INSIGHTS

CONTINUING EDUCATION ACTIVITY

Moving Forward With Pharmacy Automation: e-Prescribing and Telepharmacy

RELEASE DATE: JUNE 2003
EXPIRATION DATE: JUNE 30, 2004

Learning Objectives

After completing this activity, the participant should be able to do the following:

1. Explain the premise of e-prescribing.
2. List three functions of e-prescribing products.
3. Describe advantages and disadvantages of e-prescribing.
4. Discuss the potential impact that e-prescribing will have on independent pharmacies.
5. Describe the basic concept of telepharmacy and its advantages to patients and pharmacists.

Target Audience

This activity is designed to meet the educational needs of retail pharmacists.

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Disclosure

Dr. Sorrentino and Dr. Pacitti have indicated that this activity does not include the discussion of unlabeled uses of commercial products or products that have not yet been approved by the FDA for use in the United States for any purpose.

Dr. Sorrentino has indicated that he has no significant relationships with the grantor or any other commercial company whose products and services are discussed in this material.

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Commercial Support

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Activity Instructions

Participants will read the entire article, including all tables, figures, and references. Participants will then complete the post-test and registration and evaluation forms, which follow the activity. To receive a statement of credit, participants will need a score of at least 70% on the post-test. The post-test and registration and evaluation forms must be completed and returned no later than June 30, 2004. It should take approximately 1 hour to complete this activity as designed. Statements of credit will be mailed within 3 to 4 weeks of receipt of the post-test. There is no registration fee for this activity.

The latest interest in pharmacy technology and automation is e-prescribing connectivity and telepharmacy. At first glance, these technologies may seem designed to displace the pharmacist. Where does the pharmacist fit in a more automated health-care system? What's in it for the pharmacist?

As discussed in the previous issue of ***Insights***, multiple pressures are driving pharmacies toward safer and more efficient operations. Every year, countless medication errors occur as a result of miscommunication of oral prescriptions or misinterpretation of illegible handwritten prescriptions. What if prescriptions were electronically submitted to the pharmacy? How many of these mistakes could be prevented? How much time could such technology save the pharmacist and physician by reducing phone calls made to confirm handwriting?

Of course, illegible handwriting is only one of many problems with which the pharmacist must deal in day-to-day operations. Most pharmacists would probably say that most of their unreimbursed time was spent resolving reimbursement issues. How many minutes (or collective hours) do pharmacists spend on hold with insurance companies waiting to discuss *NDC Not Covered* issues or explaining *Refill Too Soon* to patients or contacting physicians to ask them to switch their patients to formulary medications? Most of us would answer "more time than I'd like to spend."

Another problem that must be addressed is the nationwide shortage of pharmacists. Although the shortage exists across the country, areas particularly affected by this are remote rural areas where it is often financially and otherwise impossible to establish and maintain a pharmacy or attract and sustain a licensed pharmacist.

New technologies, such as e-prescribing and telepharmacy, offer creative solutions to these complex problems.

e-Prescribing

So, what is e-prescribing? The term suggests that the physician is able to electronically send the pharmacist a prescription, similar to how we use e-mail. If this were the extent of e-prescribing, its advantages would be limited to eliminating the problem of interpreting illegible handwriting. However, e-prescribing has the potential to do much more.

e-prescribing is a new enterprise that uses computer technology to link the physician's office with two important stakeholders in the prescription writing process: namely, the pharmacist and the pharmacy benefit manager (PBM). When a medical practice installs an e-prescribing system, the basic configuration is as follows: the physician's office computer is linked to a central computer server provided by an e-prescribing vendor. It contains PBM formularies, drug interaction files, and a drug information database. The server is used to update this information regularly in the physician's practice management office computer. The system also allows for the physicians to access information and to write prescriptions from a hand-held prescribing device (a customized PDA) that is linked to the office computer. It can be used in the examining room or away from the office. In the ideal e-prescribing system, the physician will be able to use a hand-held device to do the following[1]:

- Select the patient, and view the current insurance plan, age, weight, and other demographic information.
- Select a medication from an alphabetic scrolling list that includes information specific to the patient's insurance plan.
- Check for allergies and drug interactions against the list of the patient's previously prescribed drugs.
- Specify the drug dose, quantity, directions, and refills.
- Digitally sign the prescription, and send it electronically to the patient's pharmacy.
- Print the prescription if the prescriber's state requires an actual signature.
- Save the prescription in the patient's file for generating rapid renewals in the future.

In today's standard practice model, drug–drug interactions, drug–allergy interactions, nonformulary medication, and patient eligibility issues are often not identified until the time of claim adjudication in the pharmacy. As a result, prescriptions frequently need to be changed. There is probably nothing more confusing or frustrating for a patient and physician than to spend valuable time in the office discussing a drug therapy plan, only to have the patient arrive at the pharmacy to find that the medication must be changed. e-prescribing allows these types of issues to be addressed early so they can be avoided later on.

Some e-prescribing systems allow the physician to electronically write and send the prescription directly to the PBM for approval. Any reimbursement issues, such as *Nonformulary Medication, Refill Too Soon,* or *Coverage Terminated,* can be addressed while the patient is still in the office and before the prescription and patient reach the pharmacy.

Not only would the pharmacist appreciate the benefits of e-prescribing—receiving a "clean" prescription—but physicians would also appreciate the ability to resolve such issues at the time of prescribing, rather than having to field dozens of calls per day from frustrated pharmacists and patients.

Although not widespread yet, e-prescribing technology is available and is currently being pilot tested. The Tufts Health Plan of Waltham, Massachusetts, reported these results of a 1-year e-prescribing trial[2]:

- The number of phone calls and faxes received by the doctors from pharmacists inquiring about drug formulary issues dropped by 76%, saving 2 hours per day per physician (approximately 10 minutes per patient).
- Prescriptions were generated in half the time it takes to write them.

- Influencing doctors to prescribe more generics and preferred drugs over nonpreferred brand drugs saved money. Physicians had instant access to formulary information while the patient was in the office.
- Patient safety was improved by having drug-interaction information up front and by creating perfectly legible prescriptions.

Citing fewer difficulties for physicians, improved patient safety, and lower drug cost, Tufts Health Plan said that it might expand the use of e-prescribing.

If the experience of Tufts Health Plan is typical, it is not surprising that PBMs are a driving force behind e-prescribing. Three major PBMs—AdvancePCS, MedcoHealth, and Express Scripts, Inc.— have invested $60 million to create an online information exchange service (RxHUB) that will link physicians' offices to pharmacies and the PBM.[3] This allows the PBM to be in the physician's office guiding drug-therapy decisions, increasing the probability that the drug selected will be a generic or a preferred brand. At that point, the doctor will also be able to know if the patient still has coverage. If so, the system can guarantee that the prescription will be filled without incident, and there will be no phone calls or problems to deal with.

This is a win-win situation for the PBM, physician, pharmacist and patient. But, it has not gone unnoticed that the major PBMs own and operate their own mail-order pharmacies. It is possible that while they are influencing the doctor to prescribe what they want prescribed, they may also influence the destination of the electronic prescription: namely, their own mail-order pharmacy. Therefore, it is not surprising to learn that community pharmacists, through their professional organizations, have created their own online information exchange system (SureScripts Systems). They are hoping that by lining up a critical mass of pharmacies, they will be able to persuade physicians and information system vendors to use SureScripts Systems. In November 2002, it was reported that SureScripts, owned by the National Association of Chain Drug Stores and the National Community Pharmacists Association, has signed up 16 pharmacy chains, representing more than 21,000 of the nation's 55,000 community pharmacies.[4]

In 2001 the PBMs estimated that 5% of the country's physicians were prescribing electronically.[3] This indicated that e-prescribing has obstacles to overcome. For example, some physicians still believe that computers are too cumbersome to use, and they are usually perceived as too expensive.[5] In addition, some may have concerns about the compatability of their current systems with these newer systems and concern over the lack of system standards, fearing that the numerous PBMs and pharmacies they commonly deal with may end up supporting different systems. Also, many physicians perceive this as technology that they alone would financially support, but that would benefit everyone but them. And, some physicians believe that they can write a prescription faster than generating one on a hand-held device or a computer terminal.

As mentioned earlier, the stakeholders in e-prescribing are PBMs, physicians, pharmacists, and patients. The advantages to each group are summarized below.

Pharmacy Benefit Manager (PBM)

- Reduced medication cost by influencing a greater use of generics and preferred brand name drugs
- Fewer phone calls received from physicians and pharmacists
- Less paperwork for staff (faxes, letters, etc.)

Patient

- Fewer difficulties over prescription insurance coverage
- Prescriptions ready for pick-up
- Medications started without delay
- Potential for most cost-effective therapy with subsequent cost savings

Physician

- Significant reduction in number of phone calls related to formulary and handwriting issues
- Half time to create an e-prescription
- Medication history available; drug interactions and/or duplicate therapy flagged up front
- Possible financial benefit through improved formulary compliance

Pharmacist

- Clean claims; fewer phone calls to physicians, PBMs, and patients
- Fewer handwriting problems or issues; fewer mistakes because of misreads
- More time spent helping physicians and patients with drug therapy matters and disease-state management
- Competitive edge over pharmacists who do not participate[5]

However, it is estimated that 20% of US physicians will be using hand-held devices for e-prescribing by 2004, probably in part because physicians in training are already using PDAs for personal use and are comfortable with their applications.[6] As e-prescribing technologies become easier to use and less expensive, it is likely that the number of physicians adopting it will continue to increase. Managed-care plans will eventually start demanding these electronic capabilities from their network physicians and pharmacists. Those with systems in place will more likely have business opportunities directed toward them.[5]

Telepharmacy

One of the most exciting and innovative approaches to providing pharmacy services during a time of pharmacist shortage is the concept of telepharmacy. Telepharmacy involves integrating telecommunications, pharmacy software, and remote-controlled dispensing technology to support a hub-and-spoke pharmacy model in which a central pharmacy—staffed with pharmacists—is electronically linked to single or multiple off-site narcotic-secure drug cabinets that may reside in physician offices, local and remote clinics, emergency rooms, surgicenters, long-term care facilities, correctional facilities, or other difficult-to-serve points of outpatient care.

Telepharmacy involves electronic transmission of a prescription order from the remote location to the central pharmacy. There, the order is reviewed and verified by the pharmacist who then authorizes and oversees automated dispensing of the needed medication from the prefilled drug cabinet at a distance. If necessary, Web-Cam (or real-time televideo) can enable face-to-face consultation between the pharmacist and physician or patient.

However fascinating the concepts, the widespread use of such systems requires that certain issues first be addressed. For example, what impact do practice guidelines written and enforced by state boards of pharmacy have on system use? Who owns and maintains the system: The pharmacy? The medical facility? Who is responsible for repackaging medications, stocking the cabinet, and returning to remove expired products? How often? Can the cabinet accommodate refrigerated products? How are controlled substances handled? How many different medications can be stocked in the cabinet? Given size and space limitations, it is expected that only select, high-demand medications would be stocked. This limits the physician's therapeutic choices, and may prove problematic when trying to prescribe within various PBM formularies. How is the pharmacy reimbursed for medications and other services?

At present, such systems are primarily used by federal agencies such as the Department of Veterans Affairs and the Indian Health Service. However, telepharmacy systems are beginning to be used in remote locations, such as parts of North Dakota or Texas.

Telepharmacy offers numerous advantages for the patient, including increased convenience, reduced waiting time, and increased access to medications and pharmacists in locations where a full-time, on-site pharmacist may not be available.

Fairview/University of Minnesota Health System, headquartered in Minneapolis, is one of the largest and most progressive integrated health networks in the country. It owns and operates dozens of outpatient clinics and other health-care facilities throughout Minnesota and adjoining states. Most of its outpatient facilities' prescription volumes were not large enough to cost-justify a brick-and-mortar pharmacy or even the services of an on-site pharmacist. Consequently, when patients received a prescription, they had to drive long distances to have it filled somewhere else, and Fairview lost significant prescription revenue.

In late 1998, Fairview installed the Telepharmacy Solutions, Inc. (TSI), Automated Drug Dispensing System (ADDS) outpatient point-of-care dispensing units in one of its clinics. The positive benefits so impressed management that four more were quickly ordered. And other units soon followed. All the TSI units are now functioning at very low cost and generating substantial new incremental revenue from patient prescriptions, which, in the past, were lost to the institution.

From a pharmacy perspective, this technology offers new profit centers, avoids costs associated with maintaining a traditional brick-and-mortar pharmacy, and maximizes the use of one of its most precious resources: its pharmacists. By using telepharmacy, distributive functions are relegated to machines that are virtually controlled by pharmacists who are able to provide valuable medication counseling and drug information services to patients and physicians—even those in remote locations—from a distance and without having to be physically present.

Summary

Technologies such as e-prescribing and telepharmacy can represent a double-edged sword. Pharmacies that are able to position themselves within networks of pharmacies equipped to receive and process electronic prescriptions are likely to increase their customer bases and business opportunities. Pharmacies that find themselves shut out of such networks may see prescriptions diverted to competing local or mail-order pharmacies. Although these technologies are not in widespread use today, the independent pharmacist must be aware of these trends that are likely to vastly change the way pharmacy is practiced in the future.

References

1. Fox GN, Weidmann E, Diamond DE, Korbey AA. Hand-held electronic prescribing. *J Fam Pract*. 2001;50:449-454.
2. Chin T. Tufts health plan reports success in e-prescribing trial. *AMednews*. Available at http://www.ama-assn.org/sci-pubs/amews/pick_02/bise1014.htm. Accessed 5/16/2003.
3. Chin T. PBMs make their way into electronic prescriptions. *AMednews*. Available at http://www.ama-assn.org/sci-pubs/amnews/pick_01/tesb0326.htm. Accessed 6/5/2003.
4. Chin T. Software allows electronic prescribing direct to pharmacy. *AMednews*. Available at http://www.ama-assn.org/sci-pubs/amnews/pick_02/bisd1111.htm. Accessed 6/5/2003.
5. Sardinha C. Electronic prescribing: the next revolution in pharmacy. *J Managed Care Pharm*. 1998;4.
6. Elson R. Electronic prescribing in ambulatory care: a market primer and implications for managed care pharmacy. *J Managed Care Pharm*. 2001;7.

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Your statement of credit will be mailed within 3 to 4 weeks of receipt of your post-test.

I certify that I have participated in this educational activity as designed.

Signature _____ Date _____

Post-Test Answer Sheet

Please circle one answer per question. A score of at least 70% on the post-test is required.

1.	a	b	c	d
2.	a	b	c	d
3.	a	b		
4.	a	b		
5.	a	b	c	d
6.	a	b	c	d
7.	a.	b	c	d
8.	a	b	c	d
9.	a	b	c	d
10.	a	b	c	d

TO RECEIVE CREDIT, YOU MUST COMPLETE THIS ACTIVITY BY JUNE 30, 2004.

EVALUATION

Please evaluate the achievement of the activity objectives using a scale of 1 to 5 (1 = not met, 3 = partially met, 5 = completely met).

OBJECTIVES

At the conclusion of this activity, participants should be able to do the following:

1.	Explain the premise of e-prescribing.	**1**	**2**	**3**	**4**	**5**
2.	List three functions of e-prescribing products.	**1**	**2**	**3**	**4**	**5**
3.	Describe advantages and disadvantages of e-prescribing.	**1**	**2**	**3**	**4**	**5**
4.	Discuss the potential impact that e-prescribing will have on independent pharmacies.	**1**	**2**	**3**	**4**	**5**
5.	Describe the basic concept of telepharmacy and its advantages to patients **and pharmacists.**	**1**	**2**	**3**	**4**	**5**

Please indicate the extent to which you agree or disagree with the following statements (1 = strongly disagree, 3 = not sure, 5 = strongly agree).

6.	The information presented in this activity was pertinent to my educational needs.	**1**	**2**	**3**	**4**	**5**
7.	The information presented was thorough and up to date.	**1**	**2**	**3**	**4**	**5**
8.	The activity medium was conducive to learning.	**1**	**2**	**3**	**4**	**5**
9.	This material was presented in a fair and balanced manner.	**1**	**2**	**3**	**4**	**5**
10.	This activity encouraged me to seek out additional information on this topic.	**1**	**2**	**3**	**4**	**5**

Post-Test

Please select one answer per question, and place your answers on the post-test answer form.

1. **e-prescribing systems may have which of the following capabilities?**
   a. Remote dispensing
   b. Incorporating of a Web-cam to enable face-to-face consultation
   c. Linking physicians' offices electronically to Pharmacy Benefit Managers (PBMs) and pharmacies
   d. All of the Above

2. **The central computer server provided by an e-prescribing vendor would contain which of the following?**
   a. Individual pharmacy's inventory management files
   b. Patient information such as date of birth and medication allergies
   c. PBM formularies, drug information files, and a drug information database
   d. All of the above.

3. **As electronic capabilities for e-prescribing evolve, managed-care plans will demand this form of prescription generation.**
   a. True
   b. False

4. **e-prescribing systems enable a physician to write prescriptions from a customized PDA.**
   a. True
   b. False

5. **All of the following are benefits of e-prescribing to pharmacists, EXCEPT:**
   a. e-prescribing systems include a mechanism to remind patients to pick up prescriptions
   b. Receipt of clean claims; no concerns that prescriptions would not be approved by PBMs
   c. Fewer mistakes related to misreading illegible handwriting
   d. More time to help patients on drug therapy matters

6. **Which of the following is true regarding SureScripts Systems?**
   a. It was developed by AdvancePCS, Medco Health, and Express Scripts, Inc.
   b. It is owned by the National Association of Chain Drug Stores and the National Community Pharmacists Association.
   c. As of November 2002, it has signed up six pharmacy chains.
   d. a and c

7. **In a 1-year pilot-test, the Tufts Health Plan experienced all the following improvements EXCEPT:**
   a. e-prescriptions were generated in about the same amount of time as handwritten prescriptions.
   b. Patient safety was improved.
   c. The number of phone calls and faxes sent to physicians by pharmacists inquiring about drug formulary issues decreased by 76%.
   d. Decreases in verification of formulary issues saved 2 hours per day per physician

8. **As an indication that e-prescribing still has obstacles to overcome, in 2001, what percentage of physicians in the United States were prescribing electronically?**
   a. 2%
   b. 5%
   c. 15%
   d. 17%

9. **Telepharmacy has been shown to be beneficial in servicing which types of areas?**
   a. Cities
   b. Suburbs
   c. Rural or remote locations
   d. All of the above

10. **Which of the following is true regarding telepharmacy?**
    a. Distributive functions are allocated to machines
    b. It is used primarily by federal agencies such as the Department of Veterans Affairs
    c. Pharmacists review and verify prescriptions and then oversee dispensing of the medication from a pre-filled drug cabinet
    d. All of the above

General Comments and Suggestions: