

Mandating of Electronic Prescriptions for Medicare Patients

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Abstract

Adverse drug effects (ADEs) among the over 65 population are a serious concern. The most common causes are the wrong drug, wrong dose, insufficient patient education, or a drug/drug interaction (Gurwitz et al. 2003). Using an electronic prescription program that incorporates clinical decision support is a solution to preventing ADEs. An additional benefit from e-prescribing is a reduction in health care costs. Through the technology, physicians will be aware of the patient's drug coverage and alternate drug choices for the disease. The slow adoption of e-prescribing by physicians can be mitigated if Medicare mandates electronic prescriptions.

Gurwitz, J. H., Field, T. S., Harrold, L. R., Rothschild, J., Debellis, K., Seger, A. C., et al. (2003). Incidence and preventability of adverse drug events among older persons in the ambulatory setting. *JAMA*, 289(9), 1107-1116.

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Policy Problem

In this country, with over three billion prescriptions written every year (Aspden, 2007), adverse drug effects (ADEs) are a significant risk to the American population. Fatal ADEs are among the six leading causes of death (Gallagher, Barry, & O'Mahony, 2007).

Both preventable and non-preventable adverse drug events among older persons are a serious concern, with more than a quarter of those ADEs preventable (Gurwitz et al., 2003). Preventable ADEs are defined as errors in “prescribing, transcribing, dispensing, consuming or monitoring” (Johnston, 2003). 1.9 million ADEs are estimated to occur annually among 38 million Medicare patients, with approximately 10% life threatening or fatal (Gurwitz et al., 2003). Compared to the under 65 population, older adults were more than two times likely to require an emergency department visit and seven times more likely to require hospitalization for an ADE (Budnitz et al., 2006). The most common causes of ADEs among older persons are the wrong drug, wrong dose, insufficient patient education, or a drug/drug interaction (Gurwitz et al., 2003).

The greatest number of prescribed medications is consumed by women 65 years of age and older (Gallagher, et al., 2007). On a weekly basis, 90% of the over 65 population uses at least one drug per week, 40% use five or more, and 12% use 10 or more (Gurwitz et al., 2003).

Without any change in the system of prescribing drugs, ADEs will continue to increase. A review of ADEs reported to the FDA from 1998 to 2005 showed a 2.6 fold increase from 34,966 to 89,842 and fatal events increased 2.7 fold from 5519 to 15,107 (Moore, Cohen, & Furberg, 2007). Adults 65 and older accounted for 33.6% of these events (Moore et al., 2007).

The problem of ADEs was brought to the nation’s attention in 2000 by The Institute of Medicine in the book *To err is human: building a safer health system*. It concluded that

medication errors are the most common type of health care error (Aspden, 2007). While the Institute did not specifically recommend electronic prescribing as a solution to the problem in 2000, their latest report (2007) does advocate that all prescriptions should be written electronically with pharmacies electronically enabled to receive them by 2010 (Aspden, 2007).

Background

According to the Department of Health and Human Services, e-prescribing is defined as “the transmission using electronic media, of prescription or prescription-related information between a prescriber, dispenser, pharmacy benefit manager, or health plan, either directly or through an intermediary, including an e-prescribing network” (*Medicare program; e-prescribing and the prescription drug program; Final rule*, 2005). The various e-prescribing technologies include a hand-held device, a computer, a tablet PC, a smart phone, web browser and the internet. The most obvious advantage to using a basic script writing system is the reduction in errors due to poor handwriting. The most sophisticated system includes clinical decision support and produces the best result. As each prescription is written, the computer can check for and alert the prescriber to excessive dosage, the patient’s known allergies, interactions with other medications, promotion of appropriate drug usage for the condition being treated using evidence based decision support, and information about the patient’s drug coverage. In the older population, the Beers criteria can alert physicians to medications to be avoided.

In-hospital studies show that the highest rate of prescribing success is with systems that have integrated decision support for drug selection, dosing and monitoring as compared to those systems with minimal decision support (Nebeker, Hoffman, Weir, Bennett, & Hurdle, 2005). By using computerized protocols, prescriptions were “more than three times less likely to contain errors and five times less likely to require pharmacist clarification than were HW

prescriptions” (Bizovi et al., 2002). A study in 1998 found that a computerized system decreased by half the number of medication errors in a hospital setting (Bates et al., 1998).

Stakeholders

Due to the economic, business and medical effects of implementing a mandated electronic prescription policy, there are many stakeholders. Physicians, pharmacists and patients all have a major stake. Physicians, due to their presently low adoption rate, are key to the program’s success. Although the concept of e-prescribing is endorsed by The American Medical Association (Young, 2007), a study conducted by the Pharmaceutical Care Management Association found that one in ten physicians uses e-prescribing on a regular basis (Ferris, 2007). Pharmacies are much further along in adopting the necessary technology with 66% able to receive e-prescriptions from 10% of the e-prescribing physicians (Lapane, 2007).

Patients have very little direct input in the implementation of the system, but hopefully, if the system works optimally, they will be first to reap the benefits.

Businesses that stand to profit from the mandate are the pharmacy benefits managers (PBMs), the pharmaceutical companies, informatics firms (contract researchers), information technology vendors, and the government (Medicare) as payer. The PBMs have a large stake in the mandate. They administer the pharmaceutical portion of Medicare and other health insurers and manage drug utilization by creating preferred drug lists and formularies, but also have their own mail-order operations. The pharmaceutical companies must aggressively position themselves on the PBMs’ formularies. The information technology vendors sell their products for implementing the mandate to the healthcare providers. Medicare sets the standards under which all of the above operate and benefits from cost savings generated from the decrease in ADEs as well as changes in formularies (Sarasohn-Kahn & Holt, 2006).

Policy Issue Statement

Should Medicare mandate electronic prescribing in order to reduce the number of drug-induced injuries and deaths?

Policy Objectives and Options

The ultimate goal of federally mandated electronic prescribing is to protect the Medicare population from errors in the medication prescribing process.

Other Objectives:

1. By using clinical decision support in the e-prescribing process, cost savings are expected. Many physicians do not know the cost of the drug they are prescribing, but with integrated support, are willing to consider choosing an alternative drug (Korn, Reichert, Simon, & Halm, 2003). A study in Canada showed a savings of \$6 million a year for over 30,000 patients (\$2000/patient) when physicians chose the lowest price drugs in their class after prompting from the system (Corley, 2003). Many older persons underuse their medications because they can't afford them (Pollock, Bazaldua, & Dobbie, 2007). By using lower priced drugs, not only are medications more affordable, but another cause of ADEs – omission of needed medication – is reduced.
2. Reduced numbers of ADEs lower medical care costs. The cost of an ADE ranges from \$2000 to \$4700 per incident not including the cost of hospitalizations (Corley, 2003).
3. The movement of e-prescribing as the standard for prescriptions in the general population, further reducing ADEs and health care costs.

Policy Options and Alternatives

1. The “No Action” Option: Make no changes in the Medicare Modernization Act and allow voluntary adoption of e-prescribing. The Department of Health and Human Services,

Centers for Medicare & Medicaid Services, published standards for an electronic prescription drug program for those who wanted to use e-prescribing in the Medicare Modernization Act of 2003. However, they did not mandate it (*Medicare program; e-prescribing and the prescription drug program; Final rule*, 2005). Without a mandate, progress will be slow but eventual. As hospitals move towards computerized physician order entry with decision support and physicians become more familiar with and see the advantages of the process, it may be the incentive needed to update their offices. The PBMs will clamor for widespread use and large chain pharmacies have already embraced e-prescriptions. Several states have started their own push towards e-prescribing. Kentucky is offering grants to offset costs for clinicians. New Hampshire wants to be the first state in the country where all of its providers can prescribe electronically (Love, 2007). As of September 2007, all 50 states have passed changes to state laws to allow e-prescribing (Monegain, 2007). If Medicare does not mandate electronic prescribing, it may lose the opportunity to set federal standards to pre-empt state law.

2. The PBMs could require e-prescribing in order to pay benefits, but their motives would likely be primarily for their benefit, rather than to decrease ADEs.
3. Instead of a mandate, encourage voluntary cooperation by giving financial incentives to prescribers, such as grants and tax breaks.

Evaluation of Effectiveness of Policy

Evaluation Criteria

1. Measure the change in ADEs after the mandate is in place
2. Measure the number of prescribers and pharmacists adopting e-prescribing
3. Measure the cost savings of e-prescribing after the mandate is in place

Impediments to the Proposal

Any technology has the potential to introduce new errors into the system. A change of long-standing behavior in conjunction with new technology necessitates intensive training and patience. “The rational and effective use of e-prescribing requires that administrators, developers and clinicians pay careful attention to potential problems through a continuous quality-improvement process after implementation” (Ruiz & Hagenlocker, 2006).

Physicians are the biggest stumbling block to general acceptance of e-prescribing. Their concerns include the expense to equip their offices, the learning curve required to use the system, the extra time required to use the computer instead of picking up a pad, HIPAA and confidentiality issues, as well as error rates in the software (Ruiz & Hagenlocker, 2006; "Talking Points on Electronic Prescribing Provisions in Medicare Prescription Drug Legislation," 2003). Physicians do, however, acknowledge that it may be safer for the patient (Blair, 2006). Potentially, some physicians will view the system as telling them how to practice medicine.

Verbal communication between the prescribers and pharmacies must continue in spite of the use of electronic communication. In a personal conversation I had with a pharmacist, he told me a story of receiving a clearly printed out prescription for quinidine. It turned out that the physician had wanted to prescribe quinine, not quinidine. He had used his PDA to find the drug on a drop-down list and had clicked on the wrong drug. The pharmacist tried speaking with the physician upon first receiving the prescription but was unable to reach him to verify it. The next day the patient questioned the drug with the pharmacist and it was eventually straightened out without any harm. The pharmacist related the story to me because although he sees the value in e-prescribing, he wants pharmacists and physicians to talk to each other, which apparently happens rarely (W. Brown, personal communication, September 28, 2007).

Summary and Recommended Policy

With the population in this country aging and the subsequent use of more medications, adverse drug effects will increase unless an electronic prescription system with integrated decision support for drug selection, dosing and monitoring is put into place. However, without physician adoption, the program has no chance of success. Without mandating the change, it will take too many years to be embraced. Medicare should create a funded mandate for electronic prescriptions to alleviate the main concern of the physicians. The Pharmaceutical Care Management Association's claim that Medicare can save \$26 billion in health care costs over the next 10 years includes spending \$8 billion in physician incentives (Ferris, 2007). Alternatively, the government can turn to private industry to supply physicians with the necessary technology to implement the program. However, it may lead to questions of undue influence, confidentiality and privacy.

It is very likely that Medicare will mandate electronic prescribing, but it's unclear if it will provide funding. The Centers for Medicare and Medicaid Services have moved forward and conducted pilot testing in several sites to establish prescribing standards. Final standards are to be promulgated by April 2008 and put into effect a year later (Foxhall, 2007; *Pilot Testing of Initial Electronic Prescribing Standards - Cooperative Agreements Required Under Section 1860D-4(e) of the Social Security Act as Amended by the Medicare Prescription Drug, Improvement, and Modernization Action (MMA) of 2003*, 2007).

Only with a funded mandate can we make the transition from paper to electronic prescriptions. If Medicare took the initiative to bring the process of prescription writing into the 21st century, the result would be a dramatic reduction in unnecessary deaths, medical complications and costs.

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