

Community Pharmacists' Quality-of-care Metrics

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Addendum
Valorization paragraphs

1. What is the social (and/or economic) relevance of your research results (i.e. in addition to the scientific relevance)?

The research questions in this dissertation focused on evaluating community pharmacists' provision of care that aims to improve patients' use of medications. The research questions were grounded in the long-standing awareness of the social and economic costs of preventable medication-related morbidity and mortality, and the potential for community pharmacists to minimize these costs through provision of quality care and services (1). Although there has been a general awareness of the extent and impact of inappropriate medication use, the World Health Organization (WHO) catapulted this awareness to a new level in 2017 when they identified 'Medications Without Harm' as their third global patient safety challenge (2). WHO's goal is to reduce the global level of severe, avoidable harm related to medications by 50% over five years, identifying that medications can cause serious harm if taken incorrectly or monitored insufficiently, or as the result of a medication-related error, accident or communication problem (3). WHO highlights that the global cost of medication errors alone has been estimated at US\$ 42 billion annually and that unsafe medication practices are a leading cause of preventable harm around the world. Three target areas have been identified by WHO: high-risk situations where inappropriate medication use can cause greater harm; polypharmacy where patients take four or more medications, and; transitions of care where the risk of communication errors regarding appropriate medication use is higher.

The alignment of these target areas with pharmacists' traditional, acknowledged responsibilities for safe and effective dispensing of medications is clear. In addition, in many countries pharmacists are increasingly being authorized to provide, and in some cases reimbursed to provide, new services that take advantage of pharmacists' potential to contribute more directly to achieving Medication Without Harm. These services target each of the prescribing, dispensing, administering, monitoring and medication use stages of WHO's medication process. Medication reviews, pharmaceutical opinions, refusals to dispense, refill-extensions, independent prescribing, new-medicines services, medication reconciliation and minor ailments management are examples of services pharmacists have been authorized to provide to manage preventable medication-related harms. However, challenging and unanswered questions exist as to what pharmacists' care and which of these services (if any) effectively and consistently improve medication use. Answers to these questions require methodologies that accurately measure both if the service was provided and the quality of service provided, and that evaluate the impact on outcomes important to patients and health care systems. Only when such methodologies have been developed can an understanding be gained of pharmacists' services that consistently decrease medication-related harms and of the strategies that improve the quality and impact of these services. Development and evaluation of these methodologies are the core questions addressed in this dissertation.

2. To whom, in addition to the academic community, are your research results of interest and why?

Pharmacy regulatory authorities are the stakeholders most directly interested in the results of our research as they are responsible for ensuring the safe and effective practice of licensed pharmacists with focus on protection of the public. In many countries, a component of this responsibility is the mandatory requirement for assurance of pharmacists' continuing competence to practice. The framework developed and evaluated for this dissertation stemmed directly from earlier work with the Canadian National Association of Pharmacy Regulatory Authorities (NAPRA) and was designed specifically for use by regulatory authorities for quality assurance of community pharmacists' practice.

Health quality assurance organizations, that have been developed on a national and provincial level, represent a second group of organizations interested in the results of this research. Most of these organizations have developed indicators that are used to evaluate the quality and impact of care provided by a range of health care professionals. As evidence and awareness grew of both the costs associated with preventable medication-related harms and the potential for management of these costs by pharmacists, interest in community pharmacy quality-of-care metrics and systems increased. In Ontario, the pharmacy regulatory authority (the Ontario College of Pharmacists, OCP) has partnered with the provincial health quality assurance organization (Health Quality Ontario, HQO) with the goal of developing four to five indicators that measure pharmacy practice quality and system-level impact (4). Results of our research were relied upon in the preparatory discussion for development of these indicators and, as described below, in the round-table discussion held in 2018.

Public and private payers of medications are a third group interested in the results of this research, particularly related to the methodologies developed to evaluate the impact of new pharmacists' services. The need for such evaluation systems has been identified by these stakeholders across Canada with interest expressed in our methodologies at both the provincial and federal level. Provincial payers have acknowledged making a leap of faith when agreeing to authorize and fund pharmacists' provision of professional services targeted at improving use of medications (5). In the absence of an accepted, evidence-based pharmacist-service evaluation framework, there is only limited and inconsistent evidence available documenting the impact of pharmacists' services. Private and public payers are responding to this lack of evidence by limiting and, in some cases, reversing decisions to fund pharmacists' provision of these services (6, 7).

Pharmacy advocacy organizations and pharmacy owners are the final interested group, the former of which represent practicing pharmacists on a national (i.e. Canadian Pharmacists' Association (CPhA)) or provincial (e.g. Ontario Pharmacists' Association) level. Chapter 3 presented a targeted effort to translate our research findings into

pharmacy practice. We used the barriers and facilitators identified via our continuing professional development framework to analyze the development and implementation of a well-recognized, quality pharmacists' travel health service. Published in CPhA's journal, this article was identified as a benchmark process to be used by pharmacists interested in implementing new services.

In addition to use of the framework for introducing new services, our methodologies for evaluating the impact of pharmacists' services are of particular relevance to these organizations and to pharmacy owners. To counter the actions of public and private payers to limit /reverse payment authorizations for pharmacists' services, pharmacy advocacy organizations and owners require robust evidence of the impact of these services.

3. Into which concrete products, services, processes, activities or commercial activities will your results be translated and shaped?

The preliminary nature of the research conducted for this dissertation limits the translation of results into concrete products or commercial activities, especially given that results highlight the shortage of evidence confirming the consistent impact of pharmacists' services on patient outcomes. However, our research results are influencing and being translated into the processes and activities of the four stakeholder groups as follows:

Pharmacy regulatory authorities: Results of our research were highlighted in 2018 at a national invitational meeting hosted by the pharmacy regulatory authority of Nova Scotia. This conference addressed the use of complexity theory to address the problem of how community pharmacists' practice could consistently and efficiently be transitioned to focus on improving patient's use of medications (8). Among presentations on pharmacists' attitudes, professional identity and reviews of evidence, our research results highlighted the need for measurement systems and indicators that are consistent with health systems' priorities and that measure what matters most to patients.

In follow-up to the April 2018 meeting, the Nova Scotia College of Pharmacists identified a number of undertakings related to community pharmacy quality metrics as part of their 2019 strategic plan. These include identifying how patients expect the status quo of their health to be impacted by the care they receive from a pharmacist, a summary of potential pharmacy quality-of-care indicators and a review of the evidence to support these indicators. As per the strategic plan, these undertakings aim to contribute to the development of policies that improve the Nova Scotia health care system by ensuring that the practice of pharmacy aligns with evolving patient care needs. Negotiations are presently underway for collaboration with the Nova Scotia College of Pharmacists to complete these undertakings including use of the results of this dissertation and the expertise gained via completion of the associated research projects and analysis.

Health quality assurance organizations: The introduction, analysis and research results from this dissertation served as the basis for the backgrounder written for the invitation-only roundtable hosted by OCP and HQO in May of 2018. This event built upon lessons learned to achieve consensus on a set of principles to guide the identification of pharmacy quality indicators for public reporting (9). Ideally this work will lead to the incorporation of measurement and reporting of pharmacists' care into HQO's existing suite of quality reports and resources (10). These include confidential and customized reports provided to family physicians that could potentially be modified to provide similar reports to community pharmacists. In addition, yearly public reports on the performance of Ontario's health system are created that could potentially incorporate indicators measuring quality of pharmacists' care (11).

Discussions are ongoing with these organizations to determine the next steps in incorporating the results of our research into the processes for both identifying appropriate community pharmacists' quality of care indicators and developing methodologies for using performance on these indicators to improve pharmacists' quality of care.

Public and private payers of medications: The Ontario Pharmacy Research Collaboration (OPEN) received \$5.7 million (Canadian dollars) in 2013 from the Ontario Ministry of Health and Long-Term Care Health System Research Fund to study the quality, outcomes and value of pharmacists' services (12). Results of our research projects informed the funding proposal for the project related to development of a pharmacists' services evaluation framework. Initial results of this work identified that development of this evaluation framework is a key priority across Canada, confirmed that no comprehensive, functioning pharmacy evaluation frameworks were available, and determined that priorities for evaluating methodologies were inconsistent across stakeholders (13, 14).

Results of our research continued to inform the work of OPEN via the 2014 invitational meeting where the use of quality indicators in community pharmacy was introduced as a methodology to both measure community pharmacists' quality of care and evaluate the impact of new pharmacists' services (15). This led to a Canadian Institute of Health Research grant to OPEN for a symposium entitled "Incorporating Quality Improvement into Community Pharmacy to Improve Drug Prescribing, Use and Health Outcomes for Older Adults" (16). Results of our research projects were presented as the keynote address at this conference (17). Learnings from this dissertation continue to serve as background to guide ongoing OPEN research projects, including those recently funded via an additional \$2 million (Canadian dollars) from the Ontario Ministry of Health and Long-Term Care Health System Research Fund (18).

In addition to interest from public payers, a key Canadian private insurer attended the 2014 presentation of our research results at the OPEN provincial meeting and subsequently expressed interest in developing a pharmacy quality measurement system for use within their insurance group. Follow-up led to Green Shield Canada insurance

group's introduction to the Pharmacy Quality Alliance (PQA) and subsequent partnership with PQA's Pharmacy Quality Solutions (PQS) to introduce Green Shield's Value Based Pharmacy program in Canada (19, 20). This program provides audit and feedback of pharmacy-level performance on selected quality indicators. Green Shield Canada has recently published their plans for performance improvement which include: Phase 1 provision of comparative feedback alone, Phase 2 pharmacy-level performance results available publicly via the internet for pharmacy selection, and Phase 3 variable dispensing fee reimbursements dependent on indicator performance (21).

As discussed in this dissertation, methodological questions remain regarding the appropriateness of the measures used within Green Shield Canada's program, the validity of assessment results for comparison purposes, and the evidence supporting pharmacists' capacity to improve their performance and to impact on patient outcomes. However, introduction of Green Shield Canada's commercial activity has piqued regulatory and professional interest in the appropriate selection of pharmacy quality metrics and methodologies for robust measurement and improvement in community pharmacists' performance. As no other research is ongoing in this area in Canada, our methodologies / indicators / recommendations are being considered by at least two provinces for use in development of more robust quality assurance programs.

Pharmacy advocacy organizations: The Canadian Pharmacists Association (CPhA) recently embarked upon a process to develop a forward-thinking, uniform national scope of practice for the profession of pharmacy across Canada (22). In follow-up to presentation of our research results and recommendations at the Nova Scotia College of Pharmacists' meeting, CPhA requested discussion regarding the definition and measurement of pharmacists' quality of care. Advocacy organizations are aware that in the absence of a nationally agreed upon, pragmatic, evidence-based definition of quality pharmacists' care, disparate and potentially self-serving definitions and metrics could be developed and applied across Canada.

4. To what degree can your results be called innovative in respect to the existing range of products, services, processes, activities and commercial activities?

Availability of detailed and linked administrative health data that included billing records for dispensings of medications and community pharmacists' services, access to a population-based sample of pharmacies and robust data analysis methodologies make this research unique in the world. Although the PQA has developed commercial systems for measuring and reporting pharmacy level performance across selected metrics in the USA, the primary stakeholder for this US-based work was the insurance industry (i.e. private payers). Green Shield Canada has recently introduced a PQA-based reporting system, adopting the PQA-insurance focus with less emphasis on evaluating the methodologies used by PQA / PQS or the theories underlying the measurement and improvement of pharmacists' quality of care. By contrast, these have been the focus of

the research completed for this dissertation, with emphasis on determining the requirements for appropriate selection and use of pharmacy quality metrics to improve both pharmacists' performance and patients' use of medications.

A number of countries have developed indicators aiming to measure the quality of pharmacists' care, with the Netherlands leading work including evaluation of the validity of their proposed indicators. However, despite ongoing work in the Netherlands, the USA, UK, the Organization for Economic Co-operation and Development (OECD) and the Pharmaceutical Care Network of Europe, recent reviews document a continuing lack of well-developed, validated indicators for measurement of the processes and outcomes of pharmacists' quality of care. The results of our analysis that indicated the need to re-evaluate the indicators most frequently selected as measures of pharmacists' quality of care have been adopted as best practice by the two pharmacy regulatory authorities working in this area in Canada. Our recommendations to both select indicators important to patients and health care systems, and to carefully evaluate the literature reporting on the impact of pharmacists' services on these indicators, formed the basis for ongoing strategic initiatives by the NSCP.

The detailed, coded data in our administrative health databases of pharmacists' service provision addressed the challenge faced by many countries of lack of documentation of service provision. Early work such as that in the Netherlands relied on self-report by pharmacists of services provided while the research in this dissertation capitalized upon the province of Quebec's long history of both reimbursing pharmacists for professional services and requiring service details for reimbursement. As pharmacists are increasingly being reimbursed to provide services, the methodologies developed via our research can be used to evaluate the impact of these services. Further, the methodologies developed for direct measurement of pharmacy characteristics from administrative health data and multi-level analysis of determinants of quality of care represent first published results. Our research results are, therefore, innovative and standard-setting for ongoing pharmacy-services' evaluation research and policy-initiatives at both provincial and federal levels.

5. How will this/these plan(s) for valorization be shaped? What is the schedule, are there risks involved, what market opportunities are there and what are the costs involved?

The primary factor shaping plans for valorization of our research results is market realization. The need for stakeholders to embark upon strategic initiatives related to defining and measuring pharmacists' quality and impact of care has been described. The more challenging question is whether pharmacy stakeholders acknowledge the breadth of these needs and/or the need for expertise and ongoing research to adequately address these strategic initiatives. Creation of policy is the focus of many of the relevant stakeholders, and policy development can be strongly influenced by political process and

administrative requirements. Consensus building can take priority with a tendency to focus on inclusivity rather than expertise. Therefore, risks include that work to identify evidence-based definitions of quality pharmacists' practice and community pharmacy quality-of-care metrics could be caught up in political processes and consensus building that is not necessarily evidence-based. This risk is exacerbated by the tendency of the profession to rely on pharmacy-only working groups and pharmacy-centric evidence for development of core policies (23). Core evidence and expertise may not be not considered (24), such as Mossialos et al's article on the lack of policy-relevant evidence to support the expanding role of the community pharmacist (25) or relevant, robust systematic reviews from the Cochrane Database (26, 27).

Increasing recognition of the potential for pharmacists to improve medication use is, however, creating new opportunities for both implementation of results of this dissertation and ongoing research. Funds such as those for medication optimization projects via the Frailty Network provide opportunities for further research (28). Ongoing collaboration with regulatory authorities offers more direct opportunities for knowledge translation and development of policies based on and further expanding the results of this dissertation.

References

1. Hepler CD, Strand LM. Opportunities and Responsibilities in Pharmaceutical Care. *Am J Pharm Ed* 1989; 53:7S-5S
2. Donaldson L, Kelley ET, Dhingra-Kumar N et al. Medication without harm: WHO's Third Global Patient Safety Challenge. *Lancet* 2017;389:1680-1.
3. World Health Organization. Medication without harm – Global Patient Safety Challenge on Medication Safety. Geneva: World Health Organization, 2017. License: CC BY-NC-SA 3.0 IGO. Available at: <http://apps.who.int/iris/bitstream/handle/10665/255263/WHO-HIS-SDS-2017.6-eng.pdf?sequence=1> Accessed July 5, 2018.
4. Ontario College of Pharmacists and Health Quality Ontario. Quality Roundtable: Pharmacy indicators 2018. June 13,2018. Toronto, Ontario, Canada.
5. Canadian Pharmacists Association. A Review of Pharmacy Services in Canada and the Health and Economic Evidence. Ottawa, ON: Canadian Pharmacists Association, February 2016. Available at: <https://www.pharmacists.ca/cpha-ca/assets/File/cpha-on-the-issues/Pharmacy%20Services%20Report%201.pdf> Accessed July 6, 2018.
6. Reductions to pharmacists' fees to save Alberta \$150 million, government says. *Edmonton Journal*. March 1, 2018. Available at: <https://edmontonjournal.com/news/local-news/reductions-to-pharmacists-fees-to-save-alberta-150-million-government-says> Accessed August 2, 2018.
7. Herczegh B. MedsCheck gets a re-set in Ontario July 2016. Available at: <https://www.pangaea-consultants.com/blog/medscheck-ontario-pharmacy-updates> Accessed August 2, 2018.
8. Nova Scotia College of Pharmacists. National Summit on Wicked Problems in Community Pharmacy. April 11, 2018. Halifax, Nova Scotia, Canada.
9. Health Quality Ontario and Ontario College of Pharmacists. Quality Roundtable: Pharmacy Indicators 2018. Available at: <http://www.ocpinfo.com/library/other/download/quality-roundtable-synopsis.pdf> Accessed September 5, 2018.
10. Health Quality Ontario. Quality Improvement. Available at: <http://www.hqontario.ca/Quality-Improvement> Accessed August 1, 2018.
11. Health Quality Ontario. Available at: <http://www.hqontario.ca/What-is-Health-Quality> Accessed July 6, 2018.
12. Ontario pharmacy Research Collaboration. Researchers awarded \$5.7 million to study pharmacist-led medication services to improve health of Ontarians. Available at: <http://www.open-pharmacy-research.ca/about/media-room/media-releases/open-launched/> Accessed July 6, 2018.
13. Ontario Pharmacy Research Collaboration. Pharmacist services evaluation framework. Available at: <http://www.open-pharmacy-research.ca/wp-content/uploads/pharmacist-services-evaluation-framework-fact-sheet.pdf> Accessed July 6, 2018.
14. Dolovich L, Slonim K, MacKeigan L et al. Capturing the perspectives of policy makers, physicians and pharmacists about the evaluation of pharmacy services. *Can Pharm J (Ott)* 2014;147(4):S11. Available at: <http://www.open-pharmacy-research.ca/wp-content/uploads/capturing-perspectives-evaluate-pharmacy-services.pdf> Accessed July 6, 2018.
15. Winslade N. Using Community Pharmacists' billing data to evaluate the appropriateness and impact of new services. Ontario Pharmacist's Research Collaboration Stakeholder Summit. Toronto, ON: October 2014.
16. Ontario Pharmacy Evidence Network. Available at: <http://www.open-pharmacy-research.ca/about/media-room/media-releases/incorporating-quality-improvement-into-pharmacy-to-improve-drug-rx-use-health-outcomes-older-adults/> Accessed July 6, 2018.

17. Winslade N. Community Pharmacists' Quality Improvement: Lessons learned from Quebec. OPEN Quality in Pharmacy Conference, CIHR Planning and Dissemination Grant. Toronto, ON, September, 2017.
18. OPEN awarded \$2 million to advance work in medication management. Available at: <http://www.open-pharmacy-research.ca/about/media-room/media-releases/open-awarded-major-funding-from-ministry-of-health-and-long-term-care/> Accessed August 2, 2018.
19. Green Shield Canada. Value-based Pharmacy Initiative. *Pharmacy update* August, 2017. Available at: https://www.providerconnect.ca/Carriers/GreenShield/Pharmacy/PharmacyPublications/en_CA/UpdateAugust2017_National.PDF Accessed June 29, 2018.
20. Welds K. What's your score from Green Shield? *Pharmacy U* December 4, 2017. Available at: <http://pharmacyu.ca/2017/12/04/whats-your-score-from-green-shield/> Accessed June 29, 2018.
21. Green Shield Canada. Measuring the performance of pharmacies. June 27, 2018. Available at: <https://www.greenshield.ca/en-ca/news/post/measuring-the-performance-of-pharmacies> Accessed August 1, 2018.
22. Canadian Pharmacists Association. Canadian Pharmacists Association brings together pharmacy experts to develop new vision for pharmacist role across Canada. Available at: <https://www.pharmacists.ca/news-events/news/canadian-pharmacists-association-brings-together-pharmacy-experts-to-develop-new-vision-for-pharmacist-role-across-canada/> Accessed July 6, 2018.
23. Canadian Pharmacists Association and Panacea Canada Inc. Pharmacy Thought Leadership Initiative: Summit Report. August 2016. Available at: https://www.pharmacists.ca/cpha-ca/assets/File/pharmacy-in-canada/Pharmacy%20Thought%20Leadership%20Summit%20Report_2016.pdf Accessed August 2, 2018.
24. Canadian Pharmacists Association and Intergage Consulting Group Inc. Research Report. Toward an Optimal Future: priorities for action. Available at: https://www.pharmacists.ca/cpha-ca/assets/File/pharmacy-in-canada/Thought%20Leadership%20Summit%20Research%20Report_01.pdf Accessed August 2, 2018.
25. Mossialos E, Naci H, Courtin E. Expanding the role of community pharmacists: Policymaking in the absence of policy-relevant evidence? *Health Policy* 2013;111(2):135-48.
26. Nkansah N, Mostovetsky O, Yu C et al. Effect of outpatient pharmacists' non-dispensing roles on patient outcomes and prescribing patterns. *Cochrane Database Syst Rev* 2010;7:CD000336.
27. Ryan R, Santesso N, Lowe D et al. Interventions to improve safe and effective medicines use by consumers: an overview of systematic reviews. *Cochrane Database Syst Rev* 2014;4(29):CD007768.
28. Medication Optimisation Catalyst Grants. Canadian Frailty Network. Available at: [http://www.cfn-nce.ca/improving-evidence-through-research-and-kt/canadas-most-significant-portfolio-of-knowledge-on-frailty-and-aging/our-portfolio-by-grant-type-or-competition/2017-catalyst-grants-\(medication-optimization\)/](http://www.cfn-nce.ca/improving-evidence-through-research-and-kt/canadas-most-significant-portfolio-of-knowledge-on-frailty-and-aging/our-portfolio-by-grant-type-or-competition/2017-catalyst-grants-(medication-optimization)/) Accessed August 6, 2018.

