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Table S1: Volume Incentive Thresholds for Patient Enrolment Model Physician Home Visits.

Applicable to physicians in patient enrolment models of care (BSM, SJHC, WAHA, RNPGA, SEAMO, HIV, GHC, CCM, FHG, FHN, and FHO) for both rostered and unrostered patients.

Available: <https://www.health.gov.on.ca/en/pro/programs/ohip/bulletins/11000/bul11088.pdf>

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Bonus Level	Home Visits			
	A	B	C	D
Necessary annual criteria	3 or more patients served and	6 or more patients served and	17 or more patients served and	32 or more patients served and
	12 or more encounters	24 or more encounters	68 or more encounters	128 or more encounters
Annual Bonus	\$1,500	\$3,000	\$5,000	\$8,000

Table S2: ICES Data Sources

Database name	Description
Client Agency Program Enrolment Database (CAPE)	Links physicians to their enrolled patients under several patient enrolment models of clinical practice. These funding models include enhanced fee for service, non-team capitation, and team-based capitation.(1)
Discharge Abstract Database (DAD)	Information on all admissions (excluding designated mental health beds) to acute care hospitals in Ontario. This includes dates of admission as well as diagnostic and procedural codes. Overall, diagnostic codes were found to be 82% sensitive for primary diagnosis when verified against chart abstraction.(2)
Home Care Database (HCD)	Includes all publicly funded home care services, including the service type (end-of-life or not).(3)
ICES Physician Database (IPDB)	Contains yearly (fiscal) information about all physicians in Ontario. It is used to describe physician characteristics, such as sex, speciality, location, and measures of physician activity (billings, workload, types of services provided).(4)
Immigration Refugees and Citizenship Canada Permanent Resident Database (IRCC)	Contains information on immigrants who have landed in Ontario since 1985.(5)
National Ambulatory Care Reporting System (NACRS)	Includes information for all emergency department visits since 2000. A re-abstraction study of diagnostic codes found 85% agreement for the main presenting problem.(6)
Ontario Health Insurance Plan (OHIP)	Contains information on all billing claims submitted by Ontario physicians (consultations and procedures). Fee for service is the primary method of remuneration for 95% of specialist physicians and 50% of primary care physicians in Ontario. However, physicians practicing in non fee-for-service models submit shadow billings to OHIP, which appear as billing claims with a payment value of \$0.(7)
Registered Persons Database (RPDB)	Contains demographic information about anyone who has ever received an Ontario health card number, i.e. all Ontarians alive at any time since 1990 (over 16 million records).(8)

Table S3: Codes Used to Identify Palliative Care and Not Palliative Home Visits.

Type of Home Visit	Code	Descriptor of code
Palliative care	B998	Palliative Home Visit - Special visit premium daytime/evenings/weekend
	B997	Palliative Home Visit - Special visit premium nights
	B966	Palliative Home Visit- Travel premium
	A777	Pronouncement of death
	A902	House call to pronounce death
	A905	General/Family practice - Limited consultation
	A945	General/Family Practice - Special palliative care consultation
	G512	Palliative care case management fee
Not palliative (used for home care services group and 'other' group)	A901	House call assessment (in FP/GP section)
	A900	Complex house call assessment- for "frail elderly or housebound"
	B960, B990, B961, B992	Home visit Special visit premiums daytime
	B962, B994, B964, B996	Home visit Special visit premiums evenings and nights
	B963, B993	Home visit Special visit premiums Weekends and holidays

Note. Home visits were first classified as palliative if any palliative codes were present

Table S4: Operational Definitions for all Variables.

Physician Characteristics		
Variable	Data Source	Definition
Physician age	IPDB	Age in years
Physician sex	IPDB	Male Female
Canada medical graduate	IPDB	“CMG” variable in IPDB categorized as: Yes No Missing
Physician urban/rural practice	IPDB	Postal code converted to RIO score(16) 0: large urban (metropolitan areas) 1-9: medium urban 10-39: small urban 40+: rural
Physician specialty	IPDB	MAINSPECIALTY variable indicates practice specialty of physician.
Physician medical home enrolment	CAPE	Whether the physician is part of a medical home (primary care enrolment model), or not.
Physician compensation model	CAPE, IPDB	The type of patient enrolment model the physician belongs to. Categories are: Team-Based (Family health team) Capitation (Family health network or family health organization) Enhanced Fee-For-Service (Comprehensive care model or family health group) Other (all other models) Fee-For-Service
Physician-Level Home Visit Volumes and Payment		
Number of home visits	OHIP	Count of all home visits provided in the 365 days after the index home visits.
Number of unique patients seen	OHIP	Count of unique patients seen in subsequent 365 days after randomly selected index home visits.
Patients seen per day on a day doing home visits	OHIP	Median number of patients seen on a day doing home visits, in the 365 days following the index home visit.
Number of home visits per patient	OHIP	Ratio between the count of all home visits in subsequent 365 days after randomly selected index home visits, divided by the count of unique patients seen in home visits.
Home visit income (% total)	OHIP	Proportion of total billings (\$) that are generated by home visit codes in the 365 days after the index home visit.
Proportion of ‘off-hours’ home visits	OHIP	Proportion of home visits in the 365 days following the index home visit that are accompanied by an off-hours premium code (B997, B987, B962, B994, B964, B996, B963, B993).

Physician-Level Patient Characteristics		
Variable	Data Source	Definition
Median patient age	RPDB, OHIP	Median patient age in the 365 days following the index home (or office) visit. Categorized as: <18 years (children) 18-39 years (young adult) 40-64 years (middle aged) 65-79 years (younger seniors) 80+ years (older seniors)
Proportion of patients aged 65 or older	RPDB, OHIP	Proportion of patients aged 65 or older at the time of the index home (or office) visit.
Median patient healthcare resource utilization	DAD, NACRS, OHIP	Using Resource Utilization Bands (RUBs), per the Johns Hopkins ACG® System Version 7, in 2 years prior to the index date.(18) Categorized as: Low (0-2) Moderate (3) High (4-5)
Proportion of patients in a lower income neighborhood	RPDB, Census, OHIP	Proportion of patients with nearest census-based income quintile of 1 or 2 based on postal code (based on 2016 census).
Proportion of large urban patients	RPDB, OHIP	Proportion of all home (or office) visits with patients who reside in a large urban location. Postal code converted to RIO score(16) 0: large urban/metropolitan
Proportion of recent immigrant patients	IRCC, OHIP	Present in the CIC (IRCC) database and landing date is within the past 10 years of index visit.
Proportion of home visits made to patients who are rostered to them personally	CAPE, OHIP	Using macro getpcprovider.sas, count of each physician's home visits to their own rostered patients in the 365 days following the index home visit.
Proportion of home visits made to their own rostered patients or to their group	CAPE, OHIP	Using macro getpcprovider.sas, count of each physician's home visits to patients who are rostered and have a group number that matches the physicians' group number in the 365 days following the index home visit.
Proportion of patients previously known in the prior 2 years	OHIP	Proportion of patients with whom a physician has had any encounter with in the previous 2 years in any setting, other than the index encounter.
Proportion of patients not in a medical home	CAPE, OHIP	Proportion of patients not enrolled in a medical home at first encounter.
Proportion of home visits made to patients who received 2+ home care visits in the previous month	HCD, OHIP	Count of home visits in the subsequent 365 days after the index visit where the patient had at least 2 home care visits in the 30 days before the home visit.
Proportion of home visits that were palliative	OHIP	Count of home visits in the subsequent 365 days after the index visit that were palliative (Appendix Table 3).
Proportion of home visits that were neither home care nor palliative ('other')	OHIP	Count of home visits in the subsequent 365 days of the index visit that were 'other' home visits (Appendix Table 3).

Note. Unless otherwise stated, variables are measured between January 1st, 2019 and December 31st, 2019.

Table S5: Physician-Level Characteristics, Practice Patterns, and Patient Characteristics at Each Home Visit Volume Incentive Threshold, in Ontario, Canada.

Physician Characteristics	At least 1 home visit and 3 or fewer patients (N = 3,530)	At least 12 home visits and at least 3 patients (N = 973)	At least 24 home visits and at least 6 patients (N = 1,104)	At least 68 home visits and at least 17 patients (N = 385)	At least 128 home visits and at least 32 patients (N = 580)	p-value**
Physician age, median (IQR)	50 (38-60)	50 (38-59)	52 (39-60)	52 (39-62)	50 (37-61)	0.324
Physician female sex, n (%)	1,719 (48.7)	443 (45.5)	473 (42.8)	152 (39.5)	221 (38.1)	<.001
Canada medical graduate, n (%)	2,111 (59.8)	591 (60.7)	701 (63.5)	223 (57.9)	338 (58.3)	0.383
Physician urban/rural practice ^a						<.001
Large urban	1,597 (45.2)	408 (41.9)	428 (38.8)	158 (41)	280 (48.3)	
Medium urban	944 (26.7)	220 (22.6)	268 (24.3)	106 (27.5)	159 (27.4)	
Small urban	645 (18.3)	238 (24.5)	282 (25.5)	90 (23.4)	109 (18.8)	
Rural	319 (9)	100 (10.3)	123 (11.1)	29 (7.5)	27 (4.7)	
Physician medical home enrolment, n (%)	2,964 (84)	871 (89.5)	967 (87.6)	322 (83.6)	390 (67.2)	<.001
Physician compensation model, n (%)						<.001
Capitation	761 (21.6)	225 (23.1)	252 (22.8)	85 (22.1)	91-93 (15.7-16) *	
Team	1,064 (30.1)	344 (35.4)	370 (33.5)	111 (28.8)	99 (17.1)	
Enhanced Fee for Service	1,100 (31.2)	292 (30)	338 (30.6)	126 (32.7)	195 (33.6)	
Fee-for-Service	566 (16)	102 (10.5)	137 (12.4)	63 (16.4)	190 (32.8)	
Other	39 (1.1)	10 (1)	7 (0.6)	0	<=5 *	
Number of home visits, median (IQR)	3 (1-6)	16 (14-20)	39 (30-50)	92 (79-115)	289.5 (175.5-528)	-
Unique home visit patients, median (IQR)	2 (1-4)	8 (6-11)	16 (12-23)	35 (26-48)	83.5 (54-159)	<.001
Number of home visits per patient, median (IQR)	1 (1-1.7)	2 (1.5-2.7)	2.4 (1.8-3.2)	2.6 (1.9-3.6)	3.3 (2.3-4.9)	<.001
Home visit income (% total), median (IQR)	0.3 (0.1-0.8)	1.6 (0.8-3.4)	3.7 (1.8-7.2)	8 (4.3-13.7)	22.1 (11.1-42.1)	<.001
Patients seen per day on a day doing home visits, median (IQR)	1 (1-1)	1 (1-1)	1 (1-1)	1 (1-2)	2 (2-4)	<.001
Percentage of 'off-hours' home visits, median (IQR)	14.3 (0-66.7)	21.1 (5.6-57.1)	15.9 (3.8-58.3)	14.9 (3.4-51.5)	15.4 (3.8-76.5)	<.001

Physician-Level Patient Characteristics	At least 1 home visit and 3 or fewer patients (N = 3,530)	At least 12 home visits and at least 3 patients (N = 973)	At least 24 home visits and at least 6 patients (N = 1,104)	At least 68 home visits and at least 17 patients (N = 385)	At least 128 home visits and at least 32 patients (N = 580)	p-value**
Median patient's age, n (%)						<.001
<18 years	71 (2)	8 (0.8)	8 (0.7)	8 (2.1)	15 (2.6)	
18 - 39 years	149 (4.2)	21 (2.2)	15 (1.4)	6 (1.6)	8 (1.4)	
40 - 64 years	503 (14.2)	62 (6.4)	83 (7.5)	34 (8.8)	56 (9.7)	
65 - 79 years	968 (27.4)	243 (25)	244 (22.1)	86 (22.3)	211 (36.4)	
80+ years	1,839 (52.1)	639 (65.7)	754 (68.3)	251 (65.2)	290 (50)	
Percentage of patients aged 65 or older, median (IQR)	100 (62.5-100)	91.7 (76.2-100)	91.9 (75.6-98.1)	90.1 (73.3-97.7)	84.4 (67.1-95.8)	<.001
Median patient healthcare resource utilization in subsequent year, n (%)						<.001
Low (0 - 2)	118 (3.3)	<=5 *	0	0	0	
Moderate (3)	791 (22.4)	139-141 (14.3-14.5) *	120 (10.9)	43 (11.2)	53 (9.1)	
High (4 - 5)	2,621 (74.2)	829 (85.2)	984 (89.1)	342 (88.8)	527 (90.9)	
Percentage of patients in a lower income neighborhood, median (IQR)	33.3 (0-85.7)	39.1 (16.7-64.3)	41.7 (20.5-65.4)	43.4 (25.2-61.8)	45.7 (26.7-57)	<.001
Percentage of large urban patients, median (IQR)	0 (0-100)	8.3 (0-100)	6.7 (0-94.6)	15.8 (0-94.7)	36.4 (0.9-96.3)	<.001
Percentage of recent immigrant patients^c, median (IQR)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-1)	0 (0-2.2)	<.001
Percentage of home visits made to patients who are rostered to them personally, median (IQR)	80.0 (0-100)	82.6 (47.8-100)	75.4 (21.2-93.5)	57.5 (1.8-87.5)	3.7 (0-67.3)	<.001
Percentage of home visits made to their own rostered patients or to their group, median (IQR)	100 (33.3-100)	87.5 (58.3-100)	80.2 (29.8-96)	63.6 (5.8-90.4)	11.5 (0-72.7)	<.001
Percentage of patients previously known to them in the prior 2-years, median (IQR)	100 (77.8-100)	100 (88.9-100)	96.4 (84.6-100)	89.6 (64.5-98.6)	77.4 (39.2-95.7)	<.001
Percentage of patients not in a medical home, median (IQR)	0 (0-28.6)	10 (0-25)	12.5 (3.6-32)	18.2 (7.7-36.7)	24.8 (14.7-38.8)	<.001
Percentage of home visits made to patients who received 2+ home care visits in the previous 30 days, median (IQR)	62.5 (0-100)	62.5 (41.7-81.3)	58.8 (40.7-74.4)	55 (38.8-72.2)	56.8 (35.2-80.3)	0.003
Percentage of home visits that were palliative, median (IQR)	0 (0-50)	9.5 (0-43.8)	10.7 (0-37.7)	8 (0.9-40.5)	13.1 (0.2-93.6)	<.001

Percentage of home visits that were neither home care not palliative ('other'), median (IQR)	22.2 (0-75)	29.4 (12.5-53.8)	34.7 (18.1-55.3)	39.1 (20-56.7)	35.9 (2.3-62.4)	<.001
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Note. Measured from January 1st, 2019 to December 31st, 2019. Physician specialty restricted to family/general practice and family/emergency medicine. Thresholds from <https://www.health.gov.on.ca/en/pro/programs/ohip/bulletins/11000/bul11088.pdf>. If a physician did not meet both the visit count and patient count criteria for a category, they were put into the next lowest category.

* Cells adjusted to prevent re-identification of groups <6 individuals.

** p-values obtained using Kruskal-Wallis test for median (IQR) variables, and Chi-square for categorical variables.

^a RIO score cut-offs were 0 large urban, 1-9 medium urban, 10-39 small urban, and 40+ rural. Total n missing = 60.

^b 'Off-hours' was defined as a visit occurring between 5pm and 7am on weekdays or anytime on Saturday/Sunday and public holidays.

^c 'Recent' was defined as within the past 10 years.

Table S6: Characteristics of Physicians, Practice Patterns, and Patient Characteristics for the Top 1% of Home Visit Physicians Compared to the Bottom 99% of Home Visit Physicians.

Physician Characteristics	Top 1% of Home Visit Physicians N = 66	Bottom 99% of Home Visit Physicians N = 6,506	Standardized Mean Difference
Physician age (years)			
Median (IQR)	50.5 (40-59)	50 (38-60)	0.05
Self-reported physician gender, n (%)			
"Female"	20 (30.3)	2,988 (45.9)	0.33
Canada medical graduate, n (%)			
Yes	35 (53.0)	3,929 (60.4)	0.15
Missing	10 (15.2)	1,279 (19.7)	0.12
Physician urban/rural practice, n (%)^a			
Large urban	30-32 (45.5-48.5) *	2,839 (43.6)	0.10
Medium urban	22 (33.3)	1,675 (25.7)	0.17
Small urban	9 (13.6)	1,355 (20.8)	0.19
Rural	<=5 *	595 (9.1)	0.18
Missing	0	42 (0.6)	0.11
Physician medical home enrolment, n (%)	47 (71.2)	5,467 (84.0)	0.31
Physician compensation model, n (%)			
Capitation		1,415 (21.5) *	0.41
Team-based		1,988 (30.2) *	0.67
Enhanced fee for service	38 (57.6)	2,013 (30.9)	0.56
Fee for service	19 (28.8)	1,039 (16.0)	0.31
Other	0	60 (0.9)	0.14
Physician-Level Home Visit Volumes and Payment	High-Volume Home Visit Physicians N = 66	Low-Volume Home Visit Physicians N = 6,506	Standardized Mean Difference
Number of home visits, median (IQR)	1,337 (1,100-1,802)	9 (3-34)	2.48
Number of unique home visit patients seen, median (IQR)	270 (166-1,032)	5 (2-15)	2.44
Patients seen per day on a day doing home visits, median (IQR)	7 (5-9)	1 (1-1)	3.85
Number of home visits per patient, median (IQR)	5.3 (1.4-8.4)	1.7 (1-2.6)	0.91
Home visits income (% total billing), median (IQR)	47 (33.1-66.1)	1 (0.2-3.9)	2.35
Percentage of home visits that are off-hours^b (%), median (IQR)	52.8 (9.2-90.7)	16.7 (0-66.7)	0.57
Physician-Level Home Visit Patient Characteristics	High-Volume Home Visit Physicians N = 66	Low-Volume Home Visit Physicians N = 6,506	Standardized Mean Difference
Median patient age (years), n (%)			
<18 years		110 (1.7) *	0.09
18 - 39 years		199 (3.0) *	0
40 - 64 years	16 (24.2)	722 (11.1)	0.35

Appendix 1, as supplied by the authors. Appendix to: Salahub C, Kiran T, Na Y, et al. Characteristics and practice patterns of family physicians who provide home visits in Ontario, Canada: a cross-sectional study. *CMAJ Open* 2023. doi: 10.9778/cmajo.20220124. Copyright © 2023 The Author(s) or their employer(s). To receive this resource in an accessible format, please contact us at cmajgroup@cmaj.ca.

65 - 79 years	22 (33.3)	1,730 (26.6)	0.15
80+ years	24 (36.4)	3,749 (57.6)	0.44
Percentage of patients aged 65 years or older (%), median (IQR)	71.2 (47-91.1)	95.6 (70-100)	0.88
Median patient healthcare resource utilization band, n (%)			
Low (0 - 2)	0	122 (1.9)	0.20
Moderate (3)	12 (18.2)	1,135 (17.4)	0.02
High (4 - 5)	54 (81.8)	5,249 (80.7)	0.03
Percentage of patients in a lower income neighborhood (%), median (IQR)	49.8 (38.1-57.5)	37.8 (5-70)	0.35
Percentage of large urban patients (%), median (IQR)	44.6 (1.6-94.1)	7.6 (0-100)	0.24
Percentage of recent immigrant patients^c (%), median (IQR)	1 (0-2.9)	0	1.48
Percentage of home visits made to patients who are enrolled to them personally (%), median (IQR)	0.3 (0-19.2)	75 (0-100)	0.96
Percentage of home visits made to their own or to their group enrolled patients (%), median (IQR)	3.7 (0-28)	85.7 (20.6-100)	1.16
Percentage of patients previously known in the prior 2 years (%), median (IQR)	63.4 (28.2-86.6)	100 (77.8-100)	1.33
Percentage of patients not in a medical home (%), median (IQR)	34.3 (23.9-39.1)	5.3 (0-31.1)	1.16
Percentage of home visits made to patients who received 2+ home care visits in the previous 30 days (%), median (IQR)	38.9 (26.1-71)	60 (28.6-86.7)	0.39
Percentage of home visits that were palliative (%), median (IQR)	0.8 (0-54.3)	4 (0-50)	0.07
Percentage of home visits that were neither home care nor palliative (%), median (IQR)	55.6 (20.3-72.8)	29.6 (0-61.6)	0.39

Note. Unless otherwise stated, variables are measured between January 1st, 2019 and December 31st, 2019. Standardized mean differences greater than or equal to 10% (0.1) are considered meaningful.

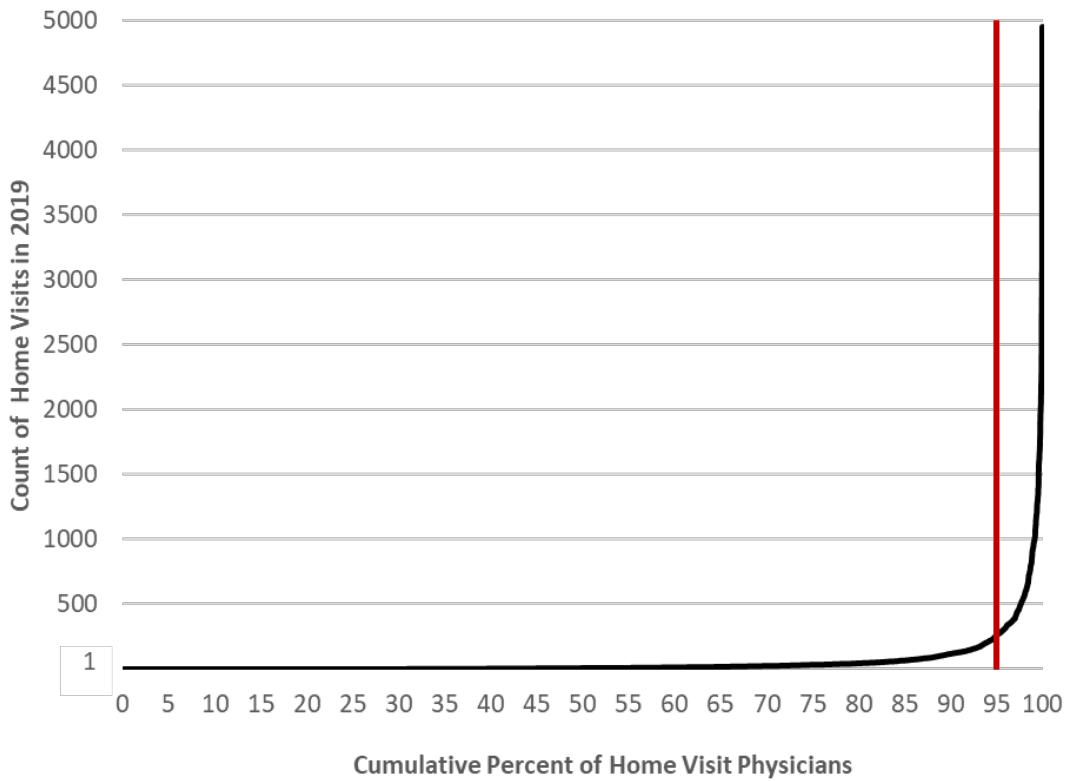
* Cells adjusted or combined to prevent re-identification of groups < 6 individuals.

^a RIO score cut-offs were 0 large urban, 1-9 medium urban, 10-39 small urban, and 40+ rural.

^b 'Off-hours' was defined as a visit occurring between 5pm and 7am on weekdays or anytime on Saturday/Sunday and public holidays.

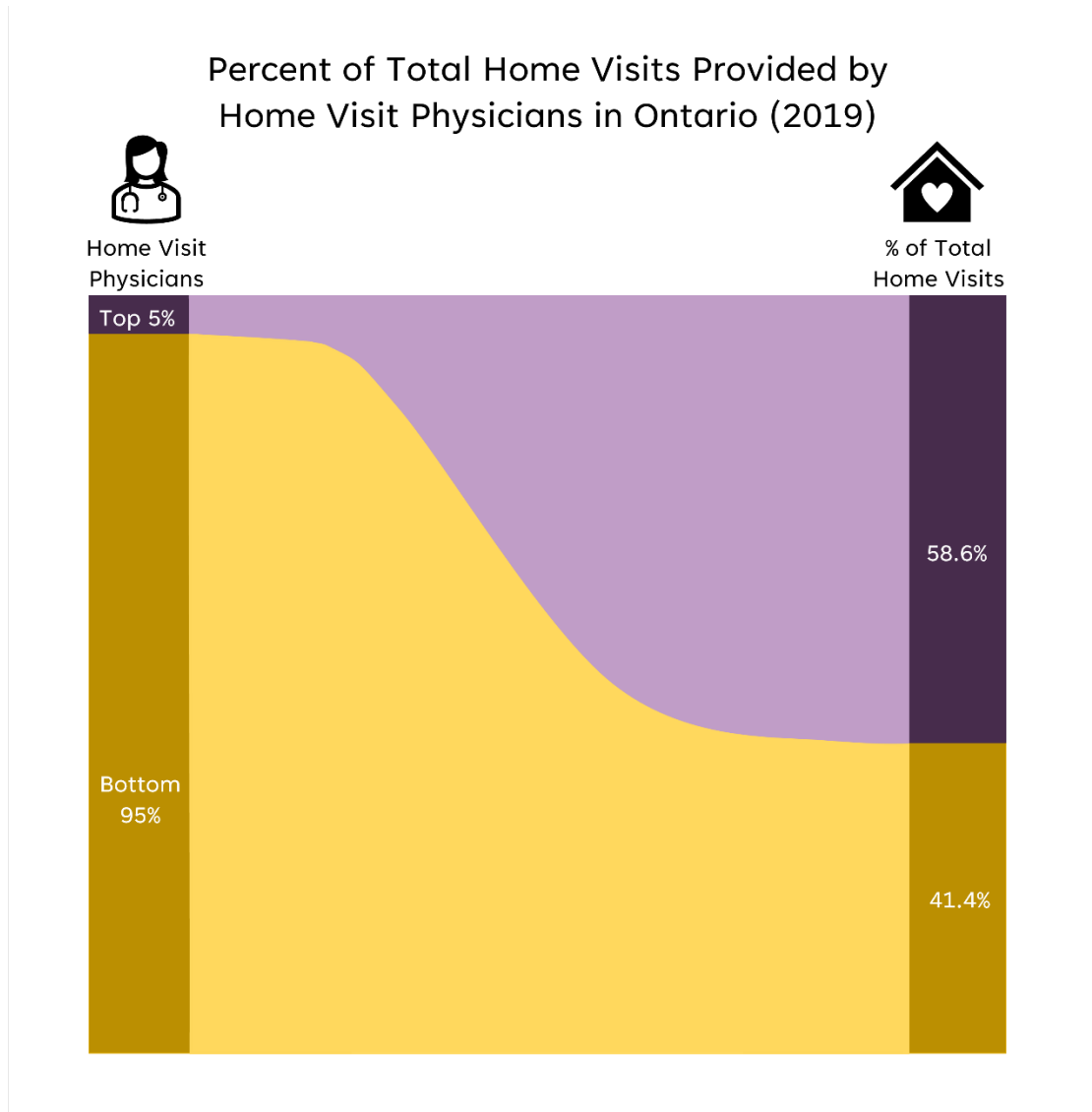
^c 'Recent' was defined as within the past 10 years.

Figure S1: Count of Home Visits in 2019 for Each Physician, Organized by Cumulative Percent of Home Visit Physicians.



Note. Solid red line reflects the 95th cumulative percent of all home visit physicians.

Figure S2: Infographic of the Percentile of Home Visit Physicians by Volume and their Percent Share of Total Home Visits Provided in Ontario in 2019.



References

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