Health Reform Observer -
Observatoire des Réformes de Santé

Volume 11 | Issue 1 | Article 5

Expanding the Scope of Community Pharmacy Practice in Nova Scotia: Impacts on Provincial COVID-19 Response

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4 September 2023

Special Issue: COVID-19 Pandemic Policies and Systems Reforms

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Recommended Citation: Sketris I, Bishop A, Ramsey T, Isenor J, Sanyal C. 2023. Expanding the Scope of Community Pharmacy Practice in Nova Scotia: Impacts on Provincial COVID-19 Response. *Health Reform Observer - Observatoire des Réformes de Santé* 11 (1): Article 5. https://doi.org/10.13162/hro-ors.v11i1.5403.

Abstract

Nova Scotia has expanded the scope of practice for community pharmacists by allowing, among other changes, pharmacist prescribing under specific circumstances (2011) and administration of drugs by injection (2013), thereby alleviating stress on the health system. Due to these progressive expansions in community pharmacy scope of practice, Nova Scotia community pharmacy personnel (about 1,500 pharmacists and 246 technicians working in 315 pharmacies) were rapidly able to play key roles in the province's response to the COVID-19 pandemic. Community pharmacies provided medicines, medical devices, personal protective equipment, hand hygiene solutions, thermometers, and pulse oximeters to patients and the public. In addition, they have responded to patients' COVID-19-related needs by treating symptoms; providing referrals; discussing the benefits and risks of COVID-19 vaccines and administering them; making nirmatrelvir/ritonavir assessments; and addressing vaccine hesitancy and the spread of misinformation about COVID-19. Moreover, as in some other provinces, community pharmacists in Nova Scotia have played a leading role in delivering COVID-19 vaccines from almost the start of the vaccination campaign in December 2020. Their role expanded further in May 2022, when pharmacists were granted prescribing authority for inhaled budesonide in accordance with the provincial protocol to treat mild SARS-CoV-2 respiratory symptoms.

La Nouvelle-Écosse a élargi le champ d'exercice des pharmaciens communautaires en autorisant, entre autres, la prescription par un pharmacien dans des circonstances spécifiques (2011) et l'administration de médicaments par injection (2013), soulageant ainsi le système de santé. Grâce à ces élargissements progressifs du champ d'exercice des pharmacies communautaires, le personnel des pharmacies communautaires de Nouvelle-Écosse (environ 1 500 pharmaciens et 246 techniciens travaillant dans 315 pharmacies) a pu contribuer de manière cruciale et rapide à la réponse de la province à la pandémie de COVID-19. Les pharmacies communautaires ont fourni des médicaments, des dispositifs médicaux, des équipements de protection individuelle, des solutions pour l'hygiène des mains, des thermomètres et des oxymètres de pouls aux patients et au public. En outre, elles ont répondu aux besoins des patients liés à la COVID-19 en traitant les symptômes, en orientant les patients, en discutant des avantages et des risques des vaccins contre la COVID-19 et de leur administration, en évaluant la pertinence de traiter certains patients au nirmatrelvir/ritonavir et en répondant à l'hésitation vaccinale et à la diffusion d'informations erronées sur la COVID-19. De plus, les pharmaciens communautaires de Nouvelle-Écosse, comme ceux d'autres provinces, ont joué un rôle de premier plan dans l'administration des vaccins contre la COVID-19 dès le début de la campagne de vaccination en décembre 2020. Leur rôle s'est encore élargi en mai 2022, lorsque les pharmaciens ont été autorisés à prescrire du budésonide inhalé, conformément au protocole provincial, pour traiter les symptômes respiratoires légers du SRAS-CoV-2.

Key Messages

- The Nova Scotia provincial government aimed to improve access to primary care services, including prescribing and vaccine administration services.
- The gradual expansion of community pharmacists' scope of practice in Nova Scotia was facilitated by provincial legislation, new reimbursement policies, a Health Canada subsection 56(1) class exemption, and provisions made to the Nova Scotia College of Pharmacists Standards of Practice in response to the COVID-19 pandemic.
- Community pharmacists contributed to medication management through activities such as adapting and renewing prescription medications.
- In contrast to some other provinces, community pharmacists in Nova Scotia administered COVID-19 vaccines from the early days of the campaign. Pharmacist provision of COVID-19 vaccines was facilitated by multistakeholder tables with the Nova Scotia Department of Health and Wellness, Nova Scotia Health, the Izaak Walton Killam Health Centre, the Nova Scotia College of Pharmacists, and the Pharmacy Association of Nova Scotia, among others.

Messages-clés

- *Améliorer l'accès aux services de soins primaires, y compris les services de prescription et d'administration de vaccins, a été une préoccupation constante du gouvernement de la province de Nouvelle-Écosse.*
- *L'élargissement progressif du champ d'exercice des pharmaciens communautaires en Nouvelle-Écosse a été facilité par la législation provinciale, de nouvelles politiques de remboursement, une exemption de catégorie au titre du paragraphe 56(1) de Santé Canada et des dispositions apportées aux normes de pratique de l'Ordre des pharmaciens de la Nouvelle-Écosse en réponse à la pandémie de COVID-19.*
- *Les pharmaciens communautaires ont été associé aux décisions thérapeutiques en étant autorisés à adapter les médicaments prescrits et renouveler les ordonnances.*
- *Contrairement à d'autres provinces, les pharmaciens communautaires de Nouvelle-Écosse ont administré les vaccins contre la COVID-19 dès les premiers*

jours de la campagne. L'administration des vaccins contre la COVID-19 par les pharmaciens a été facilitée par des discussions multipartites entre le ministère de la Santé et du Bien-être de la Nouvelle-Écosse, Nova Scotia Health, le centre de santé Izaak Walton Killam, l'Ordre des pharmaciens de la Nouvelle-Écosse et l'Association des pharmaciens de la Nouvelle-Écosse, entre autres.

Acknowledgement: The authors would like to thank Charmaine Cooke, Manager, Drug Technology and Assessment, at the Nova Scotia Department of Health and Wellness for carefully reading the manuscript and providing feedback.

1 BRIEF DESCRIPTION OF THE HEALTH POLICY REFORM

1.1 The need for reform

The COVID-19 pandemic increased demands on a provincial health system in which human resources were already constrained. In Nova Scotia, primary care is mainly delivered by fee-for-service family physicians, but with the increasing involvement of physicians working under alternative payment plans, nurse practitioners, and family practice nurses. Despite efforts since at least 2000 to improve access to primary care (Breton et al. 2022), the number of Nova Scotians who lack a primary care provider and are registered on the "Need a Family Practice Registry" list continues to increase with 120,409 (11.8%) of the population on the list as of November 1, 2022 (NS Health 2022a).

During the pandemic, community pharmacies, which remained open even during lockdown periods, became a critical primary health care option. Pharmacies became sites not only for the provision of medicines and medical devices but also COVID-19-related care, including symptom treatment and referral to other providers, discussion of the benefits and risks of COVID-19 vaccines and administering them, nirmatrelvir/ritonavir assessments, prescribing budesonide for COVID-19, and providing recommended personal protective equipment, hand hygiene solutions, thermometers, and pulse oximeters. Additionally, as in other jurisdictions, pharmacists addressed vaccine hesitancy (Lip et al. 2022), decreased the spread of misinformation about COVID-19 (Foong-Reichert et al. 2022), and submitted vaccine-adverse events following immunization reports (CANVAS 2023; NS Health DHW n.d.; Oosterhuis et al. 2023). Community pharmacists were reimbursed for nirmatrelvir/ritonavir assessments and for inhaled budesonide prescribing by the Nova Scotia government (Government of Nova Scotia 2022b).

1.2 The reforms

Pharmacists were already well positioned to contribute to the COVID-19 vaccine rollout having first been authorized by the Nova Scotia College of Pharmacists (NSCP) to administer drugs by injection in 2013 and having delivered most influenza vaccines in 2019. Pharmacies were also geographically distributed and practicing stringent cold chain requirements, thus providing a ready network for vaccine distribution and administration.

Moreover, work was already underway to enable pharmacy technicians to administer drugs by injection, but the pandemic strengthened the rationale for the amendments. In 2018, the NSCP initiated reforms to enable pharmacy technicians to administer drugs by injection. This led to the implementation of a regulation change in 2020, the first in Canada, that significantly increased the number of available immunizers. Collaboration between the NSCP and the Nova Scotia College of Nursing (NSCN) also enabled the employment of nurses by pharmacies to administer vaccines during the rollout. Similar to pharmacists,

nurses were accountable for their actions working in a pharmacy. Nurses, pharmacists, and other health care providers collaborated based on the guidance provided by the Nova Scotia COVID-19 Vaccine Program and by Nova Scotia Public Health for COVID-19 testing (NSCN 2021). To administer vaccines, pharmacists and pharmacy technicians need to complete a NCSP-recognized training program and obtain a permit to administer drugs by injection. Training in the administration of injections addresses the immunization competencies specified by the Public Health Agency of Canada (PHAC 2008).

Pharmacists and pharmacy technicians were guided by Health Canada COVID-19 vaccine indications, the National Advisory Committee on Immunization (NACI) statements and publications, as well as provincial recommendations (NS Health 2022c) and educational webinars and publications and guidelines from such organizations as Nova Scotia Health, the IWK Health Centre, the NSCP, Pharmacy Association of Nova Scotia (PANS), the Canadian Pharmacists Association, Health Canada, the Public Health Agency of Canada, international organizations, and the scientific literature (NS Health 2022c; NSCP 2022a; CADTH 2020; NACI 2022; CPhA 2022; FIP 2021; WHO 2022; Government of Canada 2022a). In addition, various government and multistakeholder committees assisted in providing guidance and advice, such as the Nova Scotia Vaccine Expert Panel (IWK Health 2022) and the COVID Pharmacy Planning Group. The Nova Scotia Health Pharmacist Vaccine Consult Service was also formed to answer questions from immunizers seven days a week (NS Health 2022b).

Pharmacists began administering COVID-19 vaccines in December 2020. COVID-19 vaccine administration for eligible Nova Scotians was paid for by the Nova Scotia government. Pharmacists received a fee of $16 initially for vaccine administration which increased to $18 in April 2022 (Government of Nova Scotia 2022b). The rollout of COVID-19 vaccines was aided by a centralized vaccine booking system using the CANImmunize platform (Fitzpatrick et al. 2023) and individuals without internet access or who required help could receive assistance in booking through a toll-free telephone number. While the initial vaccine rollout included mass vaccination clinics run by provincial public health, these ceased operation in August 2021 and community pharmacies became the leading providers of COVID-19 vaccines. In May 2022, the NSCP enabled pharmacists to prescribe inhaled budesonide in accordance with an approved protocol (NSCP 2022b) for treatment of mild SARS-CoV-2 respiratory symptoms (NSCP 2022a).

To determine the need for antiviral medications and neutralizing monoclonal antibodies for non-severe COVID-19, Nova Scotians completed an online report and support screening form to self-report their symptoms and comorbidities when they test positive on a COVID-19 rapid test or when a PCR test was booked. As with booking for vaccines, individuals without internet access or who required help completing the form could receive assistance through a toll-free telephone number. Unlike other provinces and territories, community pharmacists were not authorized to prescribe antiviral treatments; instead, a centralized team of hospital pharmacists took the lead. Eligible individuals were screened by a dedicated Nova Scotia Health COVID-19 Non-severe Pharmacist Consult Service (NS Health

2022b). These hospital pharmacists also had access to the provincial prescription drug information system, immunization repository feeds, provincial PCR test results, long-term care residential status, and advice from medical specialists, which they used to identify and prescribe for patients at high risk for progression to severe disease, including addressing potential drug interactions. The Consult Service consists of pharmacists that prescribe for nirmatrelvir/ritonavir and remdesivir and collaborate with physicians who prescribe neutralizing monoclonal antibodies. Community pharmacists continued to dispense, assess, and monitor the patients for nirmatrelvir/ritonavir drug efficacy and safety and further interactions with prescription and non-prescription medications and natural health products using an assessment protocol (NS Health 2022d). Those assessing and prescribing budesonide for COVID-19 related symptoms were remunerated a fee of $20 (personal communication with Lisa Woodill, Director of Pharmacy Practice, Pharmacy Association of Nova Scotia, 15 May 2023).

Prior to COVID-19, pharmacists had a number of roles related to optimizing the use of opioid analgesics including working with other health care providers to help identify patients who are able to use alternatives to opioids; to consider optimal type, dose, formulation and initial duration of opioid use; and to monitor for effectiveness, adverse effects, drug interactions and potential for misuse by using the Nova Scotia government's opioid use and overdose framework and other resources (Sanyal 2021; Government of Nova Scotia 2022a). During the COVID-19 pandemic, for the first time, pharmacists were able to prescribe narcotics, controlled drugs, and targeted substances in accordance with the Health Canada Subsection 56(1) Class Exemption issued in October 2020 and its provisions. The NSCP established an emergency protocol for prescribing narcotics, controlled and targeted drugs that outlined additional provisions and safeguards for prescribing for opioid use disorder and acute pain. These provisions were later formalized into the standards of practice for prescribing drugs (NSCP 2022a).

Nova Scotia pharmacists have been able to prescribe under specific circumstances since 2011 and to conduct medication reviews since 2008, but the uptake of some of these services has been limited (Deal et al. 2018). The NSCP first established the Standards of Practice: Prescribing Drugs in 2011, which enabled prescribing for minor ailments, with additional authority added in 2019 to prescribe renewals for up to 180 days and to assess and prescribe for shingles, uncomplicated cystitis, and contraception management. Prescribing was also enabled within collaborative practice arrangements with a patient's primary care provider when a diagnosis was provided. Prescribing authority was further expanded during the COVID-19 pandemic to include prescribing for renewals with no time limit, Lyme disease chemoprophylaxis, prescribing for treatment of SARS-CoV-2, and prescribing for narcotics, controlled and targeted substances.

The Nova Scotia Department of Health and Wellness (DHW) provides a pharmacy guide to community pharmacists that includes information such as the Pharmacare tariff agreement between DHW and PANS, as well as billable fees, for example, those for prescribing renewals and COVID-19 services (Government of Nova Scotia 2022b). In January

2020, ahead of the pandemic's arrival in Nova Scotia, pharmacies were remunerated by the provincial government for the assessment of uncomplicated cystitis, shingles, and contraception management; however, remuneration for the assessment of prescription renewals of up to 180 days, which was set to take place on 1 April 2020, was moved up to 19 March 2020. The provincial government also waived the requirement that prescribing assessments be done in person to encourage the use of virtually enabled care. Medication management services for select groups of patients were funded by government or others.

1.3 The goals of the reform

The goals of the pre-pandemic and pandemic-era reforms were to improve access to primary care by allowing pharmacy practitioners to bring the full extent of their knowledge and skills to meet medication and vaccination needs of all Nova Scotians. Specifically, the goals were to fully utilize the medication expertise of pharmacists in collaboration with the other health care professionals; increase access to drug therapy for acute medical conditions; improve chronic drug therapy management and medication adherence; manage drug shortages; increase the uptake of COVID-19 and influenza vaccines; and reduce transmission of COVID-19 through virtually enabled care. The anticipated benefits included continued access to pharmacy care, such as prescription renewals and pharmacist prescribing, improved medication safety and effectiveness, and addressing public health issues.

The province had varying targets for its population to receive COVID-19 vaccines depending on the patient group and the phase of the pandemic. One goal was to ensure that 75% of Nova Scotians had received their primary series by 15 September 2021. Pharmacists were expected to play a significant role in facilitating COVID-19 vaccine uptake as they had demonstrated with increasing the uptake of influenza vaccines (Isenor, O'Reilly, Bowles 2018; Isenor et al. 2016a, 2016b).

2 HISTORY AND CONTEXT

Nova Scotia has a publicly funded health care system with primary care provided by physicians, nurse practitioners, pharmacists and others (Fierlbeck 2018). Pharmacies are privately owned. Medication reviews, medication dispensing, and specific aspects of prescribing, as well as administration of specific vaccines are funded by provincial and federal government programs, private insurance programs, and by patients' out-of-pocket payments. Pharmacies are readily accessible in the community – in 2013, 40% of Nova Scotians lived within walking distance of a pharmacy, with 63% and 79% living within 2 km and 5 km, respectively (Law et al. 2013). There are approximately 1,500 pharmacists, 246 pharmacy technicians, and 315 pharmacies in Nova Scotia. Seventy-six percent of pharmacists practice direct patient care in the community setting; of those, 86% have an injection permit, 7% are internationally trained, 73% are women, 25% practice in a rural community, and 6% were new graduates in December 2022. One hundred and thirty-two pharmacy technicians have

an injection permit (personal communication with Beverley Zwicker, CEO and Registrar, Nova Scotia College of Pharmacists, 28 December 2022). Community pharmacists have played a key role in primary care in previous public health emergencies (Austin, Martin, and Gregory 2007) and the current pandemic (Merks et al. 2021; OCP 2022).

The community pharmacist's role has been expanding as primary care access has become increasingly limited, and as pharmacists and the public have gained experience with other pharmacy clinical services such as renewing prescriptions, prescribing for minor ailments, providing vaccinations, and other activities (Mossialos et al. 2015). Some studies have shown that pharmacy services such as medication therapy management and smoking cessation programs have increased patient access to health care, improved clinical and humanistic outcomes, decreased use of other health services, and increased cost effectiveness (Varas-Doval et al. 2021; Beahm, Smyth, Tsuyuki 2018; Sanyal et al. 2019; Beahm, Smyth, Tsuyuki 2018, 2021; Canadian Academy of Health Sciences 2023). Randomized controlled trial data on the effectiveness of pharmacist management of numerous conditions is available, including showing improved blood pressure control and improved abstinence from tobacco (Varas-Doval et al. 2021).

The NSCP is the regulatory authority of the profession charged with the mandate to govern the practice of pharmacy in the interest and well-being of the public. The NSCP Council has the power to set practice standards in accordance with the *Pharmacy Act* and regulations. Since 2010, all Canadian provinces have had expanded scope of practice for pharmacists with provincial variations. The role of pharmacists in Nova Scotia has been examined and modified, expanding the scope of practice of pharmacists and roles to optimize medication management and help alleviate pressure on the health system since 2011 (Rafferty et al. 2017; Paudyal et al. 2013; Deal et al. 2018). The funding, reimbursement, and models for pharmacy services and their impact were also examined (Rafferty et al. 2017). The medication and vaccine-related services included various COVID-19 practice provisions enabled by the NSCP. The NSCP also worked closely with the Nova Scotia DHW to make amendments to pharmacy practice regulations and the registration, licensing and professional accountability regulations to optimize the pharmacy workforce, enable pharmacy technicians to administer drugs by injection, and ensure practice alignment with the COVID-19 vaccine rollout.

COVID-19 vaccine pharmacy planning groups, the COVID-19 Task Force Immunization Core Planning Team, and the COVID Pharmacy Planning Group, (consisting of DHW Pharmaceutical Services, CANImmunize, Supplies, Bio Depot, and Public Health), NS Public Health, PANS and NSCP, and the NS Health Pharmacist Vaccine Consult Service were tasked with planning and implementing the COVID-19 vaccine rollout in community pharmacies (NS Health 2021). The NS COVID Community Pharmacy Therapy Working Group, consisting of DHW Pharmaceutical Services, NS Public Health, PANS and NSCP, and the NS Health COVID-19 Non-severe Pharmacist Consult Service was formed to expedite implementation of nirmatrelvir/ritonavir assessment and inhaled budesonide prescribing by community pharmacists (NS Health 2022b).

3 THE POLICY-MAKING PROCESS

The scope of pharmacy practice is formally enabled through additions to the NSCP Standards of Practice (Prescribing, Drug Administration, Testing). The addition of scope of practice authority is informed by the NSCP Review of Scope of Practice Framework (NSCP 2019a), and also by the Approach to Scope of Pharmacy Prescribing when adding new prescribing authority (NSCP 2019b). Policy making in support of scope additions is evidence-informed and includes a review of published literature, as well as evaluation data that is available from demonstration projects. There are two primary pathways in the framework: If the new specific activity is consistent with the authorized legislated scope of practice, the Council determines the addition to the list of pharmacy practice activities; if it is not, legislative changes are needed. The process varies in length depending on the public interest needs and urgency which includes identifying necessary safeguards to protect the public.

The Nova Scotia government used new pharmacist reimbursement policies for pharmacist services to assist in their uptake during the COVID-19 pandemic. For example, since the demand for COVID-19 vaccinations was increased and exceeded the capacity of family physicians and nurse practitioners, PANS submitted proposals for funding of specific activities in the pharmacist's expanded scope of practice and some of these were funded in the tariff agreement. The NSCP established standards for pharmacy practice including pharmacist prescribing and issued vaccine administration permits. Nova Scotia Health/Public Health, Dalhousie's College of Pharmacy, PANS and others provided training and certification to pharmacists who administered COVID-19 vaccines. There were also several updates to the Pharmacy Services Agreement outside of the usual tariff negotiation which included the addition of an injection fee for COVID-19 vaccines initially of $16 (personal communication with Lisa Woodill, Director of Pharmacy Practice, Pharmacy Association of Nova Scotia, 3 May 2023).

4 IMPLEMENTATION

Pharmacists have been providing vaccinations in Nova Scotia since August 2013, when a new *Pharmacy Act* came into effect in authorizing pharmacists to administer drugs by injection. Vaccination rates in community-dwelling patients aged 65 years and older increased from 62% in 2012-2013 to 72%, the first year after which pharmacists started providing influenza vaccinations (Isenor, O'Reilly, and Bowles 2018; Isenor et al. 2016a). Pharmacists continued to administer influenza and other vaccines during the COVID-19 pandemic (Isenor and Bowles 2019). Pharmacist administration of influenza and COVID-19 vaccines has been expanded to include infants six months of age or older (NSCP 2022a).

The following provincial reforms in response to COVID-19 aimed to protect the health and well-being of pharmacy personnel and the public. In April 2020, the NSCP established "Pharmacy Infection Control Measures during COVID-19" in close consultation with Nova Scotia Public Health and PANS (NSCP 2020a). Infection prevention and control measures

were communicated to all pharmacy practitioners, pharmacy managers, and owners to ensure that pharmacy staff were taking appropriate steps to protect themselves and the public. The document included guidance on social distancing, including one-way traffic in pharmacies, spacing for patients waiting for prescriptions, personal protective equipment and pharmacy hygiene, cleaning and disinfecting policies, and other aspects which affected the pharmacy's operation. Many pharmacies provided medication delivery services which were especially useful for vulnerable and quarantining patients. The NSCP also provided guidance to split pharmacy staff into two distinct teams to assist during times of significant COVID-19 transmission within the pharmacy.

Pharmacists also needed to manage medication shortages that occurred due to supply chain issues as well as increased demand for specific medications (e.g., medications for asthma and COPD and pediatric formulations of acetaminophen) (Government of Canada 2022b). Patients heard about drug shortages on the news, and some tried to stockpile medications. In March 2020, as there were significant shortages across many medication classes, the NSCP communicated a strong recommendation that prescriptions be limited to a 30-day supply (NSCP 2020b) and the Nova Scotia government made a policy decision to cover additional dispensing costs stemming from shorter prescriptions for Pharmacare patients.

At times, experimental or non-evidence based medications for COVID-19 were inappropriately prescribed, including lopinavir and ritonavir, ivermectin and hydroxychloroquine, and community pharmacists provided advice to discourage their use for COVID-19 to preserve supply for approved indications (NSCP, CPSNS, and NSCN 2020).

Pharmacists also needed to learn about and provide COVID-19 medications such as inhaled budesonide, antiviral drugs (e.g., remdesivir or nirmatrelvir/ritonavir (Paxlovid), anti-SARS-CoV-2 monoclonal antibodies (e.g., bamlanivimab, sotrovimab, tixagevimab/ cilgavimab), anti-inflammatory drugs (e.g., dexamethasone), and immunomodulating agents (e.g., tocilizumab, baricitinib) (NS Health 2022e, 2022f). The guidance for prescribing antivirals and neutralizing monoclonal antibodies for COVID-19 is different in each province, with Ontario, Alberta, Saskatchewan, and New Brunswick allowing community pharmacists to test and treat with nirmatrelvir/ritonavir. In Nova Scotia, community pharmacists encouraged patients to complete a report and support form online or by phone to self-refer for medication assessing and prescribing by a team of designated physician and pharmacist prescribers offering virtual care from the provincial health authority. Pharmacists needed to know the narrow time window to initiate therapy and the many potential drug interactions that may have required adjustments to the antiviral drug and other medications (University of Liverpool. n.d.).

5 EVALUATION

Grant et al. (2023b) examined the uptake of pharmacists' prescribing using health services databases from November 2016 to March 2020, providing both methods and a baseline for future studies. Approximately 1,182 pharmacist prescribers prescribed on average 24.6, 26.3, and 32.5 ($p<0.001$) times per month in fiscal years 2018, 2019, 2020, respectively. 372,203 Nova Scotians received pharmacists prescribing services over the study period. An ongoing study examined Nova Scotia community pharmacists' roles in caring for unattached patients before and during the COVID-19 pandemic. One of the key findings in the qualitative results published was that pharmacists played a critical role in providing primary health care to a growing number of unattached patients (Isenor et al. 2022). Grant et al. (2023a) electronically surveyed self-reported prescribing patterns (e.g., in an emergency, renewal, or adaptation) of Nova Scotia community direct patient care pharmacists pre-COVID-19 and during the first few months of the COVID-19 pandemic and found that the proportion of high-frequency prescribers (defined as 15 or more times per month) increased from 50% to 80% during the early months of the pandemic and that payment by government insurance for pharmaceutical services provided increased from 28% pre-COVID-19 to 80% post COVID-19.

Further studies could examine the impact of new prescribing services started during the COVID-19 pandemic using the quadruple or quintuple quality improvement frameworks (Nundy, Cooper, and Mate 2022) and understanding that community pharmacies are part of health care's complex adaptive system (Rapport et al. 2022). Areas that could be examined include: the distribution of new pharmacy services by geography or patient group; the effect of services on patient outcomes and health system costs; patient and other health care provider perceptions of services; pharmacist's role satisfaction and well-being; improvements in the pharmacy practice environment; and, adequacy of staffing models (El Hajj et al. 2023; Houle et al. 2022; Kim et al. 2021; Lam, Lynd, and Marra 2023; Piraux et al. 2023; Taddio et al. 2022).

6 STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

Table 1 summarizes the strengths, weaknesses, opportunities, and threats of the Nova Scotian Community Pharmacists' Expanded Scope of Practice including during the COVID-19 pandemic from the perspective of patients, pharmacists, regulator, and the health system.

Table 1: SWOT Analysis

Strengths	Weaknesses
• Pharmacy practitioner scope was well positioned prior to the pandemic, enabling quick integration into the provincial COVID-19 pandemic response. • Increased patient access to primary care. • Increased pharmacist's role satisfaction. • Requirement for a private counselling room in every pharmacy since 31 December 2020 contributed to patient acceptance. • Responsive educational programs assist with regulatory and reimbursement changes. • A provincial drug information system that identifies all prescriptions dispensed. • Pharmacists' ability to access patients' laboratory results. • Peer support program provided by PANS, NS Health Pharmacist Vaccine Consult Service, and the NS Health COVID-19 Non-severe Pharmacist Consult Service. • New multi-stakeholder communication channels developed for COVID-19 were used to assist with mpox protocols and will help in future pandemics. • Close collaboration between the NS COVID-19 Therapeutics and Prophylactics Advisory Group (NSTPAG), NSCP, and PANS, and dedicated leadership between these organizations. • Many pharmacy services were publicly funded by the Nova Scotia government providing an additional source of revenue for community pharmacies.	• Limited scale up and spread of some pharmacy innovations and services. • Some pharmacists feel further training is needed to provide certain patient care roles. • The multiple roles and limited capacity make service provision challenging. • Lack of validated key performance indicators for clinical activities for community pharmacy and limited ability to perform quality assurance audits. • Because the *Canada Health Act* excludes many services outside of physicians' offices and hospitals, some pharmacy services may not be publicly funded. • There is limited harmonization of scopes of pharmacy practice due to the federal/provincial/ territorial delivery of health care resulting in a limited availability to conduct large-scale cross jurisdictional evaluations of the impact of scope of practice changes. • Limited evaluation of new scopes of practice including accessibility, efficiency, effectiveness, cost effectiveness, patient and provider satisfaction and comparison of health care models. • Pharmacy practice management systems are designed primarily for dispensing functions, not clinical pharmacy services, and medication error reporting systems may not capture complete information.

Strengths (cont'd)	Weaknesses (cont'd)
• The NSTPAG provided evidence-based recommendations for consideration within NS Health, PharmaCare, and the IWK, and had representation from all groups and DHW, NS Health infectious diseases, bioethics, and more. The co-chairing of this group by a pharmacist and a physician demonstrated interdisciplinary collaboration.	

Opportunities	Threats
• Educational institutions could continue to provide skills and experiential training to quickly integrate pharmacists into the workplace. • Further integration of community pharmacists as part of the primary care team. • Development of shared team-based electronic health records such as the establishment of one electronic health record for every Nova Scotian. When implemented, the One Person One Record (OPOR) technology will help decrease hospital physician and administrator burden. OPOR will amalgamate online hospital systems to better share patient information. • Improved pharmacy workflow with appointment-based clinical activities. • Expanding the role of pharmacy technicians in pharmacy operations. • Funding and reimbursement of additional pharmacist clinical or vaccine services. • With regulation changes, opportunities for pharmacists to practice outside of traditional pharmacy settings.	• The high start-up costs to start new services. • Need for further leadership and change management skills for pharmacists. • Shortage of personnel (pharmacy assistants, technicians, and pharmacists), and difficulty recruiting training and retaining personnel. • Pharmacist stress and burnout leading to medical leaves, resignations, and retirements. • Ability to determine reimbursement models which provide value for money for payers and appropriate compensation for pharmacy service delivery. • Interprofessional territoriality can impede seamless patient care. • Inherent tension in providing health care within a retail environment.

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