

Walk-in clinic patient characteristics and utilization patterns in Ontario, Canada: a cross-sectional study

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Abstract

Background: Walk-in clinics are common in North America and are designed to provide acute episodic care without an appointment. We sought to describe a sample of walk-in clinic patients in Ontario, Canada, which is a setting with high levels of primary care attachment.

Methods: We performed a cross-sectional study using health administrative data from 2019. We compared the sociodemographic characteristics and health care utilization patterns of patients attending 1 of 72 walk-in clinics with those of the general Ontario population. We examined the subset of patients who were enrolled with a family physician and compared walk-in clinic visits to family physician visits.

Results: Our study found that 562 781 patients made 1 148 151 visits to the included walk-in clinics. Most (70%) patients who attended a walk-in clinic had an enrolling family physician. Walk-in clinic patients were younger (mean age 36 yr v. 41 yr, standardized mean difference [SMD] 0.24), yet had greater health care utilization (moderate and high use group 74% v. 65%, SMD 0.20) than the general Ontario population. Among enrolled Ontarians, walk-in patients had more comorbidities (moderate and high count 50% v. 45%, SMD 0.10), lived farther from their enrolling physician (median 8 km v. 6 km, SMD 0.21) and saw their enrolling physician less in the previous year (any visit 67% v. 80%, SMD 0.30). Walk-in encounters happened more often after hours (16% v. 9%, SMD 0.20) and on weekends (18% v. 5%, SMD 0.45). Walk-in clinics were more often within 3 km of patients' homes than enrolling physicians' offices (0 to < 3 km: 32% v. 22%, SMD 0.21).

Interpretation: Our findings suggest that proximity of walk-in clinics and after-hours access may be contributing to walk-in clinic use among patients enrolled with a family physician. These findings have implications for policy development to improve the integration of walk-in clinics and longitudinal primary care.

Walk-in clinics are health care settings that typically provide acute episodic care without an appointment and without the expectation of an ongoing relationship with the provider.¹ In Canada's most populous province of Ontario, it is estimated that about one-third of the population visits a walk-in clinic every year;^{2,3} this proportion is likely even higher in large urban areas where most walk-in clinics are located.⁴ Some people perceive walk-in clinics to be an intermediary between emergency departments and family physicians' offices, with the potential to off-load demand from hospitals.¹ They also provide some primary care access for patients without any other source.⁵ However, there are concerns that the access and convenience of walk-in clinics comes at the cost of other dimensions of health care quality.^{1,6}

Continuity of care is a central component of quality primary care,⁷ with evidence linking high-continuity care to improved patient outcomes and lower health care utilization.⁸⁻¹⁰ When visiting a walk-in clinic, patients experience relational discontinuity and, in the absence of any requirement

to correspond with a patient's family physician, informational discontinuity as well.⁷ Discontinuity and time pressures may affect walk-in physicians' prescribing patterns, particularly for

Competing interests: Lauren Lapointe-Shaw is supported by the University of Toronto Department of Medicine, the Toronto General Hospital Research Institute, the Women's College Institute for Health System Solutions and Virtual Care and the Peter Gilgan Centre for Women's Cancers at the Women's College Hospital, in partnership with the Canadian Cancer Society. Tara Kiran is the Fidani Chair of Improvement and Innovation at the University of Toronto and is supported as a clinician scientist by the Department of Family and Community Medicine at St. Michael's Hospital and the University of Toronto. Noah M. Ivers is supported by a Canada Research Chair in Implementation of Evidence-based Practice and a clinician scholar award from the Department of Family and Community Medicine at the Women's College Hospital and the University of Toronto.

This article has been peer reviewed.

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CMAJ Open 2023 April 25. DOI:10.9778/cmajo.20220095

often-requested and potentially inappropriate drugs such as antibiotics, benzodiazepines and opioids.^{11,12} In some acute conditions, the benefits of continuity may be minimal. In others, the advantages of waiting to see a known physician may not be apparent to patients and caregivers, who prioritize convenience and timeliness.¹³

Walk-in clinics in Canada arose not as the result of deliberate health policy decision-making for after-hours coverage, but from the ingenuity of fee-for-service physicians and corporations interested in getting into the business of high-volume, low-acuity medicine.¹⁴ Since the 1970s in Ontario, primary care reforms connected the majority of the population to a family physician; yet, they left walk-in clinics unchanged. The core components of Ontario's primary care reforms, first introduced in 2002,^{15,16} were formal patient enrolment to family physicians, physicians working in groups with shared after-hours responsibility and payment reform including capitation payments and incentives for preventive and chronic care.¹⁷

Given that walk-in clinics facilitate access but also have the potential to fragment care, there is a need to understand use patterns in a setting where more than 90% of the population report having a primary care provider¹⁸ and more than 75% of the population is formally enrolled with a family physician.¹⁹ We sought to describe the characteristics and use patterns of walk-in patients, including patients formally enrolled with a family physician.

Methods

The study period was from Jan. 1 to Dec. 31, 2019, at which time, Ontario had more than 14.5 million residents. The Ontario Health Insurance Plan (OHIP) covers emergency department visits, hospital admissions and physician visits for all residents without premium or co-pay. More than 75% of people in Ontario are formally enrolled with a family physician practising in a group with formal accountability for after-hours care.¹⁹ For physicians working in these primary care enrolment models, capitation payments constitute between 15% and 80% of total income.¹⁷ Another 10%–15% of the population receives primary care from nonphysician providers (e.g., nurse practitioners) or fee-for-service physicians, many of whom may be physicians working in walk-in clinics.^{15,18} In addition to reporting their after-hours access options to the Ministry of Health, physicians practising in predominantly capitation-based models have their access bonus reduced dollar for dollar to recover the cost of any outside-of-group family physician visits made by their patients, including visits to physicians working in walk-in clinics.^{16,20}

Study design and data sources

We conducted a cross-sectional study using health administrative data sets linked using unique encoded identifiers and analyzed at ICES (Appendix 1, available at www.cmajopen.ca/content/11/2/E345/suppl/DC1). Four patient partners were recruited at the data collection stage of the study to review analysis and interpretation of results. Patient partners were involved in meetings where the study team presented the analysis plan and findings.

Walk-in clinics

Group billing numbers are used to track physician billings coming from a particular setting or location and are used to pool physician payments for overhead contributions and shared expenses. Notably, in Ontario there is no requirement to bill through group billing numbers — this depends on the requirements of each work setting. We included family physician visits at walk-in clinics that we identified from searching the list of all group billing numbers, and their corresponding business names, in Ontario from 2010 to 2020. Starting with the full list of 8680 group billing numbers, we then used a combination of keyword and Internet searches to create a list of probable walk-in clinics. First, we selected any clinics that contained the key terms walk-in/walkin/walk in, clinic, center/centre/ctre, group, medical/med or after hours/aft hours/after-hours. We manually searched the remaining businesses on the list for ambiguous names that could possibly be a walk-in clinic (e.g., doctor, health services, health). This resulted in 497 possible walk-in clinics. For search terms and location counts, see Appendix 2, available at www.cmajopen.ca/content/11/2/E345/suppl/DC1. We used Google to search each of these clinics and categorized them by names and website information into walk-in clinics, combined walk-in/family practices, specialty clinics, urgent care clinics or not found online. Urgent care clinics were those that included urgent care in their name, and they were excluded as these are conceptually slightly different from walk-in clinics, as they provide more advanced testing and imaging. We also excluded all others not categorized as walk-in clinic. Our sample of walk-in clinics was not intended to be comprehensive of all walk-in clinics in Ontario.

Walk-in patient population and comparator

We included all Ontario residents who had a family physician encounter at a study walk-in clinic at least once between Jan. 1 and Dec. 31, 2019. We excluded patients who were not present in the Primary Care Population data set, which contains all Ontario residents considered primary care-eligible with active OHIP coverage and a health care contact within the previous 8 years (Appendix 1). We use the term walk-in patients to refer to those who had a visit at 1 of our 72 included walk-in clinics.

The comparison group was the entire Ontario population on Apr. 1, 2019. We also examined the subset of Ontarians who were enrolled with a family physician as of Apr. 1, 2019.

Clinic and patient characteristics

We categorized the urban or rural status of the selected walk-in clinic locations using the Rurality Index for Ontario (RIO)²¹ scores of the clinic postal codes (0–9 large urban, 10–39 small urban, ≥ 40 rural). Patient-level characteristics included patient age, sex, census-based neighbourhood income quintile, new health insurance registrant in the last 10 years (a proxy for recent immigration), urban or rural residence,²¹ count of comorbidities (obtained from The Johns Hopkins ACG System, Version 10, Aggregated Diagnosis Groups)^{22,23} and health care utilization (Resource Utilization

Bands)²² for the previous 2 years, as well as the number of family physician visits in the previous 2 years, and whether they had visited an emergency department in the previous year. We measured the number of specialist visits in the previous year. Patient-to-primary care physician attachment was categorized as formal enrolment with a physician (patient has signed an agreement, information submitted to Ministry of Health), virtual attachment to a physician (i.e., highest cost physician for a 2-yr period according to primary care fee codes²⁴) or no physician attachment. Patient enrolment model^{16,25} was categorized as capitation (family health network or organization), team-based capitation (family health team), enhanced fee for service (family health group or comprehensive care model), fee for service (not enrolled) or other group, consistent with other research on primary care models in Ontario.^{26,27} Continuity of care (Usual Provider Continuity Index²⁸⁻³⁰) was measured as the percentage of primary care visits for the previous 2 years that occurred with the family physician who provided the most visits, out of all primary care visits (patients with < 2 visits were treated as missing).³¹ For distances between the patient's residence to the walk-in clinic or enrolling physician's practice (km), we used the quartiles of the continuous distribution of the linear distance to the enrolling family physician in the Ontario population to create the category boundaries (0 to < 3 km, 3 to < 7 km, 7 to < 16 km and ≥ 16 km). For operational definitions for all variables, see Appendix 3, available at www.cmajopen.ca/content/11/2/E345/suppl/DC1.

Statistical analysis

We plotted active walk-in clinic locations in 2019 on a map of Ontario, using the first 3 digits of each clinic's postal code. We described (using means, medians, counts and frequencies) and compared the characteristics of walk-in patients to those of the Ontario population, and similarly described and compared enrolled walk-in patients to all enrolled Ontario residents with any family physician visit in 2019. For the enrolled walk-in group, we described and compared the encounters patients had in a walk-in clinic setting to those that occurred with their family physician. All comparisons were unadjusted and made using standardized mean differences (SMDs); differences greater than 10% (0.1) were considered important, consistent with the method proposed by Austin.³² Missing data were reported as missing. Mapping was done using Tableau, version 2021.4.1440.0, and all other analyses were executed using SAS software, version 9.4 (SAS Institute Inc.).

Ethics approval

This study was approved by the Women's College Hospital Research Ethics Board (REB 2020-0095-E).

Results

Our search resulted in 123 walk-in clinics, 72 of which were active in 2019. The remaining 51 clinics without group billings in our included time period had either closed or moved from using a group billing number to individual physician

billings, in which case, we would not have been able to identify them as originating from a walk-in clinic. The 72 walk-in clinics in our sample were mostly located in large urban areas (62 large urban, 10 small urban, 0 rural; see Figure 1A–B). In 2019, there were billing claims for 1 148 151 encounters involving 843 unique family physicians. Only 14.5% of encounters ($n = 107583$) were with the patient's enrolling physician, or another physician practising in the same patient enrolment group. Only 11.8% of walk-in encounters ($n = 135367$) were with a physician whom the patient had seen in the previous year.

Patient characteristics

Compared with the Ontario population, the 562 781 walk-in patients were younger (mean age 35.8 yr v. 41.1 yr, SMD 0.24); a higher proportion were female (56.% v. 50.9%, SMD 0.11) and fewer lived in a rural setting (3.9% v. 7.1%, SMD 0.14, Table 1; see Figure 2A–B for inclusion flow-chart). They also had more comorbidities (highest comorbidity group 14.2% v. 9.8%, SMD 0.14) and greater health care utilization for the previous 2 years than the general population (moderate and high use 73.8% v. 64.5%, SMD 0.20). There were no important differences in neighbourhood income quintile or recent registrant status.

Fewer walk-in patients were formally enrolled with a family physician compared with the Ontario population (70.0% v. 75.1%, SMD 0.11), and they had lower continuity of care than the Ontario population average (50% v. 75%, SMD 0.51).

A higher proportion of walk-in clinic patients had a recent emergency department visit (30.0% v. 22.8%, SMD 0.16) and they also had more family physician visits (mean 7.7 v. 5.8, SMD 0.26) than the Ontario population. The proportion who had at least 1 visit in the previous year with their enrolling physician did not differ between groups (47.2% v. 49.6%, SMD 0.05).

Patients enrolled with a family physician

Compared with all enrolled Ontario residents who had a family physician visit in 2019, a greater proportion of enrolled walk-in patients were aged between 18 and 29 years (23.0% v. 13.0%, SMD 0.26; Table 2). Consistent with the overall analysis of walk-in patients, fewer enrolled walk-in patients lived in rural areas (4.0% v. 7.1%, 0.14). There were no meaningful differences between groups in neighbourhood income quintile or recent registrant status.

Enrolled walk-in patients had more comorbidities (moderate and high count 50.2% v. 45.0%, SMD 0.10) and more family physician visits in the previous 2 years (mean 8.2 v. 7.3, SMD 0.11), but fewer of them had seen their enrolling family physician in the previous year (67.4% v. 80.4%, SMD 0.30). Enrolled walk-in patients had lower continuity of care (55.0% v. 77.8%, SMD 0.51).

Enrolled walk-in patients lived farther from their family physician than the enrolled Ontario population (median 8.0 km v. 6.4 km, SMD 0.21). A smaller proportion lived between 0 and 3 km from their enrolling family physician

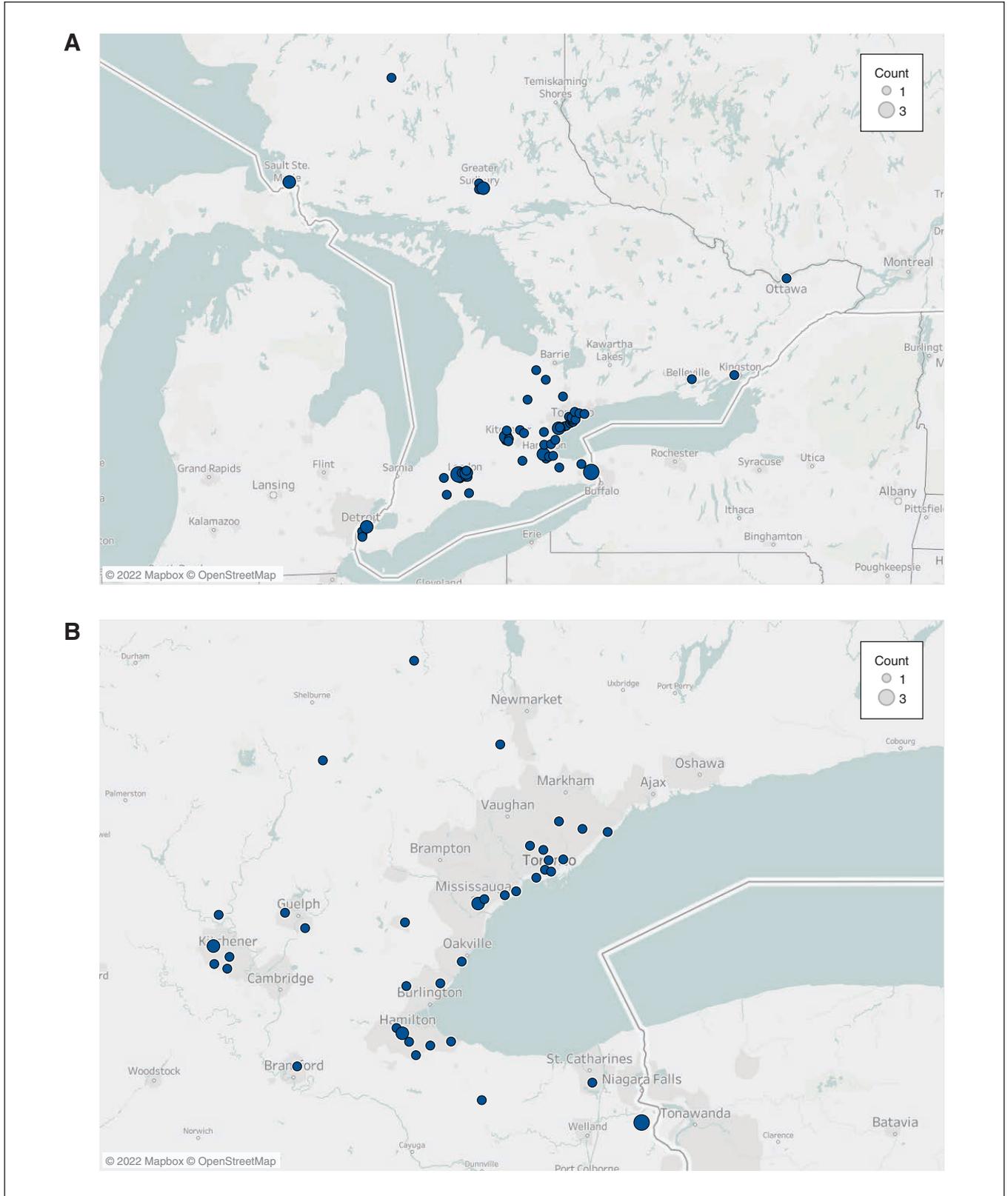


Figure 1: (A) Locations of selected walk-in clinics ($n = 72$) in Ontario, 2019. (B) Locations of selected walk-in clinics in the Greater Toronto Area in 2019. Note: Geolocations were determined based on the first 3 characters of the clinic postal codes and the legend count is the number of walk-in clinics in a forward sortation area. The size of the circle reflects the number of clinics from 1 to 3. Created using Tableau version 2021.4.1440.0. This figure has been distributed in accordance with the terms of the Creative Commons Attribution-ShareAlike 4.0 (CC BY-SA 4.0) licence, see <https://creativecommons.org/licenses/by-sa/4.0/>.

Table 1: Characteristics of walk-in patients compared with the Ontario population, Jan. 1 to Dec. 31, 2019

Characteristic	Walk-in patients <i>n</i> = 562 781	Ontario population <i>n</i> = 14 388 566	Standardized mean difference
Age, yr, mean ± SD	35.8 ± 21.4	41.1 ± 23.0	0.24
Age, yr, no. (%)			
< 18	114 347 (20.3)	2 761 255 (19.2)	0.03
18–29	133 613 (23.7)	2 181 897 (15.2)	0.22
30–44	123 606 (22.0)	2 903 298 (20.2)	0.04
45–64	129 055 (22.9)	4 011 605 (27.9)	0.11
65–74	37 572 (6.7)	1 431 818 (10.0)	0.12
≥ 75	24 588 (4.4)	1 098 693 (7.6)	0.14
Sex, female, no. (%)	318 211 (56.5)	7 330 105 (50.9)	0.11
Neighbourhood income quintile, no. (%)			
Q1 (lowest)	114 911 (20.4)	2 827 594 (19.7)	0.02
Q2	113 471 (20.2)	2 823 987 (19.6)	0.01
Q3	112 402 (20.0)	2 897 691 (20.1)	0
Q4	112 670 (20.0)	2 902 771 (20.2)	0
Q5 (highest)	108 366 (19.3)	2 912 107 (20.2)	0.02
Missing	961 (0.2)	24 416 (0.2)	0
Recent provincial health insurance registrant,* no. (%)	42 520 (7.6)	1 259 553 (8.8)	0.04
Missing	75 330 (13.4)	1 641 249 (11.4)	0.06
Urban or rural residence, no. (%)			
Large urban	420 038 (74.6)	10 485 665 (72.9)	0.04
Small urban	116 465 (20.7)	2 745 665 (19.1)	0.04
Rural	22 196 (3.9)	1 014 962 (7.1)	0.14
Missing	4,082 (0.7)	142 274 (1.0)	0.03
Comorbidity count,† no. (%)			
Low (0–5)	296 041 (52.6)	9 237 848 (64.2)	0.24
Moderate (6–9)	186 632 (33.2)	3 739 043 (26.0)	0.16
High (≥ 10)	80 108 (14.2)	1 411 675 (9.8)	0.14
Health care utilization band,† no. (%)			
Low (0–2)	147 254 (26.2)	5 102 921 (35.5)	0.20
Moderate (3)	290 468 (51.6)	6 607 408 (45.9)	0.11
High (4–5)	125 059 (22.2)	2 678 237 (18.6)	0.09
Primary care physician attachment, no. (%)			
Formally enrolled	393 922 (70.0)	10 806 044 (75.1)	0.11
Virtually attached	74 845 (13.3)	1 412 289 (9.8)	0.11
No primary care visits	94 014 (16.7)	2 170 233 (15.1)	0.04
Total family physician visits in previous 2 years			
Mean ± SD	7.7 ± 8.0	5.8 ± 6.9	0.26
Median (IQR)	6.0 (3.0–10.0)	4.0 (1.0–8.0)	0.36
Total specialist visits in previous year			
Mean ± SD	1.7 ± 3.6	1.7 ± 3.6	0.02
Median (IQR)	0.0 (0.0–2.0)	0.0 (0.0–2.0)	0.04
≥ 1 visit with enrolling family physician in previous year, no. (%)	265 468 (47.2)	7 133 688 (49.6)	0.05
Missing (patient does not have an enrolling family physician)	168 859 (30.0)	3 582 522 (24.9)	0.11
Proportion of patients with ≥ 1 emergency department visit in prior year, no. (%)	168 935 (30.0)	3 284 803 (22.8)	0.16
Continuity of care‡ (%), median (IQR)	50.0 (30.0–80.0)	75.0 (50.0–100.0)	0.51
Missing (< 2 visits made)	80 662 (14.3)	3 887 670 (27.0)	0.32

Note: IQR = interquartile range, SD = standard deviation.

*Recent provincial health insurance registration is a proxy for recent immigration to the province.

†Measured over the previous 2 years.

‡Continuity of care was measured as the percentage of primary care visits for the previous 2 years that occurred with their usual family physician.³¹

A standardized difference of ≥ 10% (0.1) was considered to indicate a meaningful difference.

(20.9% v. 27.4%, SMD 0.15) and a greater proportion lived more than 16 km away (31.7% v. 23.8%, SMD 0.18). The timing (day of week, after-hours status) of walk-in patients' visits with their enrolling family physician did not notably differ from those of the enrolled Ontario population.

Walk-in visits compared with family physician visits, among enrolled walk-in users

Some (32.6%, $n = 128\,454$) walk-in patients had no visits with their enrolling family physician in 2019, whereas 18.4% ($n = 72\,447$) had only 1 visit and 49.0% ($n = 193\,021$) had 2 or

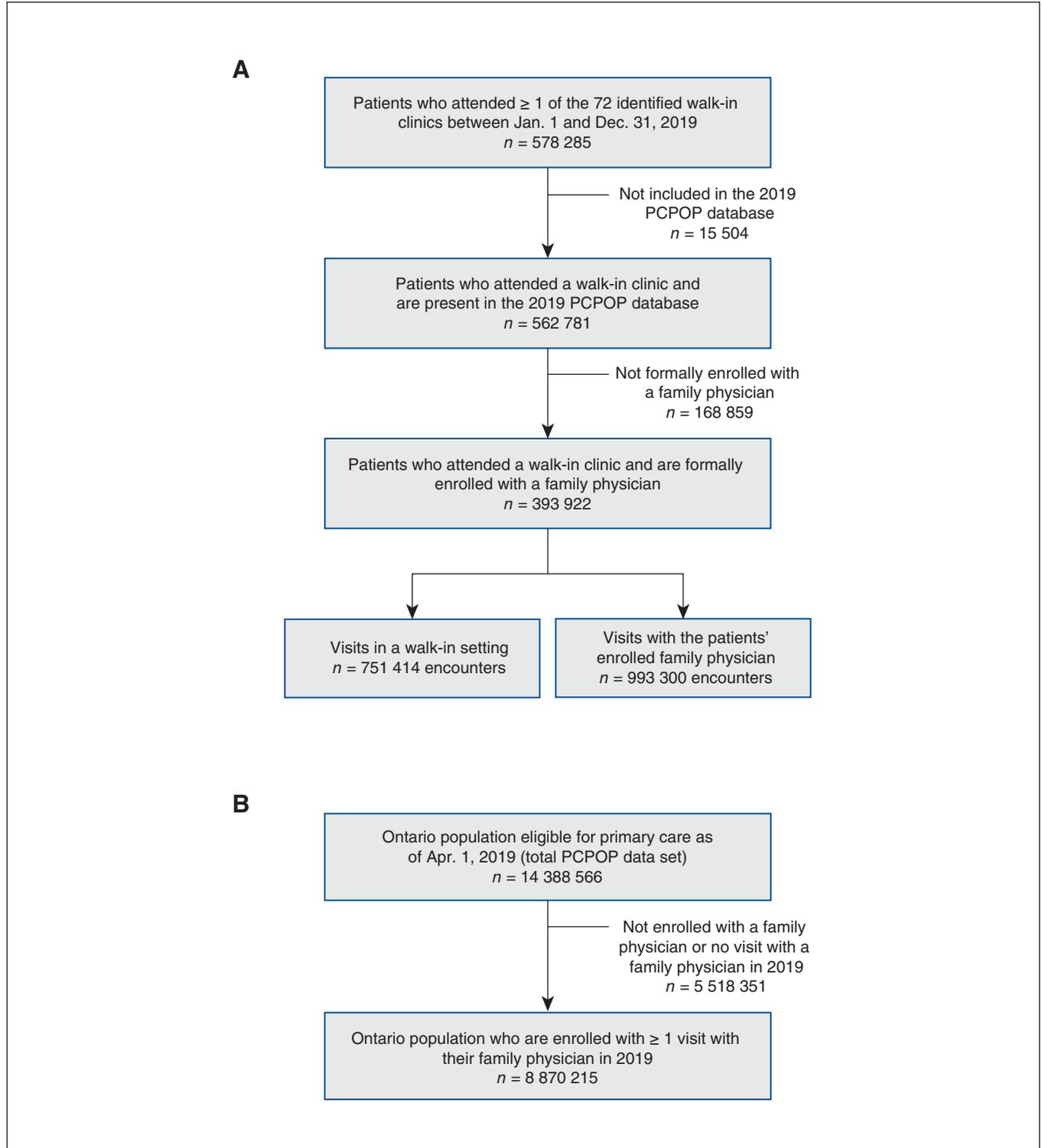


Figure 2: Flowchart of (A) walk-in patient inclusions and exclusions and (B) Ontario resident patient inclusions and exclusions. Note: PCPOP = Primary Care Population data set.

Table 2 (part 1 of 2): Comparison of family physician–enrolled walk-in patients and the enrolled Ontario population with at least 1 family physician visit, Jan. 1, 2019, to Dec. 31, 2019

Characteristic	Enrolled walk-in patients <i>n</i> = 393 922	Enrolled Ontario population with ≥ 1 family physician visit <i>n</i> = 8 870 215	Standardized mean difference
Age, yr, mean ± SD	37.6 ± 21.5	45.0 ± 22.9	0.34
Age, yr, no. (%)			
< 18	70 602 (17.9)	1 329 019 (15.0)	0.08
18–29	90 730 (23.0)	1 150 827 (13.0)	0.26
30–44	86 036 (21.8)	1 673 620 (18.9)	0.07
45–64	96 467 (24.5)	2 735 402 (30.8)	0.14
65–74	29 695 (7.5)	1 109 573 (12.5)	0.17
≥ 75	20 392 (5.2)	871 774 (9.8)	0.18
Sex, female, no. (%)	230 355 (58.5)	4 868 210 (54.9)	0.07
Neighbourhood income quintile, no. (%)			
Q1 (lowest)	71 398 (18.1)	1 595 316 (18.0)	0
Q2	77 457 (19.7)	1 721 495 (19.4)	0.01
Q3	79 961 (20.3)	1 827 011 (20.6)	0.01
Q4	83 047 (21.1)	1 852 419 (20.9)	0
Q5 (highest)	81 515 (20.7)	1 861 979 (21.0)	0.01
Missing	544 (0.1)	11 995 (0.1)	0
Recent provincial health insurance registrant,* no. (%)	21 557 (5.5)	621 335 (7.0)	0.06
Missing	43 860 (11.1)	757 330 (8.5)	0.09
Urban or rural residence, no. (%)			
Large urban	290 455 (73.7)	6 403 524 (72.2)	0.03
Small urban	85 348 (21.7)	1 775 478 (20.0)	0.04
Rural	15 695 (4.0)	631 219 (7.1)	0.14
Missing	2,424 (0.6)	59 994 (0.7)	0.01
Comorbidity count,† no. (%)			
Low (0–5)	196 321 (49.8)	4 875 591 (55.0)	0.10
Moderate (6–9)	137 273 (34.8)	2 858 678 (32.2)	0.06
High (≥ 10)	60 328 (15.3)	1 135 946 (12.8)	0.07
Health care utilization band,† no. (%)			
Low (0–2)	92 516 (23.5)	2 091 194 (23.6)	0
Moderate (3)	208 238 (52.9)	4 703 425 (53.0)	0
High (4–5)	93 168 (23.7)	2 075 596 (23.4)	0.01
Patient enrolment model, no. (%)			
Capitation	143 354 (36.4)	3 071 613 (34.6)	0.04
Team-based	98 026 (24.9)	2 654 023 (29.9)	0.11
Enhanced fee for service	150 898 (38.3)	3 068 232 (34.6)	0.08
Other groups	1644 (0.4)	76 347 (0.9)	0.06
Continuity of care‡ (%), median (IQR)	55.0 (25.0–81.8)	77.8 (50.0–100.0)	0.51
Missing (< 2 visits)	43 305 (11.0)	1 158 576 (13.1)	0.06
Proportion of patients with ≥ 1 emergency department visit in prior year, no. (%)	117 400 (29.8)	2 298 544 (25.9)	0.09

Table 2 (part 2 of 2): Comparison of family physician–enrolled walk-in patients and the enrolled Ontario population with at least 1 family physician visit, Jan. 1, 2019, to Dec. 31, 2019

Characteristic	Enrolled walk-in patients <i>n</i> = 393 922	Enrolled Ontario population with ≥ 1 family physician visit <i>n</i> = 8 870 215	Standardized mean difference
Total family physician visits in previous 2 years			
Mean ± SD	8.2 ± 7.8	7.3 ± 7.1	0.11
Median (IQR)	6.0 (3.0–11.0)	6.0 (3.0–10.0)	0.13
Total specialist visits in previous year			
Mean ± SD	1.8 ± 3.6	2.0 ± 3.8	0.05
Median (IQR)	0 (0–2)	0.0 (0.0–3.0)	0.07
At least 1 visit with enrolling family physician in previous year, no. (%)	265 468 (67.4)	7 133 688 (80.4)	0.30
Length of enrolment, yr, median (IQR)	4.7 (1.9–9.1)	5.0 (2.0–9.2)	0.03
Distance from patient's residence to enrolling family physician (km), no. (%)			
Median (IQR)	8.0 (3.6–21.2)	6.4 (2.7–15.3)	0.21
0–3	82 084 (20.9)	2 423 697 (27.4)	0.15
3–7	97 700 (24.9)	2 240 533 (25.3)	0.01
7–16	88 637 (22.5)	2 079 578 (23.5)	0.02
≥ 16	124 713 (31.7)	2 111 158 (23.8)	0.18
Encounter-level measure			
Day of the week of encounter with enrolling physician, no. (%)	Enrolled walk-in patients Encounter <i>n</i> = 993 300	Enrolled Ontario population with ≥ 1 family physician visit Encounter <i>n</i> = 26 861 128	Standardized mean difference
Monday	201 718 (20.3)	5 431 874 (20.2)	0
Tuesday	222 796 (22.4)	5 743 703 (21.4)	0.03
Wednesday	182 905 (18.4)	4 868 218 (18.1)	0.01
Thursday	209 992 (21.1)	5 566 677 (20.7)	0.01
Friday	131 161 (13.2)	3 658 170 (13.6)	0.01
Saturday	32 318 (3.3)	1 221 975 (4.5)	0.07
Sunday	12 410 (1.2)	370 511 (1.4)	0.01
After hours	93 404 (9.4)	2 878 923 (10.7)	0.04

Note: IQR = interquartile range, SD = standard deviation
 *Recent provincial health insurance registration is a proxy for recent immigration to the province.
 †Measured over the previous 2 years.
 ‡Continuity of care was measured as the percentage of primary care visits for the previous 2 years that occurred with their usual family physician.³¹
 A standardized difference of ≥ 10% (0.1) was considered to indicate a meaningful difference.

more visits. Most (63.0%, *n* = 248 087) patients had only 1 visit to an included walk-in clinic in 2019.

Patients resided more frequently between 0 and 3 km (31.6% v. 22.4%, SMD 0.21; Table 3) from the included walk-in clinic they attended, whereas the distance from patient residence to their family physician was more commonly between 7 and 16 km (13.5% v. 23.3%, SMD 0.26). A greater proportion of walk-in visits occurred after-hours (15.9% v. 9.4%, SMD 0.2) and on weekends (18.3% v. 4.5%, SMD 0.45).

Enrolled patients' visits to walk-in clinics most frequently resulted in diagnoses of acute viral conditions, such as the common cold (11.8%), bronchitis (3.6%) and sinusitis (3.4%; Table 4). In contrast, these patients' visits to their family

physician were more frequently related to longer-term chronic conditions, such as mental health concerns (7.9%), diabetes (4.8%) and hypertension (4.6%).

Our patient partners reviewed study results and found these to be in agreement with their experiences. They provided insights into reasons for choosing a walk-in clinic, including a perception that walk-in clinics are better at diagnosing and treating acute conditions, a desire for a second medical opinion and a preference for someone other than their family physician. In addition, the time and interaction involved in the scheduling process itself may pose a further barrier that does not occur in walk-in clinics. One patient partner (C.B.) provided critical edits of the manuscript.

Table 3: Patient and encounter characteristics for enrolled walk-in patients — visits in a walk-in setting compared with visits to their enrolling family physician, Jan. 1, 2019, to Dec. 31, 2019

Characteristic	Walk-in setting n = 393 922 patients*	Enrolling family physician setting n = 265 468 patients	Standardized mean difference†
Number of encounters in 2019, no. (%)			
1	248 087 (63.0)	72 447 (27.3)	0.77
2	75 255 (19.1)	52 410 (19.7)	0.02
3	30 458 (7.7)	39 039 (14.7)	0.22
≥ 4	40 122 (10.2)	101 572 (38.3)	0.69
Distance from residence to practice physician in kilometres, no. (%)			
Median (IQR)	5.8 (2.3–25.8)	7.3 (3.3–18.1)	0.05
0–3	124 325 (31.6)	59 281 (22.4)	0.21
3–7	92 485 (23.5)	69 875 (26.4)	0.07
7–16	52 991 (13.5)	61 857 (23.3)	0.26
≥ 16	123 413 (31.4)	74 012 (27.9)	0.08
Encounter-level characteristic			
Day of the week of encounter, no. (%)			
Monday	125 314 (16.8)	201 718 (20.3)	0.09
Tuesday	128 109 (17.2)	222 796 (22.4)	0.13
Wednesday	125 253 (16.8)	182 905 (18.4)	0.04
Thursday	117 790 (15.8)	209 992 (21.1)	0.14
Friday	112 041 (15.0)	131 161 (13.2)	0.05
Saturday	74 785 (10.0)	32 318 (3.3)	0.27
Sunday	62 100 (8.3)	12 410 (1.2)	0.34
After hours	119 417 (15.9)	93 404 (9.4)	0.20

Note: IQR = interquartile range.
 *393 922 patients who had 751 414 walk-in encounters and 993 300 encounters with their enrolling family physician.
 †A standardized difference of ≥ 10% (0.1) was considered to indicate a meaningful difference.

Interpretation

Walk-in clinics are an important source of primary care for patients who are otherwise unattached.¹⁵ However, we found that most walk-in patients were enrolled with a family physician; the proportion enrolled was only slightly lower than that of the general Ontario population. When compared with all enrolled Ontario patients who had family physician visits, we found that patients of our included walk-in clinics had more comorbidities and higher levels of health care utilization — a contrast with the notion that walk-in patients are healthier than other health care users.³³ Although some walk-in patients did not see their family physicians in 2019, many others saw them often. Enrolled walk-in users tended to visit walk-in clinics for acute conditions and their family physician for chronic conditions. Among patients who were formally enrolled with a family physician, those who visited a walk-in clinic lived further from their family physician and more frequently attended a walk-in clinic after-hours or on a weekend.

These findings suggest that a patient’s desire for convenient, timely care for acute issues is driving walk-in clinic use at the expense of continuity with one’s own physician.

In 2020, only 41% of Canadians reported the ability to get a same- or next-day appointment with their family physician.³⁴ Delays to an appointment with a regular physician are often cited as a reason patients seek care in walk-in clinics.^{4,13} Consistent with our findings, others have also reported that viral upper respiratory tract infections are the most common presenting conditions in walk-in clinics.^{13,35,36} Upper respiratory tract infections do not often require urgent medical attention; family physicians and patients may thus disagree on how soon an assessment is needed.^{13,37}

Although Ontario’s primary care reforms increased after-hours coverage,³⁰ there are several possible reasons why we found that enrolled patients still seek care in walk-in clinics after-hours and on weekends. Many patient enrolment model contracts specify a need for coverage of only 1 of 2 weekend days, leaving one-half of the weekend uncovered. Further,

Table 4: Top 10 Ontario Health Insurance Plan diagnosis codes for encounters for enrolled walk-in patients — visits in a walk-in setting and visits to their enrolling family physician, Jan. 1, 2019, to Dec. 31, 2019

Walk-in setting <i>n</i> = 751 414 encounters		Enrolling physician <i>n</i> = 993 300 encounters	
Description	No. (%)	Description	No. (%)
Acute nasopharyngitis, common cold	88 751 (11.8)	No diagnosis	83 811 (8.4)
Acute bronchitis	26 860 (3.6)	Mental health*	78 033 (7.9)
Mental health*	26 396 (3.5)	Diabetes mellitus, including complications	47 241 (4.8)
Acute sinusitis	25 830 (3.4)	Essential, benign hypertension	45 888 (4.6)
Other ill-defined conditions	25 582 (3.4)	Other ill-defined conditions	42 085 (4.2)
Other disorders of the urinary tract	22 198 (3.0)	Acute nasopharyngitis, common cold	32 633 (3.3)
Eczema, atopic dermatitis, neurodermatitis	16 738 (2.2)	Musculoskeletal symptoms other than back pain‡	28 145 (2.8)
Gastrointestinal symptoms†	16 310 (2.2)	Gastrointestinal symptoms†	26 950 (2.7)
Cystitis	15 824 (2.1)	Immunization — all types	25 115 (2.5)
Immunization — all types	15 502 (2.1)	Lumbar strain, lumbago, coccydynia, sciatica	16 550 (1.7)

*Mental health = anxiety, neurosis, hysteria, neurasthenia, obsessive compulsive neurosis, reactive depression.
 †Gastrointestinal symptoms = anorexia, nausea and vomiting, heartburn, dysphagia, hiccup, hematemesis, jaundice, ascites, abdominal pain, melena, masses.
 ‡Musculoskeletal symptoms other than back pain = leg cramps, leg pain, muscle pain, joint pain, arthralgia, joint swelling, masses.

awareness of after-hours options with one’s own provider may also be limiting uptake.³⁸ In 2007, Ontario family physician clinics were twice as likely to direct patients to the emergency department than to their own after-hours coverage options.³⁹

We found that walk-in clinic users lived farther from their family physician’s practice than the general population, and that walk-in clinic locations, compared with enrolling family physician offices, were more frequently within 3 km of their home address. Similarly, proximity or convenient location was associated with higher rates of after-hours service use in several European countries⁴⁰ and more retail clinic visits in the United States.³³ Patients may be enrolled with family physicians near their work but visit walk-in clinics near their home on weekends. In addition, difficulty finding an enrolling physician in some areas may mean that patients join practices that are far away from where they live or work. Young adults, who had higher rates of walk-in use in our study, may have recently moved away from parental homes and their enrolling physicians.

The inclusion of patient partners in this research was helpful in affirming our study findings and providing additional insights into why patients may prefer walk-in clinics. These include a perception that walk-in clinics are better at diagnosing and treating acute conditions, a desire for a second medical opinion, a preference for someone other than their family physician and a wish to avoid the time and interaction involved in trying to book an appointment.

Owing to chronic workforce shortages, many patients will not have the option to choose their family physician but will have to take the first one available. Increasing longitudinal primary care capacity would help to ensure that everyone has the opportunity to connect with a regular primary care provider, at a location that is convenient for them. Increasing the number of team and capitation-based enrolment

model positions, in addition to incentivizing full-service family medicine practice, would also support access to integrated after-hours care.⁴¹ Initiatives to increase patient awareness of their own enrolling practice’s after-hours care offerings are also needed.

An intentional approach to walk-in clinics could involve policy development that supports continuity of care and patient access, by integrating with existing primary care structures and health system planning. For example, primary care practices unable to ensure 7-day after-hours coverage could assign patients to a select network of associated walk-in practices, with a shared electronic medical record. In the United Kingdom, although family physicians’ offices are required to provide 24-hour care, they have the option of formally delegating this responsibility to the local health authority, which provides after-hours access through walk-in clinics and other centralized services.⁴² Although challenging to implement, integrating health records between walk-in clinics and patients’ primary health care team would assure greater continuity of care, regardless of where the patient chooses to go. As well, an easily accessible patient enrolment registry would make it easier for physicians working in walk-in clinics to communicate with enrolling physicians.

In addition to a requirement to provide after-hours care, family physicians participating in Ontario’s capitation-based payment models are presently financially penalized when their patients visit walk-in clinics.²⁹ They directly subsidize the cost of walk-in clinic visits through dollar-for-dollar reductions on their access bonus.²⁰ A complementary policy would be to discount physicians working in walk-in clinics’ fees for encounters with patients enrolled to another practice, relative to the fees paid for seeing a patient who is not enrolled with a physician. A similar policy change has recently been made to fee codes commonly used by virtual

walk-in clinics in Ontario.⁴³ This could help incentivize physicians working in walk-in clinics to prioritize the care of patients who are not enrolled, and move the physician workforce toward full-service family medicine practice, thus increasing access to enrolling physicians.

Given the effect of the COVID-19 pandemic on primary care, it will be essential to examine how the use of walk-in clinics may have shifted in response to increased access to virtual visits.²⁷ There is also a need for a methodologically rigorous comparison of patient experience, resource utilization and health outcomes between walk-in clinics and family physician encounters for patients experiencing acute medical problems. A formal registration process for all walk-in clinics is an essential first step to support research and policy. In addition to facilitating measurement of care quality, this would allow health system planning related to where walk-in clinics open and help to ensure that regulatory practice standards (e.g., communication with enrolling physicians) are met.

Limitations

We were unable to capture all walk-in clinics, encounters and patients in the province, as our approach relied on group billing numbers to identify encounters in walk-in clinics and would miss those processed using only individual physician billing numbers. Given the high rates of use of walk-in clinics reported in population surveys,³ ours was a small sample of all walk-in clinics. The inclusion of 72 clinics from across the province increases the generalizability to Ontario walk-in clinics more broadly; however, these may not be generalizable to walk-in clinics outside Ontario. For example, residents of provinces with a higher proportion of patients without a regular health care provider (e.g., British Columbia¹⁸), may have more walk-in clinic visits for chronic health issues. Some of our included walk-in clinics may have operated as combined walk-in and family practices, but did not show this on their website. Yet, our finding that only 14.5% of encounters were with a patient's enrolling physician or another physician in their group suggests that our definition did indeed capture low-continuity encounters that are typical of a walk-in clinic setting. However, our methods did not capture walk-in style visits (i.e., without an appointment) with the patients' own family physician. Finally, we examined only physician visits as these are the predominant walk-in visit type in our setting, unlike in the UK and US, where many walk-in clinics are staffed by nurses.^{37,44}

Conclusion

In this study of patients attending walk-in clinics in Ontario, Canada, we found that most walk-in clinic users were formally enrolled to a family physician. Enrolled patients who visited a walk-in clinic lived farther from their enrolling physician, and more frequently visited a walk-in clinic after hours or on weekends. There is a need for further research into walk-in clinic processes and outcomes of care, as well as policy development to ensure they are optimally integrated into existing longitudinal primary care, and also meeting the access needs of unattached patients.

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Funding: Funding was received from the Canadian Institutes of Health Research (CIHR) project grant awarded to Lauren Lapointe-Shaw, Noah Ivers and Laura Desveaux (no. 175285).

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Data sharing: The data set from this study is held securely in coded form at ICES. Although legal data sharing agreements between ICES and data providers (e.g., health care organizations and government) prohibit ICES from making the data set publicly available, access may be granted to those who meet prespecified criteria for confidential access, available at <https://www.ices.on.ca/DAS> (email: das@ices.on.ca). The full data set creation plan and underlying analytic code are available from the authors upon request, understanding that the computer programs may rely upon coding templates or macros that are unique to ICES and are therefore either inaccessible or may require modification.

Acknowledgements: The authors thank Alexander Kopp for contributions to the study design and data analysis and Cheryl Bird, Krysta Nesbitt, Patrick Roncal and Jerome Johnson for their contributions to analysis and result interpretation. The authors also thank Ed Jess, David Kaplan, David Price, Sundeep Banwatt and Carolyn Canfield for their contributions to results interpretation.

Disclaimer: This study was supported by ICES, which is funded by an annual grant from the Ontario Ministry of Health (MOH) and the Ministry of Long-Term Care. This document used data adapted from the Statistics Canada Postal Code Conversion File, which is based on data licensed from Canada Post Corporation, or data adapted from the Ontario Ministry of Health Postal Code Conversion File, which contains data copied under license from Canada Post Corporation and Statistics Canada. Parts of this material are based on data or information compiled and provided by the Canadian Institute for Health Information, MOH and Ontario Health. The analyses, conclusions, opinions and statements expressed herein are solely those of the authors and do not reflect those of the funding or data sources; no endorsement is intended or should be inferred.

Supplemental information: For reviewer comments and the original submission of this manuscript, please see www.cmajopen.ca/content/11/2/E345/suppl/DC1.