ABSTRACT
Pharmacists have been granted prescribing privileges for minor ailments in several Canadian provinces. In an ongoing process of evaluation in one of those provinces, a random sample of pharmacists was surveyed for feedback on select aspects of the program. Data analysis was based on information provided by 268 responders (response rate 48.5%). Of those, 68.7% were female and 31.3% were male. Just over 40 percent were located in the two largest cities. The vast majority had prescribed 20 times or less.

The scope of the program encompassed 17 ailments. From this list, pharmacists identified the conditions that gave them the MOST and LEAST concern relative to prescribing. Headache/migraine, GERD, and dysmenorrhea garnered the most concern, while cold sores and canker sores (mouth ulcers) were two areas of low concern.

Most pharmacists estimated that at least half the time patients articulate a self-diagnosis during such encounters, a key directive of the guidelines. As a gauge of the public’s ability to make this assessment, 41.0% of pharmacists reported that approximately 10% of encounters turn out to be something more serious than what the patient originally articulated. Similarly, estimates were provided on the percentage of cases initially seen in pharmacies that probably should not be handled by pharmacists. Migraine had one of the highest levels of referral to medical care. The majority of respondents felt between 10 and 30% of all minor ailment cases with pharmacist involvement would need medical care soon after for that same problem.

INTRODUCTION
Canadians have a long and familiar history with OTC medicines. These medicines have been part of our pharmacy practice landscape for at least 100 years. While some are available from non-pharmacy retail outlets, the majority are legislated for sale exclusively from pharmacies, be it from behind the dispensary counter (no consumer access) or in the aisles out front where consumers can make choices without pharmacist involvement. For the vast majority of purchases, consumers pay out-of-pocket for the products they buy.

Several agents have been moved from prescriptive to OTC status over the years, in order to give the public more options for safe and effective therapeutic entities. In a move to further enhance access to care, pharmacists have been granted prescribing privileges for minor ailments in several
Canadian provinces, including Saskatchewan. They now have the option of selecting medicines from a limited formulary, ones traditionally under the sole control of physicians. As of February 2012, this province became the first government to pay pharmacists for this activity ($18 per case). Patients pay for the actual cost of the medicine unless they have insurance to cover it. All community pharmacies are able to offer this service, and mandatory training is required as part of the licensure process.

The scope of the Saskatchewan program encompasses 17 ailments, up from an initial trial list of three. The provincial pharmacy association is charged with determining the conditions that fall under the program, in consultation with various stakeholders. Guidelines have been developed for every topic and forms are available to assist pharmacists during the electronic billing stage. The program includes the following (with one example agent provided):

- Acne (clindamycin/tretinoin)
- GERD (rabeprazole)
- Allergic rhinitis (fluticasone)
- Headache/Migraine (sumatriptan)
- Athlete’s foot (terbinafine)
- Hemorrhoids (pramoxine/hc/zinc sulfate)
- Canker sores (mouth ulcers) (triamcinolone)
- Impetigo (mupirocin)
- Cold sores (valacyclovir)
- Muscle sprain (celecoxib)
- Diaper rash, fungal (ketoconazole)
- Ringworm (terbinafine)
- Dysmenorrhea (mefenamic acid)
- Thrush, oral (nystatin)
- Eczema (mometasone)
- Tinea cruris (ketoconazole)
- Folliculitis (fusidic acid)

Feedback on Canadian initiatives is starting to materialize. A minor ailments program for Ontario was seen by government and pharmacy stakeholders as a way to increase patient access to primary care services, especially for those without a family doctor. A review of Nova Scotia’s program found that 77% of patients would have sought care at their family doctor or walk-in clinic had the service not been available. Almost 80% felt the service was very beneficial. In Saskatchewan, a very small number of patients trusted pharmacists with their care and felt accessibility was a strong feature of the program. Most attained a high level of symptom resolution with the pharmacist’s help.

In an ongoing process of evaluating the Saskatchewan program, pharmacists were contacted for their impressions of select components of minor ailment prescribing. One focus was the issue of patient self-diagnosis during encounters, as this is a key tenet of the program in relation to how encounters will unfold - patients seek advice for a self-diagnosed condition. The guidelines state:

> If the self-diagnosis is reasonable, based on the pharmacist’s assessment, and the best treatment option in the pharmacist’s judgement is a prescription drug, the pharmacist can initiate a prescription. If the pharmacist is unable to confirm the patient’s diagnosis and/or the patient’s symptoms are severe, the pharmacist will refer the patient to a physician or other appropriate healthcare provider.

The actual extent to which patients present with self-diagnoses in pharmacies is largely unknown. Another focus was the pharmacist’s prescribing comfort level for each condition under the program. A comparable survey was carried out with physicians to look for parallels and contrasts.
METHODS

The number of questionnaires deemed necessary for analysis (based on approximately 1000 practicing community pharmacists) was 278\(^6,7\). Assuming a response rate of 50 percent, 556 documents were mailed out.

A mailing list of community pharmacists was obtained from the Saskatchewan College of Pharmacy Professionals. From the randomly-generated list of names/addresses, a one-page Advance Letter was sent in early June 2015 to introduce the concept, outline the goals of the project, and the process to be undertaken. A questionnaire and cover letter followed 10 days later. Documents were returned to the researcher in a stamped, addressed envelope. No follow-up attempts were made. An enticement of a $20 gift card for a popular restaurant chain was included as part of the process and mailing addresses were needed for this purpose. To attain a level of anonymity, names/addresses were separated from survey documents by having responders insert that identifying information into its own envelope during the mail-back.

All items in the questionnaire were created by the authors. For the section on pharmacist referral rates for minor ailments, situations within the prescribing parameters of the program were included. In addition, wasp sting was included because it was one of the original situations under the program, but was subsequently removed when hydrocortisone 1% received non-prescription status. Another condition – bacterial conjunctivitis – was included because it might be a future condition, if the program ever expanded.

For all the conditions, pharmacists were asked how often medical referral is likely to occur during encounters. Context for this was provided as follows. When considering how often one might refer for any given condition, a wide variety of circumstances are possible in pharmacies. Some patients will have tried measures beforehand, but others won’t have. Some will be young patients, others will be older. Referral patterns will surely differ for each. Pharmacists were told that this diversity is to be expected and that the researchers were interested in an overall average of situations. Finally, one more contextual matter was stated. Many minor ailment consults have pharmacists add a proviso – ‘If not better in X number of days, see your doctor’. It was noted that this is important advice, but it was not the focus here. For this exercise, the researchers were interested in how often they refer patients for various conditions as the primary recommendation. These are likely to be the cases where patients have under-estimated the severity (or complexity) of their situation.

The survey tool was reviewed by one local pharmacist and one expert in pharmacist prescribing (UK). It was pilot-tested on three pharmacists. Ethics approval was obtained from the University of Saskatchewan Research Ethics Board.

RESULTS

Of the 556 surveys sent, one went undelivered (incorrect address) and two were removed from the pool due to receipt by an unintended target (hospital pharmacists). With a denominator of 553, data analysis was based on information provided by 268 responders, for a response rate of 48.5%.

Of those responding, 68.7% were female and 31.3% were male. Fifty-seven responders (21.3%)
graduated from pharmacy school before 1980, with the remainder as follows: 1981 to 1990 (23.5%), 1991 to 2000 (38.0%), and 2001 onward (17.2%). Just over 40 percent (40.3) were located in either Saskatoon or Regina (the two largest cities).

Overall, only a very small number of items were left blank by responders.

**Minor Ailment Landscape for the Pharmacist**

To gain perspective on the impact all minor ailments might have on workload, pharmacists were asked to estimate the level of involvement devoted to helping patients for such matters. Relative to time spent on all the possible clinical activities in an average day, 31 responders reported that no time is taken up by this activity, 108 felt it accounted for approximately 10% of their clinical time, while 45 noted it was likely 20%.

Perceptions on the ability of the public to diagnose their own minor ailments are described in Figures 1a and 1b. In those figures, the number of times each option (on a 7-point scale) was selected by responders is depicted. For example, 76 pharmacists somewhat agreed (Figure 1b) that the public is capable of self-diagnosing recurring episodes. Then, as another gauge of public ability to assess their symptoms, pharmacists were asked what percent of minor ailment encounters turn out to be something more serious than what the patient originally articulated (Figure 2). Sixty-eight responders were unsure. Of the remainder, 64 estimated that none of the cases they see turn out to be something more serious, while 82 reported that approximately 10% of encounters have patients seemingly under-estimate their illness.

**Figure 1: The public's ability to self-diagnose minor ailments**

![Figure 1a: Ability to self-diagnose FIRST episodes](image)

![Figure 1b: Ability to self-diagnose RECURRENTING episodes](image)
Figure 2: Encounters for minor ailments (%) eventually deemed more serious

Pharmacist Prescribing for Minor Ailments

Specific to situations where prescribing is possible, 89.5% said they had prescribed at least once for a minor ailment, while 10.5% had yet to do so (often due to working infrequently). Fourteen were unsure how many they had done to date. Of the remainder, the vast majority prescribed 20 times or less (see Figure 3).

Figure 3: Number of times pharmacist have prescribed for minor ailments

Forty-seven percent of responders agreed (somewhat, mostly, or strongly) that the demand for minor ailment prescribing in Saskatchewan could be described as high. Twelve percent were unsure, while 41% disagreed (somewhat, mostly, or strongly) with the statement.

The Saskatchewan minor ailment program includes 17 conditions. From this list, pharmacists were asked to identify conditions that gave them the MOST concern relative to prescribing. Up to five conditions were allowed. Thirty-two had no concerns with any condition on the list, while 27 pharmacists picked one condition, 52 selected two conditions, 64 chose three conditions, 31 chose...
four, and 62 pharmacists selected the maximum number allowed. Specific conditions are depicted in Figure 4, with Headache/migraine, GERD, and dysmenorrhea receiving the most attention.

Figure 4: Conditions of MOST concern to pharmacists

Responders were also asked what conditions garnered the LEAST concern (if any) for patient safety relative to prescribing. Again, up to five conditions were allowed. Two pharmacists chose one condition, nine chose two conditions to be of least concern, 16 chose three conditions, 21 felt four were of least concern, and 214 listed the maximum five conditions. The specific conditions are identified in Figure 5. Cold sores and canker sores (mouth ulcers) were two areas of low concern.

Figure 5: Conditions of LEAST concern to pharmacists

These encounters can start with the patient describing their symptoms (’What is good for an itchy skin rash?’) or conversely, by stating a self-diagnosis (’I think I have Condition X’). Figure 6 shows estimates of how often these prescribe-able minor ailment encounters have patients suggest a self-diagnosis at that time. Sixteen pharmacists were unsure as to that rate, and one entry was missing. Of those remaining, the vast majority of pharmacists felt the rate this occurred fell between 50 and 90% of the time.
Figure 6: Minor ailment encounters (%) where patients state a self-diagnosis

Whether pharmacist prescribing for minor ailments will reduce healthcare costs is depicted in Figure 7. A sizeable majority (226) agreed (somewhat, mostly, or strongly) it would save the healthcare system money.

Figure 7: Impact of minor ailment prescribing on healthcare costs

The final items assessed perceptions of clinical outcomes subsequent to pharmacist-led care. Figure 8a shows patient percentages likely to attain satisfactory symptom relief within a reasonable timeframe following pharmacist assistance. Most reported a value between 70 and 90 percent. As a reflection of this, the majority then reported that between 10 and 30% would need medical care soon after for the same problem.

Figure 8a and b: Clinical outcomes as a result of pharmacist-led minor ailment care
The extent pharmacists refer minor ailments to physicians as a primary recommendation appears in Table 1. The numbers in the table depict how often a certain percentage was picked by pharmacists for each condition. As an example, 85 pharmacists estimated they refer (or would refer) between 1 and 10% of patients with dysmenorrhea to medical care, rather than attempting some recommendation in the pharmacy. Conversely, 10 pharmacists purport to refer 81-90% of the cases they see. Migraine and bacterial conjunctivitis had higher rates of referral within the group.

Table 1: Estimated rate of medical referral for minor ailments

<table>
<thead>
<tr>
<th>Condition</th>
<th>0%</th>
<th>1-10%</th>
<th>11-20%</th>
<th>21-30%</th>
<th>31-40%</th>
<th>41-50%</th>
<th>51-60%</th>
<th>61-70%</th>
<th>71-80%</th>
<th>81-90%</th>
<th>91-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wasp sting</td>
<td>56</td>
<td>134</td>
<td>37</td>
<td>14</td>
<td>8</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>31</td>
<td>85</td>
<td>35</td>
<td>27</td>
<td>14</td>
<td>30</td>
<td>8</td>
<td>7</td>
<td>12</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Migraine</td>
<td>6</td>
<td>24</td>
<td>34</td>
<td>19</td>
<td>11</td>
<td>58</td>
<td>13</td>
<td>20</td>
<td>44</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>GERD</td>
<td>13</td>
<td>61</td>
<td>45</td>
<td>33</td>
<td>19</td>
<td>49</td>
<td>10</td>
<td>11</td>
<td>18</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Hemorrhoids</td>
<td>27</td>
<td>102</td>
<td>46</td>
<td>24</td>
<td>9</td>
<td>31</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Bacterial conjunctivitis</td>
<td>11</td>
<td>50</td>
<td>33</td>
<td>24</td>
<td>7</td>
<td>31</td>
<td>8</td>
<td>16</td>
<td>28</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>Impetigo</td>
<td>11</td>
<td>39</td>
<td>45</td>
<td>27</td>
<td>11</td>
<td>51</td>
<td>13</td>
<td>13</td>
<td>25</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Oral thrush (infant)</td>
<td>40</td>
<td>88</td>
<td>39</td>
<td>21</td>
<td>10</td>
<td>33</td>
<td>6</td>
<td>5</td>
<td>10</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Acne</td>
<td>22</td>
<td>93</td>
<td>41</td>
<td>23</td>
<td>20</td>
<td>40</td>
<td>6</td>
<td>3</td>
<td>9</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Cold sore</td>
<td>80</td>
<td>143</td>
<td>21</td>
<td>7</td>
<td>3</td>
<td>9</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ringworm</td>
<td>67</td>
<td>105</td>
<td>32</td>
<td>22</td>
<td>9</td>
<td>15</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Eczema</td>
<td>29</td>
<td>90</td>
<td>37</td>
<td>38</td>
<td>14</td>
<td>40</td>
<td>7</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Allergic rhinitis</td>
<td>41</td>
<td>101</td>
<td>45</td>
<td>33</td>
<td>9</td>
<td>22</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diaper rash (fungal)</td>
<td>44</td>
<td>113</td>
<td>39</td>
<td>28</td>
<td>14</td>
<td>14</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Ankle sprain</td>
<td>32</td>
<td>61</td>
<td>29</td>
<td>41</td>
<td>17</td>
<td>35</td>
<td>10</td>
<td>5</td>
<td>19</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Folliculitis</td>
<td>13</td>
<td>53</td>
<td>40</td>
<td>33</td>
<td>21</td>
<td>35</td>
<td>11</td>
<td>12</td>
<td>19</td>
<td>13</td>
<td>9</td>
</tr>
</tbody>
</table>
DISCUSSION

This survey was not intended to be a broad assessment of the program. For that, the approach would have focused on whether the program was cost-effective (for pharmacists and society), whether clinical outcomes are being met, whether the right patients are being targeted, whether users are satisfied, the impact on physicians, whether the billing process is reasonable, and so on.

Some of those aspects have been assessed at other times, however. For example, a report found the program to be valuable to patients with respect to care access and in attaining symptom relief. Feedback from patients is still ongoing and this will be important to support the current conditions within the program, or any potential expansion. An economic evaluation is also in progress.

Instead, what was deemed more of value at this juncture was to target the more provocative aspects of the program. Such information is likely to be less studied in other jurisdictions and could be invaluable during debates with other healthcare providers and governments. That said, some basic dynamics had to be ascertained, such as how often pharmacists prescribe for minor ailments.

One key tenet of the program is how encounters unfold – the baseline assumption is that patients seek advice for a self-diagnosed condition. This approach was taken by the developers over concerns from physicians that pharmacists cannot diagnose. That said, it is highly improbable that pharmacists would blindly accept patient appraisal of their situation without further inquiry. The nuances of what likely takes place has been discussed elsewhere. Either way, it was largely unknown what was happening at the practice level. Most of the pharmacists estimated that at least half of patients articulate a self-diagnosis during the encounter. This suggests, rightly or wrongly, that patients have some degree of confidence in what they were experiencing.

There is little precedent for these findings in the pharmacy literature. In medicine, approximately 18% of 300 consultations involving new patients (seen by general practitioners) saw a self-diagnosis during the encounter. Within the profession of pharmacy, since diagnosis is not part of the pharmacist’s scope of practice, attention to this matter is almost non-existent. The closest analogy might be situations in pharmacies where patients either ask for a product by name (they feel they know what they need – somewhat analogous to a self-diagnosis) or they present symptoms (they don’t know what they need – somewhat analogous to ‘what do I have?’). From this perspective, Australian researchers noted that 72.5% of consumers in pharmacies requested a specific product, while 27.5% presented with symptoms when seeking advice. In 225 pharmacies across England, Scotland and Wales, 84% of medicines were directly requested, while 15 percent of patients were given a product subsequent to symptom presentation.

For encounters that do not present with a self-diagnosis, it is highly unlikely that a pharmacist would demand that one be articulated before proceeding. Nor would patients feel obliged to provide one, for that matter. Instead, during illness, a person will attempt to make sense of what they are experiencing prior to arriving at the pharmacy. They will have decided whether they can manage the symptoms on their own or require professional care. At times, this will manifest in a self-diagnosis. At other times, it will be a constellation of symptoms. Either way, it is also highly unlikely that a pharmacist, upon hearing a self-diagnosis, will accept that on faith. An assessment
process will take place in order to confirm or refute what has been stated by the patient.

How competent any given patient might be in making their assessment is subject to much debate. Symptom interpretation is an extremely complex area of medical behaviour12-17. Researchers in the UK assessed physician-patient agreement on whether a visit was indeed minor. While approximately 40% of interviewees indicated they were seeing a doctor for a minor ailment, about half were judged not to be minor, leading to a conclusion that over 50% of patients had underestimated their condition18. In another UK report, doctors perceived patients to be less ill than did the patients themselves19.

As a reflection of this ability, most pharmacists felt that the patients they see tend not to underestimate the nature of their situation; 146 responders felt that either none or only 10% might have done so during typical encounters. As another proxy for this, regarding the public’s ability to assess first versus recurring episodes of minor ailments, pharmacist responses saw more agreement with patient assessment of episodes that re-occur. This stands to reason – a patient who has seen the situation before is likely to be more confident/competent in assessing what is happening.

With respect to the conditions of most and least concern, again, there is very little to compare these results to. But it does reflect that even within a battery of so-called minor ailments, pharmacists approach them differently. For instance, they may be more apt to refer cases of dysmenorrhea than cold sores. This could be an indicator of pharmacist confidence or competence and of course, condition complexity.

While this survey did ask pharmacists about the potential success rates subsequent to pharmacist-led care, patient-retrieved data would be more meaningful. In the current survey, 218 pharmacists estimated that 70 to 90% of patients should attain a reasonable degree of symptom relief. This is in line with patient feedback numbers obtained during another study, where 81.4% of patients felt they improved (either significantly or completely)4, suggesting pharmacists have a reasonable interpretation of how events are unfolding.

These referral rates to medical care offer insight into several processes occurring simultaneously during encounters. Referrals would be a reflection of how serious the actual encounter could be; there will be times when patients under-estimate their case, be it in symptom severity or complexity. Referral rates could also be influenced by a pharmacist’s confidence and/or competence for a particular topic20. It may be useful to reassure Saskatchewan physicians that pharmacists are constantly referring patients to medical care.

Elsewhere, referral patterns for nine minor ailments (including acne, red eye, and indigestion) showed variation in rates21. Smith found that for a variety of interactions typical of community pharmacies (including many minor ailments), 15% were referred to another practitioner (often a physician)20. Ten of 98 minor ailment patients were directly referred in another report, with a further 30 clients conditionally referred22. In the USA, of consumers intending to purchase an OTC product, pharmacy student intervention led to 4.3% being referred to a physician instead23. Spanish data found that of 4215 minor ailment consults, 13.7% were referred to medical care, with more occurring when pharmacists used a clinical guideline support tool24.
Limitations

For conditions of most and least concern to pharmacists, limiting responders to five items may have constrained the full spectrums of either list.

Those with strong opinions might have been most apt to respond to this survey.

Actual observation of minor ailment prescribing events would have produced more accurate numbers than what was uncovered here. The pharmacist perspective on what takes place is still important, however.

CONCLUSION

As part of a larger program of evaluation, pharmacists were asked to provide feedback on elements of pharmacist prescribing for minor ailments. This builds on earlier work that focused on symptom resolution in patients. Patient self-diagnosis is commonly seen during such encounters, which coincidentally, reflects a tenet upon which the program is based. Pharmacists feel reasonably confident that the service will save money and that symptom resolution will be acceptable.

Sources of support: The Canadian Foundation for Pharmacy, the Saskatchewan College of Pharmacy Professionals, and the Pharmacy Association of Saskatchewan.

Disclosure: The views expressed in the submitted article are their own and not an official position of the institution or funders.

Correspondence to: Jeff Taylor BSP, PhD, Professor, College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon SK Canada. Email: jeff.taylor@usask.ca.

Acknowledgement: The assistance of Dr. Vibhu Paudyal was greatly appreciated.

REFERENCES