



Methodological Notes

Supply, Distribution and Migration of Physicians in Canada, 2016



Canadian Institute
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About CIHI's Scott's Medical Database data

Scott's Directories (www.MDSelect.com) maintains a database on physicians to produce the *Canadian Medical Directory* and mailing lists for commercial purposes. The Canadian Institute for Health Information (CIHI) acquires a copy of this database annually to update the Scott's Medical Database (SMDB). The SMDB is used to produce publications, handle ad hoc requests for information and fulfill special client-requested projects.

The SMDB was managed by Health Canada until 1995. During that year, the SMDB was transferred to CIHI. Prior to its transfer from Health Canada to CIHI, data files from 1968 to 1993 were received quarterly. Since 1993, data files are received annually in December. Modified versions of the December files from 1968 to 2016 are maintained on a network database (in Oracle) at CIHI.

More information

The following companion products are available on CIHI's website at www.cihi.ca:

- *Physicians in Canada, 2016: Summary Report* (.pdf)
- *Physicians in Canada, 2016: Chartbook* (.pptx)
- *A profile of physicians in Canada, 2016* (infographic; .pdf)
- *Supply, Distribution and Migration of Physicians in Canada, 2016: Data Tables* (.xlsx)
- *Supply, Distribution and Migration of Physicians in Canada, 2016: Historical Data* (.xlsx)
- *Supply, Distribution and Migration of Physicians in Canada, 2016: Quick Stats* (.xlsx)
- *National Physician Database — Payments Data, 2015–2016* (.xlsx)
- *National Physician Database — Utilization Data, 2015–2016* (.xlsx)
- *National Physician Database Historical Payments: Data Tables* (.xlsx)
- *National Physician Database Historical Utilization: Data Tables* (.xlsx)
- *National Physician Database Data Release, 2015–2016: Methodological Notes* (.pdf)
- *Physician Services Benefit Rates, 2015–2016: Methodological Notes* (.pdf)
- *Physician Services Benefit Rates, 2015–2016: Data Tables* (.xlsx)

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Data sources and collection

Scott's Medical Database data

Every year, CIHI obtains a copy of the Scott's Directories database for the purpose of maintaining historical physician information. All data collection is done by Scott's Directories; data is collected from organizations and institutions such as the jurisdictional registrars, medical schools, the Royal College of Physicians and Surgeons of Canada (Royal College), the College of Family Physicians of Canada (CFPC), the Collège des médecins du Québec (CMQ) and Canadian hospitals.

A biannual questionnaire is sent to all active physicians (individuals with an MD degree who have a valid mailing address) in Scott's Directories' database and to all new medical school graduates in order to confirm and/or update the information that is on record for physicians. Scott's Directories processes updates received weekly from physicians and clients. Updated information on individual physicians is also derived from publicly available monthly or quarterly reports and/or yearly registration directories issued by jurisdictional licensing authorities. In the 2016 data year, Scott's Directories made some changes to its data processing protocol. Scott's Directories sent the data to CIHI in a flat file format in which look-up tables were no longer provided. However, the data remains comparable throughout time, and CIHI made every effort to ensure accuracy and consistency across data years.

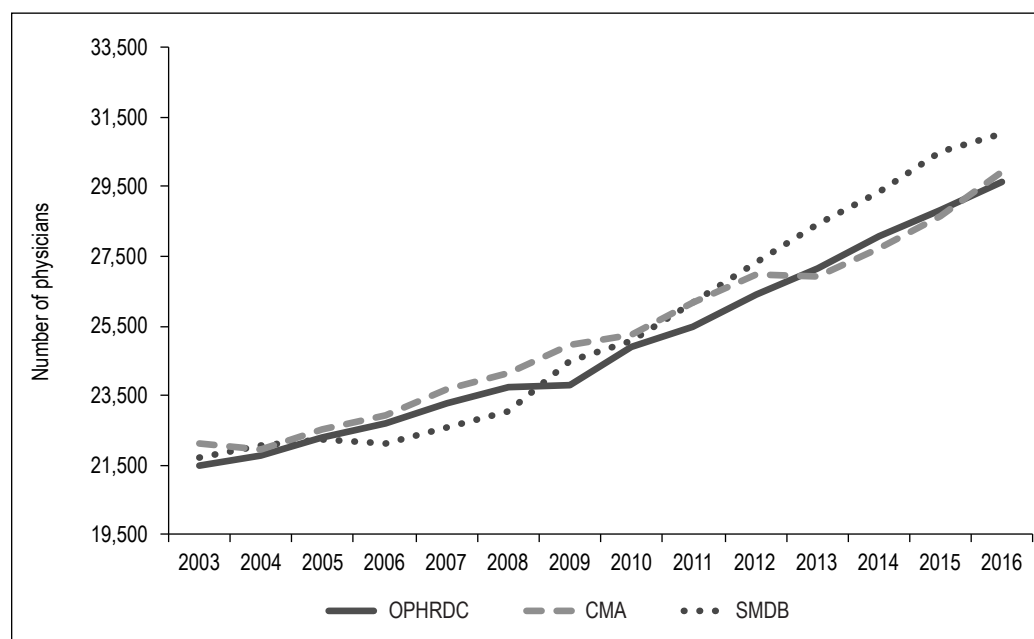
Other data sources

Physician counts and demographic information about physicians are also available from a variety of Canadian sources, including CIHI's National Physician Database, jurisdictional ministries of health, professional licensing or certifying organizations, the Canadian Medical Association (CMA) and other organizations that include governmental and non-governmental collaborative groups and commercial enterprises. The counts of physicians from these various sources may not agree due to the inclusion and exclusion criteria applied by each source, and the timing of their data collection.

For example, the Ontario Physician Human Resources Data Centre (OPHRDC)ⁱ counts of Ontario physicians include clinician physicians who are semi-retired, military physicians and a portion of interns and residents. The CMA's counts in Ontario exclude interns and residents and include non-clinicians, semi-retired physicians and non-registered physicians. By comparison, CIHI's SMDB includes non-registered physicians and excludes interns and residents, as well as physicians who are semi-retired, who are in the military, who request to be excluded from the publication (non-registered physicians only) and who are practising abroad. The impact of these different criteria on the relative numbers of physicians reported by each of these 3 data sources is illustrated in the figure below.

i. The OPHRDC is governed collaboratively by the College of Physicians and Surgeons of Ontario, the Ontario Ministry of Health and Long-Term Care, the Ontario Medical Association and the Council of Ontario Faculties of Medicine.

Figure 1 Number of physicians in Ontario, comparison of 3 data sources, 2003 to 2016



Notes

OPHRDC: Ontario Physician Human Resources Data Centre.

CMA: Canadian Medical Association.

SMDB: Scott's Medical Database.

Sources

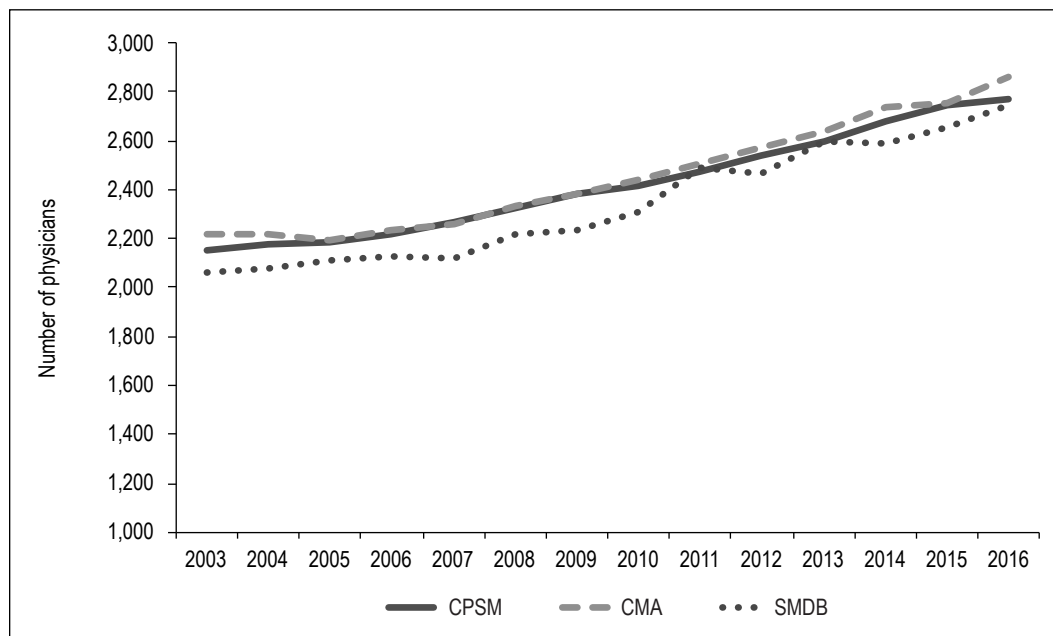
Canadian Institute for Health Information; Ontario Physician Human Resources Data Centre; Canadian Medical Association.

Despite the differences in inclusion and exclusion criteria described above, an increasing gap has been observed over time between SMDB data and the OPHRDC data since 2011. A comparison exercise was performed using 2015 data in order to explore the reasons for the growing gap. Findings indicated that more than 1,100 physicians were identified in the SMDB but not in OPHRDC because of College of Physicians and Surgeons of Ontario (CPSO) licence status exclusions. Furthermore, shifts in the composition of different sub-groups included or excluded also partly explained the growing gap.

Another example is in Manitoba, where the count of Manitoba physicians by the College of Physicians and Surgeons of Manitoba (CPSM) includes all physicians who are registered and licensed to practise in Manitoba, including semi-retired physicians and fully licensed residents. The CMA's count of its members in Manitoba, like in Ontario, excludes interns and residents and includes non-clinicians and semi-retired physicians. By comparison, CIHI's SMDB includes non-registered physicians and excludes physicians who are semi-retired, who are in

the military, who request to be excluded from the publication (non-registered physicians only) and who are practising abroad. The impact of these different criteria on the relative numbers of physicians reported by each of these 3 Manitoba-specific data sources is illustrated in the figure below.

Figure 2 Number of physicians in Manitoba, comparison of 3 data sources, 2003 to 2016



Notes

CPSM: College of Physicians and Surgeons of Manitoba.

CMA: Canadian Medical Association.

SMDB: Scott's Medical Database.

Sources

Canadian Institute for Health Information; College of Physicians and Surgeons of Manitoba; Canadian Medical Association.

Population data

All population data used in this publication is from Statistics Canada. Appropriate revisions to population data are done on an annual basis by CIHI. All population sources are noted below the tables. See Appendix A for population data used to generate physician-to-population ratios.

Note to readers: Statistics Canada information is used with the permission of the Minister of Industry (the minister responsible for Statistics Canada). Information on the availability of the wide range of data from Statistics Canada can be obtained from Statistics Canada's regional offices, its website (www.statcan.gc.ca) or its toll-free access number (1-800-263-1136).

Data quality

As indicated in the Data sources and collection section, Scott's Directories uses multiple sources to confirm the accuracy of its data. These resources are also used to confirm the authenticity of new graduates, internationally trained graduates and new certificants from specialty programs. All information received by Scott's Directories is first confirmed for authenticity and then keyed into its system, where it is date- and source-stamped. Each physician has a unique ID number that is never recycled, even after the doctor retires or dies.

At CIHI, once the file has been received from Scott's Directories, it is processed through a series of edit checks, and an edit/verification report is produced. Edit checks are done on all records in the database — active and inactive. Questionable entries are forwarded to Scott's Directories and used by their database manager to update any identified coding errors.

Licensing authority data supply interruptions

Jurisdictional licensing authorities are key data sources for Scott's Directories and, in turn, CIHI's SMDB. Information provided by licensing authorities identifies new physicians and also reflects updates to historical physician information (change of address, medical specialty, etc.). Interruptions in the data supply chain between licensing authorities and Scott's Directories contribute to potential over-coverage, under-coverage and/or error within the SMDB.

For data year 2016, there were no data supply interruptions. However, in past years, Scott's Directories has experienced data supply interruptions from jurisdictional licensing authorities. These data provision exceptions are noted below.

- British Columbia — 2004: Data for the year 2004 does not reflect annual physician information provided by the College of Physicians and Surgeons of British Columbia. Data provision from the college resumed for all data years following 2004. Caution should be used when comparing physician counts from 2004 with other years.
- Quebec — 2003: Data for the year 2003 does not reflect annual physician information provided by the CMQ for that year. Subsequent years' data does reflect annual physician information provided by the CMQ. Caution should be used when comparing physician counts from 2003 with other years.
- Ontario — 2002: Data for the year 2002 reflects a partial data supply interruption from the CPSO. Scott's Directories did not receive physician information updates from the CPSO during the period September 2002 to December 2002. Data provision from the CPSO has resumed for all data years following 2002. Caution should be used when comparing physician counts from 2002 with other years.

- Alberta and Yukon — 2000: Data for the year 2000 does not reflect annual physician information provided by the College of Physicians and Surgeons of Alberta or the Yukon government. Data provision for both jurisdictions has resumed in all subsequent years. Caution should be used when comparing physician counts from 2000 with other years.

While jurisdictional licensing authorities are key data suppliers, they are not the only data source for Scott's Directories. As noted in the Data sources and collection section, data reflects physician information gathered through a variety of data sources, including national medical associations and a biannual physician survey carried out by Scott's Directories. These data sources remained active during the data supply interruptions noted above.

Physician counts in the territories

Scott's Directories assigns physicians to the province or territory where they report their primary postal code. This typically reflects the jurisdiction where physicians practise and provides a reasonable indication of the access to medical care available to the population in that jurisdiction. In smaller jurisdictions — particularly in the territories where fewer doctors permanently reside — it is common to rely on arrangements where physicians temporarily relocate during the year from another jurisdiction. In these situations, counting only physicians who permanently reside in the jurisdiction may understate the actual access to care if significant numbers of physicians are arriving from elsewhere in the country on these arrangements and augmenting the level of access.

For example, in 2016, Scott's Directories reported that there were 8 physicians with a postal code in Nunavut — 7 family medicine physicians and 1 specialist. However, according to information obtained from the Nunavut Department of Health and Social Services, there were 155 individual family medicine physicians providing 7,503 days of service in the territory that year, or an average of 48 service days each. The majority were practising on these temporary arrangements.

The following table shows the growth in the number of family medicine physicians and the service days they provided in Nunavut, by region, as reported by the Nunavut Department of Health and Social Services from 2003–2004 to 2016–2017.

Table 1 Number of family physicians and service days rendered in Nunavut, by region, 2003–2004 to 2016–2017

Fiscal year	Total number of family medicine physicians, Nunavut	Total service days rendered, Nunavut	Average service days, Nunavut	Number of family medicine physicians, Qikiqtaaluk	Service days rendered, Qikiqtaaluk	Number of family medicine physicians, Kivalliq	Service days rendered, Kivalliq	Number of family medicine physicians, Kitikmeot	Service days rendered, Kitikmeot
2003–2004	77	2,268	29	44	1,302	22	818	11	148
2004–2005	95	3,345	35	58	2,379	22	705	15	261
2005–2006	88	4,602	52	50	3,187	23	1,138	15	276
2006–2007	103	4,118	40	58	2,979	32	934	13	206
2007–2008	103	4,509	44	60	3,158	28	884	15	467
2008–2009	104	5,443	52	61	3,602	30	1,463	13	378
2009–2010	100	6,516	65	55	4,306	33	1,700	12	510
2010–2011	120	7,421	62	68	5,001	39	1,760	13	660
2011–2012	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2012–2013	148	7,364	50	97	5,024	32	1,715	19	625
2013–2014	153	7,465	49	95	5,076	38	1,736	20	653
2014–2015	157	7,470	48	91	5,079	49	1,726	17	665
2015–2016	149	7,501	50	83	5,082	43	1,759	23	660
2016–2017	155	7,503	48	98	5,220	43	1,669	14	614

Note

n/a: Not available. Data for fiscal year 2011–2012 was not provided by the Nunavut Department of Health.

Source

Government of Nunavut, Department of Health and Social Services, 2017.

The SMDB count of physicians living in the territory during the year can be compared with the effective number of physicians providing services throughout the year by dividing the total annual number of service days reported to CIHI by the Government of Nunavut by the estimated average 220 days of service per year per full-time physician. As seen in Table 1, there were 7,503 service days in 2016–2017, which equals 34 effective family medicine physicians providing services throughout the year — almost 5 times more than the 7 family medicine physicians who resided in the territory in 2016 according to the SMDB; these effective physicians include both those residing in the territory and those who came from other parts of the country for short periods throughout the year to fill locum positions or to fill other gaps in access. This increases the number of effective family medicine physicians per 100,000 population to 91, which is closer to the ratio of 116 family physicians per 100,000 population at the Canada level.

On April 1, 1999, when the central and eastern portions of the Northwest Territories became the new territory of Nunavut, Scott's Directories did not collect Nunavut-specific data, and Nunavut physicians were included in the counts of physicians residing in the Northwest Territories. However, Nunavut-specific data was collected by Scott's Directories beginning in 2000. For the purposes of the current publication, 1999 Nunavut data has been generated using postal codes, and all analyses reflect distinct physician data for Nunavut and the Northwest Territories from 1999 onward. A total of 11 family medicine and specialist physicians, previously identified as having a jurisdiction of residence in the Northwest Territories, were reassigned to Nunavut. Readers are cautioned when comparing changes over time in the Northwest Territories, as some of the change is attributable to the creation of Nunavut. Furthermore, since 1994, Scott's Directories had been unable to obtain updates from physician licensing authorities in either the Northwest Territories or Nunavut. In order to update information on physicians in these territories, Scott's Directories had relied on other sources, such as the annual physician questionnaire. However, in more recent years, Scott's has been able to receive updates from physician licensing authorities in these two territories.

In Yukon, there were 78 physicians with a postal code in the territory in 2016, according to the SMDB. However, an initial investigation suggests that this likely represents less than half of all physicians providing care in the territory. CIHI is working in collaboration with the Yukon government to identify a relevant methodology to properly identify itinerant physicians who, when added to those who reside in the territory, will provide a more comprehensive estimate of the total physician supply.ⁱⁱ

ii. Using the encrypted UPI (Unique Physician Identifier) in the National Physician Database (NPDB), it is possible to identify physicians who provide services strictly in Yukon versus those who provide services in Yukon and other jurisdictions.

The territories employ a primary care delivery model in which full-scope advanced practice nurses are more likely to meet needs that are met by family physicians in much of the rest of Canada. The nursing model of primary care alters the nurse-to-physician ratio relative to the rest of Canada. Furthermore, in the territories more registered nurses are found in community settings such as nursing stations or community health centres.

Data definitions

Each of the data elements listed corresponds to a field on the physician record. Only data elements used in the creation of *Supply, Distribution and Migration of Physicians in Canada, 2016: Data Tables* and the summary report *Physicians in Canada, 2016* are described below. For a complete list of data elements present in the SMDB, please see Appendix B.

Jurisdiction

Information systems maintained by Scott's Directories can record multiple addresses for individual physicians. The address information submitted to CIHI by Scott's Directories corresponds to the physicians' preferred mailing address. For the purposes of SMDB reporting, individual physicians are assigned to the single province or territory that corresponds to their preferred mailing address.

Physician Type

- Family medicine
- Specialist

Unless otherwise noted, CIHI publications use the term “family medicine physician” to include general practitioners (physicians, excluding interns and residents, without a current medical specialty certified in Canada) and family medicine and emergency family medicine specialists. The term “specialists” includes certificants of the Royal College or the CMQ, with the exception of Saskatchewan and Newfoundland and Labrador, starting in 2004; New Brunswick, Nova Scotia and Yukon, starting in 2007; Quebec and Prince Edward Island, starting in 2009; and Alberta, starting in 2010, where non-certified specialists are also included. Please refer to the Computations: Certified and non-certified specialists section for a definition of non-certified specialists.

Medical Activity Code

- Active
- Active — not in private practice

- Abroad
- United States of America (U.S.A.)

Scott's Directories defines physicians as active if they have an MD degree and a valid mailing address (mail sent to the physician is not returned). *Active — not in private practice* includes active physicians who are administrators, teachers, etc., but do not engage in any private clinical practice. *Active — not in private practice* is reported by the physician to Scott's Directories on the biannual questionnaire. These 2 categories are combined by CIHI and are used to calculate the number of physicians.

The *abroad* code is used for a physician who has moved to an address outside the country. In 1992, Scott's Directories added an additional code that indicates whether the physician moved to the U.S. The *abroad* category is combined with the *U.S.A.* category to produce statistics on physicians moving abroad.

Medical Specialties

- 4 fields for listing specialties (certified)

Individual physician records provided by Scott's Directories allow for a maximum of 4 specialties to be coded. If more than one specialty is listed, the specialist is tabulated under the most recently acquired certified specialty, on the assumption that it most accurately reflects the current field of practice. The exceptions to the usual assignment of specialty are for non-certified specialists. Non-certified specialists are tabulated under the specialty designation provided by their associated jurisdiction.

Specialty certifications are assigned according to designations defined by the Royal College, the CFPC and the CMQ. Specialty codes are grouped into various categories for use in this publication (e.g., internal medicine subspecialties have been aggregated into the category of internal medicine). Specialties have been aggregated according to the groupings of the Royal College. For a listing of the grouping categories and the specialties included in each grouping, please see Appendix C.

Graduating Country Indicator

- Canada
- U.S.A.
- Foreign

Year of Graduation

- Year of medical doctorate (MD) graduation

Years Since MD Graduation (CIHI-derived)

- Number of years between the year of graduation and the current year

This element indicates the **maximum** number of years a physician could have been in the workforce, not the actual number of years, because it does not account for time spent out of the workforce (e.g., on continuing education or maternity/paternity leave).

For the purposes of this report, physicians with a number of years since graduation greater than 65 are assigned to the category *unknown*.

Sex

- Male
- Female

Date of Birth

- Year
- Month
- Day

Starting in 2014, Scott's Directories began modifying the Date of Birth field to include just the year of birth. The month and day for this data element have been set to January 1.

Age (CIHI-derived)

- Number of years between the data year of a given report and the year of birth

For those physicians for whom the year of birth was not available, age is calculated using year of MD graduation, with age at MD graduation assumed to be equal to 25 years.

For the purposes of this report, physicians younger than the age of 20 and older than the age of 90 are assigned to age category *unknown*.

Urban/Rural Status (CIHI-derived)

- Urban
- Rural

Derived using the postal code associated with the physician's primary mailing address. Based on Statistics Canada's methodology, postal codes within census metropolitan areas (CMAs) or census agglomerations (CAs) were coded as urban, while postal codes outside of CMAs or CAs were coded as rural.

CIHI Publication Indicator (CIHI-derived)

Based on CIHI's "no publication" methodology, a variable is derived to indicate whether a physician record is to be excluded (indicator = N) or included (indicator = Y) for the purposes of analysis and publication.

Computations

Head count inclusions and exclusions

Counts are based on 84,063 active physicians in Canada in 2016. Active physicians are defined as individuals with an MD degree who have a valid mailing address. Out of 92,144 physicians, 8,081 were excluded for the reasons listed below.

- Residents are excluded from counts because this report focuses on physicians in the labour force who have completed their training and because of limitations with resident data in the SMDB (see Data limitations).
- Physicians in the military are excluded because their services are not generally available to the public and because it can be difficult to establish their work location (which may be overseas).
- Non-registered physicians who have not given consent for the publication of their data are excluded because a physician's information is considered public only if the physician is registered (see Privacy and confidentiality for more details).
- Semi-retired physicians are excluded because the label "semi-retired" is self-reported to Scott's Directories and because there is no clear difference between semi-retired and retired.

Table 2 presents an overall breakdown of physicians included in and excluded from this report.

Table 2 Total physicians included and excluded, by physician type and jurisdiction, Canada, 2016

Physician type	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.	Canada
Included														
Family medicine	682	152	1,215	960	9,823	15,417	1,423	1,241	5,320	6,189	68	25	7	42,522
Specialist	633	127	1,242	775	10,447	15,600	1,325	1,041	4,974	5,358	10	8	1	41,541
Total included	1,315	279	2,457	1,735	20,270	31,017	2,748	2,282	10,294	11,547	78	33	8	84,063
Excluded														
Family medicine														
Military	0	0	0	0	0	0	0	0	0	0	0	0	0	0
"No publication" methodology	2	1	21	19	81	114	18	8	46	62	1	6	1	380
Semi-retired	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	1	21	19	81	115	18	8	46	62	1	6	1	381
Specialist														
Military	0	0	0	0	1	0	0	0	0	0	0	0	0	1
"No publication" methodology	1	0	7	15	20	23	1	0	13	37	0	0	0	117
Semi-retired	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	7	15	21	23	1	0	13	37	0	0	0	118
Resident	11	2	32	17	133	7,212	22	26	75	50	0	0	0	7,582
Resident military	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	11	2	32	17	133	7,212	22	26	75	50	0	0	0	7,582
Total excluded	14	3	60	51	235	7,350	41	34	134	149	1	6	1	8,081
Overall total	1,329	282	2,517	1,786	20,505	38,367	2,789	2,316	10,428	11,696	79	39	9	92,144

Notes

Includes physicians in clinical practice and those not working in a clinical practice.

Data represents the number of physicians included in the publication (family medicine and specialists) and the number of physicians excluded (military, semi-retired, residents and non-registered physicians who requested that their information not be published as of December 31, 2016).

Source

Scott's Medical Database, 2016, Canadian Institute for Health Information.

It is possible, using the Medical Registration Indicator field, to compare the number of physicians who are registered in Canada with those who are not registered (see Table 3). For example, in the SMDB in 2016, of the 84,063 active physicians in Canada, 78,498 (93.38%) were jurisdictionally registered, while 5,565 (6.62%) were not registered. Some physicians who work in non-clinical situations (such as administration or research) may not be registered with their provincial or territorial registrar. Also, some physicians may maintain their registration status but not engage in clinical activity.

Table 3 Percentage of non-registered family medicine, specialist and total physicians, by physician type and jurisdiction, Canada, 2012 to 2016

Year	Physician type	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.	Canada
2012	Family medicine	5.2%	17.5%	6.7%	5.4%	2.0%	2.7%	5.2%	2.5%	5.4%	6.5%	5.4%	30.8%	44.4%	3.8%
	Specialist	10.1%	10.6%	14.0%	13.3%	7.4%	3.5%	10.6%	12.0%	12.4%	11.6%	0.0%	30.0%	33.3%	7.6%
	Total	7.5%	14.3%	10.3%	9.1%	4.8%	3.1%	7.8%	6.7%	8.9%	8.8%	4.5%	30.6%	41.7%	5.7%
2013	Family medicine	4.1%	13.0%	6.8%	7.8%	1.3%	3.4%	4.8%	3.4%	6.1%	5.9%	8.8%	6.3%	20.0%	3.9%
	Specialist	6.3%	17.2%	13.2%	12.7%	6.0%	3.8%	8.4%	12.4%	11.2%	11.2%	0.0%	36.4%	0.0%	7.0%
	Total	5.1%	14.9%	9.9%	10.1%	3.7%	3.6%	6.5%	7.3%	8.6%	8.3%	7.5%	14.0%	18.2%	5.4%
2014	Family medicine	4.3%	13.8%	7.0%	8.6%	1.3%	4.1%	5.1%	3.2%	6.2%	6.4%	11.3%	8.8%	27.3%	4.3%
	Specialist	7.9%	17.9%	13.9%	14.6%	6.1%	3.7%	9.0%	12.7%	12.0%	12.4%	0.0%	20.0%	0.0%	7.4%
	Total	6.0%	15.6%	10.4%	11.3%	3.7%	3.9%	7.0%	7.4%	9.0%	9.1%	9.7%	11.4%	25.0%	5.8%
2015	Family medicine	4.2%	12.2%	6.8%	8.8%	1.2%	4.1%	4.6%	4.3%	6.6%	6.7%	13.2%	10.0%	44.4%	4.4%
	Specialist	7.8%	21.0%	14.3%	14.9%	6.0%	5.4%	9.7%	14.2%	13.1%	13.3%	9.1%	14.3%	0.0%	8.3%
	Total	5.9%	16.2%	10.5%	11.5%	3.7%	4.7%	7.0%	8.7%	9.7%	9.8%	12.7%	10.8%	40.0%	6.3%
2016	Family medicine	4.0%	11.2%	7.6%	8.6%	1.2%	4.4%	5.1%	3.9%	6.4%	7.9%	19.1%	8.0%	28.6%	4.6%
	Specialist	7.7%	25.2%	14.2%	16.6%	6.0%	5.0%	10.4%	14.7%	13.8%	15.2%	0.0%	25.0%	0.0%	8.6%
	Total	5.8%	17.6%	10.9%	12.2%	3.7%	4.7%	7.6%	8.8%	10.0%	11.2%	16.7%	12.1%	25.0%	6.6%

Notes

Excludes residents and physicians with “no publication” status (see the section Privacy and confidentiality: CIHI “no publication” methodology for details).

Data represents the percentage of active non-registered physicians of all active physicians (family medicine physicians, specialists and total physicians) in Canada.

Source

Scott's Medical Database, 2016, Canadian Institute for Health Information.

Physician-to-population ratios

Physician-to-population ratios are computed for each jurisdiction and also by jurisdiction and specialty. The numerator is the number of physicians in a jurisdiction and the denominator is the number of people in the jurisdiction. General population estimates are used. All ratios are per 100,000 population. As historical population estimates are revised by Statistics Canada, historical physician-to-population ratios are revised as well. Therefore, the historical figures presented in this publication will differ from ratios presented in previous publications.

Age and average age

Average age is calculated by dividing the sum of ages by the number of physicians. For those physicians for whom the year of birth was not available, age is calculated using year of MD graduation, with age at MD graduation assumed to be equal to 25 years. In 2016, there were 20,699 physicians (4,776 family medicine physicians and 15,923 specialists) for whom the year of birth was unknown.

Assigning urban and rural status

Using Statistics Canada's Postal Code Conversion File (PCCF), postal codes were assigned to statistical area classifications (SACs). This made it possible to determine whether a physician practised in a CMA, a CA, a CMA- or CA-influenced zone or the territories (Yukon, the Northwest Territories or Nunavut).

According to Statistics Canada's definitions, "CMAs have a built-up core population of 50,000 or more with a total population of 100,000 or more" and "CAs have a built-up core population of 10,000 or more with a total population of less than 100,000." Rural areas are defined as communities outside of CMAs or CAs.¹ Records for which no postal code was given or the postal code could not be matched to an SAC were excluded from urban/rural counts.

Assigning subspecialties to physicians

As of 2009, all certified specialties that a physician has received and that have been recorded in our database are considered to determine the parent specialty of subspecialties with more than one possible parent as defined by the Royal College. For example, nephrology is a subspecialty of either internal medicine or pediatrics. Depending on the other specialties the physician has received, starting in 2009, nephrologists are assigned to the most appropriate parent specialty (either internal medicine or pediatrics). However, prior to 2009, all nephrologists were assigned to internal medicine; thus caution should be used when comparing data from Table 5.0 prior to and after 2009.

Certified and non-certified specialists

A growing demand for physician services, coupled with ongoing efforts to prepare international medical graduates for practice in Canada, has heightened the need to gather and report data on non-certified specialists. In response, CIHI worked with jurisdictional authorities to include non-certified specialists in the SMDB within the specialist category.

To accomplish this, CIHI contacts the jurisdictional colleges of physicians and surgeons and requests lists that identify non-certified specialist physicians as of December 31 of the reference year. In 2005, CIHI began collecting lists of non-certified specialists from the provinces of Newfoundland and Labrador and Saskatchewan. The lists provided in 2005 were also applied to 2004 data for Newfoundland and Labrador and Saskatchewan. In 2007, CIHI collected lists of non-certified specialists from Newfoundland and Labrador, Saskatchewan, New Brunswick, Nova Scotia and Yukon. In 2009, CIHI added the list of non-certified specialists in P.E.I. and Quebec. In 2010, non-certified specialist data for Alberta was added by CIHI.

In all jurisdictions except Quebec, attempts are made to match physicians on these lists with physician records in the SMDB based on the physicians' first and last names, year of MD graduation and sex to ensure accuracy. For Quebec, there was a common unique identifier in the SMDB and the list from the CMQ; thus this field was used to make the matches. Records in the SMDB are updated only for family medicine physicians whose province in the SMDB (based on the physicians' preferred mailing address) matches that of the jurisdiction in which they are practising as a non-certified specialist. Non-certified specialists in the SMDB, therefore, do not include physicians who are recorded as residents in the SMDB, located in another jurisdiction or inactive. In 2016, the matching effort was successful for 94.2% of physicians in the list for Saskatchewan, 90.0% of physicians in the list for Newfoundland and Labrador, 89.4% of physicians in the list for New Brunswick, 93.1% of physicians in the list for Nova Scotia, 100% of physicians in the list for Yukon, 94.2% of physicians in the list for Quebec, 86.7% of physicians in the list for P.E.I. and 97.0% of physicians in the list for Alberta.

While reports based on other data sources may present similar total physician counts, the proportional mix of family medicine or general practitioner physicians and specialist physicians can differ due to varying methodological approaches and/or the level of detailed information available within various data sources. It is also recognized that the physician classification methods employed by the SMDB do not necessarily reflect the services provided by individual physicians. The range of services provided by a physician is subject to jurisdictional licensure rules, medical service plan payment arrangements and individual practice choices, which may lead to differences in counts presented in other publications.

To monitor potential differences in specialty classification methodologies of physicians between the SMDB and other data sources, jurisdictional government representatives of CIHI's Advisory Group on Physician Databases were asked to provide physician count information by certified and non-certified specialty for comparison with SMDB data (see Table 4). The information is based on data sources maintained within their respective health ministries. Jurisdictional college of physicians and surgeons information was gathered for purposes of cross-validation and for reporting results for jurisdictions where health ministry data was not available.

Table 4 Family medicine and specialist physicians as a percentage of total physicians, by jurisdiction, Scott's Medical Database and jurisdictional data sources, 2016**A** Scott's Medical Database*

Physician type	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
Family medicine[†]	51.9%	54.5%	49.5%	55.3%	48.5%	49.7%	51.8%	54.4%	51.7%	53.6%	87.2%	75.8%	87.5%
Specialists	48.1%	45.5%	50.5%	44.6%	51.6%	50.3%	48.2%	45.7%	48.3%	46.4%	12.8%	24.2%	12.5%
Certified specialists[‡]	39.6%	39.8%	45.6%	35.0%	50.6%	50.3%	48.2%	41.8%	44.2%	46.4%	11.5%	24.2%	12.5%
Non-certified specialists[§]	8.5%	5.7%	4.9%	9.6%	1.0%	0.0%	0.0%	3.9%	4.1%	0.0%	1.3%	0.0%	0.0%

B Jurisdictional data sources

Physician type	N.L.**	P.E.I.**	N.S.**	N.B.**	Que.**	Ont.**	Man.**	Sask.**	Alta.**	B.C.**	Y.T.	N.W.T.**	Nun.**
Family medicine[†]	50.1%	52.6%	42.8%	47.7%	49.0%	46.8%	48.4%	52.5%	47.6%	52.7%	87.2%	41.0%	85.7%
Specialists	49.9%	47.4%	57.2%	52.3%	51.0%	53.2%	51.6%	47.5%	52.4%	47.3%	12.8%	59.0%	14.3%
Certified specialists[‡]	38.6%	41.3%	47.1%	49.7%	50.5%	47.3%	48.7%	41.1%	47.1%	45.0%	12.8%	59.0%	14.3%
Non-certified specialists[§]	11.3%	6.1%	10.1%	2.6%	0.5%	5.9%	2.9%	6.4%	5.3%	2.3%	0.0%	0.0%	0.0%

Notes

* Scott's Medical Database, Canadian Institute for Health Information. Results are based on physician counts in December 2016, unless noted otherwise.

† Includes family medicine physicians/general practitioners and non-certified specialists, unless noted otherwise.

‡ Includes certificants of the Royal College and/or the CMQ.

§ Non-certified physicians include physicians who are licensed as specialists but who are not certified by the Royal College and/or the CMQ. See the section Computations: Certified and non-certified specialists for details on the collection of non-certified specialists for the SMDB.

** Based on data provided by provincial and territorial ministry of health representatives of CIHI's Advisory Group on Physician Databases. Results are based on physician counts in December 2016, unless noted otherwise.

†† Ontario counts for family medicine physicians and specialists are based on data from the Ontario Physician Human Resources Data Centre.

‡‡ Based on data from the College of Physicians and Surgeons of Alberta. Results are based on physician counts in December 2016.

§§ B.C. certified counts are based on physicians with fee-for-service billing in 2016. Non-certified may be fee-for-service or alternative payment plan physicians, with or without fee-for-service billings.

*** Nunavut counts are based on data from the Government of Nunavut, Department of Health and Social Services.

Jurisdiction-specific specialty exclusion and grouping criteria may affect comparability of general practitioner-to-specialist ratios between data obtained from jurisdictional sources and the SMDB.

Percentages may not add up to 100% due to rounding.

Source

Scott's Medical Database, 2016, Canadian Institute for Health Information.

Physicians by health region

Information on physicians by health region is presented by physician type: family medicine physicians and specialists. Analysis by health region was integrated into this publication as a result of increasing demand for health information at a regional level. Statistics Canada CANSIM Table 109-5355² provides the following definition of a health region:

Health regions are legislated administrative areas defined by provincial ministries of health. These administrative areas represent geographic areas of responsibility for hospital boards or regional health authorities. Health regions, being provincial administrative areas, are subject to change.

Health region boundaries presented in this publication correspond to the health regions presented in the latest file available from Statistics Canada used by CIHI to map health care providers to health regions (i.e., health regions as of 2016).

Assigning physicians to health regions

Postal code data and Statistics Canada's PCCF were used to assign physicians to health regions. The 6-digit postal code of physicians' primary mailing address was used. The PCCF, with postal codes through August 2015, was used. This method accurately assigned 99.6% of physicians to a particular health region; the remaining 0.4% were categorized as *unknown*.

One should exert caution when performing comparisons between health regions, as the population of one health region may receive health care in another health region. This is a common occurrence in health regions bordering larger urban areas. For this reason, using health region peer groups is advisable.

Health region peer groups

In order to facilitate comparison between health regions, Statistics Canada developed a methodology that groups health regions with similar socio-economic and socio-demographic characteristics into peer groups. The health region peer groups defined by Statistics Canada are listed in Table 5.

Table 5 Principal characteristics of each peer group as defined by Statistics Canada

Peer group	Principal characteristics
A	<ul style="list-style-type: none"> • Population centres with high population density and rural mix from coast to coast • High percentage of visible minority population • Low percentage of Aboriginal population • Average employment rate
B	<ul style="list-style-type: none"> • Mainly population centres with moderate population density • Average percentage of visible minority population • High employment rate
C	<ul style="list-style-type: none"> • Population centres and rural mix from coast to coast • Average percentage of visible minority population • High percentage of Aboriginal population
D	<ul style="list-style-type: none"> • Mainly rural regions in Ontario and the Prairies • Low percentage of visible minority population • Average percentage of Aboriginal population
E	<ul style="list-style-type: none"> • Mainly rural Eastern regions • Low percentage of visible minority population • Low employment rate
F	<ul style="list-style-type: none"> • Northern and remote regions • Very low percentage of visible minority population • Very high Aboriginal population
G	<ul style="list-style-type: none"> • Largest population centres with an average population density of 4,211 people per square kilometre • High percentage of visible minority population • Very low Aboriginal population
H	<ul style="list-style-type: none"> • Mainly population centres in Ontario and British Columbia with high population density • Very high percentage of visible minority population • Low Aboriginal population
I	<ul style="list-style-type: none"> • Mainly rural and remote regions in the Western provinces and the territories • Average percentage of visible minority population • High percentage of Aboriginal population • High employment rate

Note

The full publication and cluster analysis methodology are available from the Statistics Canada website.

Source

Statistics Canada. [Summary table of peer groups and principal characteristics](#). 2016.

Data limitations

The database maintained by Scott's Directories is designed for the production of mailing lists and for marketing purposes. Because of this, there are limitations that should be kept in mind when using the data. Data from CIHI's SMDB is used for determining supply, distribution and migration patterns at a national and/or jurisdictional level.

It is important to note that when using this data for physician resource planning, there are advantages and disadvantages to using the SMDB. The data provides information on the level of physician supply and migration in Canada but should also be used in conjunction with other physician databases that identify and define physician workload.

The strengths of the SMDB are that it is historical in nature (which allows for analysis of time trends in a comparable manner) and that it is the only national system that monitors international and between-jurisdiction migration.

Valid mailing address

Physicians working in locum positions present a unique issue in that they may change locations frequently. In most cases, the required information is available from the monthly or quarterly reports and/or yearly registration directories produced by jurisdictional licensing authorities. In some circumstances, the physician changes locations frequently and Scott's Directories is unable to maintain a preferred mailing address. To be classified as an active physician by Scott's Directories, the physician must have a valid mailing address. If mail is returned 3 times from the physician's current listed addresses, Scott's Directories sets the physician's status to *removed*. As such, the physician exists in the database but will not be published.

For reporting purposes, the SMDB at CIHI currently counts physicians in the jurisdiction of their preferred mailing address. Physicians registered in more than one jurisdiction accounted for 23.5% of active physicians in 2016.

Time delay in reporting changes

The time delay in reporting changes to the system will influence the accuracy of the data at any given point in time. For example, a physician may move out of the country in November of a given year, but the notification of the change may not reach Scott's Directories for 6 months. Technological advances and an increased effort to update physician information on a regular basis have contributed to a decrease in the time delay between notification and update of the physician's record.

Physicians moving abroad

The number of physicians who are abroad could be under-reported in the SMDB because any physician record that does not have a valid mailing address (i.e., mail sent to the physician is returned after 3 attempts) is coded as *removed* until a valid address for the physician can be located. Some of the physicians who have records flagged as *removed* may therefore actually have moved abroad.

Additionally, the number of physicians who move abroad upon graduation from medical school and who have not actively practised medicine in Canada may not be included in the numbers of physicians moving abroad. Physicians just graduating from medical school are entered in the SMDB upon graduation, as Scott's Directories receives the list of graduates from all Canadian medical schools. However, the physician's record does not become active until Scott's Directories obtains a valid mailing address for the physician. Thus, if physicians move abroad directly after receiving their MD degree, it is possible that Scott's Directories might not be able to track them, causing their records to be flagged as *removed*. This can result in the under-counting of the number of physicians moving abroad.

For physicians who moved abroad after 1992, it is possible to determine the number who reported that they were moving to the United States. However, this would be an under-representation of those who actually went to the U.S., because some physicians may not have indicated specifically that they were going to the U.S. Those physicians who left prior to 1992 may also be in the U.S., but Scott's Directories would have them listed as *abroad*.

Resident data

Because residents are mobile after graduation (e.g., some go abroad or move to a different city or province for post-MD training), it is difficult for Scott's Directories to maintain a current and valid mailing address for residents. To this end, we have not included resident data in this report.

Comparisons between jurisdictions

Comparisons between jurisdictions, particularly for the number of active physicians per 100,000 population, do not account for varying physician resources in northern, rural and remote communities. Not all medical procedures are available in rural/remote/northern regions. Some patients from these regions travel to larger urban centres for physician care, thus impacting the supply and type of physicians required in remote regions. These differences in physician supply must be considered when making comparisons between jurisdictions.

Specialty designations

It is important to recognize that most of the specialists in the SMDB are certified and that, although certified specialty is useful, the functional specialty of the physician is considered to be a more appropriate measure to be used for physician resource planning. Some physicians may practise exclusively in areas of medicine not reflected by their most recent certified specialty. For example, some family medicine physicians may practise exclusively in areas such as geriatrics, physical medicine and rehabilitation.

Privacy and confidentiality

The protection of individual privacy, the confidentiality of records and the security of information are essential to CIHI operations. In support of this position, CIHI established a comprehensive privacy, confidentiality and security program. A key element of the program is the statement of principles and policies set out in the document *Privacy Policy on the Collection, Use, Disclosure and Retention of Health Workforce Personal Information and De-Identified Data*. A copy of this document is available free for download from CIHI's website at www.cihi.ca.

CIHI “no publication” methodology

In order to ensure compliance with CIHI's privacy and confidentiality policy, a segment of physicians previously included in SMDB publications is excluded from analysis, beginning with the 2004 publication in the series. An exclusion methodology was chosen that meets all of the requirements of CIHI's privacy and confidentiality policy while attempting to maximize the analysis potential for users of the SMDB. 2 distinct pieces of information were utilized in determining physicians to be excluded: registration status with a jurisdictional licensing authority and publication status with Scott's Directories.

Registration status with a jurisdictional licensing authority

In order to practise medicine in Canada, physicians must register with the licensing authority in the jurisdiction in which they wish to practise. A list of Canadian licensing authorities can be accessed via the Canadian Information Centre for International Credentials website at www.cicic.ca. Once physicians are registered, much of the information they provide to the licensing authority enters the public domain via public-access websites and medical directories and can be accessed by interested parties through the licensing authority. The SMDB has a Medical Registration Indicator that denotes whether an individual physician is registered or not registered with a jurisdictional licensing authority. The Medical Registration Indicator by itself conveys no specific information about the choice of individual physicians to have their information utilized or not utilized for research purposes.

Publication status with Scott's Directories

Scott's Directories has established a Publication Status indicator to designate whether or not physician information should be published in the *Canadian Medical Directory* (CMD) (information on the CMD is available at www.scottinfo.com). The Publication Status indicator is set to “do not publish” for physicians who have contacted Scott's Directories to request that their information not be published in the CMD.

As of 2000, CIHI receives the Publication Status indicator with the annual file purchased from Scott's Directories. The indicator reflects a decision to publish or not publish physician information within 1 specific publication — the CMD. CIHI, however, is interpreting the Publication Status indicator in a broader sense, as an indication that a physician may not wish to have information released at an individual-record or aggregate level through any medium.

Since some physicians who have “do not publish” status are jurisdictionally registered and thus their information is already in the public domain, the Publication Status indicator is not an appropriate stand-alone indicator on whose basis physician records can be excluded from the SMDB.

CIHI “no publication” status

The table below illustrates the method by which the 2 indicators, Medical Registration Indicator and Publication Status, are utilized to identify and remove records with “no publication” status from all analyses derived from the SMDB. If physicians are not registered with a jurisdictional licensing authority (Medical Registration Indicator = no) and have indicated to Scott’s Directories that they do not wish to have their information included in the CMD (Publication Status indicator = do not publish), then CIHI assigns the physician a “no publication” status. Physicians assigned a “no publication” status are excluded for the purposes of analysis and publication.

In 2016, the records removed from analysis represented 0.6% of the active family medicine and specialist physicians. All SMDB data files at CIHI have been historically revised to reflect this methodology.

Table 6 Count and percentage distribution of active family medicine and specialist physicians, by Medical Registration Indicator and Scott’s Directories Publication Status indicator, Canada, 2016

Scott’s Directories Publication Status indicator	Medical Registration Indicator = Yes	Medical Registration Indicator = No
Publish	75,269 (89.0%)	5,565 (6.6%)
Do not publish	3,229 (3.8%)	497 (0.6%) Removed from analysis (CIHI “no publication” status)

Notes

Includes physicians in clinical practice and those not working in a clinical practice.

Includes active physicians, who are defined as physicians who have an MD degree and a valid mailing address.

Includes general/family practitioners and specialist physicians as of December 31 of the reference year.

Percentage distribution represents the percentage of the 82,834 active physicians in the SMDB in 2016.

Excludes residents.

Source

Scott’s Medical Database, 2016, Canadian Institute for Health Information.

While at the national level the percentage of the file removed never exceeds 3% of the total number of active family medicine or specialist physicians, there is variability in the impact of CIHI’s “no publication” methodology at more discrete levels of analysis. Users of SMDB data should be aware of these differences, particularly when comparing the SMDB to other sources of physician data. Table 7 illustrates the percentage of records removed from analysis based on CIHI’s “no publication” status by physician type and jurisdiction.

Table 7 Percentage of family medicine, specialist and total physicians removed from analysis using CIHI's "no publication" methodology, by physician type and jurisdiction, Canada, 2012 to 2016

Year	Physician type	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.	Canada
2012	Family medicine	1.4%	3.4%	4.4%	3.9%	1.5%	3.3%	4.1%	1.9%	1.5%	2.3%	1.8%	27.8%	18.2%	2.5%
	Specialist	0.2%	2.4%	0.5%	0.8%	0.2%	0.4%	0.3%	0.1%	0.4%	0.5%	0.0%	9.1%	0.0%	0.3%
	Total	0.8%	2.9%	2.6%	2.5%	0.8%	1.8%	2.3%	1.1%	1.0%	1.5%	1.5%	23.4%	14.3%	1.5%
2013	Family medicine	1.5%	2.5%	3.3%	2.4%	1.0%	3.4%	2.2%	1.8%	1.6%	2.6%	1.7%	27.3%	16.7%	2.4%
	Specialist	0.2%	0.0%	0.3%	0.3%	0.1%	0.6%	0.0%	0.2%	0.2%	0.3%	0.0%	8.3%	0.0%	0.3%
	Total	0.9%	1.4%	1.9%	1.4%	0.6%	2.0%	1.1%	1.1%	0.9%	1.6%	1.5%	23.2%	15.4%	1.4%
2014	Family medicine	1.0%	5.2%	3.5%	2.1%	1.5%	3.8%	4.0%	1.4%	1.7%	3.3%	1.6%	24.4%	8.3%	2.8%
	Specialist	0.2%	0.8%	0.2%	0.5%	0.1%	0.2%	0.2%	0.2%	0.3%	0.4%	0.0%	16.7%	0.0%	0.2%
	Total	0.6%	3.3%	1.9%	1.4%	0.8%	2.1%	2.2%	0.9%	1.1%	2.0%	1.4%	22.8%	7.7%	1.6%
2015	Family medicine	0.6%	0.7%	2.2%	1.8%	1.2%	1.2%	1.6%	0.6%	1.0%	1.5%	1.4%	26.8%	10.0%	1.3%
	Specialist	0.5%	0.8%	0.3%	1.2%	0.2%	0.2%	0.0%	0.1%	0.3%	0.4%	0.0%	0.0%	0.0%	0.2%
	Total	0.5%	0.7%	1.3%	1.5%	0.7%	0.7%	0.8%	0.4%	0.7%	1.0%	1.3%	22.9%	9.1%	0.8%
2016	Family medicine	0.3%	0.7%	1.7%	1.9%	0.8%	0.7%	1.2%	0.6%	0.9%	1.0%	1.4%	19.4%	12.5%	0.9%
	Specialist	0.2%	0.0%	0.6%	1.9%	0.2%	0.1%	0.1%	0.0%	0.3%	0.7%	0.0%	0.0%	0.0%	0.3%
	Total	0.2%	0.4%	1.1%	1.9%	0.5%	0.4%	0.7%	0.3%	0.6%	0.9%	1.3%	15.4%	11.1%	0.6%

Notes

Includes physicians in clinical practice and those not working in a clinical practice. Only physicians who are not provincially or territorially registered (not registered based on SMDB's Medical Registration Indicator) are impacted by CIHI's "no publication" methodology.

Excludes residents, semi-retired and military physicians. Data represents the percentage of active physicians (family medicine physicians, specialists and total physicians) removed as a result of implementing CIHI's "no publication" methodology. For example, 0.6% of family medicine physicians, 0.5% of specialists and 0.5% of the total physicians in Newfoundland and Labrador in 2016 were removed as a result of implementing CIHI's "no publication" methodology.

The percentage of family medicine physicians added to the percentage of specialists will not sum to the percentage of total physicians.

Source

Scott's Medical Database, 2016, Canadian Institute for Health Information.

Appendix A — Statistics Canada population estimates

Table A1 Statistics Canada population estimates for Canada, provinces and territories, 1961 to 2016
(in thousands)

Year	Census estimate type	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
1961	ID	18,238.30	457.90	104.60	737.00	597.90	5,259.20	6,236.10	921.70	925.20	1,332.00	1,629.10	14.60	23.00	n/a
1962	ID	18,787.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1963	ID	19,142.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1964	ID	19,510.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1965	ID	19,857.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1966	ID	20,228.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1967	ID	20,581.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1968	ID	20,888.00	511.00	111.00	771.00	627.00	5,961.00	7,338.00	975.00	959.00	1,546.00	2,042.00	16.00	31.00	n/a
1969	ID	21,182.00	516.00	110.00	779.00	625.00	6,002.00	7,488.00	979.00	948.00	1,579.00	2,107.00	17.00	32.00	n/a
1970	ID	21,465.00	519.00	111.00	785.00	630.00	6,017.00	7,656.00	984.00	927.00	1,616.00	2,168.00	18.00	34.00	n/a
1971	ID	22,093.15	535.89	112.97	800.52	646.34	6,153.39	7,906.38	998.92	923.13	1,679.98	2,278.08	19.72	37.84	n/a
1972	ID	22,349.16	543.40	114.28	808.63	652.51	6,190.86	8,013.47	1,002.60	913.60	1,710.86	2,338.14	20.81	40.01	n/a
1973	ID	22,652.21	547.77	115.19	816.36	661.02	6,240.40	8,139.87	1,012.38	907.55	1,739.94	2,409.91	20.97	40.84	n/a
1974	ID	22,977.82	552.46	117.03	823.09	671.14	6,298.72	8,260.20	1,019.53	910.28	1,782.57	2,479.08	21.58	42.14	n/a
1975	ID	23,303.80	559.92	118.26	832.77	685.16	6,361.81	8,366.51	1,028.14	925.57	1,839.19	2,520.42	22.26	43.79	n/a
1976	ID	23,591.83	563.90	119.37	838.55	693.29	6,413.92	8,457.88	1,034.48	938.55	1,912.72	2,552.28	22.54	44.36	n/a
1977	ID	23,850.54	566.48	121.11	842.62	698.33	6,426.64	8,554.46	1,039.79	949.10	1,988.00	2,595.87	23.35	44.79	n/a
1978	ID	24,072.58	568.45	122.27	847.46	701.35	6,445.00	8,625.49	1,037.31	954.68	2,060.17	2,641.20	23.96	45.25	n/a
1979	ID	24,346.16	570.68	123.27	851.10	704.59	6,478.99	8,699.91	1,032.43	962.73	2,145.75	2,706.45	24.34	45.94	n/a

Year	Census estimate type	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
1980	ID	24,665.94	574.10	123.33	854.35	705.84	6,522.99	8,772.30	1,032.76	970.82	2,248.67	2,789.55	24.76	46.50	n/a
1981	ID	24,979.80	573.45	123.54	857.68	705.89	6,565.28	8,866.37	1,040.47	981.91	2,338.51	2,854.24	24.20	48.25	n/a
1982	ID	25,243.41	577.70	124.47	865.02	711.81	6,587.10	8,984.16	1,054.09	994.54	2,382.30	2,888.21	23.65	50.37	n/a
1983	ID	25,482.93	579.73	126.09	874.21	718.00	6,613.59	9,105.13	1,066.75	1,008.31	2,389.87	2,925.73	23.56	51.96	n/a
1984	ID	25,721.64	579.25	127.40	882.67	722.47	6,645.54	9,233.85	1,078.38	1,020.95	2,392.47	2,960.89	24.16	53.61	n/a
1985	ID	25,963.05	577.22	128.26	887.22	724.38	6,684.91	9,363.49	1,087.73	1,027.29	2,414.90	2,988.68	24.37	54.61	n/a
1986	ID	26,260.14	575.62	128.39	891.54	725.59	6,745.81	9,536.17	1,094.62	1,029.99	2,429.44	3,023.31	25.15	54.52	n/a
1987	ID	26,609.66	574.61	129.13	894.65	728.55	6,807.08	9,741.92	1,099.77	1,029.55	2,440.38	3,082.93	25.88	55.21	n/a
1988	ID	27,041.90	575.66	129.99	900.42	732.53	6,886.37	9,976.47	1,101.51	1,021.42	2,475.48	3,158.83	26.85	56.37	n/a
1989	ID	27,475.15	576.54	130.31	906.97	737.36	6,961.66	10,194.46	1,102.84	1,010.79	2,520.05	3,248.90	27.50	57.77	n/a
1990	ID	27,863.58	578.21	130.48	912.34	743.22	7,033.36	10,359.23	1,106.28	1,002.35	2,571.80	3,338.46	28.15	59.72	n/a
1991	ID	28,183.25	579.41	130.60	917.34	746.77	7,083.27	10,486.19	1,110.28	1,001.16	2,613.13	3,424.11	29.34	39.05	22.58
1992	ID	28,548.31	580.97	131.68	922.02	748.48	7,143.75	10,630.59	1,114.87	1,003.52	2,653.87	3,525.53	30.19	39.59	23.27
1993	ID	28,865.78	577.41	132.97	925.52	750.26	7,190.32	10,750.79	1,120.10	1,007.69	2,687.45	3,628.87	30.00	40.36	24.07
1994	ID	29,191.10	571.02	134.39	927.06	751.63	7,224.94	10,889.51	1,125.81	1,011.91	2,720.98	3,737.57	30.29	41.21	24.78
1995	ID	29,509.45	564.31	135.53	929.65	752.33	7,259.02	11,028.96	1,130.79	1,016.29	2,759.46	3,834.66	31.49	41.59	25.37
1996	ID	29,752.46	555.55	135.95	932.44	752.38	7,262.95	11,146.67	1,135.00	1,018.50	2,799.68	3,914.45	31.63	41.54	25.74
1997	ID	30,030.11	545.87	135.95	932.63	752.00	7,286.04	11,292.94	1,135.79	1,017.69	2,859.60	3,972.78	31.50	41.23	26.08
1998	ID	30,262.41	536.61	136.01	932.22	750.15	7,310.29	11,420.96	1,138.98	1,017.08	2,926.56	3,995.61	30.74	40.65	26.58
1999	ID	30,528.85	531.86	136.46	934.66	750.79	7,340.34	11,578.85	1,144.48	1,011.34	2,975.17	4,026.63	30.49	40.64	27.15
2000	ID	30,828.13	525.38	136.39	933.53	749.72	7,374.07	11,774.29	1,148.53	1,003.69	3,028.77	4,055.20	30.14	40.65	27.80
2001	ID	31,172.52	521.47	136.87	933.85	748.73	7,418.49	11,981.49	1,153.05	998.83	3,092.83	4,087.26	30.18	41.16	28.34
2002	ID	31,476.73	519.29	137.08	935.36	749.23	7,461.29	12,154.17	1,158.51	996.34	3,155.36	4,108.70	30.45	41.97	28.97
2003	ID	31,776.08	518.78	137.51	938.77	749.14	7,510.43	12,303.57	1,168.00	996.75	3,210.20	4,138.93	31.34	43.15	29.52
2004	ID	32,077.34	516.83	137.69	939.14	748.93	7,559.83	12,445.89	1,176.11	996.05	3,277.35	4,174.37	31.78	43.44	29.94
2005	ID	32,394.90	512.59	137.91	938.15	746.96	7,604.20	12,586.80	1,179.99	992.30	3,371.82	4,218.19	32.11	43.32	30.57

Year	Census estimate type	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
2006	ID	32,716.56	510.33	137.78	936.17	744.83	7,661.43	12,702.29	1,184.43	995.14	3,472.64	4,265.16	32.32	43.07	30.95
2007	ID	33,049.76	510.98	138.01	935.44	746.27	7,725.36	12,813.81	1,193.40	1,010.26	3,548.70	4,319.81	32.76	43.35	31.62
2008	ID	33,427.29	514.20	139.15	937.37	748.38	7,799.19	12,931.92	1,201.72	1,025.96	3,638.62	4,382.19	33.41	43.11	32.06
2009	ID	33,807.67	520.25	140.63	940.80	751.28	7,885.85	13,057.79	1,214.01	1,042.93	3,702.58	4,441.66	34.01	42.96	32.92
2010	ID	34,165.91	523.72	143.03	944.06	754.79	7,967.13	13,198.20	1,227.26	1,058.96	3,754.62	4,482.34	34.81	43.26	33.73
2011	PD	34,536.39	526.21	144.58	944.90	756.28	8,044.42	13,336.80	1,242.06	1,075.17	3,826.71	4,525.61	35.64	43.60	34.44
2012	PR	34,935.91	527.47	145.01	944.59	756.11	8,117.53	13,478.05	1,258.54	1,095.20	3,931.23	4,567.32	36.17	43.69	35.03
2013	PR	35,339.47	528.58	145.32	943.81	755.64	8,180.15	13,618.47	1,272.76	1,113.22	4,050.71	4,615.25	36.17	43.76	35.64
2014	PR	35,701.74	528.75	146.21	943.75	755.11	8,237.83	13,736.35	1,289.18	1,127.78	4,146.69	4,672.79	36.91	44.13	36.27
2015	PR	36,038.52	529.51	147.24	945.85	754.90	8,287.84	13,875.27	1,306.49	1,141.12	4,216.38	4,715.56	37.15	44.43	36.78
2016	PP	36,503.10	529.70	149.38	952.02	757.77	8,356.85	14,094.17	1,328.35	1,158.34	4,280.13	4,777.16	37.69	44.26	37.28

Notes

n/a: Not available.

1962 to 1967 provincial data is not available.

All population figures are as of December 31 of the given year. In Statistics Canada publications, it would equate to the figure for January 1 of the next year.

ID: Final intercensal estimates.

PD: Final postcensal estimates.

PR: Updated postcensal estimates.

PP: Preliminary postcensal estimates.

Sources

1961: Statistics Canada. *Annual*. 1982.

1962 to 1970: Statistics Canada. *Quarterly Estimates*. 1983.

1971 to 1990: Statistics Canada. *Demography Division*. April 2000.

1991 to 1995: Statistics Canada. *Quarterly Demographic Statistics*. 2002;16(3). 91-002-XIB.

1996 to 2000: Statistics Canada. *Quarterly Demographic Statistics*. 2004;18(4). 91-002-XIB.

2001 to 2005: Statistics Canada. *Quarterly Demographic Estimates*. 2008;22(2). 91-002-X.

2006 to 2010: Statistics Canada. *Quarterly Demographic Estimates*. 2013;26(4). 91-002-X.

2011 to 2016: Statistics Canada. *Quarterly Demographic Estimates*. 2017;30(4). 91-002-X.

Appendix B — Data definitions

SMDB data definitions

Each of the data elements listed corresponds to a field on the physician's record. A listing of the appropriate codes and a definition for each data element present in the SMDB are provided.

Subscriber Number

Unique SMDB serial number maintained throughout lifetime

Name

Includes first name, middle name(s) and last name

Jurisdiction

Information systems maintained by Scott's Directories can record multiple addresses for individual physicians. The address information submitted to CIHI by Scott's Directories corresponds to the physicians' preferred mailing address. For the purposes of SMDB reporting, individual physicians are assigned to the single province or territory that corresponds to their preferred mailing address.

Postal Code

Information systems maintained by Scott's Directories can record multiple addresses for individual physicians. The address information submitted to CIHI by Scott's Directories corresponds to the physicians' preferred mailing address. For the purposes of SMDB reporting, individual physicians are assigned to the single postal code that corresponds to their preferred mailing address.

Medical Address Type

Office

Hospital

Home

Office/home (has office in home)

Clinic

Drug store
 Government
 Nursing home
 University
 Constituence
 Unknown

Physician Type

Intern
 Resident
 Family medicine/general practitioner
 Specialist

The reporting of physician type *intern* is valid for the historical records — that is, records up to and including 1992. Even though 2-year pre-licensure replaced 1-year pre-licensure, Scott's Directories still lists physicians who are in their first year of residency (either family medicine or one of the other certified specialties) as interns. Within this report, interns and residents are reported in the same category (residents) from 1993 onward.

Unless otherwise noted, CIHI publications use the term “family medicine physician” to include general practitioners (physicians, excluding interns and residents, without a current medical specialty certified in Canada) and family medicine and emergency family medicine specialists. The term “specialists” includes certificants of the Royal College or the CMQ, with the exception of Saskatchewan and Newfoundland and Labrador, starting in 2004; New Brunswick, Nova Scotia and Yukon, starting in 2007; Quebec and P.E.I., starting in 2009; and Alberta, starting in 2010, where non-certified specialists are also included. Please refer to the Computations: Certified and non-certified specialists section for a definition of non-certified specialists.

Medical Activity Code

Active
 Active — not in private practice
 Retired
 Semi-retired
 Temporarily retired
 Military
 Abroad

U.S.A.

Not in practice

Temporarily not in practice

On leave of absence

On sabbatical

Maternity leave

Deceased

Removed

Post office return

Refusal

Active: Scott's Directories defines physicians as active if they have an MD degree and have a valid mailing address (mail sent to the physician by Scott's Directories is not returned).

Active — not in private practice: This category includes active physicians who are administrators, teachers, etc., but do not engage in any private clinical practice. *Active — not in private practice* is reported by the physician to Scott's Directories on the annual questionnaire. These 2 categories, *active* and *active — not in private practice*, are combined by CIHI and are used to calculate the number of physicians.

Semi-retired/temporarily retired/retired/on leave of absence/on sabbatical/maternity leave/temporarily not in practice/not in practice: These categories are self-reported by the physician on the questionnaire.

Military: The *military* activity code refers to any physician working in the Canadian Armed Forces. This information is received annually from the Department of National Defence.

Abroad: The *abroad* code is used for a physician who has moved to an address outside the country.

U.S.A.: In 1992, Scott's Directories added an additional code that indicates whether the physician moved to the U.S. The *abroad* category is combined with the *U.S.A.* category to produce statistics on physicians moving abroad.

Deceased: A physician is coded as *deceased* when Scott's Directories receives notification from the jurisdictional registrar, the CMA or the next of kin.

Removed/post office return/refusal: The activity status of the physician's record is changed to *removed/post office return/refusal* if mail is returned from the physician's currently listed address (3 delivery attempts are made). Scott's Directories flags the physician as *removed* and pursues alternative means to attempt to locate the physician.

Medical Specialties

Individual physician records provided by Scott's Directories allow for a maximum of 4 specialties to be coded. If more than one specialty is listed, the specialist is tabulated under the most recently acquired certified specialty on the assumption that it most accurately reflects the current field of practice. The exceptions to the usual assignment of specialty are for non-certified specialists. Non-certified specialists are tabulated under the specialty designation provided by their associated jurisdiction. Please refer to the Computations: Certified and non-certified specialists section for a definition of non-certified specialists.

Specialty certifications are assigned according to designations defined by the Royal College, the CFPC and the CMQ. Specialty codes are grouped into various categories for use in this publication (e.g., internal medicine subspecialties have been aggregated into the category of internal medicine). Specialties have been aggregated according to the groupings of the Royal College and cross-checked with groupings used by the CMA. For example, in Data Table 5.0, the subspecialties of internal medicine are listed. For a listing of the grouping categories and the specialties included in each grouping, please see Appendix C.

Medical Registration Indicator

Registered

Non-registered

This indicates whether a physician is registered or not registered in the current jurisdiction. Some physicians who work in non-clinical situations (such as administration or research) may not be registered with their jurisdictional registrar. Also, some physicians may maintain their registration status but not engage in clinical activity.

Country of MD Graduation

Country in which the MD degree was completed

If the Graduation Country Indicator is *foreign* (see below), country of MD graduation is coded according to a country code list.

Graduation Country Indicator

Canada

U.S.A.

Foreign

University of MD Graduation

Separate codes for each of the Canadian medical schools. Other codes include *foreign*, *U.S.A.* and *British Commonwealth university*.

Year of MD Graduation

The year in which the MD degree was completed

Years Since MD Graduation (CIHI-derived)

Number of years between the year of graduation and the current year

This element indicates the **maximum** number of years a physician could have been in the workforce, not the actual number of years, because it does not account for time spent out of the workforce (e.g., on continuing education or maternity/parental leave).

For the purposes of this report, physicians with a number of years since graduation greater than 65 are assigned to category *unknown*.

Language

English

French

Sex

Male

Female

Date of Birth

Physician date of birth (year, month, day)

Starting in 2014, Scott's Directories began modifying the Date of Birth field to include just the year of birth. The month and day for this data element have been set to January 1.

Age (CIHI-derived)

Number of years between the data year of a given report and the year of birth

For those physicians for whom year of birth was not available, ages were calculated using year of MD graduation with age at MD graduation assumed to be equal to 25 years.

For the purposes of this report, physicians younger than the age of 20 and older than the age of 90 are assigned to age category *unknown*.

CIHI Publication Indicator (CIHI-derived)

Yes

No

Based on CIHI's "no publication" methodology (see the section Privacy and confidentiality for more information), this indicates whether a physician record is to be excluded (indicator = N) or included (indicator = Y) for the purposes of analysis and publication.

Appendix C — Specialty groupings: SMDB reports/tables

This list indicates the specialty codes as listed in the SMDB. The specialties are grouped into appropriate categories for use in reports and tables. The listed groupings have changed since originally constructed in the early 1970s. Some additional specialty codes were added. All specialties and subspecialties present in the SMDB are listed, whether or not they are still recognized by the Royal College or the CMQ.

Family medicine includes certificants of the CFPC or the CMQ (family medicine) and, unless otherwise stated, general practitioners not certified in Canada, foreign-certified specialists and other non-certified specialists. In Saskatchewan and Newfoundland and Labrador, starting in 2004; New Brunswick, Nova Scotia and Yukon, starting in 2007; Quebec and P.E.I., starting in 2009; and Alberta, starting in 2010, non-certified specialists are designated as specialists. For all other jurisdictions, specialists include certificants of the Royal College or the CMQ (see the Computations: Certified and non-certified specialists section for details).

1. Family medicine

- General practice

- Family medicine

- Emergency family medicine

2. Medical specialties

2.1 Clinical specialties

- Anesthesiology

- Dermatology

- Diagnostic radiology

 - Diagnostic radiology

 - Pediatric radiology

- Emergency medicine

- Internal medicine

 - Cardiology

 - Clinical immunology and allergy

 - Clinical pharmacology and toxicology

 - Critical care medicine

 - Endocrinology and metabolism

 - Gastroenterology

- Geriatric medicine
- Hematology
- Infectious diseases
- Internal medicine
- Medical oncology
- Nephrology
- Occupational medicine
- Palliative medicine
- Respirology
- Rheumatology
- Medical genetics and genomics
- Neurology
 - Electroencephalography
 - Neurology
- Nuclear medicine
- Pediatrics
 - Adolescent medicine
 - Cardiology — Pediatrics
 - Child and adolescent psychiatry — Pediatrics
 - Clinical immunology and allergy — Pediatrics
 - Clinical pharmacology and toxicology — Pediatrics
 - Critical care medicine — Pediatrics
 - Emergency medicine — Pediatrics
 - Endocrinology and metabolism — Pediatrics
 - Gastroenterology — Pediatrics
 - Hematology/oncology — Pediatrics
 - Infectious diseases — Pediatrics
 - Neonatal–perinatal medicine
 - Nephrology — Pediatrics
 - Pediatrics
 - Respirology — Pediatrics
 - Rheumatology — Pediatrics
- Physical medicine and rehabilitation
- Psychiatry

Public health and preventive medicine

Radiation oncology

2.2 Laboratory specialties

Anatomical pathology

General pathology

Forensic pathology

General pathology

Hematological pathology

Medical biochemistry

Medical microbiology

Neuropathology

3. Surgical specialties

Cardiac surgery

General surgery

General surgery

General surgical oncology

Pediatric surgery

Neurosurgery

Obstetrics and gynecology

Gynecologic oncology

Obstetrics and gynecology

Ophthalmology

Orthopedic surgery

Otolaryngology — Head and neck surgery

Plastic surgery

Urology

Vascular surgery

4. Medical scientists

References

1. Statistics Canada. [*Rural and Small Town Analysis Bulletin*](#). 2012.
2. Statistics Canada. Table 109-5355 — [Estimates of population \(2011 Census and administrative data\), by age group and sex for July 1st, Canada, provinces, territories, health regions \(2015 boundaries\) and peer groups, annual \(number\)](#). CANSIM database. Accessed June 7, 2017.



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