
Step 5	Address the causes of the problem with solutions that are feasible, are likely to be effective, and will not cause new problems
Step 6	Implement the changes and monitor the outcomes again

The following section will walk through the process of root cause analysis in detail.

Step 1: Define the problem. For example, physicians in your practice perceive that they are answering pharmacy calls regarding prescriptions just as often now, six months after implementing e-prescribing, as they were before they implemented e-prescribing.

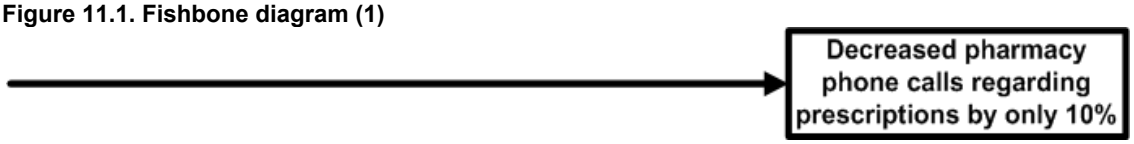
Step 2: Gather evidence that there is a problem. This evidence should come directly from the results of your outcome evaluations (see Step 4 in Chapter 3). For example, your office has decreased the number of pharmacy phone calls regarding prescriptions by only 10 percent in 6 months, when the goal was a 75-percent reduction.

Step 3: Ask yourselves why this has happened and identify the reasons. Probably there are many causes behind the problem, and these causes are interrelated. We suggest drawing a cause-and-effect diagram to help discern the relationships between these interrelated causes.

One type of cause-and-effect diagram is an Ishikawa diagram, also known as a fishbone diagram, which displays the causes and effects leading to the problem defined in Step 1. A fishbone diagram can help you to investigate the potential causes of the problem. It promotes original thinking through a brainstorming process and provides the group with a visual image of the problem and its potential causes grouped by categories. The following figures demonstrate how to use this technique.

To construct the diagram, first write the problem in a box to the far right side of the diagram and draw a long horizontal arrow pointing to it, as shown in Figure 11.1.

Figure 11.1. Fishbone diagram (1)



Hold a brainstorming session to arrive at all the possible causes. To be really effective, it is important to determine all the reasons for the problem. Group similar causes together into larger categories (also known as affinity grouping). Typical categories are:

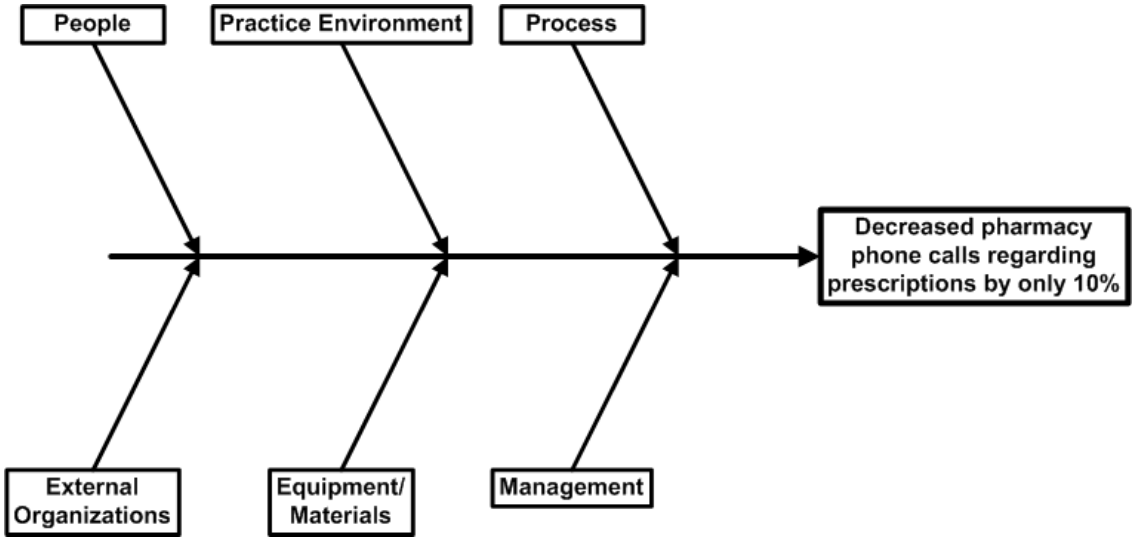
- **Equipment and materials** (e.g., computers, software, telephones, or other machines are not working correctly or aren't available to all; e-prescribing manuals, resources, and other materials aren't available to all)

- **Process** (e.g., the process for recording patients' prescription refill requests is not connected to the process of e-prescribing)
- **People** (people doing something wrong or not doing something that needs to be done—e.g., staff are not using the e-prescribing software or patients are not aware of the e-prescribing)
- **Practice environment** (layout of the office—e.g., the nurse's desk is being used by others)
- **Management** (e.g., no one is responsible for telling patients about the new e-prescribing system, and everyone assumes that someone else is notifying patients; the nursing administration is not aware of the change)
- **External organizations** (e.g., pharmacies are not supportive of e-prescribing, insufficient IT support from vendor).

This list of categories is not set in stone. It is possible to have a unique category of causes that we have not mentioned above. It is also possible that some categories will not occur at all in your problem list.

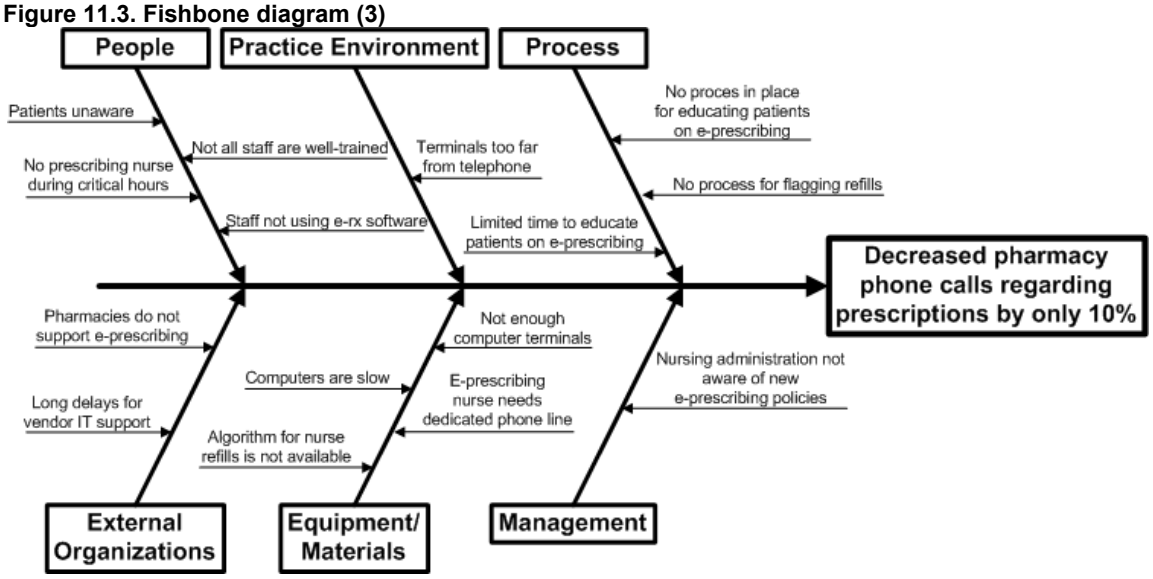
Put these categories along the "bones" of the fishbone diagram, as shown in Figure 11.2.

Figure 11.2. Fishbone diagram (2)



Continue brainstorming to identify the more detailed causes under each category. Place these more detailed causes, also called the minor causes, on smaller lines that connect to their appropriate category line, as shown in Figure 11.3.

Figure 11.3. Fishbone diagram (3)



Further information and examples of using fishbone cause-and-effect diagrams are available from several sources, including the following.

- Online course materials from Vanderbilt: http://www.mc.vanderbilt.edu/root/vumc.php?site=qicourse&doc=11811
- *Principles and Methods of Quality Management in Health Care*, by Donald E. Lighter and Douglas C. Fair (2000), p. 59. http://www.aidsetc.org/aidsetc?page=etres-display&resource=etres-347

Additional information on these and other relevant tools and methods that can help you diagnose problems can be found in the Workflow Assessment for Health IT toolkit available at http://healthit.ahrq.gov/workflow.

Step 4: Decide what can be done to reduce the chances that the problem will recur. We suggest classifying each category with a high, medium, or low likelihood of being an influential cause. You may need to do a little investigation to perform this categorization, such as by meeting with the appropriate staff or observe workflows. Also, one rule of thumb is that category bones that are populated with more attached minor causes may be more influential factors in the problem. Another rule of thumb is the 80-20 rule, which states that 80 percent of the problem could derive from 20 percent of the various causes. This means that choosing to address one or two of the "high likelihood" categories may be all you need to do to realize substantial improvements.

Step 5: Address the causes with solutions that are feasible, are likely to be effective, and will not cause new problems. This is the remediation step. You will want to clearly describe each solution, as well as the possible unintended consequences of that solution, including the probability of that unintended consequence and ways to mitigate the risk. You may find that reviewing chapters in this toolset can help with the remediation. Are persons not using e-

prescribing? Reread the chapter on motivation. Do they not understand how to use the system? Reread the chapter on training.

Step 6: Implement the changes and monitor the outcomes again. You don't need to keep the same goals for improvement; you may choose to lower your percent improvement or your time frame for evaluating.

Congratulations! You have successfully monitored your results and identified the causes of your problem. Now that you have chosen which causes to address, you are on your way to remediating any shortfalls in your e-prescribing program.

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Appendix A: Legal Framework and Incentive Programs for E-Prescribing

Supporting Rules and Regulations

Federal and State law supports the adoption of e-prescribing and health IT and also regulates the transmission, privacy, and security of patient data.

Basic Legal Framework of E-Prescribing

State Landscape. All 50 States currently permit the electronic transmission and receipt of prescriptions. While privacy and security laws and safeguards vary from State to State, they generally are not considered impediments to e-prescribing. Federal privacy rules do not require patient consent, but some States and programs request consent for prescribers to receive possibly sensitive patient information (e.g., AIDS or mental health information). Providers should check with their State health departments to learn about exceptions or special requirements.

Controlled Substances and E-Prescribing. The Drug Enforcement Administration (DEA) recently published an "interim final rule" that, for the first time, enables the e-prescribing of controlled substances. Controlled substances account for approximately 10-11 percent of all prescriptions in the United States.[f] The interim final rule's key requirements include credentialing and identity-proofing of providers by a certified third party (such as a local hospital) and a log-in authentication system involving at least two of the following three factors: a hard token, biometric identification, and a known password. The DEA regulations went into effect June 1, 2010 but EHR and pharmacy system vendors are still working to create systems that implement this authorized approach. Of note, the regulations do not make e-prescribing of controlled substances mandatory.

Until systems are implemented to follow these rules, DEA regulations still require a written signature on prescriptions for controlled substances. As a result of this requirement, e-prescribers must either handwrite or print and sign prescriptions for controlled substances. Printing and signing is recommended so that these medications are still recorded in the electronic medication list and checked for interactions. This step is vital to patient safety and good documentation practices.

Privacy and Security Rules Surrounding the Transmission of Patient Data

Health Insurance Portability and Accountability Act (HIPAA). The Federal HIPAA privacy and security rules are the primary means for protecting patients' health information, including the data generated from e-prescribing. However, HIPAA permits the electronic

[f] Federal Register (March 31, 2010). *Interim Rule: Electronic Prescriptions for Controlled Substances*, 75(6), pp. 16235-16319.

transmission of prescriptions for purposes of patient care. The main privacy and security rules surrounding e-prescribing are described below.

Several tools are available to assist you in understanding the **HIPAA Privacy and Security Rules**:

- The U.S. Department of Health and Human Services (HHS) maintains a Privacy and Security Toolkit, available at http://www.hhs.gov/healthit/privacy/framework.html.
- The Health Information Privacy and Security Collaboration project, available at: http://healthit.ahrq.gov/privacyandsecurity
- The Health Information Privacy and Security Collaboration toolkit, available at: http://healthit.ahrq.gov/tools.

Because e-prescribing usually involves the transmission of patient data between different organizations, certain agreements are necessary to govern the flow of information exchange and protect patients' privacy and security:

- A **patient consent form** may be used by providers to obtain patient consent for use of patients' health information. Please note that the need to administer patient consent will vary according to State-specific consent requirements.[g]
- A **vendor contract** with the provider organization establishes terms under which e-prescribing system vendors build, maintain, or service the technology on behalf of the prescriber.
- The vendor contract should include a **business associate agreement** (BAA) between the provider and the vendor that limits the vendor's use of patient data to purposes that are consistent with HIPAA. Each vendor must also maintain an analogous BAA with the health information networks that route prescriptions to the appropriate pharmacies. Pharmacies must also maintain BAAs with the network organizations to which they connect, again limiting the use of data sent or received to purposes that are permitted under HIPAA.

Extensions of HIPAA to Protect Prescribers

Congress strengthened and expanded HIPAA's privacy and security requirements with the passage of the Health Information Technology for Economic and Clinical Health (HITECH) Act,

[g] Some health information networks require a provider to acknowledge patient consent before sending a request for medication history; providers should consult with their EHR or e-prescribing vendor(s) to understand how this is implemented in their respective system(s).

a section of the American Recovery and Reinvestment Act (ARRA). The most notable legal changes affecting providers and e-prescribing stakeholders include:

- **Extension of HIPAA to Business Associates.**[h] Business associates who handle patient health data are now directly responsible for complying with the HIPAA security rule provisions.[i] Business associates must follow the same administrative, physical, and technical safeguards as health care providers and plans. Business associates who do not follow these rules are subject to civil and criminal penalties.
- **Security Breach Notification Mandate.** HIPAA requires health care providers, plans, and other covered entities and personal health record (PHR) vendors to notify affected individuals of a breach involving "unsecured" protected health information in any form, not only electronic data, within a reasonable time period not to exceed 60 days. The recently passed HITECH Act included language that also makes business associates responsible for notifying individuals of a breach. Providers should also be aware of individual State law requirements and guidance around these rules. Links to health information privacy resources from several individual States are available at http://www.cdc.gov/mmwr/preview/mmwrhtml/m2e411a1.htm/.

Medicare Part D E-Prescribing Requirement

Beginning on April 1, 2009, organizations that participate in e-prescribing for Medicare Part D covered drugs are required to comply with certain standards. In addition to handling the basic standards for prescriptions and prescription claims, Medicare Part D health plans are required to make their patient formulary, eligibility, and medication history available for provider access through e-prescribing systems. Currently entities using computer-generated fax prescriptions are exempt from using the NCPDP script standard; after January 1, 2012 all entities must utilize the NCPDP SCRIPT standard in all instances. [j]

Financial Incentives for E-Prescribing

Two Federal programs have made incentives available to prescribers who can adhere to requirements for the use of e-prescribing or EHR applications. Providers who do not adopt e-prescribing, on the other hand, may be subject to penalties beginning as soon as 2012. Requirements for each major incentive program are described below.

[h] Business associate—"A person or entity that performs certain functions or activities that involve the use or disclosure of protected health information on behalf of, or provides services to, a covered entity." CMS 45 CFR 164.502(e), 164.504(e), 164.532(d) and (e), p. 1. Available at: http://www.hhs.gov/ocr/privacy/hipaa/understanding/coveredentities/businessassociates.pdf.

[i] Prior to this change, business associates could be held responsible only through their contracts with "covered entities," such health care providers, health care clearinghouses, and health plans.

[j] Centers for Medicare & Medicaid Services, Department of Health and Human Services. "Voluntary Medicare Prescription Drug Benefit." 42CFR423.160. Accessible online at http://edocket.access.gpo.gov/cfr_2010/octqtr/42cfr423.160.htm.

MIPPA Payment Incentives for the Use of E-Prescribing

In 2008, the Medicare Improvement for Patients and Providers Act (MIPPA) authorized a five-year e-prescribing incentive payment program (penalties begin in 2012) to reward eligible practitioners who have adopted a qualified e-prescribing system and report to CMS on its use. Each program year, CMS implements the program through a new rule; to find up to date program information please visit the CMS Web site. In 2010, January 2009, "successful electronic prescribers" are eligible to receive a bonus payment equal to a percentage of the total allowable charges for all covered professional services performed by the practitioner during the reporting period. The schedule of incentives and penalties for e-prescribing under MIPPA is shown in Table A.1.

Successful prescribers must report that a **"qualified e-prescribing system"** was used for at least 25 unique electronic prescribing events in which the measure is reportable. A qualified system must have the functionality to—

- Generate a complete active medication list incorporating electronic data available from pharmacies and pharmacy benefit managers (PBMs).
- Allow eligible professionals to select medications, print prescriptions, electronically transmit prescriptions, and receive alerts (signals to warn the prescriber of possible unsafe situations including potentially inappropriate dosage, administration, drug-drug interactions, allergy concerns, or other warnings).
- Provide information related to lower-cost, therapeutically appropriate alternatives, if applicable.
- Provide information on formulary or tiered formulary medications, patient eligibility, and authorization requirements that are received electronically from the patient's drug plan.

Professionals eligible for incentives include physicians, practitioners, and therapists—primarily in private practice settings. Federally qualified health centers and rural health centers are *not* eligible for the MIPPA incentives; however, a separate set of incentives is available (see Details box below).

Table A.1. Schedule of incentives and penalties under MIPPA[k]

Year	Bonus for Use	Penalty for Not Using
2009	2.0%	0.0%
2010	2.0%	0.0%
2011	1.0%	0.0%
2012	1.0%	–1.0%
2013	0.5%	–1.5%
2014+	0.0%	–2.0%

[k] https://www.cms.gov/erxincentive/04_Statute_Regulations.asp

For more information on the MIPPA incentives:

- See http://www.cms.gov/partnerships/downloads/11399-P.pdf for more information on the MIPPA e-prescribing incentive program, including categories of professionals eligible.
- See the CMS e-prescribing incentive Web site available at https://www.cms.gov/ERxIncentive/01_Overview.asp#TopOfPage for the latest information on eligibility, reporting, and payment of MIPPA incentives.
- The American Medical Association has created a calculator to help physicians determine if they are eligible for Medicare incentives and calculate their annual incentive payments (available at http://www.ama-assn.org/ama/pub/eprescribing/calculator_landingpage.shtml). The calculator also helps physicians estimate how much time they can save with e-prescribing.

Medicare and Medicaid Electronic Health Records (EHR) Incentive Programs

Although the Medicare and Medicaid EHR Incentive Programs require adoption of certified EHR systems capable of meeting all the meaningful use criteria, e-prescribing remains an important component of the requirements. The HITECH Act authorizes $34 billion of incentive payments to qualified health care providers under Medicare and Medicaid for the adoption and meaningful use of EHRs. Hospitals and eligible professionals may be eligible to receive incentive payments, provided that they meet the requirements set forth by the Centers for Medicare & Medicaid Services. Eligible professionals and hospitals will qualify for the incentive, provided that they can demonstrate having adopted, and meaningfully used certified EHR systems.

CMS published the final rule for the incentive program on July 28, 2010. The final definition of Stage 1 of meaningful use includes the requirement that providers utilize e-prescribing for at least 40% of applicable prescriptions. Table A.2 below identifies the meaningful use measures related to e-prescribing.

Table A.2. Meaningful use objectives and measures related to e-prescribing[l]

Meaningful Use Objective	Measure
Core: Generate and transmit permissible prescriptions electronically	Requires electronic prescribing (at least 40% of applicable prescriptions)
Core: Maintain active medication list.	Requires providers to maintain active medication and medication allergy lists for their patients (80% of unique patients)
Core: Maintain active medication allergy list	Requires that the EHR has the functionality to implement drug to drug and drug allergy interaction checks (though does not require the provider use the capability for Stage 1)
Core: Use CPOE for medication orders directly entered by any licensed professional who can enter orders into the medical record.	Requires electronic medication orders (at least one medication order entered for 30% of patients using CPOE). This measure is applicable only to hospitals, not eligible professionals.
Menu: Implement drug formulary checks.	The Eligible Professional has enabled this functionality and has access to at least one internal or external formulary for the entire EHR reporting period.
Menu: EPs with patients from another setting or provider of care or for relevant encounters should perform medication reconciliation.	Provides option for providers to perform medication reconciliation at transitions in care (50% of the time)

Eligible hospitals and professionals began receiving EHR incentive payments in 2011. In Stages 2 and 3 of meaningful use, which will be defined through new CMS regulations, the criteria for determining "meaningful use" of certified EHR systems are scheduled to intensify in successive stages. In addition, the payment bonuses will give way to disincentives in 2015 in the form of reduced payments for eligible Medicare providers. Medicaid does not have federally imposed payment penalties. Incentive amounts for independent physicians are up to $44,000 in Medicare over five years, or up to $63,750 in Medicaid incentive payments over six years. Eligible professionals may not collect incentives from both programs in the same payment year. In addition, Medicare eligible professionals who collect incentives from the Medicare EHR Incentive Program cannot also collect the MIPAA e-prescribing incentives described in the prior section. Hospitals that demonstrate having adopted and/or meaningfully used certified EHR systems are eligible for a base funding amount of $2 million, plus or minus based on discharges and patient stays.

More information is available on the Medicare and Medicaid Electronic Health Records (EHR) Incentive Programs:

- See http://www.cms.gov/ehrincentiveprograms/ for more background on the EHR Incentive Programs, including important dates and fact sheets.
- The American Medical Association has created an EHR Incentive Program resource page to help physicians navigate the Federal program. This page is available at http://www.ama-assn.org/ama/pub/physician-resources/health-information-technology/incentive-programs/medicare-medicaid-incentive-programs.page.

For more information go to: http://www.cms.gov/EHRIncentivePrograms/30_Meaningful_Use.asp#TopOfPage

Local Incentive Programs

Many State health plans also offer incentive programs for adopting and using technology. The South East Michigan E-Prescribing Initiative (SEMI) is an example of such an incentive program. This program is for physicians practicing in the seven-county area immediately around Detroit and offers incentives to physicians for adopting ($500) and using ($500) e-prescribing technology from a list of approved vendors. New York State's Medicaid Electronic Prescribing Incentive program offers incentives to eligible Medicaid prescribers and eligible retail pharmacies based on each dispensed Medicaid electronic prescription. Eligibility and criteria can be found at http://www.nyacp.org/files/Medicaid_eprescribing_NOV09.pdf. There are many similar local e-prescribing programs across the country; however, not all offer financial incentives.

Table A.3 lists examples of local e-prescribing incentive programs. For updated information about programs that might be available to you, check the Web sites for the health plans in your region, your State health information network, and other organizations that track e-prescribing programs. The incentives offered by these local organizations to individual providers may not seem significant; however, when combined with Federal incentives, these programs can help offset the cost of e-prescribing adoption. Knowing the system requirements or qualifying vendors for these programs might alter the list of e-prescribing systems that you would consider for your office.

Table A.3. Examples of local e-prescribing incentive programs

State	Program	Lead Organizations
AL	Alabama Blue Cross Blue Shield InfoSolution	BCBS of Alabama
AR	Arkansas	Arkansas Medicaid & EDS
AZ	Arizona	Arizona Health-e Connection (AZHEC)
CA	California e-Prescribing Consortium (CaleRx)	California HealthCare Foundation, Blue Shield of CA, CalOptima, CVS/Pharmacy, McKesson, LA Care Health Plan, Medi-Cal
CA	L.A. Care Health Plan	L.A. Care Health Plan
CA	Program for Promoting Rural Health Care Quality through the Effective Use of Health IT	Northern Sierra Rural Health Network (NSRHN), now the Health Alliance of Northern CA (HANC)
CA	Safe and Efficient eRx Practices for the Underserved and Uninsured in CA Public Hospital Clinics	California Health Care Safety Net Institute (SNI) of California Association of Public Hospitals (CAPH)
CO	Colorado QHN ePrescription management	Quality Health Network
DE	ePrescription Pilot Project of Delaware	Division of Medicaid & Medicare Assistance, CMS
FL	Florida Availity	Blue Cross Blue Shield of FL, Humana
IL	Illinois ePrescribing Collaborative	BCBS of Illinois
KY	eRx Partnership in Kentucky (ePPIK)	Cabinet for Health and Family Services (CHFS)
MA	Massachusetts eRx Collaborative	BCBS Massachusetts; Tufts Health Plan
MD	Carefirst eRx Project	Carefirst Blue Cross Blue Shield
MI	Southeastern Michigan eRx Initiative (SEMI) coalition	General Motors, Ford Motor, Chrysler LLC, BCBS Michigan, Health Alliance Plan, SureScripts, RxHub, Medco Health, CVS
MS	Mississippi Medicaid eRx Project	Mississippi Division of Medicaid
NC	North Carolina e-Prescribing Initiative	BCBS of North Carolina
NH	New Hampshire eRx Initiative	NH Citizens Health Initiative and Anthem Blue Cross Blue Shield, NH
NJ	Aetna of New Jersey eRx Pilot	Aetna
NJ	Horizon Blue Cross Blue Shield eRx program	Horizon BCBS of New Jersey
NM	New Mexico Prescription Improvement Coalition	The New Mexico Medical Review Association (NMMRA)
NV	Sierra Health Services	Sierra Health Services
NY	ARCHIE, Adirondack Regional Community Health Information Exchange	ARCHIE (RHIO), Adirondack Medicine, Inc.(IPA) and Glen Falls Hospital
OH	Anthem, Ohio	Anthem BCBS of Ohio, General Motors
RI	Rhode Island	Rhode Island Quality Institute
TN	TennCare eRx Pilot Project	TennCare, Tennessee's Medicaid program
TN	TN Caremark iScribe eRx Program	BCBS of Tennessee and Caremark Rx, Inc.
TX	Texas Medical Association	Texas Medical Association
VT	Vermont	Vermont Information Technology Leaders
WA	Whatcom County ePrescribing Project	Whatcomb Health Information Network (Hinet) LLC