

## **E-PRESCRIBING FROM THE PRIMARY CARE CLINICIAN'S PERSPECTIVE**

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I would like to take a moment to share the practicing primary care physician's perspective on the current state and future directions of e-prescribing. I am a family physician and divide my time between seeing patients, conducting health information technology research in a statewide primary care practice based research network (PBRN), and teaching medical students and residents. My practice, Fairfax Family Practice Centers, is a collection of ten private family medicine offices that care for more than 400,000 unique patients in Northern Virginia. Since 2004, we have successfully used a comprehensive electronic health record that includes paperless record keeping, e-prescribing, integrated clinical decision support, laboratory and radiology interfaces, electronic billing, secure patient messaging, automated quality performance measurement, and a registry for population management. The PBRN in which I conduct my research, the Virginia Ambulatory Care Outcomes Research Network, is managed by a multidisciplinary research team in Virginia Commonwealth University's Department of Family Medicine. The network is a collection of almost a hundred primary care practices across the state, spanning five health systems, and representing the full spectrum of primary care practice structures and cultures. The network is a real-world research laboratory designed to study how to better provide primary care. I am also an active member of the American Academy of Family Physicians (AAFP) and serve on the research arm of the academy's health information technology committee.

The perspectives that I share represent the experiences shared and views expressed by my practice partners, research team, PBRN member practices, and fellow AAFP health information technology committee members.

**Current benefits.** e-Prescribing has great potential to improve the quality of care. The use of e-prescribing and HIT in general are fully endorsed by the AAFP which provides its members multiple educational and advocacy resources to support use nationally. Many of the benefits of e-prescribing can and are being realized by merely implementing a system – prescriptions are more legible, systems include basic reminders (dosing, formularies, and generic alternatives), and medication documentation is improved. Patients also seem to appreciate e-prescribing. I can now tell my patient, prior to even leaving the exam room that their pharmacist already has their prescription and that they can go right to the pharmacy and pick it up. If things go well, maybe the pharmacist will even have the prescription filled and waiting for the patient.

The most basic element required to ensure that an e-prescribing system is used in clinical practice is that it must be implemented properly and effectively integrated into a practice's clinical work flow. Prior to adopting an EMR, my practice attempted to implement a free standing e-prescribing system. We had extremely poor uptake of the system and it was discontinued in less than a year –even by me, an ardent proponent of technology. Conversely, all the clinicians in my practice adopted and used e-prescribing when our offices became paperless

and implemented an EMR that included e-prescribing. As part of the EMR implementation process, computers were used in the exam room during patient encounters, allowing real time e-prescribing; sending e-prescriptions functioned to document care and populate patient records; and once entered electronically, renewing prescriptions became more efficient.

**Current limitations.** Despite the clear benefits of e-prescribing, there remain many limitations that both decrease the adoption of e-prescribing and prevent e-prescribing from realizing its full clinical potential (i.e. meaningful use). Many practices report that e-prescribing is not always reliable. Interruptions between practice's or pharmacy's interface with Surescripts and problems with the Surescripts' hub itself can prevent prescriptions from reaching pharmacies. These difficulties are not realized until long after patients leave the office, resulting in increased and duplicated practice work, inconveniences for patients, and therapeutic delays. Currently, e-prescribing does not work for all prescriptions. Prescriptions for controlled substances cannot be sent electronically, despite the fact that prescriptions sent through electronic portals could be more secure and less amenable to tampering than the current written prescriptions. Many mail order and military pharmacies will not accept e-prescriptions. The mail order pharmacies that do accept e-prescriptions, often seem unable to process them and patients never receive their prescription. Poor reliability and not being able to adopt an electronic workflow for all prescriptions negatively reinforce the uptake of e-prescribing.

Frequently, patients' medication information is difficult to maintain in e-prescribing systems. While systems keep historical records of all medications prescribed, active medication lists easily become cluttered with acute, short term medications and long outdate medications – potentially resulting in a new cause for medical errors. The current e-prescribing decision support is very rudimentary. Many systems can provide prompts for drug interactions, drug duplication, formulary recommendations, and generic alternatives. However, in practice, much of this information is ignored by clinicians. A key reason for this is that too many prompts appear, often for insignificant reminders or reminders about outdated medications. Sometimes important clinical prompts clinicians would expect to see do not appear. Clinicians further report that formulary prompts are unreliable and inaccurate. This may be due to the difficulties of maintaining formularies, the difficulties of maintaining accurate and detailed insurance information, or the lack of detail in the formulary prompts (i.e. – the prompt may be a smiley or unhappy face versus concrete patient cost information).

A fundamental limitation with current e-prescribing systems is that prescription information is not shared. From a clinician's perspective, e-prescribing consists of creating an electronic prescription and clicking send. There is no feedback about whether the prescription went through and was received by the pharmacy. There is no feedback about whether patients fill their prescriptions when they are scheduled to (i.e. a marker for medication compliance). There is no sharing of prescription information between prescribers or across settings of care (i.e. to support effective transition of care). Each clinician, in each setting, must independently maintain their patient prescription list. In addition to lacking pharmacy to clinician and clinician to clinician sharing of information, there is no mechanism for electronic sharing of information from physician to patient. Patient portals for reviewing and updating medication lists from multiple clinical sources, mechanisms to directly provide patient medication education, or

support systems to enhance medication compliance represent essential e-prescribing features to obtain meaningful use of e-prescribing.

Finally, maintaining e-prescribing systems or extending the use of the system to achieve meaningful use requires practices to have an IT staff or significant IT experience. On a basic level, resource is required to monitor whether systems are working, prescriptions are being sent to pharmacies, and troubleshoot difficulties. Sharing information across settings or between providers requires the creation of individualized interfaces. Population management, such as identifying whether patients are on a medication for a drug recall or identifying patients who should or shouldn't be taking a specific medication given a clinical scenario, while possible with e-prescribing databases, are not standard components of e-prescribing systems. IT staff must manually program such queries in most e-prescribing systems.

**Needed Future Advances.** While benefits in the quality and delivery of clinical care are already being realized from e-prescribing, further advances would greatly enhance the meaningful use of e-prescribing. Given the above outlined benefits and limitations of e-prescribing, we believe that attention should be paid to five specific areas of future development.

(1) Practices need external support to make connections and share information. Meaningful use, in general and for e-prescribing, is dependent on robust and accurate patient information. This data can only be obtained if information is easily and appropriately shared. Currently, e-prescribing shares information from the clinician to the pharmacy. Information also needs to be shared from the pharmacy to the clinician, clinician and pharmacy to the patient, and between clinicians. Most ambulatory practices lack the expertise, knowledge, and infrastructure to effectively build these connections. Technical, regulatory, and oversight assistance is needed.

(2) Using e-prescribing systems to their full potential should be simple. The primary end-users of e-prescribing systems – clinicians, pharmacists, and patients – need to be clinicians, pharmacists, and patients and not IT experts. Sending and receiving information, maintaining accurate and up to date patient medication information, using clinical decision support tools, and using population management tools should be easy, simple, and efficient. Other industries have created simple technical systems for the end-user (e.g., banking, travel). E-Prescribing and HIT need to emulate these technical innovations.

(3) Systems need to integrate into and be responsive to workflow and clinician/patient needs. Primary care settings are stressed microcosms. On average, clinicians see 22-30 patients per day and the clinicians' full attention needs to be fully devoted to the patient, not using an e-prescribing or HIT system. Any primary care intervention needs to pay careful attention to integrating into the existing workflow. Any workflow modifications, care additions, expanded staff roles, and additional personnel need to be supported with adequate resources. Population management, compliance monitoring, and information sharing represent added (but valuable) responsibilities to the existing primary care workload.

(4) More evidence is needed to inform the design of systems that improve outcomes. There is tremendous momentum for advancing health information technology right now and an accompanying inundation of advancements. It is not possible to do everything. Mandated and

encouraged advancements should be guided by evidence – ideally even demonstrations of improved patient outcomes. Even simple e-prescribing components (e.g., which prompts and reminders are important) require outcomes evidence to ensure appropriate design. Encouraging, funding, and mandating efficacy and effectiveness research in the settings that the systems will be used is an essential component to creating our e-prescribing and HIT adoption and use roadmap.

(5) Systems need to be accessible and usable by typical practices. There has been a steady increase in e-prescribing and EHR users. Many of the current users continue to represent early adopters, innovators, and health systems with greater resources. To be truly effective in improving our nation's health, these systems must be accessible and usable by average primary care practices, the setting where the majority of Americans receive their healthcare. As described above, this means that systems must be simple and affordable, expanded responsibilities need expanded resources, external support is needed for sharing information, design needs to be driven by the needs of clinicians and patients, and end-users must be able to effectively use all components of the system.