Beyond aspiration: why ePrescribing in Canada needs a kick-start

Full electronic prescribing (ePrescribing) is defined as the electronic generation, authorization and transmission of dispensing directions for a drug or mixture of drugs from a prescriber to a pharmacy. For the purposes of this paper, ePrescribing does not include prescriptions that are digitally generated and then printed by physicians to be manually delivered to pharmacists by patients.

The ePrescribing general consensus

In the early 2000s, interest in funding and enabling electronic health record development took hold in both Canada and the United States. One of the first areas targeted for improvement was the medication prescribing and dispensing process. At the time, as remains the case today, the general consensus was that full electronic prescribing has clinical, financial, safety and workflow benefits for all major stakeholders in the healthcare system, including patients.

Reducing Margin for Error

Particularly compelling is the potential for ePrescribing to reduce adverse drug effects. The margin for error inherent in the manual prescription process exposes patients to significant injury and even death. In 2008, more than one in nine emergency department visits were found to be due to potentially preventable drug-related adverse events. In addition, there is a strong correlation between the number of physicians caring for a patient and the number of potentially inappropriate drug combinations prescribed. ePrescribing can significantly reduce such errors.
This is reinforced by the ePrescribing Joint Statement issued by the Canadian Medical Association and the Canadian Pharmacists’ Association in 2012, which cites, among other benefits of electronic prescribing:

- safety and quality of care improvements for patients;
- safer and more efficient prescribing and authorizing refills for physicians; and
- reduction of re-transcription that decreases risk of errors and liability and streamlines workflow for pharmacists.

From a financial standpoint, drug spending in Canada represents $34 billion annually, yet our health system relies on passing slips of paper between physicians and pharmacies to manage this activity. Canada Health Infoway estimated the overall benefits to the healthcare system of Drug Information Systems (DIS), which contain a complete medication history for all citizens within a province, combined with early adoption of electronic prescribing, to be $436 million.

However, beyond aspirational position statements, declarations of electronic prescribing principles, and a select few pilot projects across Canada, such as the Quebec Health Record Initiative, there has been very little progress towards the implementation of full ePrescribing.

A sharp contrast to the US

Canada’s lack of progress stands in sharp contrast to the US where, by 2013, 73% of office-based physicians ePrescribed, up from a mere 4% less than a decade earlier. Today, 95% of US pharmacies are able to accept electronic prescriptions, accounting for 58% of all eligible prescriptions across the country.

This uptake in the US is in part due to the country’s high adoption of Electronic Medical Record (EMR) systems (making it a ‘digitally conducive’ environment for ePrescribing), as well as the introduction of financial incentives to spur meaningful use of health IT. In addition, the US is supported by Surescripts, the country’s largest electronic prescribing network that has amassed information on more than 200 million patients since its inception in 2004 and, in the last year processed 1 billion prescriptions.

With the benefits of ePrescribing so well understood and its use flourishing in the US, it is perplexing that Canada, with its commitment to stimulating innovation and its growing adoption of health IT, is so far from realizing this critical potential.

Giving ePrescribing the green light: rigorous principles from regulatory colleges

Common principles have emerged from provincial and territorial regulatory colleges on when electronic transmission of prescriptions is equivalent to the written form and is acceptable. They include:

- Pharmacists can verify the authenticity of the prescription;
- The process maintains patient confidentiality;
- The process must be able to verify the authenticity of the prescription (i.e. verify the identity of the practitioner authorized to issue the prescription);
- Prescription accuracy must be validated, including a mechanism to prevent forgeries;
- The process must incorporate a mechanism to prevent diversion, so that the prescription authorization cannot be transmitted to more than one pharmacy; and,
- Patient choice of pharmacy to receive the prescription must be upheld.

The rigor of these principles, while critically important, is also a strong factor influencing the commonly adopted DIS prerequisite, which seems to be hindering ePrescribing progress.
What Canada needs to enable ePrescribing

What are the barriers to electronic prescribing in Canada and what needs to happen to kick-start its implementation and adoption? Advancing ePrescribing in Canada need not be an ‘all or nothing’ proposition. Rethinking how we leverage DIS and taking a regional approach are important and manageable shifts that can fast-track Canada’s progress.

The prevailing strategy in Canada has been to build a complex DIS first before introducing ePrescribing. Today, DIS systems are deployed in six provinces: Alberta, British Columbia, Manitoba, Newfoundland, Prince Edward Island, and Saskatchewan. More than half of the pharmacists in these provinces report that accessing their DIS has improved productivity and more than 90% report an improvement in the quality of care they can provide. Similarly Quebec’s Dossier Santé Québec (DSQ), is fed medication information by more than 80% of the pharmacies in the province. While the benefits of DIS are clear, there remains a long road ahead before provincial DIS are ubiquitous nationwide.

Moreover, DIS implementation does not necessarily lead directly to the adoption of ePrescribing. Pharmacies would need to have ePrescribing integrated seamlessly into their existing pharmacy management system and workflow. And, as we explore in the next section, a critical mass of physicians must also participate to make ePrescribing feasible for pharmacies.

Getting traction

The complex Canadian healthcare landscape is well known for its islands of excellence, and ePrescribing lends itself exceptionally well to a “think big; start small” approach. Over the longer-term, as in all aspects of healthcare transformation, it is the partnership of practitioners, industry and policy that will ultimately pave the way for full ePrescribing nationwide. In the meantime, there is significant impact to be had by taking incremental steps that will build meaningful momentum.

Dual track: ePrescribing and DIS

Kick-starting ePrescribing in Canada may be more effective if DIS and ePrescribing are dual-track initiatives.

From a regulatory standpoint, ePrescribing has a green light. In 2007, Health Canada concluded that there were no regulatory impediments to moving ahead with electronically generated and transmitted prescriptions and that these are permissible to the extent that they achieve the same objectives as written prescriptions. Provinces and territories wishing to proceed with e-prescribing are obligated to ensure that electronic prescriptions meet existing regulatory requirements and achieve the same objectives as written prescriptions. Meeting these obligations is not necessarily DIS-contingent.

Leverage existing investments in health IT

EMR systems, the mechanism by which electronic prescriptions will be made, are becoming commonplace in Canadian medical practices. The 2014 National Physician survey put adoption in Canada at 79%, triple the 2007 number. Having already crossed the chasm from paper-based, manual clinical practice to electronic practice, adding ePrescribing functionality into an EMR system is a relatively minor increment that can have major impact. It will facilitate the ability to ePrescribe that physicians have been seeking and this EMR functionality may spur EMR stragglers to make the move to digital practice.

Physician adoption of EMR systems, rather than the rollout of DIS, may be the appropriate prerequisite for ePrescribing to finally take hold.

Roll out ePrescribing in regional clusters

ePrescribing may well be the “killer app” to drive additional momentum for health IT, in particular for EMR systems and DIS implementation, but it will require the courage to think differently. Starting smaller, ePrescribing can be rolled out in targeted regional clusters to create a “network effect” that drives a virtuous cycle of adoption.

This will enable Canada to create critical mass on a local level that can expand over time until it takes flight, similar to Surescripts in the US. Surescripts’ growth has not followed a straight line since 2004. Rather, there was a jump in 2010 that corresponds to all 50 states legalizing electronic prescriptions and the introduction of Meaningful Use incentives in 2008, as well as the vast majority of pharmacies participating in electronic prescribing.
Electronic Prescribing Progress in the United States

2008 to 2013

<table>
<thead>
<tr>
<th>Year</th>
<th>% of Pharmacies Receiving ePrescriptions</th>
<th>% of Office-Based Physicians ePrescribing</th>
<th>% of Prescriptions ePrescribed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>85%</td>
<td>34%</td>
<td>7%</td>
</tr>
<tr>
<td>2009</td>
<td>91%</td>
<td>35%</td>
<td>18%</td>
</tr>
<tr>
<td>2010</td>
<td>95%</td>
<td>36%</td>
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<td>2011</td>
<td>58%</td>
<td>58%</td>
<td>36%</td>
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<tr>
<td>2012</td>
<td>69%</td>
<td>69%</td>
<td>44%</td>
</tr>
<tr>
<td>2013</td>
<td>73%</td>
<td>73%</td>
<td>58%</td>
</tr>
</tbody>
</table>

Source: Adapted from www.surescripts.com

Why a regional approach can work

1. **Achieving critical mass.** It is worthwhile and sustainable for physicians and pharmacists to participate in ePrescribing only if they can do so for a significant proportion of their patients and prescriptions. This means that a critical mass of physicians and pharmacies who deal frequently with each other must participate. This needn’t be all physicians or pharmacies in a province. A DIS can ensure that a physician in Belleville can electronically transmit a prescription to a pharmacy in Timmins, but it is unlikely to occur frequently enough to make a difference to the physician, and vice versa to a pharmacist. Concentrated pockets of high adoption and usage will drive progress.

2. **Applying competitive pressure.** Competitive pressures will drive pharmacies to participate in electronic prescribing if a significant number of their immediate competitors are also participating. This in turn drives up participation of local physicians and creates a virtuous cycle of adoption. This is what was observed in Ontario’s two Electronic Prescribing Demonstration Projects in Sault Ste. Marie and Collingwood, where 100% of area pharmacies participated in the pilot.

3. **Knowing the network.** Rolling out in regional clusters is more likely to create a network of known participants. This means pharmacists can more readily verify the authenticity of a prescription and the prescriber, and physicians can more easily identify which pharmacies can accept electronic prescriptions.
4 Involving insurers. Third-party payors can be engaged in regional initiatives to limit the potential financial liability of pharmacies. Many are unaware that pharmacists have financial reasons, in addition to their professional obligations, to ensure the authenticity of prescriptions. If a pharmacy dispenses a prescription deemed to be illegitimate by third-party payors, the pharmacy must pay back the costs. For example, a 2014 audit in BC found that 10% of the recoveries sought from pharmacies by insurers were the result of physicians not having provided dispensing directions, dates or signatures.

5 Creating ePrescribing communities. Regional electronic prescribing communities can create a “regional DIS” fairly readily. The Group Health Centre in Sault Ste. Marie shares the medication profile stored in its enterprise EMR with participating local pharmacies, which provides practical value to participants. In time, when a provincial DIS is implemented, participants can switch to a provincial view.

6 Testing full workflow. Finally, by implementing the full electronic prescribing process – Prescribe, Authenticate, Transmit, Dispense, Renew and Monitor – in regional clusters, we can evaluate, refine and test the full workflow, clinical and financial benefits of a fully electronic medication management process to all participants.

In conclusion, ePrescribing can bring significant patient safety, quality of care improvements and productivity benefits for healthcare providers. The technology exists. Practitioners want the capability to ePrescribe. And, there are no regulatory barriers. Conditions are ripe and by taking a regional approach, Canada can truly begin to kick-start progress.