

A Toolset for E-Prescribing Implementation in Independent Pharmacies

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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HEALTH IT

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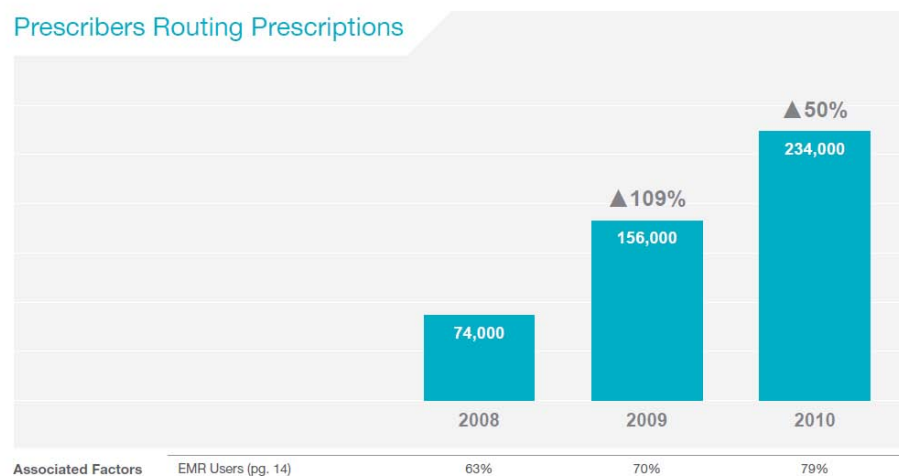
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Chapter 1: How to Use the E-Prescribing Implementation Toolset

This toolset is designed to assist pharmacies in adopting electronic prescribing (e-prescribing). E-prescribing will allow your pharmacy to receive electronic prescriptions directly into your pharmacy software system and will allow refill requests to be sent electronically from your pharmacy to the prescribers' software.

E-Prescribing is growing rapidly. A recent report found that, as the figure below shows, the number of active prescribers using e-prescribing has increased significantly each year since 2008, and this number is expected to double or triple again within the next few years.¹ Last year, over 326 million prescriptions were sent electronically amounting to almost 20 percent of eligible prescriptions. Currently over 25 percent of office-based prescribers send prescriptions electronically.

Figure 1.1. Progress of e-prescribing, 2008-2010²



E-prescribing participation is also growing rapidly among pharmacies. One e-prescribing intermediary network claims participation from 98 percent of chain pharmacies, vs. only 73 percent of independent pharmacies. This lower adoption rate by independent pharmacies could put them at a significant disadvantage for remaining competitive.

This toolset is intended to guide independent pharmacies through the process of adopting e-prescribing. It describes what e-prescribing is and how it works, how to determine whether changes or updates are needed to your pharmacy software system, and how to assess pharmacy workflows to determine whether changes are needed. The toolset also discusses hurdles and problems that can arise when implementing e-prescribing. The toolset provides guidance on addressing these and other issues so that pharmacy staff know how to handle them prior to turning on e-prescribing.

True E-prescribing

Some pharmacies accept faxed prescriptions that are electronically generated. This toolset is designed to assist pharmacies in adopting full end-to-end electronic prescribing, which entails receiving electronic prescriptions directly into your pharmacy software system rather than receiving printed or computer-generated fax prescriptions. True electronic prescribing (referred to as e-prescribing from this point forward) also means that refill requests can be sent electronically from your pharmacy to the prescribers' software, reducing the number of phone calls and faxes.

Benefits of E-Prescribing for Pharmacies

Pharmacies can enjoy numerous benefits from e-prescribing. E-prescribing will allow your pharmacy to stay competitive with larger chain pharmacies and has been found to reduce the time needed to process prescriptions.³ Because e-prescriptions can automatically populate information directly into your pharmacy system, you and your staff will spend less time interpreting handwriting and re-keying information. Your pharmacy may also experience substantial time savings from electronic refill requests (i.e., prescription renewals). Because prescribers respond electronically to these requests, pharmacy staff members need to make fewer phone calls, spend less time waiting on hold, and often receive more timely responses. E-prescribing can also increase prescription pick-up rates, patient safety, and patient satisfaction, all of which can help to retain customers and grow your business.

Furthermore, controlled substances will soon be able to be prescribed electronically, but will only be able to be sent to pharmacies that are using certified^a e-prescribing software systems. Controlled substance prescriptions will not be able to be converted to fax.

Contents of the Toolset

This toolset is intended to assist you in preparing for and launching e-prescribing in your pharmacy. The toolset consists of seven chapters that provide guidance on topics ranging from planning the implementation process and launching the system to troubleshooting common problems and moving into more advanced pharmacy services. The toolset also includes specific tools to support planning and launching e-prescribing, such as templates for communicating the launch to providers and patients, tools to examine and assess your pharmacy workflow, and a spreadsheet to determine your return-on-investment, among others. Many of the chapters also include links to Web sites that contain additional useful information about implementing e-prescribing. An overview of the Chapters is shown in Table 1.1.

^a Certified pharmacy software allows pharmacies to receive new e-prescriptions as well as send and receive prescription refill requests and authorizations electronically.

Table 1.1. Overview of toolset chapters

Chapter	Purpose
1. How to Use this Toolset	Provides an overview of the toolset
2. Background: What You Need to Know About E-Prescribing	Describes the basics of how e-prescribing works, identifies relevant federal policies, and provides guidance on support and incentives for e-prescribing
3. Getting Ready for E-Prescribing	Reviews questions you should ask your pharmacy software vendor, suggested training, and options for coordinating with prescribers and patients
4. Optimizing Workflow to Take Advantage of E-Prescribing	Provides information on how to assess and optimize your workflow so that you are gaining the most efficiencies from e-prescribing
5. Costs and Benefits	Explains how to assess your return-on-investment for e-prescribing
6. Troubleshooting and Preventing Common Problems with E-Prescribing	Identifies some common problems with e-prescribing and provides suggestions on how to resolve those issues
7. Future directions	Discusses how e-prescribing might play a greater role in the future and how it may affect pharmacy services

The formats of the individual tools that accompany some of the chapters include Microsoft Excel spreadsheets, Microsoft PowerPoint documents, and PDF files. 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 PowerPoint files, go to:
<http://www.microsoft.com/download/en/details.aspx?id=13>
- For PDF files, go to: <http://get.adobe.com/reader/>

Iteration and Feedback Within the Toolset

The chapters in the toolset are organized to reflect a process from initial preparation to post-launch monitoring and improvement. Although steps in this process are discussed individually, the steps may overlap in some areas, and some will occur concurrently. Some steps are part of feedback loops, so the actual process of using the toolset might require going back to earlier chapters or working on some chapters concurrently. Thus, the results of your efforts on some of the early steps will be used when you come to later steps. In addition, the results of your efforts on some of the later steps will be used to revisit earlier steps.

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 Web link to the tool's original source.



The **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.



The **Best Practice Vignette** box contains examples of practices that we observed in successful pharmacies.



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



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

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

As your pharmacy starts planning to process electronic prescriptions, it will help to understand how e-prescribing works and how it is regulated, and to learn how you may obtain assistance in getting started. This chapter focuses on the following topics to get you started.

- What e-prescribing is and how it works.
- Relevant rules, regulations, and agreements.
- Incentives and support for e-prescribing.

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

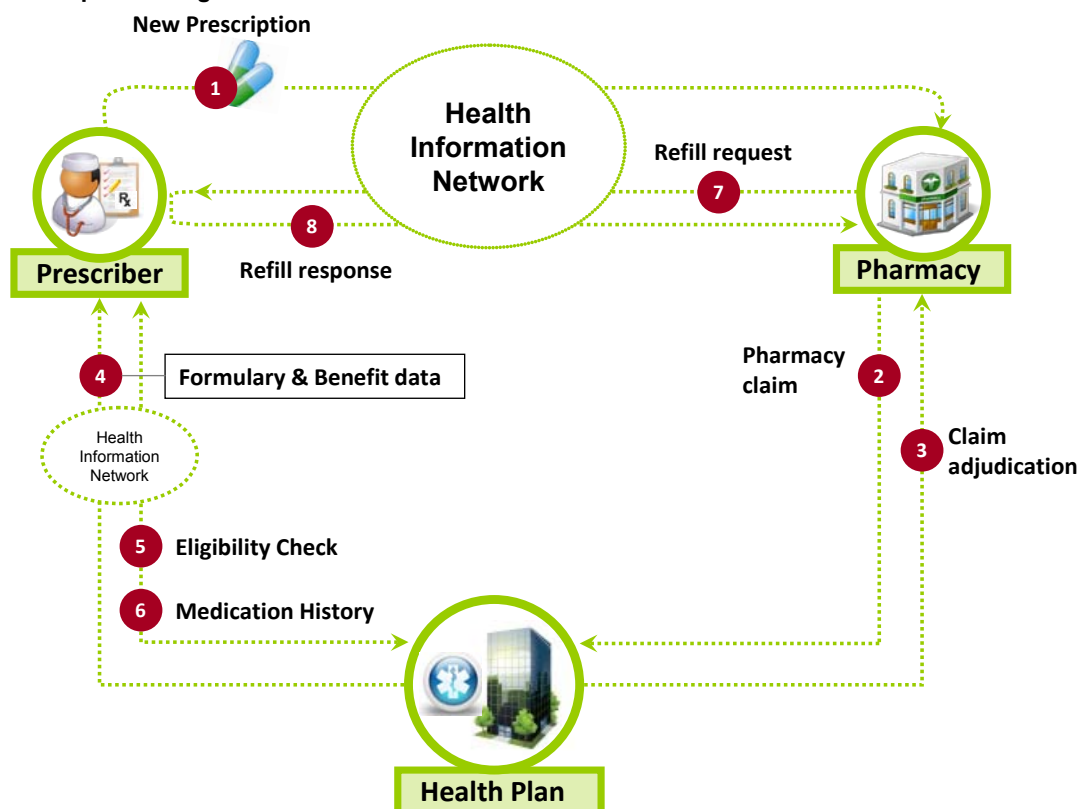
Electronic prescriptions that arrive at the pharmacy can be more efficiently handled because some pharmacy software systems can use the fields sent in the prescription to auto-populate the pharmacy software system to make prescription filling faster. This auto population of the fields occurs when the fields in the e-prescription match to data in the pharmacy software system. Fields include patient name, prescriber name, medication name, and the Sig.^b Also, e-prescriptions can carry additional information from the prescriber to the pharmacy in a notes field. Be sure to understand how to read the notes field in your pharmacy software system. Most pharmacy software systems that handle e-prescriptions can also send refill requests electronically to prescribers. This feature can bring additional efficiencies to pharmacies.

Behind the scenes, e-prescribing involves an electronic flow of information among several parties – chiefly, the prescriber, the pharmacy, and the health plan. Information is transported between these parties by a health information network. As shown in **Figure 2.1**, e-prescribing involves multiple transactions, only some of which involve the pharmacy. 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 a pharmacy selected by the patient. This electronic transmission is handled via a 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 a fax and the pharmacist manually enters the prescription into the pharmacy management system.

^b The Sig represents the patient instructions, or "signatura."

Figure 2.1. E-prescribing flow of information



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 find covered alternatives, if any.
4. To help the physician avoid these adjudication problems, e-prescribing systems often can download formulary and benefit information 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.
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 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 is authorized to dispense more medication and more refills are potentially added to the prescription.

Supporting Rules, Regulations, and Incentive Programs

Federal and State laws both support the adoption of e-prescribing and other health information technology (IT), and they also regulate the transmission, privacy, and security of patient data. Table 2.1 provides a brief summary of these issues as they apply to e-prescribing. An overview of the basic legal framework of e-prescribing is shown in Table 2.1 and an overview of incentive programs is shown in Table 2.2. Appendix A provides more detail about relevant laws and rules as well as regional and national programs and initiatives.

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. This rule went into effect June 1, 2010, but electronic health record (EHR) and pharmacy system vendors are just beginning to develop systems that implement the approach authorized by DEA. Until such systems are implemented, prescriptions for controlled substances require a written signature (or, for CIII-V controlled substances, can still be accepted by telephone).
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, agreements are necessary to govern the flow of information and protect patients' privacy and information security: <ul style="list-style-type: none"> Your pharmacy system vendor contract establishes terms under which vendors build, maintain, and/or service the technology on behalf of the pharmacy. 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.
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 and support for e-prescribing

Program	Description
State, Health Plan, and Health Information Exchange Incentive Programs	Some States, health plans, and health information exchanges offer incentive programs and other support for pharmacies beginning to process electronic prescriptions. Before you implement, check with the predominant health plan in your market to see if it offers incentives for adoption and/or use of e-prescribing in pharmacies. For updated information about programs in your area, one good starting place is your State's Board of Pharmacy Web site.
Regional Extension Centers	The Health IT Regional Extension Centers (REC) that are part of the Health IT Extension Program, assist physicians in implementing electronic health records (EHRs) and in achieving "meaningful use" of their EHRs. Approximately 60 REC organizations have been funded, covering all of the United States. Though the RECs primarily provide assistance to health care providers, pharmacies may receive indirect benefits from their local REC when physicians struggling to make the transition to e-prescribing receive assistance.
State Health Information Exchange Cooperative Agreement Program	Health information exchange (HIE) provides funds to build capacity for exchanging health information across the health care system both within and across States, and includes an examination of how to better support pharmacies' adoption of e-prescribing.
Pharmacy e-Health Information Technology Collaborative	The Pharmacy e-Health Information Technology Collaborative is a recently announced collaboration between nine pharmacy organizations, which will focus on addressing the needs of pharmacies in health IT infrastructure.
Regional and National Initiatives	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 pharmacy peers are your greatest resource. Organizations including the eHealth Initiative, and the American Pharmacists Association, maintain online resources that can assist with implementation of e-prescribing and, perhaps more important, can be used to identify local initiatives for coordinating e-prescribing activities and addressing the issues that arise.

Chapter 3: Getting Ready for E-Prescribing

Adapting your pharmacy to accept electronic prescriptions can be a major endeavor if you aren't well informed. This chapter focuses on the following topics to help you prepare to handle e-prescribing:

- Determine what hardware or software changes, if any, are needed to handle e-prescriptions.
- Decide what sort of training should be provided to staff.
- Conduct advance coordination to ease the transition to e-prescribing.
- Prepare to handle problems that commonly arise with e-prescribing.

Determining Your Software Needs

One of the first steps in preparing for e-prescribing is to determine your pharmacy management software's capabilities. You will need to contact your software vendor or e-prescribing intermediary to determine whether it is certified to receive electronic prescriptions. If it isn't, you may want to consider switching to a software vendor that offers certified transmission of electronic prescriptions.

In addition to selecting certified software, you may want to check on how efficiently the software incorporates e-prescribing. Things you may want to consider are if the pharmacy software is able to match to fields on the e-prescription, how the software may improve your workflow, and the type of training they offer.

You will also need to determine whether your software vendor will need to update any of your hardware or software in order to turn on e-prescribing capabilities. You should ask how the updates will be made; and whether the vendor will make them remotely, send an update on a CD, or come to your pharmacy to conduct the updates. You may also need to update the contract with your software vendor to reflect the new e-prescribing service. In addition, you will need to determine whether there is an initial cost for the software update and what the ongoing transaction fees will be. Health information networks may charge transaction fees to the pharmacy software vendors for each new e-prescription and electronic refill request. The pharmacy software vendors vary in how they pass on these costs to the pharmacies.

You may also want to ask your vendor when they will be prepared to receive controlled substance prescriptions electronically. The proposed DEA rule for electronic transmission of controlled substances requires a third-party audit and certification by pharmacy management software and e-prescribing vendors. The rule does not allow electronic prescriptions for controlled substances to be converted to fax. Therefore, your software must meet the final requirements in order for physicians to send controlled substance prescriptions to your pharmacy electronically. It's a good idea to check with your pharmacy software vendor to determine if you will need to complete any additional steps or training to receive e-prescriptions for controlled substances.



Additional information regarding the DEA interim final rule allowing the prescribing of controlled substances electronically can be found at http://www.deadiversion.usdoj.gov/ecommm/e_rx/index.html

Training

Initial Training

Training on how to use the e-prescribing functionality in your software is essential to ensure that your pharmacy experiences a smooth transition and effective usage of e-prescribing capabilities. Early training will help ensure that your pharmacy can take full advantage of the potential benefits of e-prescribing. Initially, you will need to determine what training, if any, your software vendor provides and you will need to decide who on your staff will need to be trained. Typically, anyone on your staff who will be using the pharmacy management software should be trained. In addition, you will need to determine whether all your staff will be trained at once, whether the training will be staggered, or whether only a few of your staff will be trained and they will train others. Also, you should consider how you will train new staff when they join your team.

At a minimum, you should make sure that training covers the following processes for e-prescribing (it may be helpful to review this list again after you've read through the remaining chapters):

New prescriptions

What to learn about your system:

1. How data from an electronic prescription are matched to your files (e.g., based on patient name, drug name, sig, or prescriber)

What to learn how to do:

1. Where to find notifications that you have received a new electronic prescription
2. How to automatically transfer data from the e-prescription into the filling screen to minimize transcription errors and save time
3. What to do if fields from the e-prescription do not match the data files in the pharmacy system
4. How to access the electronic prescription after it has been deleted from the queue
5. How to read notes from the prescriber if they are not displayed on the primary screen

Refills

What to learn about your system:

1. Whether the software can notify you if refill requests have not received a response after 24 to 48 hours
2. How the software interacts with the pharmacy's interactive voice response (IVR) refill system to route to an electronic refill request
3. How your system recognizes when a refill request is in queue so that it does not generate multiple refill requests
4. Where to check the status of a sent refill request and how to determine whether or not it was successfully transmitted

What to learn how to do:

1. How to send refill requests electronically
2. How to determine whether an electronic refill request was sent to an EHR or a fax machine
3. How to match faxed responses to electronic refill requests
4. How to reconcile refill requests if the prescribers sends a new e-prescription instead of responding to the refill request
5. How to manage the pending queue if the prescriber does not respond to a refill request electronically in a timely way
6. How to read notes from the prescriber if they are not displayed on the primary screen

General tasks

What to learn about your system:

1. Whether or not your software vendor conducts some internal test prescriptions during initial set-up or training to know if your system is functioning correctly.
2. Who is responsible for updating the prescriber database to record prescriber preferences for sending requests electronically or by fax: the pharmacy or the vendor? How is the prescriber database updated?

What to learn how to do:

1. What to do if the e-prescribing system stops functioning
2. What to do if an electronic prescription gets "lost"
3. How the system retains original electronic prescriptions for audit purposes and how to access them later
4. How to deal with duplicate prescriber profiles (e.g., prescribers who work at multiple locations) and how to ensure that prescriber preferences for refill requests are correctly recorded in each profile
5. How to report recurring e-prescribing errors to your software vendor

To illustrate how important training is, we present some case studies from actual independent pharmacies that have implemented e-prescribing.

Who's Working Today?



An independent pharmacy located in a suburban neighborhood receives approximately 15 percent of its prescriptions electronically from community physicians. Only the pharmacist and one technician are comfortable using the e-prescribing system. When other technicians are working, they print the electronic prescription and re-enter the data as if it were a paper prescription.

When you implement e-prescribing, make sure all relevant staff are properly trained to utilize the system. This will ensure that the pharmacy is able to use the same workflow no matter which technician or pharmacist is working and will minimize errors due to manual data re-entry.

Another Request?



An independent pharmacy located in the same building as a community health clinic receives the majority of its prescriptions from the clinic electronically. The pharmacy also has an IVR system that answers the telephone. The IVR system was connected to the pharmacy software system so that refill requests from patients would automatically trigger refill requests to the prescriber if no refills were remaining. The pharmacy needed to turn that feature off after implementing e-prescribing since the prescribers received multiple refill requests for the same prescription without the pharmacy's knowledge due to the patients calling in and requesting refills. This irritated both the prescribers and the pharmacy and caused some animosity between them. Addressing this system issue reduced duplicate refill requests and improved the relationship between the pharmacy and the prescribers.

If you have an IVR system that is connected to your pharmacy software system, you may need to deactivate the automatic refill request functionality so that multiple electronic requests are not sent to the prescriber whenever the patient calls in. You might also include a statement in your outgoing message educating patients not to leave duplicate messages when they are waiting for additional refills to be authorized by the prescriber.

Advance Coordination

Prior to implementing e-prescribing, you should announce your plans to your local physicians and patients. Advance coordination is useful to minimize confusion as the prescription filling process may change with e-prescribing. This may be accomplished in numerous ways, from posting signs in your store and Web site to sending letters to physicians and patients.

Communicating With Patients

You will need to communicate with your customers about e-prescribing, both to inform them that you will be accepting electronic prescriptions, and to educate them about the e-prescribing process. Specifically, you may want to take the following steps:

- Let customers know that if a prescription is sent electronically by the patient's prescriber, it will not arrive at the pharmacy immediately because it needs to be routed through a health information network and sometimes the prescription may not be transmitted right away. Although prescriptions typically arrive very quickly, issues including slow connectivity or network speed may delay transmission. Furthermore, the pharmacy needs time to fill the prescription after it has arrived. Therefore, it may be helpful to let customers know that it could take 30 to 60 minutes for prescriptions that have been sent electronically to be ready for pick-up.
- Encourage them to contact the pharmacy, rather than the prescriber, for refill requests so that these requests may be transmitted electronically to the prescriber.
- If your IVR is integrated with your refill request process, you may want ask your customers not to make multiple requests as this may disrupt the prescriber.
- When patients arrive to pick up medications that were e-prescribed, inform them of the number of e-prescriptions and the specific medications prescribed; some patients may not be aware of all the prescriptions that were transmitted since they were not given a written prescription.
- Encourage patients to ask for a printed list of active medications from their prescriber.
- Verify dosage and instructions with the patient, especially for prescribers who are new to e-prescribing.



Tool 3.1 Patient Flyer – This colorful flyer announces your participation in handling e-prescriptions, answers patients' frequently-asked questions and encourages them to ask their doctor about e-prescribing. It also offers patients tips for dealing with e-prescriptions, such as expecting a transmission delay of up to 20 minutes. The flyer is available in English and Spanish and each language is also available in a large-print two-sided version intended for elderly patients. ([English](#), [English large-print](#), [Español](#), [Español - Impresión en tamaño grande](#).)

Communicating With Prescribers

You should also communicate with prescribers in your area to inform them that you will be initiating e-prescribing. Some will already be sending electronic prescriptions and you will begin receiving e-prescriptions—and providing them with a better level of service—as soon as you activate. However, many prescribers may not have started e-prescribing yet. Knowing that a local pharmacy accepts electronic prescriptions may prompt them to initiate e-prescribing in their own practice. Thus, it will be helpful to send an announcement letter about your plans to begin

processing e-prescriptions, both to the physicians who e-prescribe already and to those who don't.

Preventing and Preparing to Handle Common Problems

This section contains some additional information that will be helpful as you implement e-prescribing in your pharmacy. In particular, it reviews:

- How to navigate the refill request process and proactively prevent problems,
- How to prevent and manage common problems with quantity in e-prescriptions, and
- How to work with new e-prescribers to ease the transition.

Understanding the Electronic Refill Request Process

One of the major efficiencies achieved with e-prescribing is the electronic refill request process. Refill requests are equivalent to prescription renewals – you are requesting additional refills from the prescriber, beyond the refills specified in the original prescription. As you begin exploring the e-prescribing capabilities with your pharmacy software vendor, it is very important to start thinking about how the staff in your pharmacy will use the electronic refill request process. The intermediary's network enables prescribers to receive electronic refill requests after they have transmitted five new e-prescriptions. This is done to ensure that the prescriber is proficiently using e-prescribing before introducing the additional refill functionality.


As you begin to use the electronic refill process, there are nuances that you should keep in mind:

1. Prescribers can respond to an electronic refill request in one of four ways: (a) an approval (which implies no change in the prescription), (b) an approval with changes, (c) a denial, or (d) a denial with new prescription to follow.
2. If the prescriber responds with a denial followed by a new prescription (usually for a change in dosage), the new prescription will contain a number referencing the denied refill request, and your pharmacy system should be able to use this information to terminate the prior prescription request and replace it with the new prescription.
3. Sometimes a refill request is sent electronically, but the response is received by another method (e.g., through a phone call). In this case, you may need to manually delete the electronic request from your refill request queue.
4. A prescriber may not respond to an electronic refill request and may instead send a new e-prescription for the same drug with the same directions. Again, you should map out a process to handle the outstanding electronic refill request. You may need to manually delete the electronic refill request from the queue.
5. As you know, response times for refill requests vary among prescribers. It's not usually a good idea to send an additional electronic refill request if a prescriber doesn't respond to the original request within 24 to 48 hours. Instead, you may want to consider calling the prescriber before sending another refill request. If you do send another request

electronically, make sure you have a process in place to ensure that the subsequent requests not appear to be two separate requests in your queue.

6. You should map out a process to track requests that remain outstanding. For some pharmacies, software may do this electronically. Others may need to track these requests manually.

Below is an example from an independent pharmacy illustrating the importance of the electronic refill process.



Still Waiting?

An independent pharmacy receives about 25 percent of its prescriptions electronically from the physicians in a nearby clinic. The pharmacy sends refill requests electronically to the e-prescribing physicians and notices that the electronic requests receive responses within 24 hours while fax and phone refill requests may take up to 2 weeks.

When you implement e-prescribing, make sure you know how to use the electronic refill request functionality since it should help to decrease turn-around time on refill responses.

Proactively Preventing Problems With Refill Requests

As you begin to implement e-prescribing, coordinate with your pharmacy management system vendor to ensure that prescriber preferences are reflected in your prescriber files. You also should speak with your vendor to make sure your pharmacy is listed in the e-prescribing systems used by physicians in your area.

Preventing and Managing Problems With Drug Quantity

For some medications and certain dosage forms, e-prescriptions may not accurately capture drug quantity. Problems typically occur for medications dispensed in unit doses (e.g., insulin, liquid antibiotics) or prepackaged quantities (e.g., inhalers, topical creams).

The most common problem is that the prescriber will select “1” as the quantity, to denote “1 unit” of the medication, whereas the pharmacy requires a quantity that reflects the amount of medication dispensed (e.g., 17 grams). When receiving e-prescriptions for prepackaged items or medications dispensed in unit doses, you may need to adjust quantity for certain dosage forms before filling the prescription. Below is an example from a pharmacy.



Watch the Quantity!

Drugs prescribed electronically in unit dose or prepackaged quantities (e.g., eye drops, inhalers, topical creams) may come across on the electronic prescription with a quantity of one. In some pharmacy management systems, this quantity automatically populates the fill screen with number of units indicated on the e-prescription. If the prescription claim is submitted for reimbursement this way, it will not be accurate.

You may need to update the quantity field in your pharmacy management software system depending on how your software handles this field for submitting claims and billing. Make sure that staff is aware of this issue and how it should be handled since dispensing the incorrect quantity will affect your reimbursement.

Working Effectively With Prescribers Who Are New to E-Prescribing

As you implement e-prescribing, more and more prescribers in your area will also be adopting the technology. New prescribers might be implementing e-prescribing on their own or may be working with other organizations to help walk them through the adoption and utilization process. As they become proficient with e-prescribing, they may make inadvertent errors using the e-prescribing software. Therefore, it's a good idea to verify an e-prescription if the dose or drug seems unusual. Below is a case study from an independent pharmacy that learned to profile all e-prescriptions when they were being submitted by new e-prescribers.



Profile Each Prescription!

An independent pharmacy located within a community health clinic receives the majority of its prescriptions electronically from the physicians in the clinic. However, when the pharmacy began to receive electronic prescriptions from the clinic, they noticed that many of the electronic prescriptions needed clarification (e.g., drug, dosage, and day's supply were not clear or did not match the patients' prior prescriptions). It turned out the physicians had not been properly trained to use the e-prescribing system and were sending prescriptions with errors.

When you begin to receive electronic prescriptions from new e-prescribers, it is a good idea to check the patients' profiles to ensure the drug and dosage make sense. If you're not sure, contact the prescriber to verify the information because they may be new to using the e-prescribing system and may have inadvertently selected the wrong item from a drop-down menu.

As this chapter indicates, there are many items you may want to consider before and during your e-prescribing implementation. The tips and advice outlined here are designed to help you and your staff implement e-prescribing efficiently and maximize your usage of available features. Reviewing this information before you implement e-prescribing may help you to prevent an issue before it arises. Referring back to this chapter after you implement e-prescribing may be helpful as well. The subsequent chapters focus on workflow optimization, determining your return-on-investment, troubleshooting, and future directions.

Chapter 4. Optimizing Workflow to Take Advantage of E-Prescribing

Every pharmacy has a unique workflow, that is the sequence of steps used to accomplish tasks such as serving patients, with specific people taking on various roles to carry out the tasks that need to get done, such as intake of prescriptions (receiving); inputting of data; filling, checking, and dispensing prescriptions; and maintaining records and managing staff.

Replacing paper with e-prescribing will inevitably change how prescriptions are handled at your pharmacy. To gain efficiency, quality, and safety benefits from e-prescribing, you need to understand your pharmacy's current processes so that you can plan future processes that help you to use the new technology as effectively as possible. Understanding the current State will also help your pharmacy determine the degree of change the staff/system is able to handle.

This chapter explains how to—

- Understand and document your existing workflow.
- Critically assess your pharmacy's capability for handling electronic prescriptions and processing refill requests by analyzing existing processes.
- Identify opportunities to improve your current workflow, and design a new workflow to best capitalize on the benefits of e-prescribing.
- Implement the new workflow.

Understanding your current processes will enable you to plan for e-prescribing in a way that will be feasible, given available staff, space, and technology resources. Planning and defining a new workflow before you begin accepting e-prescriptions will help to achieve the greatest net benefit with e-prescribing.

In addition, documenting your current workflow has a number of benefits beyond planning for e-prescribing. First, it may help you uncover process inefficiencies that may not be addressed by e-prescribing and should be addressed before initiating e-prescribing. For example, if the person taking in a new prescription from a patient doesn't ask whether the patient has a new insurance plan, that information won't be requested until after prescription data is inputted and claim submitted for adjudication. If the workflow had been mapped out, you may have been able to discover that inefficiency earlier. Second, documenting your workflow is a step toward ensuring that specific tasks are being done in the same fashion by different staff and shifts. Third, workflow documentation allows you to ensure consistency in training to enhance efficiency and quality among your staff and shifts. Documenting your workflow and comparing it to other pharmacies may also be useful to ensure you are implementing best practices.

Understanding Workflow

Overview

A workflow is the set of tasks used to reach a specific end goal, such as processing a refill request. It consists of a sequence of steps in which the tasks are 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., layout of the place where the process occurs), and relationships with external entities involved (e.g., health plans, clinics).

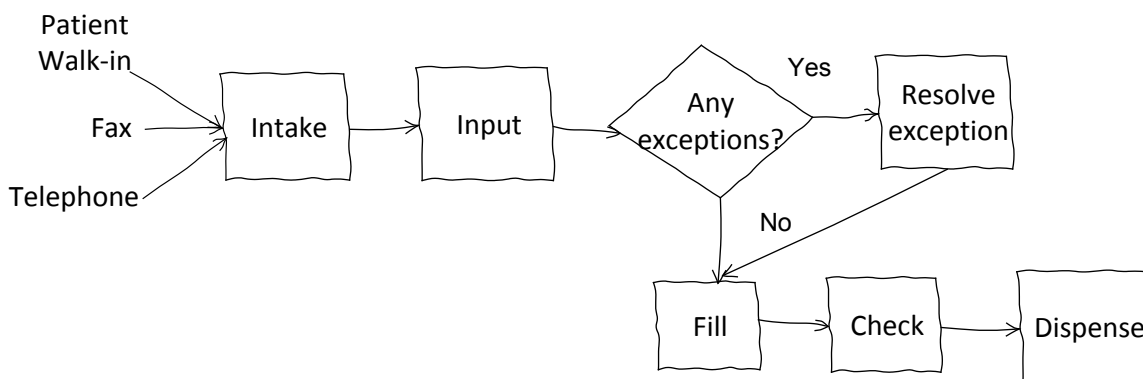
In understanding workflow, a key aspect is the information flow. For example, to complete a medication refill request, several pieces of information are needed – such as who is requesting it, who is the patient, what is the medication, how many days of medication are needed, and where should the refill request be sent. The right information needs to flow to the people who will complete the job.

Incorporating e-prescribing into your pharmacy management system should help you manage information flow to create more efficient and *safer* processes. Since this information flow is embedded in the broader workflow of your pharmacy, it's important to implement e-prescribing so that it can best fit with and improve your current workflow. By analyzing your current prescription workflow, you identify when, where, and how tasks take place. Moreover, the analysis should examine who is involved and how information regarding these processes is used.

People who have studied workflow in many industries have found that *workflow diagrams* (or flowcharts) are a very useful tool. By describing the set of tasks and their sequence in a clear visual manner, you will be able to consider all the relationships involved. We will show some examples of such workflow diagrams in this chapter. However, the same objective can be accomplished with lists or tables as well as diagrams. The important thing is to consider and explicitly document all parts of your pharmacy's processes.

A workflow diagram displays a set of tasks as boxes with arrows connecting them to describe the sequence in which the tasks are performed. An example of a workflow diagram for the prescription filling process is shown in Figure 4.1.

Figure 4.1. Example of a quick, hand-drawn pharmacy workflow diagram



While more detailed steps could be added such as choices, we recommend starting with a simple, relatively high-level workflow diagram like the one in Figure 4.1. The goal is to clearly describe the steps, their sequence, and the relationships between them. A diagram can be created by anyone who knows the overall set of processes or by someone who gathers sufficient information about them. You may want to use a computer program, such as Visio or PowerPoint for these diagrams, but we recommend starting with hand-drawn workflow diagrams on sticky notes (which can easily be moved around), and to stay focused on less-detailed steps.

Several types of arrangements are used to organize such workflow diagrams in order to make them useful. One is to show the steps flowing downward or left-to-right to indicate the sequence of time. Another arrangement is to group the workflow diagram according to who is doing the tasks. For example, “lanes” of tasks could be grouped for the pharmacists, technicians, and clerks.

Pharmacy Workflow

Figure 4.1 shows the pharmacy workflow, at a high level as consisting of six basic tasks. Figure 4.2 then shows, again at a high level, how e-prescribing fits in to alter this workflow: the “intake” step is skipped, thus streamlining the prescription filling process. Thus, even these very basic workflow diagrams of the process “before” and “after” e-prescribing can help you begin to understand the impacts of a workflow change you are considering.

Figure 4.2. Example of a quick, hand-drawn pharmacy workflow diagram with e-prescribing
e-prescription

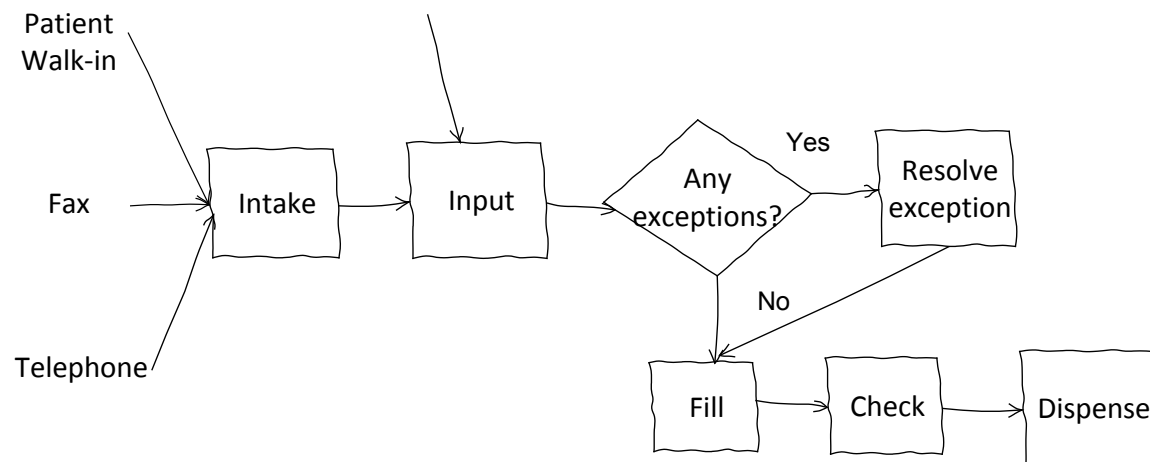
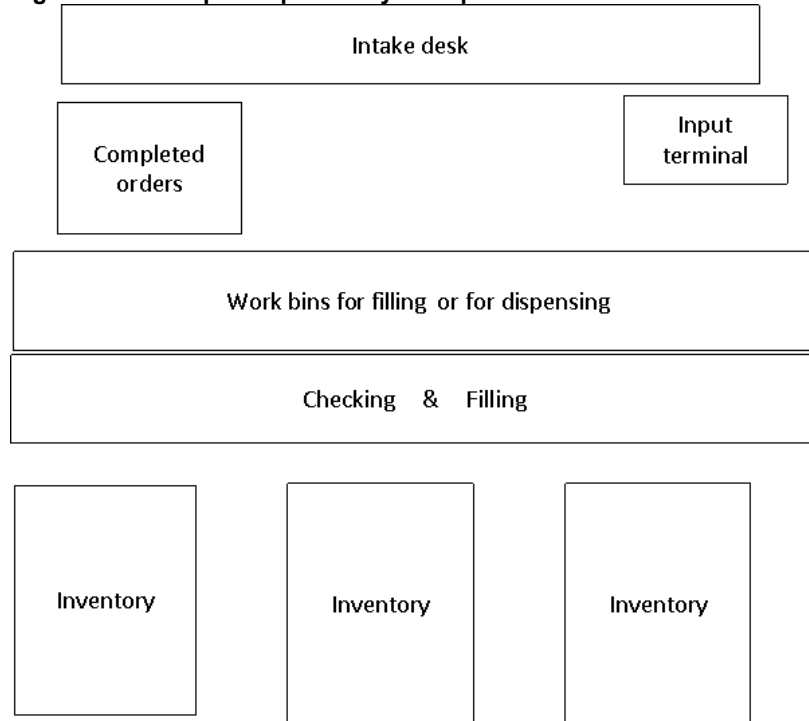


Figure 4.3. A simplified pharmacy floor plan



Pharmacy workflow might also be examined in terms of the physical layout of your space. Considering the physical layout of a space can provide another perspective on how current processes are designed. When redesigning workflow, some organizations cut out paper shapes to indicate workstations and tasks, and then move these about to consider alternative arrangements. Figure 4.3 shows a simplified pharmacy floor plan.

Once you have a clear picture of the current workflow, you need to determine how to integrate e-prescribing and whether there are opportunities for improvement. In terms of developing ideas for improvement, you may want to consider all employees' opinions. . An open or focus group discussion where all ideas are encouraged can produce surprising results. Just having such a discussion may serve to motivate staff by letting them know that their knowledge and experience are of value.

Consultants or engineers might also provide useful ideas. Industrial engineering or business students from a local college or university might be available to examine current workflows and layouts, perhaps at little or no cost because they often need to conduct a project at a real organization to fulfill course requirements.

Figure 4.4 shows a more detailed workflow example of the processes of filling new prescriptions and refills. It depicts the prescribing workflows using a conventional paper prescription system. Figure 4.5 illustrates these workflows with the additional use of e-prescribing. While certain tasks may be eliminated with the electronic receipt of prescriptions, many will remain during the transition.

Workflow diagrams are intended as an aid to thinking through steps in both the current system and the future one. Each pharmacy will have a somewhat different system and, thus, the workflow diagram depicting your flow will not be identical to these, which are meant to be examples only.

Figure 4.4. Computer-generated pharmacy workflow diagram without the receipt of e-prescriptions

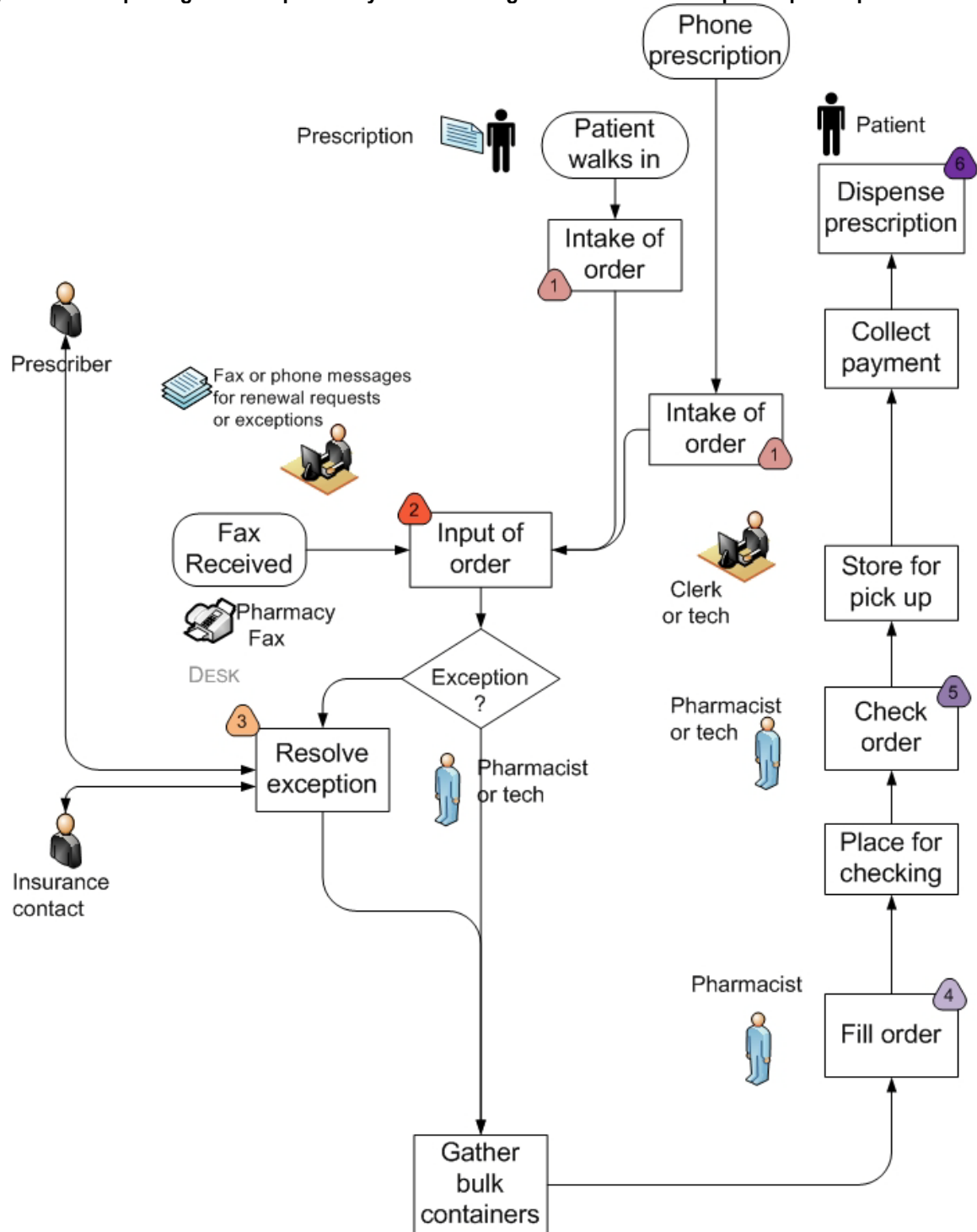
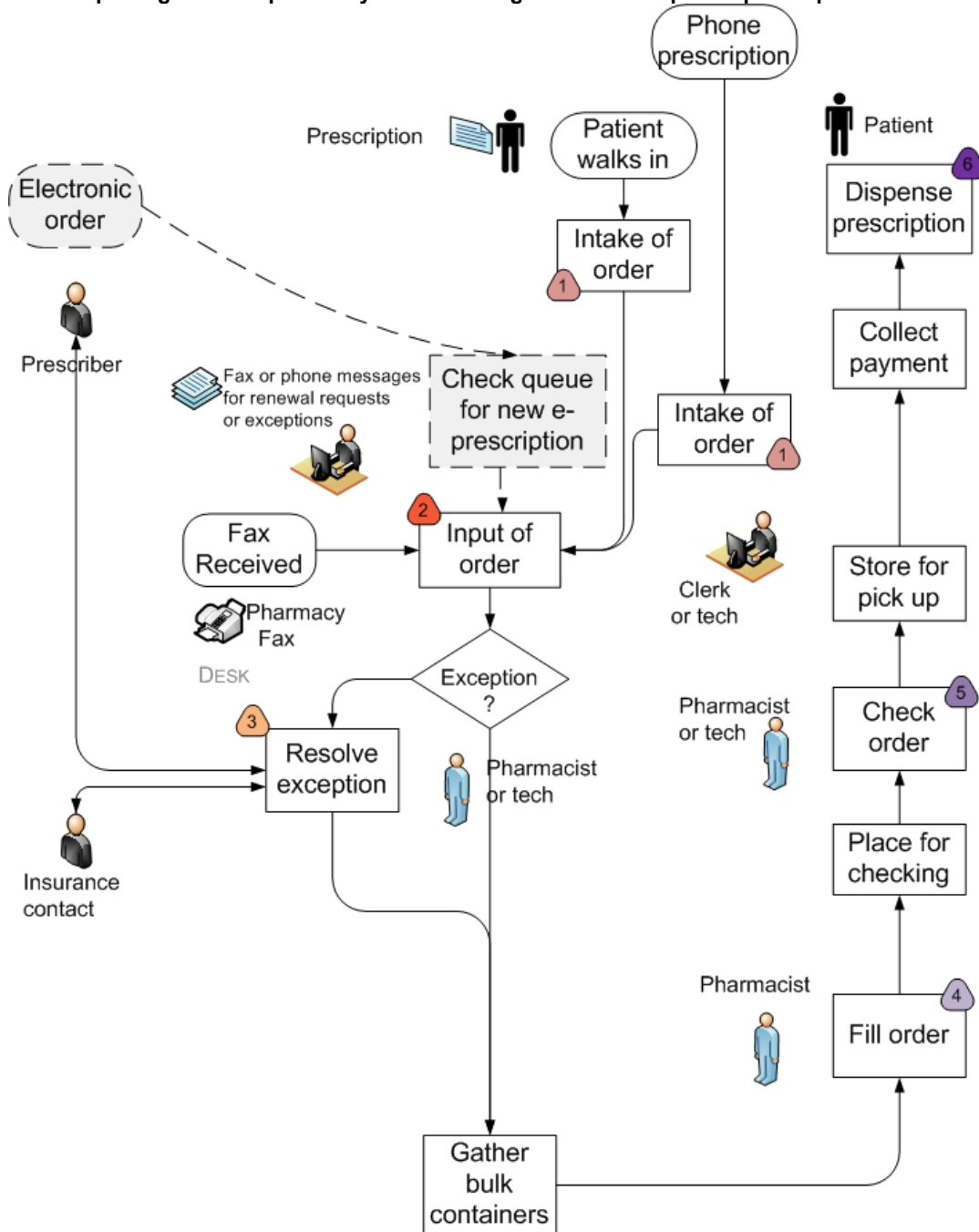



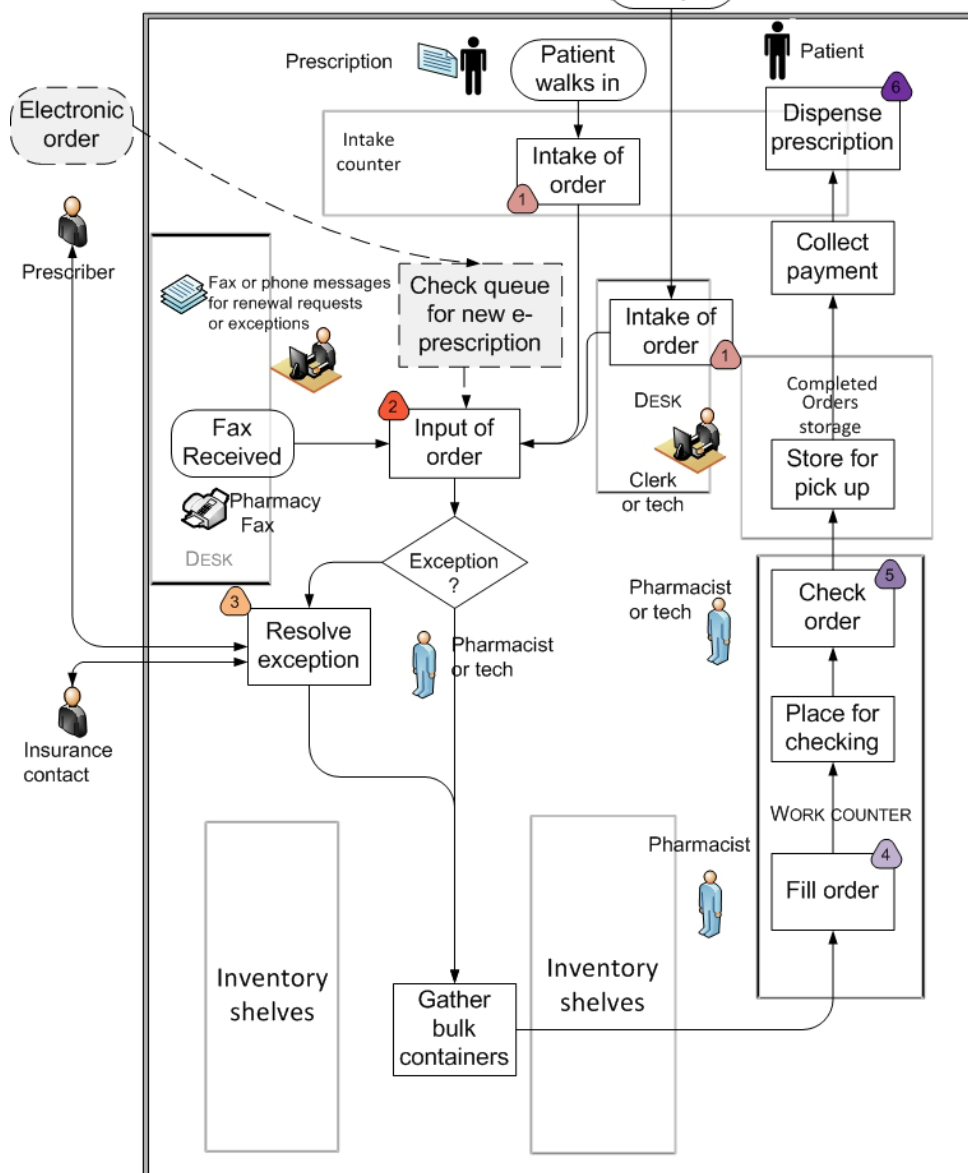
Figure 4.5. Computer-generated pharmacy workflow diagram with receipt of e-prescriptions



Workflow diagrams can use many different formats. The flow might be superimposed on the physical layout of the pharmacy, as shown in Figure 4.6, which is a pharmacy workflow diagram with physical layout included. A workflow diagram related to the workspace might be useful since changes in work processes might need to be combined with changes in the arrangement of work stations. Alternatively, changes in the physical layout might lead to improvements in work processes.



Phone prescription



The new workflow might use the existing facility layout, but your redesign also provides an opportunity to reconsider the physical arrangement. Understanding the workflow in an organized fashion is important to address both existing and potential problems. For many individuals, visual diagrams provide a more effective means than lists or tables to understand work processes.

Assessing Your Existing Pharmacy Work Processes

Documenting your existing pharmacy workflow will help you examine the current State of what is happening at your pharmacy, and identify and determine the cause of any workflow problems. After you examine your current work processes in detail, you can plan the new ones more effectively.

As you assess your work process, keep the goal of your analysis in mind: (1) to ensure a successful transition to e-prescribing 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 are recommended steps to follow to assess your current work processes:

1. **Select a work process coordinator.** Designate a “work process coordinator” who will play a key role in the transition to e-prescribing. It’s helpful for this person to be familiar with current pharmacy processes although he or she does not need to be the lead pharmacist or pharmacy manager. The coordinator must have time available over several weeks to do the project as well as an ability to organize materials related to the transition. Additional staffing support may be required since the coordinator will not be as available to participate in their normal ongoing work until the staff gets accustomed to the new system. Not adding support can lead to frustration from the staff and patients and can ultimately lead to loss of confidence in the e-prescribing system and new workflow. It is a good, temporary investment that will result in a more efficient process. The coordinator would take the lead on the following steps.
2. **Gather information on the current process.** While you may be familiar with how to perform long-standing processes, new insights are often found when documenting and reviewing them. It is important not to ignore opportunities for improvement because “that’s just the way we do it”. The coordinator should observe and talk to all the people involved with prescriptions and take notes on what they do. He or she should, for example, talk to patients, respond to requests, and communicate with doctor’s offices. It is important to capture all the steps. The coordinator should talk to staff who work on insurance issues, resolve problem orders, fill orders, check orders, handle phone calls from patients, handle faxes, order supplies, and take payment.

When describing the workflow, consider the following questions:

- What problems or frustrations do people experience in the current workflow? What complaints do you hear?
- Who is able to carry out each task? What tools and technologies are used to carry out each task?
- Where are there bottlenecks or time delays or potentially after electronic prescribing implemented?
- When moving to electronic prescribing, where are potential quality and safety problems likely to occur? For example, there may be a greater ease for the physician to inadvertently select a wrong drug on a computer screen than with a paper based system.

- Are there duplicative tasks being done now that could be eliminated without any significant impact on the service?
- Where in the process are there opportunities to reduce costs or to achieve greater economic benefits from e-prescribing?
- Where are quality and safety problems (or potential problems) likely to occur in the current process, and how do you make changes to improve quality and safety?
- When moving to e-prescribing, where is the workflow likely to have problems (e.g., due to staff, location, equipment, physical environment, information access, and technical infrastructure), and how can you avoid them?

3. **Organize the information into steps and substeps.** The process of handling prescriptions probably fits together into only a few basic steps that are carried out in your pharmacy. In general, there are four workflows (sequences of tasks) to consider related to filling prescriptions: (a) filling new prescriptions (b) initiating refill requests; (c) filling refills; and (d) handling problems such as phone calls from patients or doctors to clarify prescribing issues (e.g., questions on medications or coverage issues). The specific tasks within each workflow may vary depending on the type of prescription or other factors. Orders can also be received four different ways: (1) walk-in (paper), (2) telephone, (3) fax, and (4) e-prescription. Tasks might have subtasks or alternative paths for handling different situations, as shown in Table 4.1 When reviewing the various sequences of tasks, additional questions to consider are as follows:

- When information from a prescriber is unclear or incomplete, how do you acquire clarification?
- Which tasks are assigned to which type of staff, and could a less costly staff member do the job?
- What exception situations occur (e.g., a safety alert)? How are they typically addressed and by whom?

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

4. **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 examples in Figures 4.4-4.6 probably represent the minimum level of detail needed to be useful. A diagram of current workflow can be useful for sharing information among team members. Later, a 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.

Workflow diagrams can be created at multiple levels. You can first design a macro-level diagram to show main tasks and performers, and then draw a more detailed sub-diagram

to depict parts of a task, especially for key tasks or complicated tasks. Shapes are used to identify key items such as people or documents, and lines or arrows are to indicate flow or connections. Computer software available to produce a professional looking workflow diagram; Microsoft PowerPoint and Visio are popular programs used for this purpose.

However, simple hand-drawing shapes work as effectively.

Whether or not you decide to use a computer program to draw your workflow diagrams, it's often best to start with a hand 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. Often, multiple versions will be done until the important facts have been captured.

5. **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 4.1 provides an example of information that might be collected on work processes, in this case, common processes for filling a prescription. In such a table, you can identify who is responsible for each task, as well as other attributes of a task, such as its frequency and what documents or systems are required to perform the task.

Table 4.1. Common processes for filling a prescription: an example worksheet

Process	Tasks and notes	Staff involved	Location	Equipment and materials
Walk in receipt of prescription	Patient in queue Get paper prescription Obtain demographics and insurance information Determine if patient will wait for prescription, advise of wait Consultation with patient	Clerk, technician, or Pharmacist	Front desk	Computer terminal, form
Phone in prescription	Transcribe to paper or computer	Pharmacist or intern	Phone(s), voice mail	Phone
Fax receipt of prescription	Remove prescription from fax machine File for input to system	Clerk	Fax desk	Fax
Phone follow-up for prescription problems	Follow up phone calls for problems with paper, phone, or fax orders	Technician, pharmacist, or intern	Phone(s) used for this purpose	Phone
Input data	Enter clinical and administrative data to computer, check for errors or conflicts. Input to workflow system, if any	Technician, pharmacist, or intern	Desk(s) for this purpose	Computer terminal, documents
Batch orders	Combine multiple orders for single patient	Clerk	Counter	Bins
Fill orders	Gather bulk containers from inventory Fill orders in batch	Technician, pharmacist, or intern	Counter	Supplies
Check order	Compare to documents or computers. Correct where necessary	Pharmacist	Counter	Computer terminal, documents
Queue order for pick up	Store order for access when patient picks up	Clerk	Counter, shelves	Storage area
Dispense to patient	Collect payment Deliver order to patient Call Pharmacist to desk if advice is needed, Advise patient	Clerk, technician, or pharmacist	Front desk, Counseling area	Computer terminal, forms

The next step is to review the sequence of tasks. A diagram of current workflows can be useful for sharing information among team members. Later, a diagram of planned flow can be used to discuss how the pharmacy processes 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 developing the workflow diagram must decide what detail to include and what to exclude. Often multiple versions will be done until it represents an accurate and useful description.



[Tool 4.1](#) contains some of the example workflow diagrams in a format that you can copy from to create your own prescription management workflows. These diagrams were created in PowerPoint, however, PowerPoint is not an ideal diagramming tool. Unless you are a PowerPoint expert, it may be a better use of your time to diagram your processes by hand.

Whether or not you decide to use a computer program to draw your workflow diagrams, it's often best to begin by using a hand 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.

Improving Workflow

Techniques for Generating Improvement Ideas

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 need 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 pharmacy 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 pharmacies 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. Benchmark measures, such as labor costs per prescription or the typical completion time for various types of prescriptions are available from professional organizations such as the National Community Pharmacists Association (NCPA).



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. The toolkit is designed to assist users 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.

How to Identify Opportunities to Improve Workflow Through E-Prescribing

The change process is an opportunity to improve. While thinking through your current and future pharmacy processes using workflow diagrams and discussions, you should be able to identify potential improvements. Problems with the current system should not be perpetuated as you begin to receive prescriptions electronically. Use the following steps to define and implement an improved prescribing 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 with no reduction in meeting the customer's needs. Consider the potential effects of eliminating a current task. If there is no negative impact, it can probably be eliminated in the new system. Other types of wasteful activities to look for include duplicating forms, repeating questions to customers, and storing paperwork unnecessarily. With e-prescribing, paper forms that are not required for file retention can be eliminated and blank forms disposed of.
2. **Identify changes.** Look carefully at all the steps impacted by e-prescriptions. These are likely to include those steps that use the pharmacy system, but might include other non-electronic tasks as well.

3. **Define new workflow.** Plan the new e-prescribing process and summarize it in a new workflow diagram and table. Note the differences between current and planned to determine where savings occur and might be increased.

Implement the new workflow:

4. **Plan transition.** Plan the change from the current system to the new one. This is discussed in Chapter 3 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.
5. **Review and approvals.** Review the proposed new e-prescribing functionality, particularly changes and new assignments, with management, owners, and all concerned parties to ensure that all issues have been resolved, to gain consensus on key decisions, and to ensure readiness for implementation.
6. **Modify pharmacy and patient behavior.** When patients continue to phone in multiple refill requests for the same prescription, additional time can be required for staff to sort out whether each request is a duplicate. These potential problems can be addressed proactively at the workflow redesign step, for example by educating patients when notifying them about e-prescribing implementation and including steps to immediately engage patients who place multiple refill requests after too-short an interval.
7. **Continuous improvement.** It is likely that there will be additional changes to the workflow after the transition. Opportunities for improvement always exist. It is a good idea to periodically review the design of your pharmacy's workflow and to look for additional ways to reduce costs and improve quality.

Best Practices for E-Prescribing

Below are lessons learned about designing a new workflow using e-prescribing.

These lessons were gleaned from interviews with pharmacists and staff as well as observations of prescription-related workflow in exemplar e-prescribing pharmacies. These pharmacies had both high levels of e-prescribing use and innovative implementation processes.

- Early in the transition, e-prescriptions will probably involve a minority of cases. Have the system provide alerts that such an order has arrived since no physical record will be delivered.
- Early on, you may want to set a schedule of when to check the e-prescription queue. It might be more efficient to do a batch of such orders at one time or do them at certain times each day so long as patient needs are met. As volume of e-prescriptions increases, you may need to check the queue more frequently.
- Since e-prescribing may save time and labor costs for your pharmacy, you could encourage providers to use it. Consider offering priority services to physician offices so that their orders are promptly and accurately handled. Perhaps a newsletter update could be mailed to physician offices regarding the benefits of e-prescribing.
- E-prescribing is intended to save paper. If possible, avoid printing out the electronically received order.

- Integrate the e-prescription system with the filling and inventory system to alert the pharmacist when there is a shortage of medication.
- Set up ways to ensure that prescribers understand the system and do not perpetuate errors. Set up a feedback system to note frequent e-prescription errors. Perhaps create a log sheet to record errors and inform the staff regularly regarding the frequent and serious ones. Also frequent errors should be relayed to the physician offices. Try to ensure that new prescribers at the physician's office remain informed about the new process requirements that may impact them.
- There are often errors (e.g., dosage, quantity, strength) in the initial e-prescriptions sent by a provider who is new to e-prescribing. When a new prescriber begins sending electronic prescriptions, you may wish to check them against previous prescriptions for the patient.

Chapter 5. Costs and Benefits: Measuring the Economic Impact

If properly implemented, e-prescriptions should create time savings for you and your staff, but there are also costs, particularly the fees charged by the intermediary for each transaction. In some cases it may be obvious that the time saved is worth the cost, but in other cases the cost-benefit tradeoff may be unclear. In these cases it is worthwhile to perform a return-on-investment analysis, directly comparing the potential costs and savings in dollars. The net savings will primarily result from savings in labor (from less data-entry and fewer prescriber phone calls), while the new costs will primarily be transaction costs. Adopting e-prescribing may have other benefits in terms of reduced errors and increased customer satisfaction, thereby increasing your market share in your community, but such benefits are more difficult to predict and quantify.

This chapter provides an example of estimating costs and benefits by focusing on electronic refill requests, assuming a pharmacy has already started accepting new prescriptions electronically. The assessment includes time effects and the resulting economic effects. We provide a tool in the form of spreadsheets to estimate the time savings and to convert that to a dollar amount.



Tool 5.1 is an Excel file that you can use to develop your own savings calculation. This chapter provides an overview of the tool, and sample views are shown in Figures 5.3 and 5.4. The file itself contains more-detailed instructions and separate tabs to enter data such as your own volumes and wage costs. Savings from new e-prescriptions as well as savings from electronic refill requests are calculated. Your particular costs and savings may differ from those shown; therefore the values will have to be set to reflect your particular pharmacy.

It's important to note that many independent pharmacies may be limited in their ability to turn time savings into dollar savings by reducing staff hours. However, saving staff time should still increase the number of prescriptions that the pharmacy can fill per day and if patients are also more satisfied due to faster turnaround of prescriptions, the pharmacy's competitive position in the community may be enhanced.

Time Effects from E-Prescribing

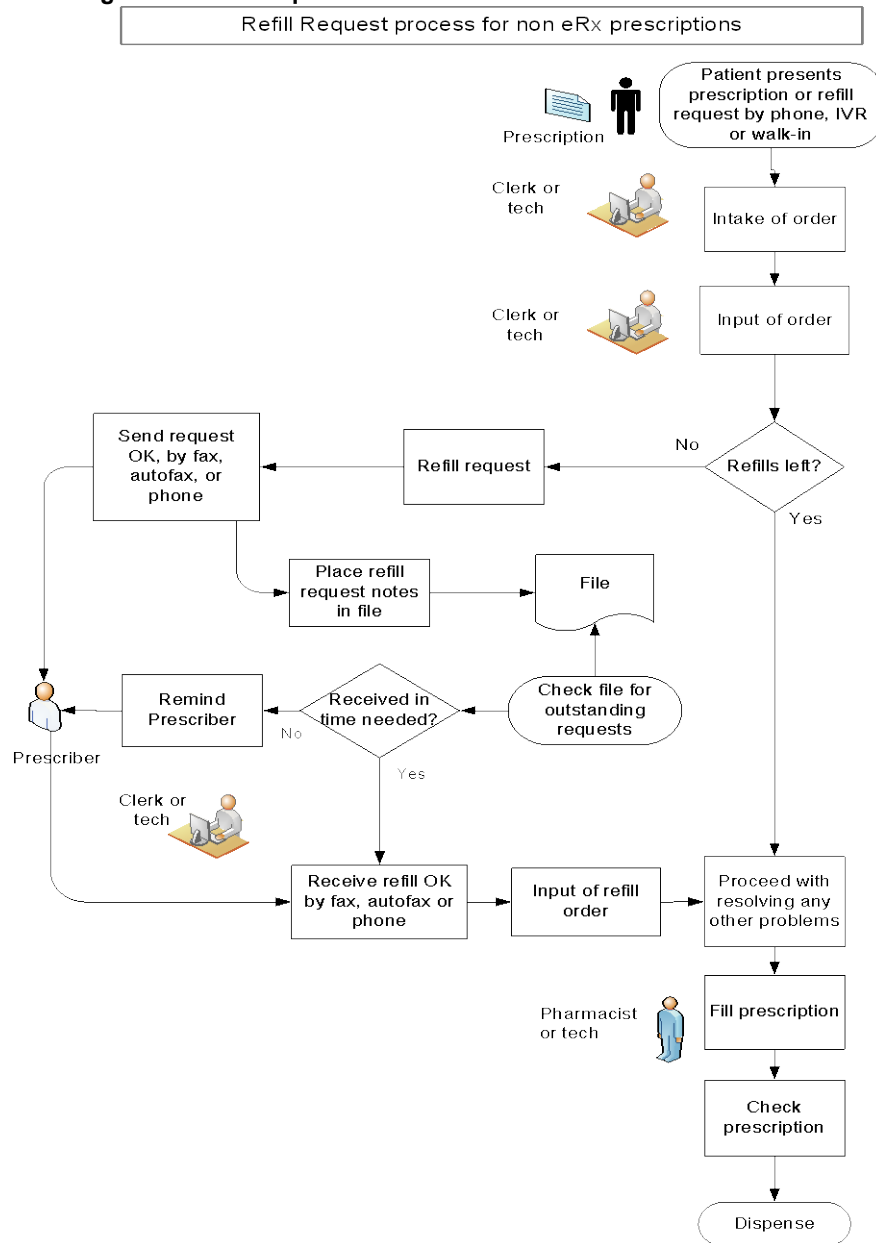
In order to determine the time savings, it is necessary to focus on key tasks that will be affected. Accepting e-prescriptions may reduce the time taken by some tasks, add or eliminate other tasks, and leave other tasks unaffected. We can calculate a net benefit in terms of the time saved on each of the tasks affected. Of course, every pharmacy is different, but common tasks are the following (as described in Chapter 4):

1. Intake – This task is generally eliminated for orders received electronically. Some orders will still be received by fax, phone, and walk-in, and their time will remain.
2. Input – This task is reduced for orders that are received electronically, unless the system is not set up to transfer information from the e-prescription to the filling screen.
3. Resolve Exceptions – Problems should be greatly reduced. However, some new issues might arise if the prescriber makes errors or there is some incompatibility with other pharmacy systems. Thus, this task will remain for some electronic prescriptions and the few remaining resolution problems may be the more complex ones.
4. Fill – This task will not generally change. The physical task of filling an order will remain the same, although there may be fewer handwritten documents, making it easier to read the order.
5. Check – This task will also remain generally unchanged. Although the physical task is unlikely to change, there may be fewer handwritten documents, making it easier to read the order. In fact, computer-generated documents could expedite the process. Such benefits will not be realized if a pharmacy decides to print the order and not read it from a computer screen.
6. Dispense – This task will also remain unchanged. However, some information might be more promptly available or easily readable.

Typical patient refills will probably be unaffected since these communications generally take place between the patient and the pharmacy. Refill requests, like new prescriptions, are affected by e-prescribing by reducing the work to communicate with the prescriber.

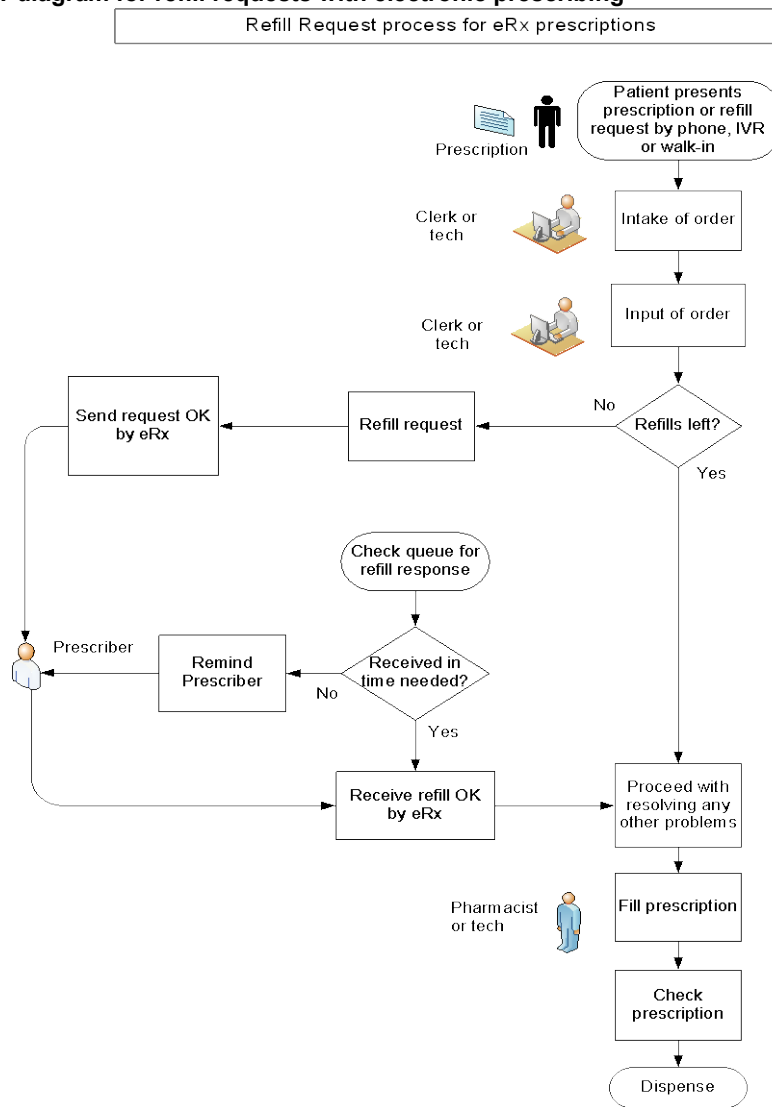
When a refill is needed without electronic prescribing, there is a step to determine if refills are left. If they are not, then a refill request is sent to the prescriber as shown in Figure 5.1. The pharmacy must maintain a file of outstanding refill requests sent to prescribers. Periodically the pharmacy must check the file to determine if a response has been received within the time needed. If it is not then another reminder must be sent to the prescriber. Once the refill approval is received from the provider, then the pharmacy can proceed with filling the patient's prescription and update the file of refill requests to indicate that the approval has been received. All these steps take time for the pharmacy staff.

Figure 5.1. Workflow diagram for refill requests



As shown in Figure 5.2, in the case of electronic prescribing the sequence of steps is reduced and staff time is saved. The refill request is sent to the prescriber electronically and staff time, such as telephoning and filing of papers, is avoided. The response from the provider is received electronically and staff time is saved from not receiving a phone call, fax or paper document. Managing paper files is avoided.

Figure 5.2. Workflow diagram for refill requests with electronic prescribing



Economic Effects of E-Prescribing

The time savings from electronic prescribing should translate into an economic benefit — the staff time saved has a dollar value. We calculate the dollar value by multiplying the time saved by the wage rate of the employees who are doing the tasks. For each task, the time savings must be multiplied by the frequency of the task's occurrence and applicable hourly pay rate for the type of individual doing the task.

Figure 5.3 shows an image of the spreadsheet, showing typical values when a fraction of the refill requests are conducted electronically. Intake and input task time is greatly reduced for refill requests. Resolving conflicts are much less frequent although the time to deal with the remaining ones may not be reduced. Fill, check and dispense tasks for refill orders may be unchanged by e-prescribing and therefore are not necessary to calculate (grayed out on the spreadsheet). The

“Input Data” page (tab) of the spreadsheet is the place where you enter all of the numbers that the model requires for customization to your business. The numbers you will need to estimate are:

- The number of new and refill prescriptions that are received via fax, phone, walk-in, and e-prescribing on an average day
- The average time it takes in seconds to intake, input, and resolve issues for new and refill prescriptions that are received via fax, phone, walk-in, and e-prescribing
- Estimated percent of new and refill prescriptions that have issues to resolve depending on whether they are received via fax, phone, walk-in, and e-prescribing
- An estimation of work load, in percentage, for pharmacist, technician, clerk, and intern for various tasks and their hourly wage rate
- The transaction costs incurred for each new and refill prescription by your e-prescribing system
- The number of days per week that the pharmacy is open.

The daily volumes and times are entered for the types of orders. Then, the net time savings for conducting refill requests is calculated by subtracting the average time for electronic requests from the average time for the non-electronic ones to get a time savings per electronic refill request. This is then multiplied by the daily volume to get a daily savings and then this is converted to dollars by multiplying by the average wage rate for the tasks affected. Subtracted from the savings are the transaction costs to get a net savings. Based on a number of work days per year, the daily savings are converted to an annual amount.

Your pharmacy’s particular situation might be different and the spreadsheet input data will have to be modified. For example, your number of workdays per week might be different from the six days assumed. Other modifications to the spreadsheet might be needed to make it more specific.

Figure 5.3. Screen-capture image of refill request tab from toolkit 5.1’s spreadsheet to calculate savings from electronic prescribing

Task:		Intake Receipt of Rx (D) (F)	Input system & check authorization	Resolve concerning 3rd party or clinical problems (C)	Fill Fill or compound, may use robot (D) (E)	Check Verify against source doc. (D) (E)	Dispense Collect payment and consult by Pharm.
Type	Mode of receipt	1	2	3	4	5	6
	Hourly cost	\$ 31.30	\$ 30.70	\$ 25.80	\$ 44.50	\$ 70.00	\$ 32.40
Refill Requests	fax	60	20	25	15%	90	*
	phone	80	30	30	10%	120	*
	walk in	5	30	30	10%	120	*
	eRx	25	15	5	5%	160	*
Average time per non eRx tasks		145	25.9	27.9	12.6	seconds	
Time per e-prescribing for relevant tasks		30	15.0	5.0	8.0	seconds	
Net e-prescribing labor savings per prescription					38	seconds	(for the 3 tasks affected)
Net e-prescribing labor savings for the day					1152	seconds	(for the number of e-prescribing done)
					19	minutes	
Net e-prescribing labor savings for the year		6	days per week		\$9	\$/day	(uses average wage)
e-prescribing transaction costs		0.18	per refill request		\$2,923	\$/year	(assuming 52 weeks per year)
Net savings					\$1,685		
					\$1,238		Net savings per year for refill requests

The added transaction cost for e-prescriptions reduces the net benefit. Hopefully, the added cost is much less than the savings. The tool calculates net savings from both new e-prescriptions and electronic refill requests.

With e-prescriptions there is a time savings on a daily basis. The dollar savings assumes that labor costs are variable for these tasks. The time savings might or might not result in a cash impact, depending on whether the labor is on an hourly basis or whether the savings are sufficiently large enough to reduce staffing. The spreadsheet assumes that labor is hourly and that labor costs are reduced in proportion to the time saved.

The “Output Summary” tab in Tool 5.1 also calculates the sum of the savings from refill requests as well as from new prescriptions. It is based on a planned mix of electronic and non-electronic prescriptions. Also, the savings if 100% of prescriptions were done electronically is calculated. An example showing the total savings for partial vs. 100% electronic prescriptions is shown in Figure 5.4.

Figure 5.4. Screen-capture image of summary tab from toolkit 5.1’s spreadsheet to calculate total savings from electronic prescribing

	A	B	C	D	E	F	G
1	Output summary						
2	Total annual savings are summarized based on the data entered.						
3							
4	Savings from current mix of request modes						
5	Savings from new prescriptions				\$2,383	per year	
6	Savings from refill requests				\$1,238	per year	
7	Total				\$3,621	per year	
8							
9	Potential savings if 100% of requests were done as e-prescribing						
10	Savings if 100% of new and refill requests were done as e-prescribing						
11	Savings from new prescriptions				\$9,830	per year	
12	Savings from refill requests				\$7,223	per year	
13	Total				\$17,053	per year*	
14							

There may be indirect economic benefits as well. E-prescribing may increase prescription volume and improve pick-up rates. Furthermore, some prescribers may prefer to work with pharmacies that are electronically enabled. Such potential savings and increased revenue are not included in the spreadsheet calculations.

Chapter 6: Troubleshooting and Preventing Common Problems With E-Prescribing

Challenges are common when implementing new technologies of any kind. Fortunately, the challenges that arise with e-prescribing for pharmacies are usually non-technical in nature. Also, most problems can be easily resolved on your own, without contacting your pharmacy management software vendor. Thus, with planning and coordination, many issues can be minimized or averted.

This chapter discusses how to prevent or troubleshoot the following kinds of problems:

- E-prescribing system stops functioning
- E-prescription appears to be “lost”
- E-prescription appears to have an error
- E-prescription is unclear
- Unclear whether refill request has received a response

In addition to the issues listed below, you may want to keep track of problems you may want to discuss with your pharmacy software vendor and physician practices.

General Advice

First, it's a good idea to ensure that your pharmacy staff is comfortable and knowledgeable about how to process e-prescriptions. Some staff might be naturally more comfortable processing e-prescriptions, while others will need more training and instruction on the system. The ease of processing prescriptions will depend in part on the ease of use of the pharmacy system you utilize, the degree to which e-prescriptions are integrated into the overall flow of prescription processing within your pharmacy system, and the extent of staff's training and skill level with technology.

There are other options for ensuring that your staff is able to process electronic prescriptions in a timely manner. One method is to organize work schedules so that a staff member who is proficient in processing electronic scripts is always on duty. Alternatively, you can ensure that all staff, including part-time and relief staff, have at least basic training and skills in processing electronic scripts.

E-Prescribing System Stops Functioning

Though it is rare for the e-prescribing functionality of your pharmacy system to stop functioning, it can happen occasionally. There are several things you can do to prepare for the possibility of this occurrence and to handle it when it does happen.

Troubleshoot the Problem

Should the e-prescribing functionality go down, contact your pharmacy system vendor to determine what has happened and how long it will take to resolve the issue. Keep in mind that e-prescribing depends on several organizations working in coordination (see Chapter 2). If your pharmacy system vendor is not able to identify or remediate the problem, the vendor might be able to assist you in determining which other organizations may be having problems.

In some cases, if the e-prescribing functionality goes down, you will still be able to receive electronic prescriptions if the e-prescribing intermediary converts them to be sent by fax instead of electronically into your pharmacy management software.

Be Proactive

Maintain a separate list of your most frequent e-prescribers. The list should include phone and fax numbers. If the e-prescribing functionality goes down, you will be able to quickly notify them and develop a temporary plan of action to conduct refill requests by fax or phone. This is especially relevant if your high-volume prescribers prefer to have refill requests sent electronically. It's also a good idea to check with your pharmacy software vendor whether e-prescriptions can be routed to your fax if the system is down.

E-Prescription Appears to Be “Lost”

Occasionally, a customer will indicate that his or her provider sent a prescription electronically, but there will be no record of the prescription in your system. To address such cases, consider the options below.

Troubleshoot the Problem

First, get more information from the customer. Find out how recently the prescription was sent. Sometimes a customer comes directly from the physician's office and arrives at the pharmacy before the e-prescription has been transmitted. If this is the case, explain to the customer that it can take several minutes to a half-hour for an e-prescription to arrive. Refer to Chapter 2 to understand the transactions that occur in routing the e-prescription to the pharmacy.

If the electronic prescription has not arrived after 30 minutes, it may be time to contact the prescriber's office. Confirm with the physician's office that the electronic prescription has been submitted and transmitted. If it has been submitted and transmitted, then confirm that your pharmacy is the one indicated on the electronic prescription.

If the physician's office confirms that the prescription has been transmitted and that it has been directed to your pharmacy, but you have not received it, the prescription may be “lost.” If this is the case, ask the physician's office to provide information about the prescription by phone so that the patient is not kept waiting. If this happens more than once or twice, you should discuss the problem with your pharmacy system vendor and ensure they log a ticket with the health information network to identify the source of the problem as well as potential solutions. It's also a good idea to keep your own log of these issues.

Be Proactive

Advance coordination with physician offices will help reduce “lost” prescriptions. See Chapter 3 for tools that can help with this. Encourage physicians to inform patients that transmission of e-prescriptions can take 20 minutes to arrive, and the pharmacy will need time to fill the prescription, therefore it may take 30 to 60 minutes for a prescription that has been transmitted electronically to be ready for pick-up. Maintaining ongoing communication with physicians’ offices will also reduce other types of coordination errors. If you notice that patients are continuing to arrive early from a specific prescriber’s office, you may want to reach out to that office to let them know that they should communicate with the patients regarding the lag-time and also speak to patients directly to educate them about the e-prescription process.

In addition, you should check with your pharmacy software vendor to determine how often the software checks the server for e-prescriptions. Longer intervals between checks mean that it will take longer for e-prescriptions to arrive at the pharmacy. Usually, the software can be adjusted to check the server more frequently.

E-Prescription Appears to Have an Error

Sometimes the pharmacy will receive an e-prescription that appears to have an error such as an incorrect drug, dose, or sig. Most e-prescription issues are caused by user error, as when the prescriber selects the wrong item from a menu.

Troubleshoot the Problem

If you receive an e-prescription that appears to have an error, contact the prescriber to obtain clarification. When you contact the prescriber to correct the issue, the prescriber might give you the correction verbally or might want to send you a new, corrected e-prescription so that the prescriber’s records reflect the correct information.

However, if the source of the error cannot be identified (e.g., the prescriber says that their e-prescribing system shows something different from what you received), you should immediately report the issue to your pharmacy software vendor to investigate. Your software vendor will need to identify the source of the error and may need to log a ticket with the health information network to prevent the problem from recurring. There are many potential sources of errors, including the prescriber’s software, the transmission process, and the pharmacy software. Therefore, it is very important that the error is investigated and corrected.

Your pharmacy software vendor will usually create a “ticket” with the intermediary to help investigate the issue. Keep in mind that your pharmacy software vendor is your conduit to the intermediary and you will typically not be able to work with the intermediary directly to investigate issues.

Addressing minor problems before they become major problems and coordinating early and often with prescribers can help the implementation process flow much more smoothly. See the vignette below for a real-life example of how it is important to check e-prescriptions against the patient’s profile.



Profile Each Prescription

An independent pharmacy has recently begun receiving prescriptions electronically. The pharmacy receives a prescription for a patient who used to be on generic Toprol XL (metoprolol succinate). The new electronic prescription for this patient specifies metoprolol tartrate, which is not the extended release form of the medication. The pharmacist checks the patient's profile and notices the patient was on metoprolol succinate. The pharmacist contacts the prescriber and learns that the prescriber inadvertently selected the wrong drug while writing the prescription electronically.

It's a good idea to check the each patient's profile when new electronic prescriptions are received to ensure the patient gets the right drug.

E-Prescription Is Unclear

Sometimes your pharmacy will receive an e-prescription that contains confusing or inconsistent information. There are some common ways in which e-prescriptions might be unclear, including the following:

- The total medication quantity prescribed does not match the daily dose multiplied by the number of days
- A prescriber indicates a quantity of "1" for prepackaged items (such as an inhaler), when you need an indicator of weight or volume (e.g., 17 g, 15 mL) in your pharmacy system
- Patient instructions include conflicting information (e.g., one field gives standard instructions while another gives specialized instructions).

These kinds of common discrepancies will need to be resolved for each prescription before it can be filled.

Troubleshooting the Problem

Most pharmacies find that problems can be resolved easily by phone. If you receive an e-prescription that contains unclear information, call the prescriber to ask for clarification.

Be Proactive

There are several things your pharmacy can do to help ensure that e-prescriptions are processed efficiently and accurately. Your pharmacy can take a proactive stance toward providers in order to prevent many problems from occurring on a regular basis. It is critical to engage in a dialogue with high-volume e-prescribers. Explain the types of problems that you encounter on a regular basis and provide constructive feedback about potential solutions. Regular communication with prescriber offices can help establish standard practices that will make the process efficient for everyone. You could do this in a monthly or quarterly telephone call (depending on how well the implementation is succeeding) or you might even suggest an in-person meeting with prescribers. It can be helpful for both pharmacies and physician offices to understand how e-prescribing works for their counterpart.

In addition, it is a good idea to verify all e-prescriptions that may look unusual. For example, if your pharmacy receives an e-prescription for a drug that isn't commonly used or prescribed in your area, you should verify the prescription with the prescriber to make sure it is accurate. For a real-life example, see the case study below.



Ampules by Mouth?

An independent pharmacy located near a community health clinic receives most prescriptions from the clinic electronically. One day the pharmacy receives a prescription from the clinic for Cogentin (benztropine) 0.5 mg ampules. The pharmacist calls the prescriber to check whether the prescriber actually wanted ampules since the directions indicate that the patient should take one tablet by mouth daily. It turns out that the prescriber couldn't find Cogentin (benztropine) 0.5 mg tablets in the clinic's e-prescribing system and therefore chose the ampules. The tablet form is no longer available in brand name formulation and is therefore listed only under the generic name in the e-prescribing system.

When your pharmacy receives an unusual electronic prescription, it may be prudent to check with the prescriber, who might have selected the wrong drug because that was the only one they could find in their system. Let the prescriber know that it might be possible to search by generic name and that some older drugs might not be listed in the e-prescribing system under the brand names. In addition, some systems list single-source brands only under their brand name.

Problems With Imported Data

Your pharmacy should try to incorporate all the efficiencies that come along with e-prescribing, such as importing data fields from the e-prescription into your filling screen. However, you still need to carefully verify each field even if there is a match or the data are successfully imported. For example, the "days supply" field may populate using data from the e-prescription but that field might have errors. Errors in days supply may lead to issues with claims submission and reimbursement—the following case study provides a real-life example.



How Many Days Supply?

An independent pharmacy located near a medical center receives many of the center's prescriptions electronically. The pharmacy software system does a great job in matching and pre-populating the fields from e-prescription. In addition to patient name, drug name, quantity, prescriber name, and origin code, the pharmacy management system also imports the days supply listed on the e-prescription. However, the days supply field on the e-prescription is frequently incorrect, and if the incorrect value is used, the claim for the prescription is usually rejected when submitted to the patient's insurance.

It's a good idea to review the fields brought over into your pharmacy management system and to correct them as necessary, especially the day's supply field.

Unclear Whether Refill Request Has Received a Response

Some pharmacies find it difficult to know which refill requests have received a response (i.e., approval or denial). Depending on your pharmacy software, there may not be a good way to electronically track which refill requests have received responses and which are outstanding. This is a problem especially if you are faxing refill requests to e-prescribers rather than sending electronic refill requests. In this case, the prescriber can only respond electronically with a new prescription.

Troubleshooting the Problem

If you are not using e-refill requests you will need a process for reconciling your faxed requests with incoming new prescriptions as well as faxed responses. However, if you can change to e-refill requests and prescribers respond to the requests electronically with an approval or denial, that response usually appears automatically in your software's e-prescribing queue as a response. If your software is well-designed, it will indicate that the request has received a response and will remove it from the pending list.

However, since there may be some variability between how different pharmacy software systems present refill responses, it is important to know exactly how your pharmacy software system handles them. For example, it is also important for staff to understand where to find special instructions and notes such as diagnosis codes on electronic prescriptions and refills. For a real-life example of how a response to an e-refill request may be confusing, see the case study below.



How Many Refills?

An independent pharmacy located in the same building as a community health clinic receives almost all of the clinic's prescriptions electronically. The pharmacy sends refill requests electronically to clinic prescribers and receives responses electronically usually within a day. This pharmacy prints all e-prescriptions from its queue for processing, and when printed, prescriber responses on refills look very similar to new e-prescriptions. The only difference is that the pharmacy management software indicates "refill response" in small letters at the top of the e-prescription when it is printed. In addition, the refill field will always indicate "1" if the prescriber approved the refill for one time only on the response to the refill request. If the person entering the prescription information into the filling screen is not careful, the response to the refill request is misinterpreted as a new prescription with one refill.

Since the amount of refills indicated on the response should be interpreted differently for refills than for new e-prescriptions, it is important to ensure that staff are fully trained on these types of nuances, including what the refill responses look like and mean, and where to find special instructions such as diagnosis codes on electronic prescriptions. In addition, pharmacies should provide feedback to their software vendors to make enhancements that result in better ease of use and functionality. It may be helpful to work with other pharmacies that are using the same software to gather feedback and provide it together in a unified fashion.

Be Proactive

It is important to develop a method for tracking refill requests that works for your pharmacy. Don't wait for the customer to re-contact you before following up with the prescriber. One way to keep track of refill requests is to ensure that all staff responsible for managing refill responses is properly trained to check both the manual and electronic refill request queues. Assign a staff member to review both the manual and e-refill request queues each day to determine which requests have received a response and which require follow-up. Those requests that have already received a response can be deleted from the queue.

Pharmacies follow up with prescribers regarding outstanding refill requests in different time intervals. Keep in mind that if your pharmacy sends multiple electronic requests to the prescriber, you may receive multiple electronic responses, which may result in multiple fills of the same prescription. A phone call reminder can assist prescribers in remembering to respond to e-refill requests in addition to sending new prescriptions electronically.



If you are not currently utilizing e-refill requests, consider reviewing Chapter 5 regarding the potential return on investment for adopting their use.

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Chapter 7: Future Directions Enabled by E-Prescribing

E-prescribing is generally seen as an initial step in the adoption of a full electronic health record (EHR) system within physicians' offices, and the federal government is providing incentives to physicians that adopt interoperable health information technology (IT). With the adoption of e-prescribing and other forms of health IT, retail pharmacies can ultimately operate more efficiently, freeing up pharmacists to become involved in additional clinical services, including medical therapy management (MTM), immunization delivery, and collaborative drug therapy management (CDTM).

As more physicians adopt e-prescribing and EHR systems, there will be opportunities for pharmacists to get involved. The ability to document care through the EHR will increase opportunities for communication between providers and pharmacists. As part of a multidisciplinary health care team, retail pharmacists can take an integral role by providing medication expertise and management. Pharmacists' medication proficiency and accessibility to patients will allow them to assist patients in reconciling their medication lists for their personal health records (PHR). Pharmacists also provide influenza vaccinations and can contribute to immunization registries. While not every pharmacy setting will be amenable to CDTM, e-prescribing and interoperable EHR systems may facilitate more comprehensive patient care. Additionally, pharmacists may be able to offer their services to technical assistance organizations (such as the Regional Extension Centers described in Chapter 2) as their communities adopt health IT. By using health IT to improve medication safety, pharmacists can improve patient outcomes and decrease the costs of treating adverse drug events.

Medication Therapy Management Programs

Medication therapy management (MTM) is a health care service typically provided by a pharmacist that helps patients achieve targeted outcomes from medication therapy. It involves a collaboration between the pharmacist and the patient to promote the safe and effective use of medications and prevent their misuse. For optimal outcomes, collaboration with a physician or the patient's primary care provider is desirable, but it is not imperative.

The advantage of collaborating with a health care provider and utilizing e-prescribing is that the further integration of health IT can lead to access to the patient's EHR. This collaboration and access will successfully impact the outcomes of MTM.

Numerous resources on the Internet describe ways to implement successful MTM programs. For example, the American Pharmacists Association (APhA) and Academy of Managed Care Pharmacy (AMCP) recently launched the MTM Connections Web site, which is an online resource that includes the MTM Connections Locator and MTM Connections Online Resource Library. The Locator assists patients in locating pharmacists who provide MTM services and managed care organizations in contracting with pharmacists to provide MTM services for their networks. The MTM Connections Online Resource Library houses annotations and, in most cases, PDF files for more than 600 published resources on MTM.

The APhA and the National Association of Chain Drug Stores (NACDS) have published *Medication Therapy Management in Pharmacy Practice: Core Elements of an MTM Service*.

This document provides a model framework for implementing effective MTM services in a community pharmacy setting.

Pharmacist-Administered Immunizations

As the demand for immunizations increases and accessing traditional providers of vaccines becomes more difficult, retail pharmacists can help address the general population's immunization needs. Public health officials and Healthy People 2020 support new and innovative settings to increase immunization coverage.^c All 50 U.S. States currently allow pharmacists to administer vaccinations,^d and the number of patients using and benefiting from these services is growing every year.

E-prescribing represents a first step toward more advanced models of health information exchange. The next step for pharmacies may be to deliver information into registries on the immunizations they have administered. Currently, most electronic immunization registries are Web-based and data must be entered manually; however, with the adoption of interoperable health IT systems, the process of updating registries should eventually become more automated through pharmacy information systems. In the future, pharmacists may also be in an ideal position to administer other injectable medications, with data on the administration of the medication being delivered into the prescriber's EHR and/or the patient's personal health record.

More information on immunization registries is provided below.



The Centers for Disease Control and Prevention (CDC) Web site offers information on immunization registries, also known as Immunization Information Systems (IIS). The Web site contains details on each State's IIS and explains how to connect to these sites. More information can be found at the following site:

- <http://www.cdc.gov/vaccines/programs/iis/providers.htm>

Collaborative Drug Therapy Management

Collaborative drug therapy management (CDTM) enhances appropriate medication use and improves patient outcomes by maximizing the expertise of both the prescriber and the pharmacist. Written guidelines and/or protocols can culminate in a collaborative practice agreement (CPA), whereby pharmacists can help patients with their medication regimens and take an expanded role in providing medical expertise. In particular, pharmacists with an EHR system can play a key role in helping patients with chronic health conditions and disease management.

^c <http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=23>

^d <http://www.immunize.org/laws/pharm.asp>

Timely and continuous access to patients' medical records through an EHR can allow pharmacists to play a key role in managing care among providers. For instance, a pharmacist can review a patient's medications after the patient is discharged from the hospital or emergency room and can transmit any recommendations for discontinuing, increasing, or reducing medications to the physician electronically for review. Duplicate therapies and drug interactions resulting from the care given by multiple providers (e.g., primary care physician, specialist, dentist, and hospital or emergency room physician) can be avoided.

Additionally, the use of an EHR also allows pharmacists to provide medication expertise by managing patients' chronic health conditions. The EHR allows pharmacists to review the physician's reasons for making a diagnosis, the patient's treatment history, and the physician's and patient's goals for care and long-range plans. By accessing patients' routine laboratory values, pharmacists can make informed recommendations for adjusting drug dosages in the face of hepatic or renal impairments. By viewing home monitoring device data, such as International Normalized Ratios (INRs) for patients on anticoagulation, pharmacists can provide dosage adjustments between clinic visits.

While most of these activities fall under the scope of pharmacy practice and do not require collaborative practice agreements, most State boards of pharmacy address the requirement of a CPA or protocol when pharmacists "initiate, modify, and/or discontinue drug therapy." A summary of State pharmacy laws can be found in the Survey of Pharmacy Law that is revised and published annually by the National Association of Boards of Pharmacy (NABP).

Medicaid, the Children's Health Insurance Program (CHIP), and Medicare are planning "medical home" pilots in over 31 States. There are increasing calls to include pharmacists in such medical home demonstration projects. Such projects could soon show the substantial contributions that pharmacist-provided medication management services supported by an EHR can make to promoting medication safety and improving disease outcomes. Pharmacists who have access to the patient's health information through health information technologies will be best poised to join medical home teams.

Congratulations! You have completed working through the toolset. Now that you understand how to plan for, implement and troubleshoot e-prescribing transactions you are ready to take advantage of this technology to move toward the new frontiers of pharmacy practice as a full participant in the health care team.

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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 other health information technology (IT), and also regulates the transmission, privacy, and security of patient data. All 50 States also 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.

It is important for e-prescribing pharmacies to have a basic understanding of the relevant Federal and State laws to ensure that they are using e-prescribing appropriately. The following sections provide a basic overview of privacy and security rules, Medicare Part D regulations, and rules relevant to the e-prescribing of controlled substances.

Privacy and Security Rules Surrounding the Transmission of Patient Data

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

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.

Pharmacies must maintain a **business associate agreement (BAA)** with the network organizations they connect to, limiting the use of data sent or received to purposes that are permitted under HIPAA. Similarly, prescribers must maintain BAAs with vendors, and vendors must maintain BAAs with the health information networks that route prescriptions to the pharmacies to limit the use of patient data to purposes that are consistent with HIPAA.



Further information is available at the following Web sites 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>.

Extensions of HIPAA. Congress recently strengthened and expanded HIPAA's privacy and security requirements with the passage of the Health Information Technology for Economic and Clinical Health (HITECH) Act, a section of the American Recovery and Reinvestment Act (ARRA). The most notable legal change affecting pharmacies is the extension of responsibility for breaches in privacy or security to business partners. In other words, pharmacy system vendors can now be penalized directly for breaches.

Security Breach Notification Mandate. HIPAA requires pharmacies, physicians, 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 HITECH Act included language that also makes business associates responsible for notifying individuals of a breach. Pharmacies should also be aware of individual State law requirements and guidance around these rules. Links to health information privacy resources from several individual States is available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/m2e411a1.htm>.

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.⁹ The key requirements for e-prescribing include credentialing and identity-proofing of prescribers by a certified third party (such as a local hospital), and extra security measures during prescriber log-in to the system. E-prescribing companies are expected to move ahead with technology development that fulfills these requirements, and it may be possible for the earliest adopters to begin transmitting controlled substance prescriptions by the third quarter of 2011. Until this technology is available and both the pharmacy and the prescriber are ready to meet the rule's requirements, DEA regulations require a written or "wet" signature on prescriptions for controlled substances.

The DEA rules require pharmacies to be able to import, display, and store the required contents of a controlled substance prescription accurately and consistently. Pharmacy management software needs to be able to digitally sign and archive the controlled substance prescription or import and archive the record that was digitally signed by the last intermediary. The application also needs to allow the pharmacy to restrict access to specific individuals for the annotation, alteration, or deletion of controlled substance prescription information. Finally, the application needs to have an internal audit trail that documents when a prescription is received, altered, annotated, or deleted.

You may want to check with your pharmacy management software vendor regarding their progress on meeting these requirements including when their audit and/or certification report functionality will be available. Also, keep in mind that your pharmacy management software will need to undergo this audit/certification every two years, or whenever a functionality related to controlled substance prescription requirements is altered.

Federal Register (March 31, 2010). *Interim Rule: Electronic Prescriptions for Controlled Substances*, 75(6), pp. 16235-16319. Available at http://www.deadiversion.usdoj.gov/fed_regs/rules/2010/fr0331.htm.



Further information is available at the DEA Web site to assist you in understanding the e-prescribing regulations relevant to controlled substances

- http://www.deadiversion.usdoj.gov/ecommm/e_rx/index.html

Medicare Part D E-Prescribing Requirement

Since April 1, 2009, organizations that participate in e-prescribing for Medicare Part D covered drugs have been required to comply with certain standards. In addition to handling the basic standards for prescriptions and prescription claims, Medicare Part D health plans must make their patient formulary, eligibility, and medication history available for provider access through e-prescribing systems. Pharmacies may notice that electronic prescriptions covered by Medicare Part D encounter fewer problems, such as non-formulary prescriptions. In addition, CMS will only allow computer-generated facsimile transmission for Medicare Part D prescriptions through Jan. 1, 2012. After that date, prescribers will need to use an e-prescribing system to transmit prescriptions electronically for Medicare Part D patients. This should result in a decrease in volume of faxed prescriptions for pharmacies that are already capable of receiving prescriptions electronically.

Financial Incentives for E-Prescribing

Incentives and Support for Getting Started

Some States and health plans offer incentive programs and other support for pharmacies beginning to process electronic prescriptions. Before you implement, check with the predominant health plan in your market to see if it offers incentives for adoption and/or use of e-prescribing in pharmacies. For updated information about programs in your area, check the Web sites for your State's Board of Pharmacy, and other organizations that track e-prescribing programs, such as State or local health information exchanges.



Pharmacy Incentive

An example of a State that offers incentives to pharmacies that are processing electronic prescriptions is New York. Pharmacies can receive \$0.20 per dispensed Medicaid e-prescription. Pharmacies must be enrolled in New York Medicaid Fee-for-Service (FFS) and its National Provider Identifier (NPI) number must be on file with New York Medicaid to be eligible. For further information, visit the Web site below:

http://www.nyacp.org/files/Medicaid_e-prescribing_NOV09.pdf

Support for Implementing E-Prescribing

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 system vendors. Pharmacies that are new to e-prescribing can look first to their local professional association to leverage best practices and identify successful ways to overcome challenges in their own communities.

State Health Information Exchange (State HIE) Cooperative Agreement Program. This program was funded under the HITECH Act and provides funds to build capacity for exchanging health information across the health care system both within and across States, which includes an examination of how to better support pharmacies' adoption of e-prescribing.

Regional Extension Centers. The HITECH Act also authorized the Health Information Technology Extension Program which includes Health Information Technology Regional Extension Centers (RECs) that assist physicians in implementing electronic health records (EHRs) and in achieving "meaningful use" of their EHRs, which includes a requirement for e-prescribing. Thus, an increase in e-prescribing volume is expected to occur over the next few years. Though the RECs primarily provide assistance to health care providers, pharmacies may receive indirect benefits from their local REC when physicians who are struggling with e-prescribing receive assistance.



To learn more about HIEs funded under the State HIE Cooperative Agreement Program in your area, visit the Office of the National Coordinator of Health IT (ONC) Web site at <http://healthit.hhs.gov/statehie>. Pharmacies interested in working with a local HIE should identify their local HIE on the ONC Web site and review the services in their region that may be available to support implementation of health IT, including e-prescribing.

To learn more about RECs in your area, visit the ONC Web site at <http://healthit.hhs.gov/rec>. Pharmacies interested in working with a local REC should identify their local REC on the ONC Web site and review the services in their region that may be available to support implementation of health IT, including e-prescribing.

Other resources. Because e-prescribing is becoming more prevalent with each passing year, new support resources are increasingly becoming available. Check with professional pharmacy associations to see what may be newly available. Recently, nine pharmacy organizations announced the launch of the Pharmacy e-Health Information Technology Collaborative, which will focus on addressing the needs of pharmacies in health IT infrastructure.



Further information on the Pharmacy e-Health Information Technology Collaborative is available at its Web site: <http://www.pharmacyhit.org>. The initiative is a collaboration among 9 non-profit pharmacy professional organizations (Academy of Managed Care Pharmacy, Accreditation Council for Pharmacy Education, American Association of Colleges of Pharmacy, American College of Clinical Pharmacy, American Pharmacists Association, American Society of Health-System Pharmacists, National Alliance of State Pharmacy Associations, and the National Community Pharmacists Association.)

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 pharmacy peers are your greatest resource. Organizations including the eHealth Initiative (at <http://ehealthinitiative.org/reports.html#eprescribing>), and the American Pharmacists Association, maintain online resources that can help with implementation of e-prescribing and, perhaps more important, can be used to identify local initiatives for coordinating e-prescribing activities and tackling the issues that arise.

If there is already a local e-prescribing initiative for 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 (including both prescribers and pharmacists) and to involve local proponents and experienced users who can provide trustworthy expertise. The following example illustrates a successful regional initiative.

E-Prescribing Collaborative



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.

Investing time to understand your own local e-prescribing environment will be important as you move on to implement e-prescription handling, begin to process electronic prescriptions, and look ahead to delivering advanced services and greater participation in efforts to re-organize health care delivery.