

# A pharmacist's guide to care of adult patients presenting with lower urinary tract symptoms

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## Introduction

Lower urinary tract symptoms (LUTS) are associated with a broad range of conditions that are a result of dysfunction in either urine storage or voiding.<sup>1</sup> Voiding dysfunction involves symptoms resulting from the bladder outlet or urethral pathology and this includes symptoms related to the prostate. Storage dysfunction involves urinary incontinence and is categorized into 3 conditions: stress urinary incontinence, urgency and mixed urinary incontinence. Overactive bladder is also a type of storage dysfunction and is characterized as a sense of urgency that may or may not be associated with urgency incontinence.<sup>1,2</sup>

Approximately 3.3 million (10%) Canadians have incontinence.<sup>1</sup> Furthermore, a survey conducted in 2008 found that of Canadians aged 18 years and older, 57% of female respondents and 43% of male respondents had at least 1 lower urinary tract symptom.<sup>3</sup> Although urinary symptoms are commonly experienced by adult Canadians, very few adults consult a health care professional for support. As few as 20% of adults with any type and frequency of LUTS reported seeking help, and for those adults with daily LUTS, only 50% reported consulting with a physician.<sup>4-6</sup>

The main barriers to seeking support from a health care professional were found to be a misunderstanding that these symptoms are a normal part of aging, a lack of awareness of available treatment options and a feeling of embarrassment.<sup>4</sup> It is important to overcome these barriers and identify LUTS early because these symptoms significantly affect patients'

physical and mental well-being.<sup>7,8</sup> A recent trial found that older women who were actively approached by their physician to receive incontinence treatment had improved symptoms and fewer incontinence episodes compared with women who were treated only when they sought physician care on their own.<sup>9</sup> Because pharmacists are generally believed to be the most accessible and among the most trusted health care professionals<sup>10</sup> and pharmacies are a major source of continence products, community-based pharmacists have the greatest opportunity to identify patients with LUTS and initiate appropriate interventions.

Current LUTS identification, assessment and treatment guidelines are targeted to family physicians and specialists, so there is a need for evidence-based management recommendations to community pharmacists that will allow them to identify, assess, treat or refer to other care providers when approached by a patient with bothersome LUTS. Furthermore, with the expanding scope of pharmacist practice, a guide tailored to the pharmacist will help delineate the potential pharmacist intervention as part of a collaborative primary care team. The purpose of this project was to adapt a guide for Canadian community pharmacists who screen for or are sought out by community-dwelling adults with bothersome LUTS.

## Methods

A comprehensive search of the literature was conducted using keywords and screening criteria

for the management of lower urinary tract symptoms. Articles were selected for inclusion and their quality was evaluated. Methodology was determined a priori, involving identification of databases, eligibility criteria for selected articles and application of the tools used to select the contributing articles for the guideline development. We selected only published literature, and the quality of these articles dictated the quality of our synthesized algorithm. We did not include a consultative process with patients, although many of the source documents included patient input or literature relating to patient preferences.

#### *Search strategy*

The databases MEDLINE via OVID, PubMed, Cochrane Library, TRIP: Turning Research Into Practice, DynaMed and National Guideline Clearing House were used to conduct a literature search for LUTS guidelines. Search strategies were implemented using the approach recommended by our university health sciences librarian. One reviewer performed multiple searches in each database, and a single keyword/term was used for each search. The keyword/term used for each search included broad MESH headings: LUTS, urinary or incontinence. The search results were limited to articles in the English language, a publication date of within 10 years and articles that were reviews or guidelines only.

#### *Document selection*

The database search results were initially screened through each article's abstract and/or title for guidelines related to LUTS. Articles were excluded only if the recommendations pertained to children, fecal incontinence and neurology-related LUTS.

After completing the initial screen, the relevant LUTS articles were assessed using the AGREE II tool.<sup>11</sup> The AGREE II tool was developed to evaluate a guideline's transparency and methodology by assessing 6 key domains of editorial independence, involvement of stakeholders, purpose and scope, applicability, rigour of development and presentation clarity.<sup>12</sup> The 2 guidelines that were found to have the highest numbers in the majority of the 6 domains from the AGREE II tool (Table 1) were used to develop the draft of the LUTS algorithm in combination with the *Guidelines for Adult Urinary Incontinence Collaborative Consensus Document*

for the Canadian Urological Association published by the Canadian Urological Association<sup>1</sup> and guidelines from a well-established pharmacist therapeutic guide, *Compendium of Therapeutic Choices (Genitourinary Disorders: Urinary Incontinence in Adults)*<sup>13</sup> and *Genitourinary Disorders: Lower Urinary Tract Symptoms and Benign Prostatic Hyperplasia*<sup>14</sup> published by the Canadian Pharmacists Association. All of the information in these guidelines was included in our algorithm. All authors agreed upon the use of these guides to develop the LUTS algorithm and management recommendations for pharmacists.

#### *LUTS algorithm assessment*

Once developed, an initial draft of recommendations to pharmacists, summarized in the LUTS algorithm, was provided to 2 physicians, 2 pharmacists and 1 nurse practitioner specializing in urology and geriatrics to be assessed for content validity. All feedback was provided as comments and was reviewed and discussed by all authors to determine incorporation into the final draft of the LUTS algorithm and guide. The final version of the LUTS algorithm and guide was approved by all authors.

## **Results**

### *Database search and selection of materials to develop the recommendations*

After conducting the database search, we identified a total of 22 relevant LUTS guidelines that were assessed using the AGREE II tool. The guidelines with the highest numbers in the majority of the 6 domains from the AGREE II tool were *Urinary Incontinence: The Management of Urinary Incontinence in Women*, published by the National Institute for Health and Care Excellence (NICE)<sup>15</sup> and *Lower Urinary Tract Symptoms in Men: Assessment and Management*, published by NICE.<sup>16</sup> These 2 NICE guidelines, in combination with the Canadian guidelines described in the Methods sections, were used to develop our initial draft of the LUTS algorithm with accompanying recommendations to pharmacists.

### *Algorithm assessment and validation*

Review of the materials by the Canadian health care professional team yielded a total of 25 modifications, of which 5 related to the format and 20 related to the content of the algorithm and/or accompanying recommendations. The

TABLE 1 AGREE II tool

Domain	Number of items assessed	Focus
Scope and purpose	3	Is concerned with the overall aim of the guideline, the specific health questions and the target population
Stakeholder involvement	3	Focuses on the extent to which the guideline was developed by the appropriate stakeholders and represents the views of its intended users
Rigour of development	8	Relates to the process used to gather and synthesize the evidence and the methods to formulate the recommendations and update them
Clarity of presentation	3	Deals with the language, structure and format of the guideline
Applicability	4	Pertains to the likely barriers and facilitators to implementation, strategies to improve uptake and resource implications of applying the guideline
Editorial independence	2	Is concerned with the formulation of recommendations not being unduly biased with competing interests

majority of the comments were deemed to be valid by all authors, and the algorithm and recommendations were adjusted to comply with the suggestions.

### Algorithm

The final versions of the 2 LUTS algorithms are shown in Figures 1 and 2, which depict the algorithms for female and male patients who present to a community pharmacist with potential LUTS. As explained in the figures, the green boxes in the algorithm are the entry points and the red boxes are the stop points or points of referral to physicians. Both figures are divided by a dashed blue line illustrating the division of interventions requiring and not requiring pharmacists' additional prescribing authority. As one can see, the majority of interventions do not require the additional prescribing authority certification. This is an important feature, as those provinces that do not have additional prescribing authority certification for pharmacists can still use the algorithm and provide their patients with several interventions. The specific actions a pharmacist can carry out at each point of the algorithm are described in the accompanying LUTS

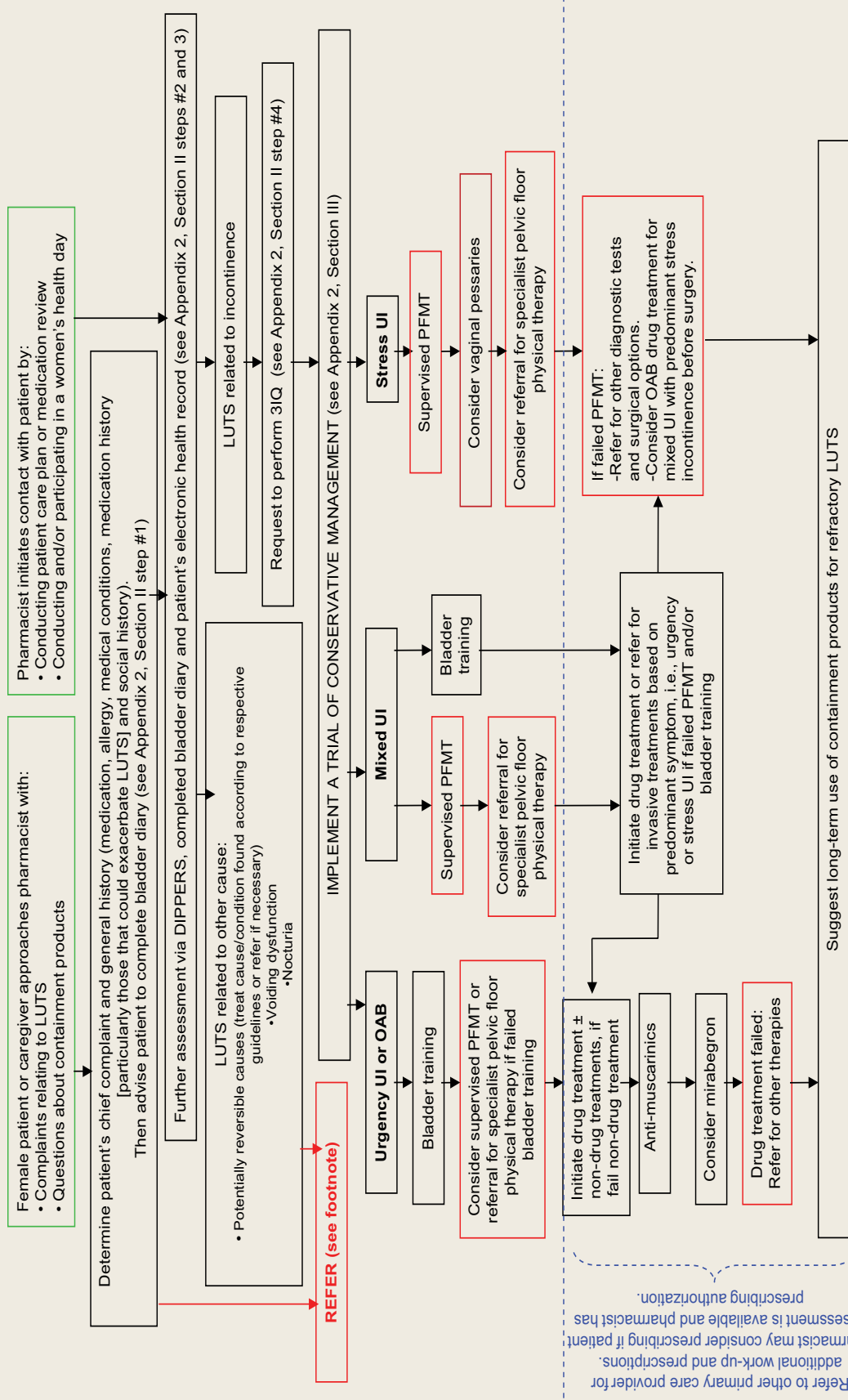
recommendation documents (Appendix 2 and Appendix 3, available online at [cph.sagepub.com/supplemental](http://cph.sagepub.com/supplemental)). The recommendations are gender specific, because even with similar treatment options available to both females and males, the initial assessment significantly varies by sex. For example, any symptom of voiding dysfunction for females is an immediate point of referral for pharmacists; however, for males, pharmacists can initiate some interventions prior to referral. These additional interventions for voiding dysfunction are the main reason why the treatment algorithm for males seems much more complex than for females.

## Discussion

### *Interpretation of results*

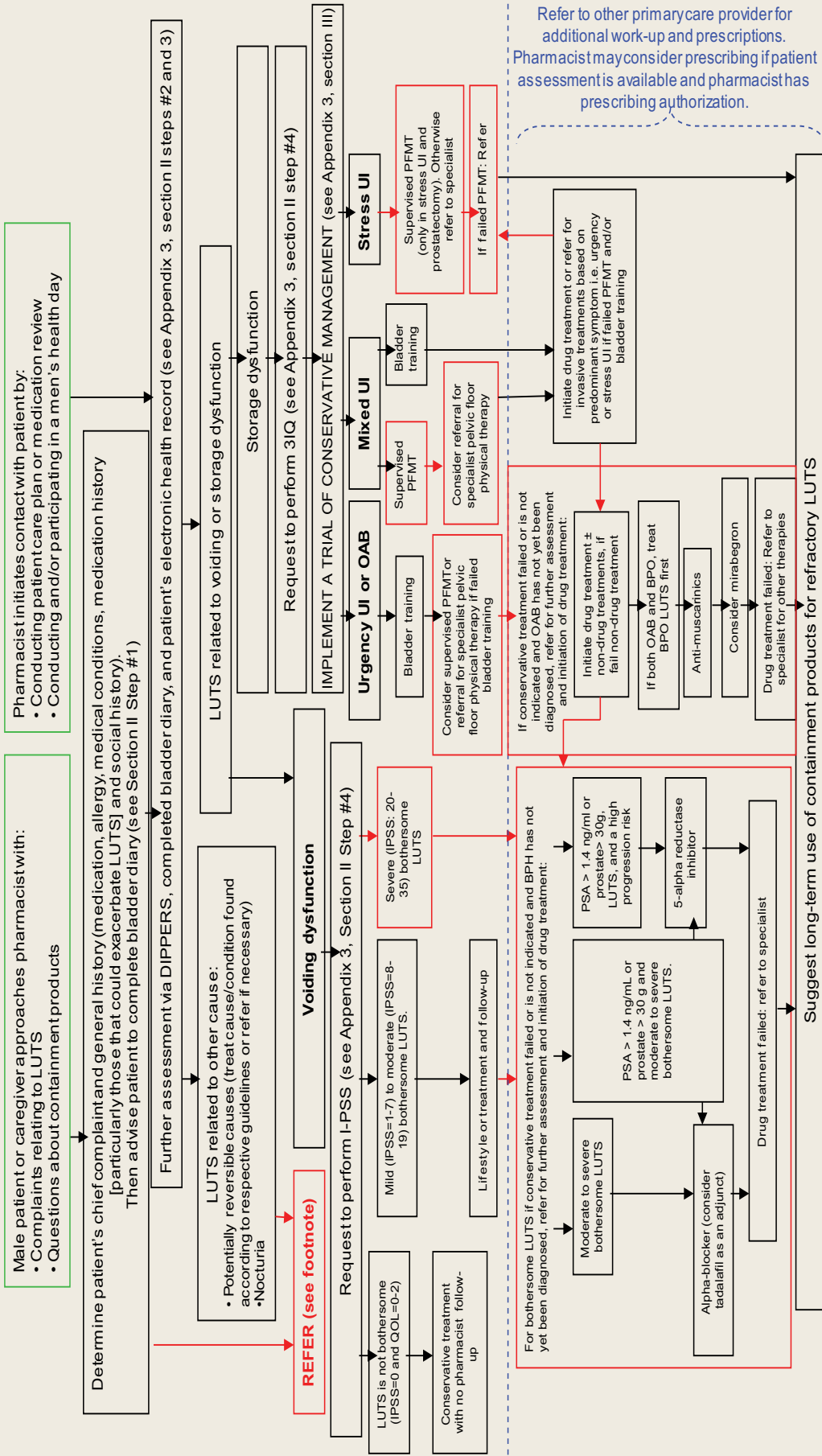
We have developed a guide adapted for community pharmacists that will enable them to identify, assess and treat adult LUTS, which are highly prevalent but often overlooked by primary care providers and accepted by patients who choose not to seek professional care. This document will support pharmacists in identifying and assessing LUTS by providing direction for a complex syndrome as well as addressing the significant patient care gaps that currently exist.

**FIGURE 1** Algorithm for female patients presenting to community pharmacist with potential lower urinary tract symptoms



Abbreviations: UI, urinary incontinence; PFMT, pelvic floor muscle training; LUTS, lower urinary tract symptoms; DIPPERS: D, dementia/delirium; I, infection; A, atrophic vaginitis; P, psych; E, endocrine; R, restricted mobility; S, stool impaction & social. REFER, Refer immediately if: fever, pregnancy, potential fistula or mass, pain especially in bladder or urethra, neurologic-related incontinence, voiding dysfunction, recurrent UTI, blood in urine, pelvic surgery or radiation, pelvic organ prolapse, impaired mental or psychological status, fecal incontinence, endocrine disorder, restricted mobility, urinary retention and palpable bladder. Legend: **Red** boxes are referral or stop points. **Green** boxes are start points.

**FIGURE 2** Algorithm for male patients presenting to community pharmacist with potential lower urinary tract symptoms



Abbreviations: UI, urinary incontinence; PFMT, pelvic floor muscle training; LUTS, lower urinary tract symptoms; BPO, benign prostrate obstruction; I-PSS, International Prostate Symptom Score; DIPPERS: D, dementia/delirium; I, infection; P, psych; P, pharmacologic; E, endocrine; R, restricted mobility; S, stool impaction & social. REFER, Refer immediately if: fever, stress UI (except with prostatectomy), urinary retention, suspicious DRE, renal impairment suspected to be a result of the LUT, elevated PSA, pelvic organ prolapse, recurrent UTI, potential fistula, blood in urine, pain especially in pelvis, potential obstruction or mass, fecal incontinence, and neurologic-related incontinence, pelvic surgery or radiation, impaired mental or psychological status, endocrine disorder, restricted mobility, palpable bladder. Legend: Red boxes are referral or stop points. Green boxes are start points.



## BOX 1 Resources

[www.peeingproblem.ca/](http://www.peeingproblem.ca/)

The Canadian Continence Foundation: [www.canadiancontinence.ca/EN/index.php](http://www.canadiancontinence.ca/EN/index.php)

PatientPlus: [www.patient.co.uk/doctor/urinary-incontinence-pro](http://www.patient.co.uk/doctor/urinary-incontinence-pro)

Medline Plus, National Library of Medicine: [www.nlm.nih.gov/medlineplus/urinaryincontinence.html](http://www.nlm.nih.gov/medlineplus/urinaryincontinence.html)

Mayo Clinic: [www.mayoclinic.org/diseases-conditions/urinary-incontinence/basics/definition/con-20037883](http://www.mayoclinic.org/diseases-conditions/urinary-incontinence/basics/definition/con-20037883)

This guide is important because pharmacists could play an important role in the identification of patients with this highly underdiagnosed condition. Even if patients have not seen a physician for their problem (which is frequently the case), they might present to their pharmacy to purchase an absorbable product such as underwear or pads. This is an important opportunity that should not be missed.

Our adapted guide incorporates several unique aspects. It was developed for all Canadian community pharmacists, but given the fact that there are differences in pharmacists' scope of practice among the provinces and territories and differences in certifications among pharmacists within each province and territory, we have emphasized what interventions can and cannot be carried out by pharmacists with or without prescribing certification. In addition, our guide permits pharmacists to assess patients from a broad range of ages. Even though LUTS are more common in older adults, subpopulations of younger patients, such as those who are pregnant or prone to urinary tract infections, have a high incidence of LUTS, which can be identified, assessed and appropriately treated through our guideline. This guide also addresses both men and women and the conditions and interventions associated with each. Finally, there is currently no unifying or authoritative body that releases a guideline for all LUTS, making any intervention by primary care providers seem daunting. By integrating the best guidelines available, we have attempted to create the strongest guide for community pharmacists to follow.

#### *Challenges in development of the guideline*

The development of the guide had some challenges. For example, a variety of health

professionals reviewed this guide meant for only one health professional—a community pharmacist. Thus, deciding when to refer to other care providers was a challenge. Consequently, both the algorithm and guides were developed to depict what a pharmacist is able to do when working at full scope in a province with additional prescribing authority designation, which allows prescribing at initial access and managing ongoing therapy. As several provinces do not yet have these policies in place (and even with the additional prescribing authority certification, some pharmacists may not feel comfortable carrying out some of the suggestions), we have tried to emphasize interventions that can be carried out before referral to another care provider. Several initial assessment steps can be conducted, and the information from these should be shared with the primary care provider to enable efficient assessment following referral.

A second challenge and limitation entails the lack of a validated assessment instrument for this guide. In both the female and male associated LUTS guide (Appendix 2 and Appendix 3), to determine the type of urinary incontinence, the 3IQ test is used. The 3IQ test was found to have acceptable sensitivity and specificity to detect urinary incontinence and distinguish between the types of urinary incontinence in women<sup>17</sup>; however, the 3IQ test is not validated for men. Nevertheless, we chose to use the 3IQ test in both LUTS guides because, to our knowledge, there is currently no published validated tool for male urinary incontinence. If, in the future, a validated tool for male urinary incontinence is published, we will make adjustments accordingly.

#### *Future plans*

To date, our guideline has been reviewed by some, but not all, potential stakeholders. For instance, we have not yet solicited patient or staff pharmacist input, but we have received input from some pharmacists and physicians. Stakeholder input is deemed important by the AGREE II tool. Therefore, after this developmental phase, feedback on the practicality of using the algorithm and guide on a daily basis in a community pharmacy environment will be prospectively gained. Similarly, a patient's perspective on the method in which the pharmacist approaches the patient with LUTS will be collected and reviewed, and the algorithm and guides will be adjusted if required.

Our next step is to conduct a trial of community pharmacist care using this guide to determine feasibility and allow incorporation of additional stakeholder input. To aid in the implementation of this guide, we are also in the process of creating an app that will facilitate application of the guideline in pharmacist practice.

## Conclusion and Implication

To our knowledge, this is the first guide adapted for community pharmacists for the assessment and management of LUTS. Because it has been

established that patients will have had minimal health care assessment or interaction for LUTS prior to interacting with community pharmacists, it is predicted that implementation and use of the LUTS algorithm and guide will increase early identification and treatment of people with bothersome LUTS in Canada. In particular, it is expected that use of this guide will improve patients' symptoms and decrease patients' burden of LUTS through community pharmacist identification, assessment, education, treatment (nonpharmacological and pharmacological) and/or referral. ■

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**Author Contributions:** C.A. Sadowski was the principal investigator and initiated, designed and supervised the project, reviewed the algorithm and guide, and wrote and reviewed the manuscript. R. T. Tsuyuki was a collaborative investigator and supervised the project and reviewed the algorithm and manuscript. G.G. Gabriel drafted the algorithm and guide, was responsible for data acquisition, and wrote the draft and reviewed the manuscript. A. Wagg, K. Hunter and C. Tannenbaum reviewed the algorithm, guide and manuscript. All authors approved the final draft.

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**Disclaimer:** Although the authors have tried their best to create an adapted guide conforming to the discussed lower urinary tract symptom guidelines, it is still necessary for all users of our algorithm and guide to apply their clinical judgement and use current, established knowledge and best practices when identifying, assessing and determining any intervention(s) for all patients. The authors cannot be held responsible for actions resulting in indirect or direct patient harm after applying the information stated in this guide.

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