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PRACTICE BRIEF ■ PEER-REVIEWED

The Ontario Pharmacy Evidence Network Atlas of Smoking Cessation Services

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Introduction

Tobacco smoking is a significant public health concern. It is estimated that more than 40,000 deaths and $6.5 billion in direct health care costs are attributable to tobacco smoking in Canada each year.[1] Individuals who smoke tobacco or who are exposed to second-hand smoke are at increased risk of respiratory disease, cardiovascular disease and cancer.[2] It is well known that quitting smoking can improve immediate and long-term health,[3] yet nicotine dependence is a significant barrier to smoking cessation.[4] Multimodal approaches that include medication and counselling services promote successful smoking cessation.[5-7]

Smoking cessation interventions provided by pharmacists are effective in assisting individuals to quit tobacco smoking.[8,9] Pharmacists are ideally situated in the community to initiate dialogue on smoking cessation and can provide ongoing social support and maintenance drug therapy. Pharmacies are also easily accessible for follow-up visits. However, the delivery and public reimbursement of pharmacist-led smoking cessation services varies considerably across Canada (Table 1). The Ontario Pharmacy Smoking Cessation Program was launched on September 1, 2011, and is restricted to beneficiaries of the Ontario Drug Benefit program.[22,31] Pharmacies are remunerated for providing smoking cessation services upon submitting a product identification number in the drug identification number field. The program can include 1 consultation/program enrolment per year ($40), up to 3 primary follow-up sessions within 3 weeks of enrolment ($15) and up to 4 secondary follow-up sessions within 1 to 12 months of enrolment ($10).[31] Pharmacists are asked to report on patient quit status without remuneration (successful quit, unsuccessful quit, unknown/withdrawal).

The purpose of this research brief is to describe the Ontario Pharmacy Evidence Network (OPEN) Atlas Tool of community pharmacist smoking cessation services in Ontario.[32] Prior research briefs include an overview of the OPEN Atlas Tool with methodological detail,[33] a summary of the MedsCheck suite of services,[34] and results from the influenza immunization program.[35]

Methods

All claims for pharmacist smoking cessation services that were submitted for remuneration through the Ontario Drug Benefit program from program launch in September 2011 through to the end of December 2019 were identified. Claims were linked to the Registered Persons Database to obtain patient age, sex and postal code at the time of service delivery. These data sets were linked using unique encoded identifiers and analyzed at ICES. Persons aged younger than 12 years, missing age or sex, with death date before the first smoking cessation service date and those receiving any smoking cessation service other than a first consultation at their first service date were excluded due to data errors. Duplicate claims (more than 1 claim submitted on the same date for a single patient) were deleted. Patients with a missing postal code were excluded from regional analyses. Statistics Canada intercensal estimates, regional boundaries and Health Region Boundary spatial files were used to obtain annual population estimates by age group, sex and region, defined by Local Health Integration Network.[36,37] Histograms of remunerated service claims by service type and region of patient residence were generated and presented as counts and rates per 10,000 persons. Findings were presented overall, by sex and by age group (12-44, 45-64, ≥65 years).

Results

A total of 19,026 Ontario residents received 62,149 smoking cessation services between September 2011 and December

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TABLE 1 Summary of publicly funded pharmacy smoking cessation programs across Canada

	Pharmacy smoking cessation program			Public drug coverage*	
Province/territory	**Publicly reimbursed counselling services**	**Year initiated**	**Pharmacists can prescribe Rx for smoking cessation**	**Rx**	**NRT**
British Columbia[10-12]	×	N/A	×	☆	✓
Alberta[10,11,13-16]	✓	2014	✓	✓	✓
Saskatchewan[10,11,13,17]	✓	2004	✓	☆	×
Manitoba[10,17-21]	✓	2022	☆	☆	✓
Ontario[10,12,22,23]	✓	2011	✓	✓	×
Quebec[10,11]	☆	N/A	✓	✓	✓
New Brunswick[10,12,18,24]	×	N/A	✓	✓	✓
Prince Edward Island[10,12,18,25]	×	N/A	✓	✓	✓
Nova Scotia[10,18,26,27]	×	N/A	✓	✓	☆
Newfoundland and Labrador[10,12,18,28]	×	N/A	✓	✓	✓
Yukon[12,18,29]	×	N/A	×	✓	☆
Northwest Territories[12,18,30]	×	N/A	×	✓	✓
Nunavut[10,13]	×	N/A	×	✓	✓

As of November 2021 under a province- or territory-specific public health plan: × = no, ✓ = yes, ☆ = somewhat, with details provided below. NRT, nicotine replacement therapy; Rx, prescription smoking cessation medications (bupropion and varenicline). Generally, coverage = 12 weeks/year. British Columbia: varenicline partial benefit, bupropion full benefit; Saskatchewan: reduced cost or free depending on plan; Manitoba (updated May 2022): pharmacists can prescribe only varenicline; varenicline covered at a reduced cost, no bupropion coverage; Quebec: reimbursement for prescribing under minor ailments rather than for counselling services; Nova Scotia: NRT coverage available through Stop Smoking Services; Yukon: NRT coverage available through QuitPath program.

*Eligibility varies by province. Prince Edward Island offers all adult residents public coverage for cessation medications, and British Columbia offers all eligible residents coverage for NRT. Other provinces and Yukon provide support based on eligibility for provincial coverage plans (e.g., income level, age). Federal drug coverage is available to registered First Nations and recognized Inuit under the Non-insured Health Benefits Program (NIHB), irrespective of province or territory of residence. Residents of Northwest Territories and Nunavut who are not insured under NIHB can receive provincial coverage.

2019. The number of people accessing the program was approximately equal by sex (9393 female, 9633 male), with an overall mean age of 52.4 years (SD 15.6). Rates of pharmacist smoking cessation services were consistently higher among females than males in those aged less than 45 years and conversely consistently higher for males than females in those aged 45 years and older (Table 2). One important limitation of note is that we did not have a true denominator of individuals who smoke tobacco and were interested in quitting (i.e., were eligible for the program). We based rate calculations on the total number of individuals in Ontario by sex in each age group,[33,37] and thus rates are underestimations of the true rate of people interested in smoking cessation who were involved in the pharmacist smoking cessation program.

Participation increased over the first 2 years of the program, reaching a high of 1166 claims in April 2013, followed by a general decline through to the end of December 2019 with a low of 287 claims. Figure 1 presents the number of smoking cessation services remunerated over time by region of Ontario (Figure 1A) and by service type (Figure 1B). The number of first consultations for the smoking cessation program tended to be highest in the first 3 to 4 months of each calendar year, followed by a high in the total number of services between March and June. The lowest number of total services was

TABLE 2 Rates of pharmacist smoking cessation service claims per 10,000 people in Ontario by age group, sex and calendar year

Age, years	Sex	2011*	2012	2013	2014	2015	2016	2017	2018	2019
12 to 44	Female	0.76	2.46	2.47	1.75	1.36	1.18	1.11	1.25	0.86
	Male	0.67	1.99	1.86	1.44	1.18	0.98	0.81	1.11	0.81
45 to 64	Female	1.43	4.10	3.97	3.14	2.51	2.47	2.26	1.92	1.56
	Male	1.62	4.37	4.67	3.36	2.62	2.52	2.48	2.22	1.76
65+	Female	1.52	4.96	5.03	4.16	3.40	3.11	2.86	2.42	2.18
	Male	2.21	6.91	6.64	6.04	4.68	4.30	4.52	3.34	3.05

*The pharmacy smoking cessation program launched in September 2011, and thus 2011 rates are limited to 4 months of delivery; all other years include claims submitted from January 1 to December 31 each calendar year.

typically delivered in December of each calendar year. The number of smoking status evaluations remained low throughout the observation period, with a high of 58 evaluations submitted in November 2013.

Differences in trends over time by region are more easily identified when the histogram is restricted to include fewer regions. Here, we present an example restricted to the 2 most southwestern regions of Ontario (Figure 1C). A clear overall decline in service use is apparent in the Erie St. Clair region, yet a fairly stable and more recent increase in the number of submitted claims is apparent in the South West region. It is important to remember that the *y*-axis in the Atlas tool changes to best fit the filtered data being presented and thus is much smaller when only the 2 southwestern regions are included. Herein, we provide an example of how the Atlas Tool can help examine differential use of pharmacist services across the province.

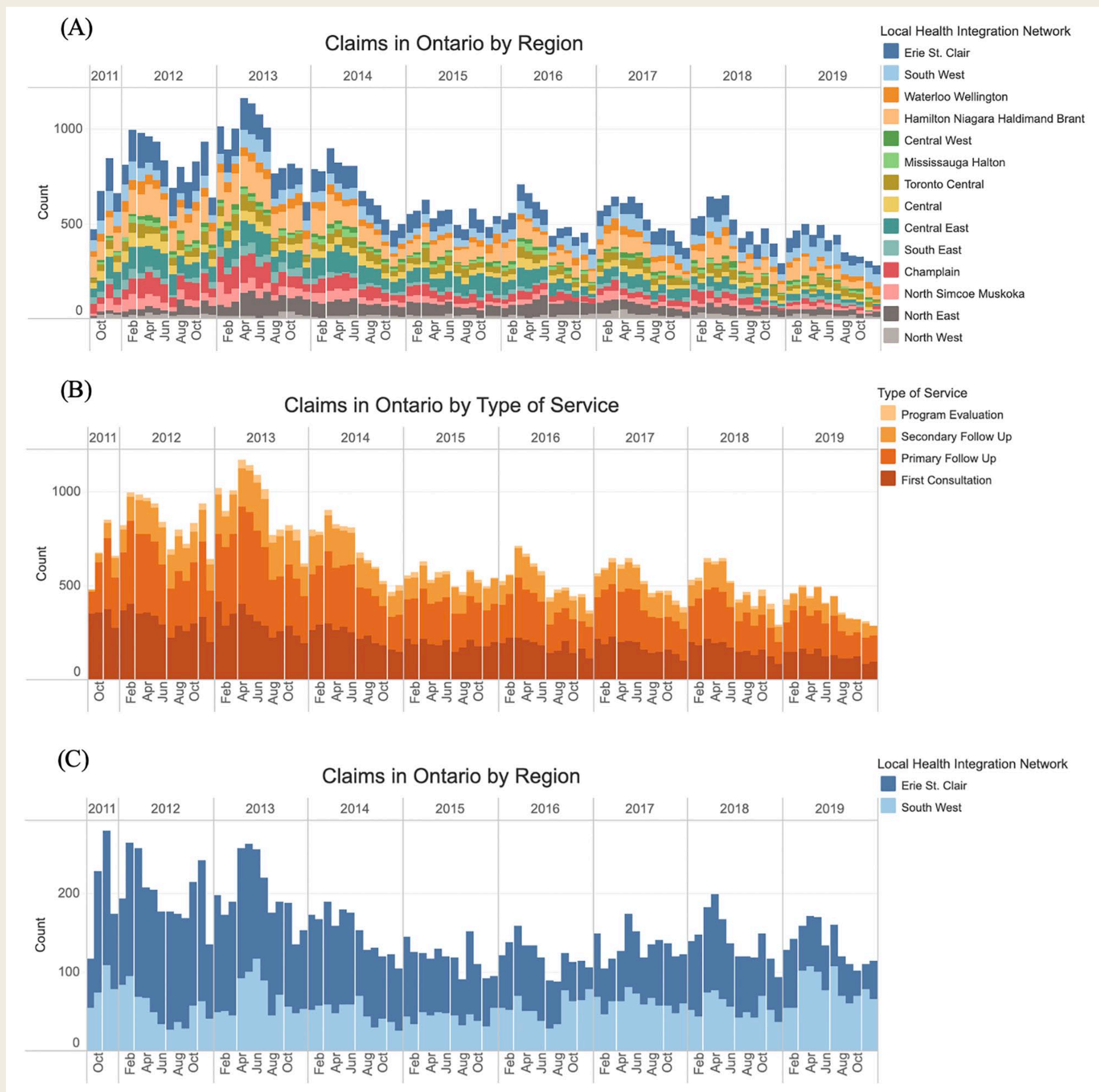
Discussion

The OPEN Atlas Tool provides interactive descriptive summaries in trends, age and sex of residents receiving pharmacist services and regional differences represented in choropleth maps. More than 19,000 Ontarians accessed pharmacist smoking cessation services within 8 years of program availability. We identified an overall decline in service delivery after an initial increase over the first 2 years of the program. Although it is disappointing to see a slow continued decline in the use of pharmacist smoking cessation services overall, it is comforting to note that the use in some regions of the province has recently been increasing. There are more male than female smokers in all age groups in Ontario,[38] and thus, the higher claim rate for females compared with males among those younger than 45 years was somewhat unexpected. The higher claim rate among females in this age group may reflect females initiating smoking cessation earlier in life in response to or in preparation for pregnancy. It is estimated that more than half of pregnant women in Canada who smoke tobacco quit by the third trimester of pregnancy.[39] Importantly, quit status reporting remained low throughout all 8 years of the program. Without information on patient quit status, it is difficult to assess the program's success at facilitating smoking cessation. The low number of smoking status evaluations may reflect patient attrition or lack of remuneration for submitted claims.

The data presented in the OPEN Atlas Tool of pharmacist smoking cessation services can provide insight for resource allocation and health promotion efforts in pharmacies. For example, a larger demand for enrolment should be anticipated at the beginning of each calendar year. This seasonal pattern may be driven by patients committing to health goals in the New Year, and proactive engagement by pharmacists may be effective at promoting service uptake during this time. Understanding trends in service uptake in Ontario may also help pharmacists plan for implementation of similar programs in other provinces and territories (e.g., a pharmacist smoking cessation program was recently implemented in Manitoba). It is important to note that restrictions associated with COVID-19 are likely to affect trends in service uptake and virtual pharmacist services may facilitate the delivery of the pharmacist smoking cessation program over time.

Although the number of Canadians who smoke tobacco has declined consistently in recent years, it is estimated that more than 3 million Canadians identified as daily smokers in 2019.[38] Fortunately, smoking cessation by middle age can decrease the risk of death from smoking-related diseases by 90%.[40] Many effective interventions for smoking cessation are available to Canadians, including prescription medication (bupropion and varenicline), over-the-counter nicotine replacement therapy and counselling support.[41] While 9 provinces in Canada support pharmacist prescribing of smoking cessation medication, only 4 currently provide public support for pharmacist smoking cessation counselling services (Table 1). Given that pharmacists are among the most accessible health care professionals in Canada[18,42] and that smoking cessation interventions are most effective when pharmacotherapy is combined

FIGURE 1 Monthly number of smoking cessation services delivered across Ontario*



*By (A) region, (B) service type and (C) in Ontario regions Erie St. Clair and South West. September 2011 to December 2019.

with counselling,[5,7] it is unfortunate that so few provinces and no territories support pharmacist-delivered smoking cessation counselling. Even within Ontario, the program is restricted to beneficiaries of the Ontario Drug Benefit program (i.e., seniors and persons on social assistance).[31] Improving rates of quit status reporting and understanding reasons for the gradual decline in utilization may help to optimize the program.

The OPEN Atlas of community pharmacist smoking cessation services is an online, interactive tool that allows users to view customized descriptive data related to the Ontario pharmacist smoking cessation program. The tool can be used to understand overall use and compare program delivery across regions, between age groups and by sex. The Atlas Tool can serve as a starting point for planning programs in other regions of Canada, as well as for the development of qualitative or mixed methods studies that aim to better understand the differential use of program services across Ontario and Canada. We encourage other provinces to prepare similar descriptive atlases of program delivery and to start a discussion of how best to support smoking cessation programs in community pharmacies. ■

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Ethical Considerations: *ICES is a prescribed entity under section 45 of Ontario's Personal Health Information Protection Act. Section 45 authorizes ICES to collect personal health information, without consent, for the purpose of analysis or compiling statistical information with respect to the management of, evaluation or monitoring of, the allocation of resources to or planning for all or part of the health system. Projects conducted under section 45, by definition, do not require review by a Research Ethics Board. This project was conducted under section 45 and approved by ICES' Privacy and Legal Office.*

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