Approaches for Calculating Average Clinical Payments per Physician Using Detailed Alternative Payment Data

Spending and Health Workforce

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Acknowledgements

This report could not have been completed without the generous support and assistance of many individuals and organizations, including representatives from the provincial and territorial ministries of health, Health Canada, the Royal College of Physicians and Surgeons of Canada, the College of Family Physicians of Canada, the Canadian Medical Association, the provincial and territorial medical associations, the Association of Faculties of Medicine of Canada and the Institute for Clinical Evaluative Sciences.

The Canadian Institute for Health Information (CIHI) would also like to acknowledge the following provincial ministries of health for providing additional data that made this study possible: Newfoundland and Labrador Department of Health and Community Services, Prince Edward Island Department of Health and Wellness, Nova Scotia Department of Health and Wellness, New Brunswick Department of Health and British Columbia Ministry of Health.

Please note that the analyses and conclusions in the present document do not necessarily reflect those of the individuals or organizations mentioned above.

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Summary

In 2014, expenditures on physician services accounted for almost 16% of Canada's total expenditure on health care.[1] It is the second-largest category of expenditure after hospitals and has been the fastest-growing major category of expenditure over the last several years. During the last decade and a half, fee-for-service (FFS) payments to physicians have accounted for a declining proportion of their total payments. The proportion has dropped from more than 90% in the late 1990s to just 70% now, and it is expected to continue to decline further in the future. As provincial and territorial governments have increasingly implemented alternative payment regimes—salaries, contracts, capitation, group and sessional payments—it has become more difficult to associate the individual payments physicians receive with the services they provide. This is because in many alternative payment programs (APPs) the payments are not always allocated to individual physicians and the services they provide are not usually identified. This loss of detail makes it increasingly difficult to fully understand the complete picture of the services provided by physicians, particularly of those paid through these alternative payment regimes.

CIHI has been working closely with the jurisdictions to reverse the trend in this passive loss of information on physician activity. Until recently, it wasn't possible to integrate the richly detailed FFS payments data with the far less detailed alternative payment information to calculate the same physician indicators that were based only on FFS data in the past. 5 provinces—Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick and British Columbia—recently began submitting detailed APP data to CIHI that can be integrated with their FFS data and used to calculate indicators based on more comprehensive information. This new information has been combined and used by CIHI in this study to demonstrate and showcase its use in fully comprehensive average payment per physician metrics.

Table 1 summarizes 5 approaches for calculating an average payment per physician for the 5 provinces combined that, for the first time, includes integrated and detailed FFS and APP payments. The different approaches include 3 methods to remove (or "trim") the payments of physicians below or above different income thresholds. The income thresholds are arbitrary limits chosen by experts to eliminate non-typical physicians (outliers) from the indicators, and to illustrate the effect in comparison with a simple average and with an enhanced full-time equivalent measure that uses the payments of physicians as a more precise proxy of activity. Table 1 also presents the information by broad physician specialty for further comparison.

Table 1: Summary of 5 Approaches for Calculating the Average Payment per Physician, by Broad Physician Specialty, 5 Selected Provinces* Combined, 2010–2011

Specialty	Count	Total Amount Paid per Contributing Physician		Payments Trimmed at <$60,000		Payments Trimmed at <$100,000		Tails Trimmed at Upper and Lower 10%		Full-Time Equivalent	
		Mean	Median	Count	Mean	Count	Mean	Count	Mean	Count	Mean
Family Medicine	8,699	$217,612	$206,256	7,442	$250,171	6,694	$269,068	6,782	$208,635	8,151	$232,254
Medical Specialties	4,476	$279,088	$255,969	4,017	$308,405	3,795	$321,790	3,481	$264,028	3,595	$282,599
Surgical Specialties	2,178	$396,169	$376,713	1,919	$446,655	1,819	$466,761	1,683	$383,859	1,985	$434,593
Total Physicians	15,353	$260,865	$235,094	13,378	$295,841	12,308	$314,541	11,946	$249,462	13,732	$274,690

Note

* Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick and British Columbia.

Source

National Physician Database, Canadian Institute for Health Information.

Key findings from the analysis:

- Each method presents significantly different results in each province and by specialty, as well as quite different results between the provinces.
- Average payments based on combined FFS and APP data had varying impacts that were often different than anticipated when compared with average payments based just on FFS data.

Further analysis needs to be undertaken to better understand the dynamics underlying the results of each of the analyses and to allow convergence toward a preferred method. Securing detailed APP information from additional provinces is crucial to this work.

This study is the first phase of ongoing activities by CIHI to continually improve reporting on all physician services in Canada. It is intended to illustrate how the addition of detailed APP data is critical to measures of physician activity in Canada that are inclusive of all payments and services, regardless of the type of payment. It is hoped that this work will also encourage other provinces to consider submitting detailed APP data and fill this critically important information gap in this country.

Introduction

More than a decade ago, when physicians in Canada were paid for each service they delivered almost exclusively through fee-for-service (FFS) regimes of compensation, it was relatively easy to describe the services they provided and the payments they received. Physicians would submit a claim for payment to a provincial or territorial medical care plan for an insured service that they had provided to an eligible patient. The fee subsequently paid to the physician was based on an agreed schedule of fees negotiated by the respective provincial or territorial medical association and the corresponding provincial or territorial government. Claims data received from provincial or territorial medical care plans generated rich administrative information about how much physicians were paid, what services they provided, to whom they provided the services and why the services were provided.

Subsequent concerns about the volume-driven incentives that are naturally inherent in FFS-based compensation regimes and other concerns about access to care led all jurisdictions in Canada to implement various forms of alternative methods of compensating physicians. The alternatives to FFS are referred to as alternative payment programs (APPs).[i] APPs vary across the country, as they have been developed to meet different needs among the jurisdictions. Some common types of APPs include salaries, capitation, contracts and sessional fees, or various blends of these.

Since the late 1990s, these alternative modes of remuneration have gradually become an increasing proportion of overall physician compensation, currently accounting for approximately 30% of payments to physicians in Canada. That proportion varies significantly over time, by province and by physician specialty. The rich detail historically available in FFS claims data is not generally accessible in most APPs. The comprehensiveness and quality of so-called shadow billing[ii] schemes used to capture this data are inconsistent across the country, limiting the data's utility for national reporting. The reality is that we know less about the activities of physicians from some of these administrative information sources now than we did in the past. As of 2012, the portion of physician payments for which we have limited information is a $7 billion segment of the Canadian health care system,[2] accounting for nearly 3.3% of the country's total health care spending.[1]

The provinces that historically submitted FFS data to CIHI began submitting aggregate alternative payment data in the late 1990s as these schemes became more prominent. In 2008, the Atlantic provinces began submitting detailed APP data, and British Columbia followed in 2010. The detailed APP data includes payments by individual physician and by specialty rather than at the aggregate level of the past.

i. The term "alternative payment program" is used in most provinces except Alberta, where similar programs are referred to as "alternative relationship plans" (ARPs).

ii. Shadow billing captures data, often as a requirement of physicians being paid in an alternative payment arrangement, by submitting an invoice for all services provided as if still paid by FFS, even though there will be minimal or no remuneration for the individual service.

CIHI's National Physician Database (NPDB) exists to support provincial and territorial government physician resource planning and research by providing a pan-Canadian comparative perspective of payments to physicians. CIHI continually works in collaboration with provincial ministries of health, medical associations, the national physician colleges and the research community to improve the quality, comprehensiveness and utility of physician data. However, in more recent years, as alternative payments have made up a larger portion of total physician payments, a comparable pan-Canadian picture has become increasingly difficult to present.

The purpose of this report is to

- Illustrate how the detailed APP data from 5 provinces can be integrated with the detailed FFS data to enhance and complement measures of physician activity, like average clinical payments per physician; and
- Demonstrate approaches for calculating average clinical payments per physician using the detailed APP data, including the calculation of a comprehensive full-time equivalent (FTE) measure.

CIHI's overarching objective is to use this report to encourage other provinces to begin submitting detailed APP data so that the measures of total compensation can be better understood and that comparative information generated from the data can be continually improved and made more relevant.

This report is organized into 2 main sections. The first section examines the current state of physician indicators, including the impact of the erosion of detailed FFS data from total payments. The second section examines metrics of average clinical payments per physician for 5 provinces that submit detailed APP and FFS data to CIHI to demonstrate the benefits that detailed APP data can bring to decision-makers, planners and researchers.

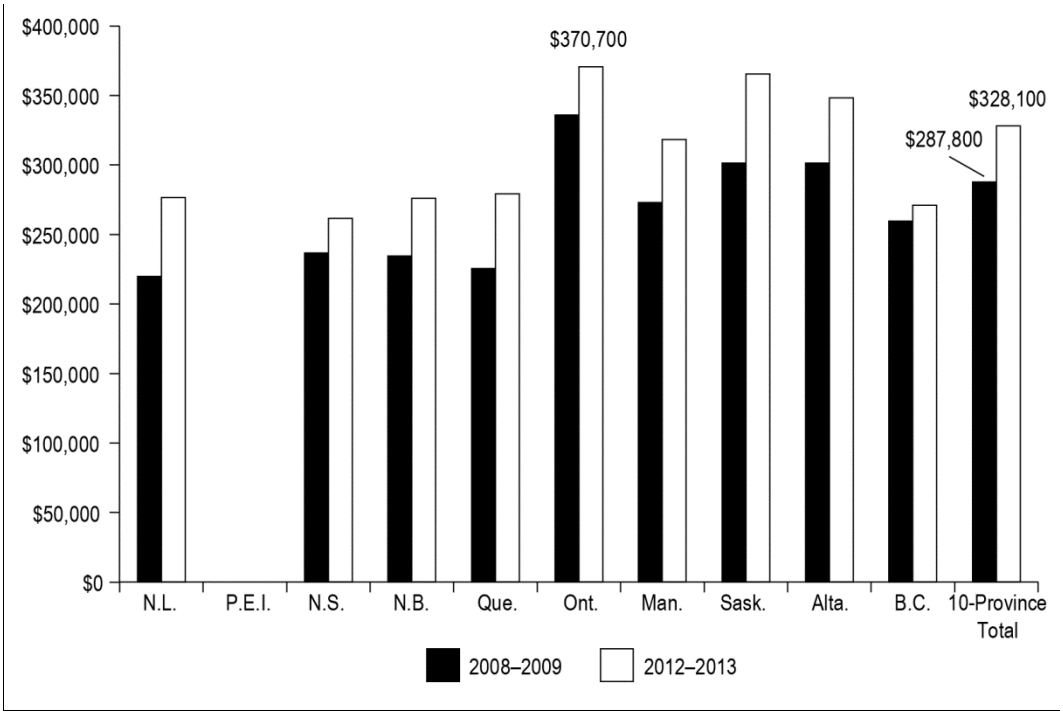
Average Clinical Payments per Physician: Canada

It is well-documented that total payments for physicians' services have increased steadily since the beginning of the millennium.[2] This is partially the consequence of various new incentives and fees to address concerns about access to physician care, which include an aging population, an aging stock of physicians and an increasing proportion of younger physicians and female physicians with less service volume–driven practices than their older colleagues. This ongoing growth in total physician payments generated an increased interest in average physician payments. In the past, these average physician payments were calculated using only detailed FFS data, and the methods to adjust activity levels were based on various arbitrary income-trimming thresholds (e.g., physician payments greater than $60,000) and an FTE calculation based on physician payments. By the late 1990s, CIHI had begun to receive aggregate APP data from all of the provinces. In 2012, in response to a perceived need to report total average physician payments, for the first time CIHI released an indicator of total gross clinical payments per physician based on aggregate FFS and APP data.

This indicator was based on total gross clinical payments to physicians paid through FFS and APP modes of remuneration divided by the number of physicians who received any clinical payment from a medical care plan. Figure 1 shows how nominal (unadjusted for inflation) average gross clinical payments to physicians increased over the 5 years for which comparable and fully comprehensive physician billing data was available in all jurisdictions. According to this measure, average payments for the 10 provinces combined increased by 14.0% over the 5 years. It also shows that there have been increases in every province.

The largest percentage increase was in Newfoundland and Labrador, where average physician payments grew by 25.7%, followed by Quebec with a 23.7% increase. B.C. had the smallest increase over the 5 years, at 4.5%, followed by Nova Scotia and Ontario at 10.4%.

Figure 1: Average Gross Clinical Payment per Physician, by Province and Canada, 2008–2009 to 2012–2013



Source
National Physician Database, Canadian Institute for Health Information.

Although Figure 1 provides insight into how average payments to physicians have changed over time,[iii] it has limitations. The denominator is based on a head count, meaning that total clinical payments are simply divided by the number of doctors who received a payment from a provincial or territorial medical care plan, regardless of whether those physicians provided clinical care for 1 hour per week or 80 hours per week.

iii. At the request of the Prince Edward Island Department of Health and Wellness, the province's average payment is not included in this analysis because of the higher proportion of visiting specialists and locums in the province; this has the effect of increasing the number of physicians with low payments and pulling the average payment lower than in other jurisdictions where there is less reliance on these types of arrangements. P.E.I. is included in the 10-province total.

A more precise and useful approach for physician resource planners is to report average payments that are calculated by dividing total clinical payments by a denominator that has been adjusted to standardize for the level of activity of individual physicians and for interprovincial fee differences. For certain types of analyses, it may also be helpful to exclude physicians who work less than full time and physicians who receive unusually high payments. Another approach is to use a comprehensive and comparable FTE in the denominator. This will produce an average payment per physician working full time on average, or providing similar levels of activity as the majority of physicians.

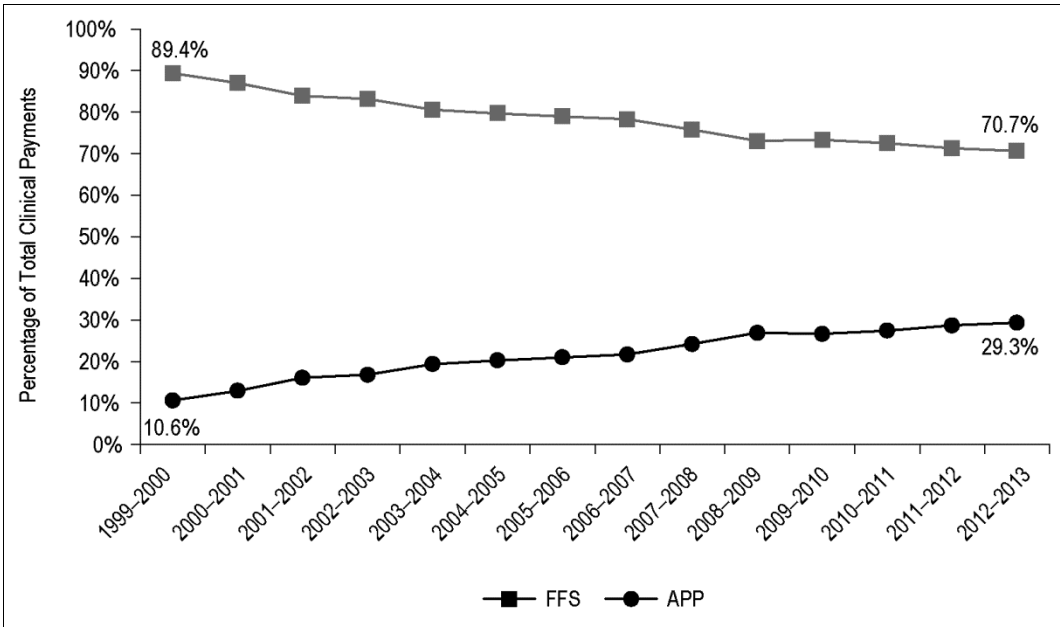
The conventional method of calculating an FTE is based on the number of hours worked, but in Canada the number of hours physicians work is not readily available. It is not usually or universally included in administrative data, like the physician billing information provided by the provincial and territorial medical care plans. Hours worked in clinical care are available from survey data, but the relative precision becomes increasingly uncertain at more granular levels, such as by physician specialty and in smaller jurisdictions, or when response rates are low. In addition, the surveys are run only periodically, so there are gaps in the information over time that further affect overall precision.

An alternative to using hours to calculate a physician FTE is to use payments to physicians for the services they provide as a proxy of activity. Higher fees are generally paid to physicians for services that reflect higher intensity, that require more time or perhaps higher levels of specialization, or that are more complex than services with lower fees. In lieu of other data, the use of payments to calculate a physician FTE has been a generally accepted approach in Canada for decades.[iv] This method too has a serious limitation related to the availability of the data necessary to calculate an FTE based on all payments to all physicians. Detailed payments and service utilization information is available in the billing data from provincial and territorial medical care plans but only for services paid on an FFS basis. As noted previously, FFS as a mode or means of remunerating physicians for their services is a declining proportion of total physician payments, and the same level of detail found in the FFS data is not universally available in the APP data.

This passive erosion in the detailed information necessary to calculate a precise FTE and other comparable measures of physician activity is important to health care system and physician resource planners, because in 2014, almost 16%—$33.2 billion of total health care spending in Canada—was for physician services.[1] In addition, nearly 80% of the payments for physician services are paid through the provincial and territorial medical care plans. Moreover, by 2012, alternative payments made up nearly 30% (29.3%)[2] of total payments to physicians, and it appears likely they will continue to increase in the future (Figure 2). The general lack of available details at the level of the individual physician paid through an APP makes it increasingly difficult to fully understand the complete picture of the services provided by physicians, particularly of those paid through these alternative payment regimes.

iv. Detailed information on CIHI's payments-based FTE methodology is available in Appendix A.

Figure 2: Proportion of Total Clinical Payments to Physicians Paid as Fees for Services Versus Alternative Payments, Canada, 1999–2000 to 2012–2013



Notes
FFS: Fee for service.
APP: Alternative payment program.
Source
National Physician Database, Canadian Institute for Health Information.

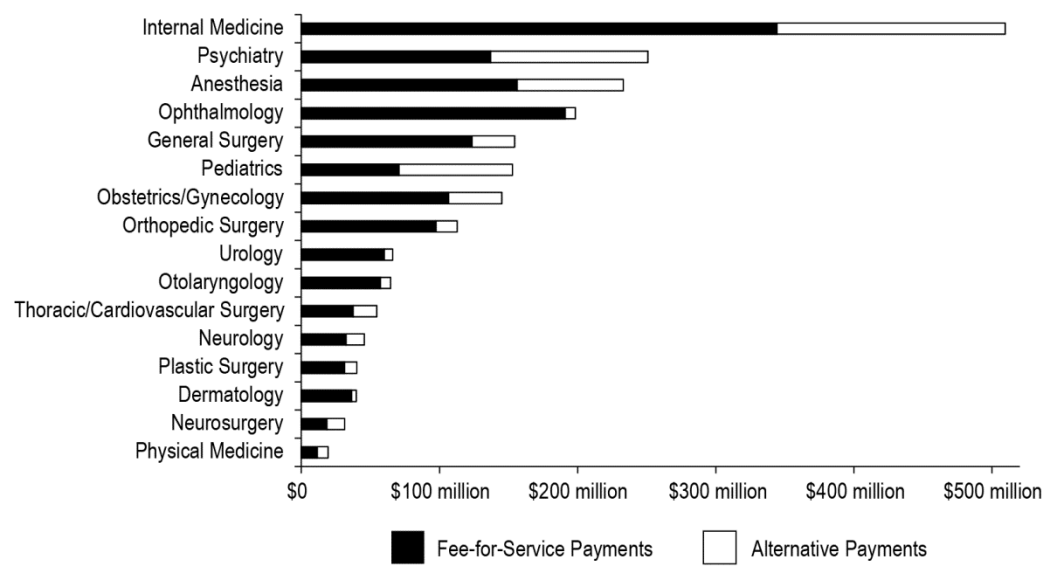
It is important to realize that the FFS data submitted by the provincial and territorial medical care plans to CIHI is not at the individual claims level; rather, it is aggregated at the physician level. This means that for any fee code in a province or territory's fee schedule, payments are aggregated to each physician according to the total payments and number of associated services provided to their patients. This is still rich detail that can be used to calculate many robust indicators useful to physician resource planners. However, this detail is not generally available in the alternative payment data, which is a growing component of overall physician payments. The alternative payment data is submitted to CIHI at a more aggregate level, making the integration of it with the more detailed FFS data virtually impossible, other than to determine the overall proportion that FFS or APP payments are of the total payments to physicians. This means that an FTE, or other indicator that is based on detailed information, can be calculated only for the FFS component of overall payments, effectively excluding almost 30% of payments from the calculation. Intuitively, an FTE based only on FFS payments presents a serious limitation to interjurisdictional, inter-temporal or inter-specialty comparability.

Average Clinical Payments per Physician: Approaches Using Comprehensive Data From 5 Provinces

Since 2008, CIHI has been working with jurisdictions to develop standardized submission formats for alternative payments that are consistent with the physician-level information submitted for FFS-based payments. Although all jurisdictions have acknowledged the importance of submitting alternative payment data at the physician level to CIHI, for various reasons not all have done so. In the 2010–2011 data year, CIHI was successful in incorporating *physician-level* alternative payment data submitted by 5 provinces: Newfoundland and Labrador, P.E.I., Nova Scotia, New Brunswick and B.C. Data from these 5 provinces is used in this report to illustrate how this more comprehensive information can be used to calculate new comprehensive indicators and to demonstrate how these indicators compare with those based on FFS data alone.

Figure 3 shows the improved coverage across different specialties for the 5 provinces when alternative payments are incorporated with FFS payments. The impact of including the APP data on total payments varies by physician specialty. For example, on average for the 5 provinces, almost one-third (32.5%) of payments to internal medicine specialists were through APPs. Without the inclusion of alternative payments, more than $165 million would be missing from any indicators based on FFS payments alone. One-fifth (19.9%) of payments to general surgeons were through alternative payments, accounting for $30.8 million. 2 specialties that were not greatly affected by including alternative payments were urology and ophthalmology, where alternative payments accounted for only 9.0% and 3.8%, respectively. Family medicine physicians are not included in the graph due to the overwhelming difference in the magnitude of payments for family medicine relative to other specialties; however, payments to family medicine physicians in the 5 provinces combined totalled $1.9 billion, with $460 million (24.2%) of total payments paid from APPs.

Figure 3: Clinical Payments to Physicians, by Type of Payment, Selected Specialties and 5 Selected Provinces* Combined, 2010–2011



Note

* Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick and British Columbia: the provinces that are currently able to submit sufficiently detailed clinical APP data to CIHI that can be integrated with their clinical FFS billing data.

Source

National Physician Database, Canadian Institute for Health Information.

Considerations When Interpreting Physician Payment Information

There are important issues to consider when interpreting physician payment information. These apply to all provinces, but in particular to the 5 provinces that currently submit comprehensive clinical payments data featured in this discussion.

Overhead Costs

Overhead costs include, but are not limited to, the costs associated with running the offices and organizations where physicians practise, such as the cost of office space, support staff, administrative supplies, insurance, benefits and medical equipment. Overhead costs may vary significantly across jurisdictions, within jurisdictions and among specialties. The degree to which overhead costs are included in payments also differs by payment modality and by employment arrangement. Privately practising physicians working in solo or group practices paid entirely on an FFS basis or under mixed regimes, for example, will generally have to cover the entire cost of their medical practice from the gross payments they receive. Physicians who are employees and paid on a salary or contract basis do not generally pay the costs of overhead out of their gross payments, because most of these costs will be covered or supplemented by the organization that employs them. Although overhead costs are important when calculating the average *net* compensation of physicians, they are less critical when calculating the average *gross* clinical payment per physician paid through medical care plans, which are the averages presented in this report.

Allocation of Costs to Individual Physicians

Unlike FFS information, alternative payment data cannot always be attributed to individual physicians. There are circumstances in which physician groups rather than individual physicians receive funding from medical care plans to provide insured services. This is typical of some primary care providers in many provinces. Under these circumstances, the funds are paid to individual physicians by the group, and the distribution of those funds within the group is not known or is not available to CIHI. Until more information or more accurate distribution methods become available from jurisdictions, CIHI has uniformly distributed group payments among all members equally.

Radiation, Laboratory and Anesthesiology Specialist Data

Radiology, laboratory and anesthesiology specialists are excluded from the analysis that follows. This is done to improve the comparability of the information among jurisdictions, because of the wide diversity in the delivery and payment mechanisms for these services across the country. In some jurisdictions, radiology and/or laboratory specialists are paid exclusively through medical care plans, while in others they are paid through hospital budgets, through other public and private sources, or through a mix of payment sources.

Physician Locums or Short-Term Contract Arrangements

Physicians who provide locums or are on short-term contract arrangements are included in the calculations, but they can have varying degrees of influence of the results. Their impact on physician payment indicators varies across jurisdictions and also over time within the same jurisdiction. In some circumstances, a locum may fill a position for a month or less; in others, up to a year. If 3 or 4 different physicians fill a single funded position over the course of a year, the average payment calculations as well as the presentation of physician payment distributions can be skewed.

Physicians Working in Academia, Administration or Research

Physicians who work primarily in academia, administration or research and spend only a portion of their time in clinical care will be represented in the data only by their clinical payments paid through a medical care plan. The portion of their gross income sourced from other or non-clinical sources, such as academic funding plans, will not be included if it is not financed through the appropriate medical care plan.

Summary of Approaches for Calculating Average Clinical Payments per Physician

Table 2 below presents total clinical payments by physician specialty for the 5 provinces combined that submit physician-level FFS and APP data to CIHI. The denominator used for the median and mean calculations is based on a head count of doctors who received a payment from a provincial or territorial medical care plan, regardless of whether those physicians provided clinical care for 1 hour per week or 80 hours per week.

The 4 approaches that follow use different methods to standardize for the level of activity of individual physicians. The first 2 methods include averages that exclude physicians with total clinical payments below the arbitrary trimming thresholds of $60,000 and $100,000. These thresholds are used to illustrate the impact of including so-called “typical” physicians (i.e., those who earn higher amounts of clinical payments than physicians who likely do not rely on clinical care provision for most of their gross income). The next method is similar but excludes physicians at both ends (the tails) of the distribution by arbitrarily trimming the top and bottom 10% of physician payments. These thresholds were chosen by expert advisors to CIHI as examples to explore the effects of alternative trimming approaches on so-called typical physicians—those working predominantly in clinical practice. Averages using other thresholds of interest could also be considered.

The final method uses an FTE calculation that includes all physician payments but divides total payments by a count that is weighted by the level of activity rather than a simple count of physicians or other variations of head counts that arbitrarily exclude different cohorts as described above. See Appendix A for the detailed FTE methodology.

Comparative estimates of average payments per physician are one of the most commonly used physician indicators produced by CIHI. A common question is which of the approaches reported in Table 2 is the best indicator to use. The answer is that it depends on the interests of the user. This is investigated further in the sections that follow.

Table 2: Clinical Payments per Physician, by Specialty, 5 Selected Provinces* Combined, 2010–2011

Specialty	Count	Total Amount Paid per Contributing Physician		Payments Trimmed at $60,000		Payments Trimmed at $100,000		Tails Trimmed at 10%		Full-Time Equivalent	
		Median	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
Family Medicine	**8,699**	**$206,256**	**$217,612**	**7,442**	**$250,171**	**6,694**	**$269,068**	**6,782**	**$208,635**	**8,151**	**$232,254**
Medical Specialties	**4,476**	**$255,969**	**$279,088**	**4,017**	**$308,405**	**3,795**	**$321,790**	**3,481**	**$264,028**	**3,595**	**$282,599**
Internal Medicine	1,565	$292,315	$325,704	1,382	$365,853	1,320	$379,258	1,217	$297,290	1,568	$324,895
Neurology	172	$230,562	$261,377	154	$288,434	145	$301,911	136	$248,386	171	$263,047
Psychiatry	1,096	$219,339	$228,897	1,001	$247,972	925	$261,847	865	$219,613	1,050	$238,982
Pediatrics	639	$227,848	$238,931	555	$272,839	530	$281,909	486	$227,634	620	$246,304
Dermatology	103	$369,578	$383,301	96	$409,383	90	$431,298	79	$365,266	104	$381,155
Physical Medicine	86	$192,056	$214,022	77	$236,850	72	$247,896	68	$203,656	82	$223,129
Anesthesia	815	$292,760	$285,990	752	$308,045	713	$320,491	630	$286,032	†	†
Surgical Specialties	**2,178**	**$376,713**	**$396,169**	**1,919**	**$446,655**	**1,819**	**$466,761**	**1,683**	**$383,859**	**1,985**	**$434,593**
General Surgery	443	$356,051	$348,644	376	$407,113	357	$424,456	339	$343,632	388	$398,160
Thoracic/ Cardiovascular Surgery	118	$473,480	$461,273	110	$492,540	106	$508,200	93	$461,760	111	$490,933
Urology	144	$437,921	$451,807	135	$479,870	128	$501,622	111	$440,738	138	$471,178
Orthopedic Surgery	345	$350,223	$326,955	305	$367,352	284	$388,762	265	$329,771	308	$366,225
Plastic Surgery	125	$340,526	$312,268	105	$368,579	97	$391,901	100	$303,282	109	$357,941
Neurosurgery	64	$409,544	$452,444	59	$488,423	58	$495,201	49	$438,021	61	$474,888
Ophthalmology	318	$570,030	$623,936	284	$696,096	272	$723,200	250	$570,675	303	$654,997
Otolaryngology	159	$403,208	$406,039	148	$434,426	141	$452,049	126	$390,307	149	$432,969
Obstetrics/ Gynecology	462	$313,549	$314,187	397	$361,581	376	$377,225	350	$304,714	419	$346,778
Total Specialties	**6,654**	**$285,307**	**$317,411**	**5,936**	**$353,098**	**5,614**	**$368,762**	**5,164**	**$303,082**	**5,581**	**$336,670**
Total Physicians	**15,353**	**$235,094**	**$260,865**	**13,378**	**$295,841**	**12,308**	**$314,541**	**11,946**	**$249,462**	**13,732**	**$274,690**

Notes

* Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick and British Columbia.

† Anesthesia specialists were suppressed in the FTE calculations.

Radiology and laboratory specialists are not included.

Province-specific versions of this table are in Appendix B.

Source

National Physician Database, Canadian Institute for Health Information.

Analysis of Approaches for Calculating Average Clinical Payments per Physician

Income Threshold Approach

The median and the simple mean in Table 2 do not exclude or trim any physicians. The mean is a direct calculation of all clinical payments divided by all physicians who made a claim for payment to a medical care plan. It is mathematically correct, user-friendly and easily understood, but it includes low-earning physicians who may work in informal, temporary, periodic or casual arrangements. It also includes very high-earning physicians paid through unusual or exceptional circumstances or billing arrangements that are not typical for most physicians and will bias average earnings upward.

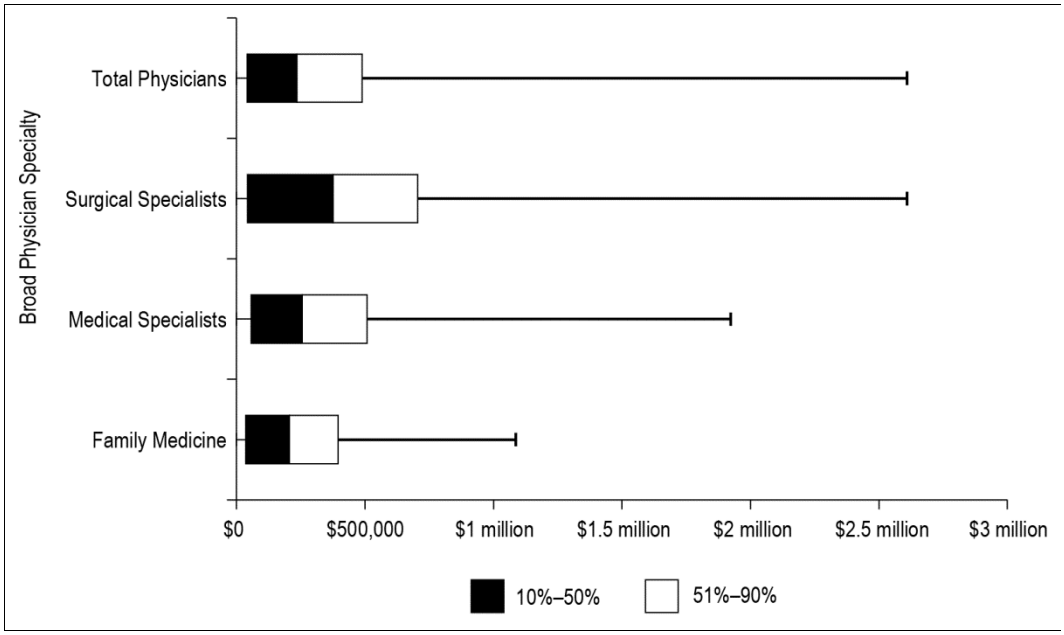
In an attempt to get closer to an average payment that includes only physicians working in more permanent, regular, continuous arrangements, it may be preferable to use various income thresholds that exclude some physicians. Thresholds based on an absolute amount are easy to explain and to understand. Trimming methods using 2 of these thresholds—below $60,000 or below $100,000—are illustrated in Table 2. The $60,000 threshold is typically used in Canada, but other thresholds could easily be calculated that are more specialty- or jurisdiction-specific. The limitations of income thresholds are that they are usually arbitrary and the statistics based on them are not suitable for time-series analysis, because the subset of earnings above or below the threshold will be affected over time by changes in fee levels.

Furthermore, there are relative differences among jurisdictions in how much physicians earn based on the unique fee agreements negotiated between doctors and each provincial and territorial government. In jurisdictions where specialists are paid relatively less than the same specialists in another province, there may be a greater proportion earning less than the income threshold. Removing these physicians' payments from the numerator and the number they contribute to the count in the denominator may have a greater impact on the average payment per physician in a province where there is a larger proportion earning less than the threshold—and where proportionally more will be trimmed out—compared with a jurisdiction where a greater proportion earn more than the threshold.

Another approach that overcomes some of these issues inherent in an absolute income threshold is to use a proportional threshold and remove those physicians with clinical payments, for example, in the bottom 10% of total payments. The choice of 10% is still arbitrary and is used here to illustrate the impact of this approach. This method would apply equally in all provinces and exclude the same proportion of physicians everywhere regardless of the relative levels of payments across the country or across specialties. The method can be further enhanced by also removing the upper 10% of physicians, or those above the 90th percentile, to get closer to an average payment per physician based on a more typical cohort of physicians— the middle 80%—who provide the majority of clinical services in the country.

By excluding physician payments that are below and above the lowest and highest deciles, a more concentrated range of payments emerges that is graphically illustrated in the box plot in Figure 4. Among the 5 provinces combined, the top 10% of physicians had payments of more than $490,000, represented by the line, or “whiskers,” on the right side of the box, while the bottom 10% of physicians had payments below $41,000, represented by the whiskers on the left side of the box. This means that 4 out of 5 physicians had payments between $41,000 and $490,000. The line separating the 2 interior segments inside the box is the median. Furthermore, the range of payments within the box differs by the broad specialty groups of family medicine, medical and surgical specialists and all groups combined (referred to as total physicians). Among the specialties, the largest spread of payments greater than 10% and below 90% is for surgical specialists, and the smallest spread is among family medicine specialists. The whiskers to the right of the box represent a small number of physicians with associated payments that are much higher relative to most of the rest of the data set. These represent unusual or exceptional circumstances or billing arrangements that are not typical for most physicians, including groups of physicians who may be billing for their services under 1 or only a few physicians’ billing numbers.

Figure 4: Distribution of Clinical Payments to Physicians, by Broad Physician Specialty Group, 2010–2011



Source
National Physician Database, Canadian Institute for Health Information.

The above may get closer to the notion of a full-time physician, because most of the physicians in the cohort are likely working full time, but it is not an FTE per se.

Full-Time Equivalent Approach

An FTE approach is preferable for most uses, especially if all physicians billing throughout the year are included in the methodology and each physician's contribution to the FTE is weighted according to his or her level of clinical activity. CIHI's FTE methodology is based on an approach that uses clinical payments as a proxy for activity to weight the count of physicians (Appendix A). Historically, CIHI's FTE calculation has been based solely on FFS physician payments. The discussion that follows presents results after applying a slightly modified FTE methodology using comprehensive physician payments (FFS and APP) (Table 2). The equations used to calculate a physician's FTE value remain the same. The method for calculating the FTE benchmarks, which are directly used to calculate a physician's FTE value, is slightly modified.

In order to calculate a physician's FTE value, benchmarks must be established to define the lower and upper boundaries for a single FTE. Benchmarks are set for each specialty and are determined by the convention of ranking the physicians by income and selecting the 40th percentile as the lower benchmark and the 60th percentile as the upper benchmark. Every physician within the income range will be defined as 1 FTE, and those outside the range will be adjusted according to the established methodology.

To calculate a comprehensive FTE, new benchmarks are required that are based on all payments to physicians, not FFS ones only. The data year 2010–2011 was used to calculate the comprehensive FTE benchmarks. In the original FTE methodology, based on FFS only, a physician must have received at least 1 payment in each of the 4 quarters to be included in the benchmark calculation. A restriction of 1 payment in each of the 4 quarters is an attempt to limit the physicians included in the benchmark calculation to those who practised throughout the year and to exclude those who may have worked part of the year, moved away, retired or been new to the province. Alternative payment data is currently submitted to CIHI on an annual basis; therefore, a similar quarterly restriction could not be applied. Without a restriction on the physicians who contribute to the method of calculating benchmarks, there is potential for physicians with a small amount of total clinical payments to pull the FTE benchmarks lower than they would otherwise be if the quarterly claim restriction could be applied. Further investigation is required into approaches for selecting the appropriate cohort of physicians paid through APPs in the comprehensive FTE benchmarks.

Because the same services may be provided at different rates across jurisdictions, CIHI also applies a process to standardize these differences by applying the physician services benefit rates (PSBRs) index to standardize provincial payments to a national level. The current PSBR is based on FFS data only because the methodology requires weighting rates by service volumes when calculating the standardized index. For this report, work was undertaken to determine whether the services covered under APP payments from the 5 provinces affected the current

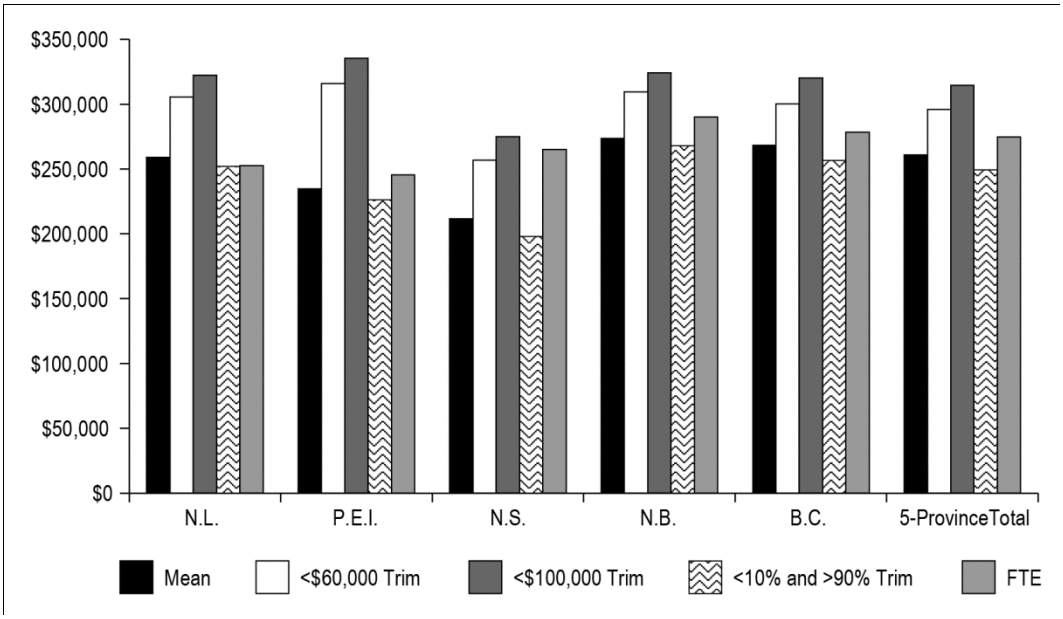
PSBR. This first required the sensitivity testing of a comprehensive index (FFS and APP) versus the already established FFS PSBR index. When little difference between the 2[v] was found, an FFS PSBR index was created and applied based on only the 5 provinces of Newfoundland and Labrador, P.E.I., Nova Scotia, New Brunswick and B.C.

Using the 5-province PSBR index, each physician's comprehensive clinical payments were adjusted to a standard 5-province total level. For each specialty, physicians were ranked by total payments from least to greatest, and the 40th and 60th percentiles determined the 5-province total benchmarks. The PSBR index was then applied again to the 5-province total benchmarks to adjust them back to provincial levels. Using the step-by-step calculation outlined in Appendix A, each physician's comprehensive payments were measured against the established lower and upper benchmarks to determine individual comprehensive FTE values.

Comparison of Approaches

Figure 5 presents a visual comparison of the 5 different approaches for calculating comprehensive average payments per physician for the 5 provinces submitting detailed APP data. Each method presents quite different results in each province and between the provinces.

Figure 5: Comparison of 5 Comprehensive (FFS and APP) Average Payment per Physician Estimates, 5 Selected Provinces, 2010–2011



Source
National Physician Database, Canadian Institute for Health Information.

v. In an effort to adapt the PSBR to comprehensive payments and not be limited to FFS only, 2 simulations were run. The first was to include all utilization data that was available, which includes FFS and shadow billing data. The other was based on FFS utilization data only. The 2 simulations were run to test the impact of including shadow billing data along with FFS data versus using only FFS data. Shadow billings are claims submitted to the medical care plan for services provided by physicians who are being paid via APPs. These claims show up in the billing system paid at $0. The resulting PSBR index did not significantly differ between the 2 simulations. Because there was no real difference in the PSBR index between the 2 simulations, the current established FFS data method was used in this report. CIHI will continue to explore the impact that including shadow billing data has on the PSBR in the future as more comprehensive shadow billing data becomes available.

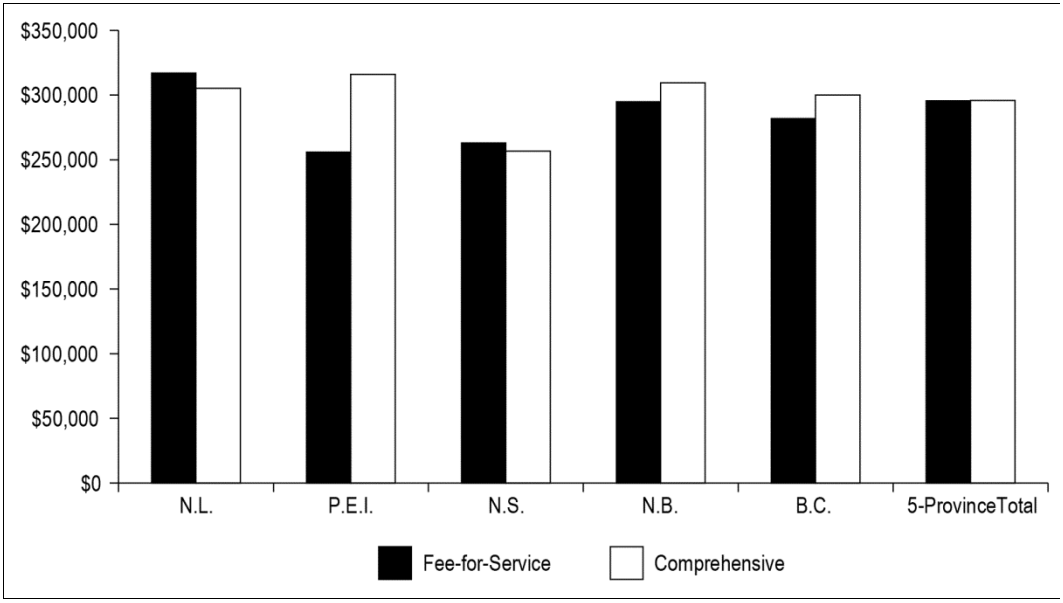
In Figure 5, the average payments of all 5 provinces combined range from $249,000 per physician (based on the upper and lower 10% trimming methodology) to a high of $315,000 (based on the method of trimming payments below the $100,000 threshold). The simple mean, the FTE and the below $60,000 trim methods, respectively, produce averages of $261,000, $275,000 and $296,000 per physician. These results are based on the payments of all physicians combined, but the results vary significantly by specialty, which is evident in the averages for the 5 provinces combined in Table 2. The averages for the individual provinces are available in the provincial tables in Appendix B.

Comparison of Comprehensive Payment Estimates (FFS and APP) and FFS Payment Estimates

CIHI has historically reported most of these same average payment estimates for all 10 provinces based on only FFS data. This leads to other questions, such as what effect including detailed APP data in the 5 provinces will have on the comprehensive average physician payment estimates, versus estimates based solely on FFS data.

It might be natural to contemplate that the comprehensive average payment estimate will always be higher than an average payment based on only the FFS data because more payments information is included in the ratio. However, this isn't always true for all average payment calculation methods. For example, Figure 6 compares the average payment per physician who earned at least $60,000 in each of the 5 provinces that was calculated using fully comprehensive data and FFS payments only. In Newfoundland and Labrador and Nova Scotia, the average payment based on comprehensive payments is actually lower than the average based on only the FFS data. The augmentation of the count of physicians receiving payments from APPs in the denominator offset the amount of those payments in the numerator, thereby pulling the ratio down from what it was using only the FFS information. The opposite occurred in P.E.I., New Brunswick and B.C., where the average based on comprehensive payments is higher than the FFS-based average, but the differences vary across the provinces.

Figure 6: Comparison of Average Payment per Physician Who Earned at Least $60,000, Comprehensive Versus Fee-for-Service Payments, 5 Selected Provinces, 2010–2011



Source
National Physician Database, Canadian Institute for Health Information.

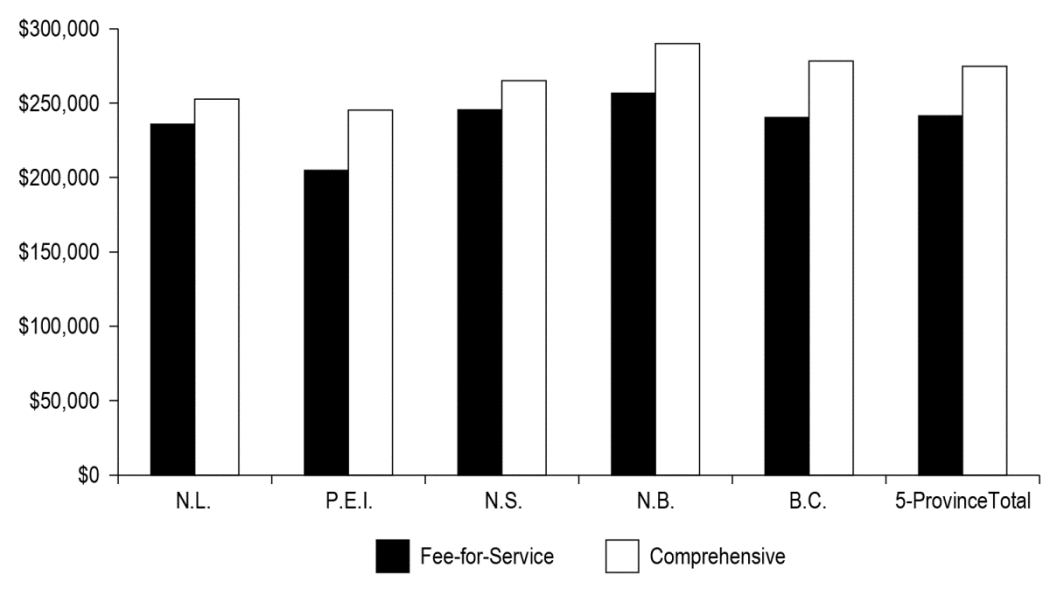
By excluding from the average payment ratio those physicians earning less than $60,000 (Figure 6), those provinces with a higher proportion of physicians earning less than the threshold will have a smaller number of physicians in the denominator. This may result in a higher average payment relative to other provinces that have fewer physicians earning less than $60,000. This may partially explain why P.E.I. has the highest average payment per physician earning more than $60,000 among the provinces once the APP data is added. According to the data submitted by P.E.I., more than 40% of total clinical payments to physicians in that province are paid through APP arrangements, the second-highest proportion in Canada. Furthermore, the fact that the average increases substantially suggests that a relatively large proportion of physicians are paid through contracts or salaries or may work for short periods and earn less than $60,000, relative to other provinces in the study. By contrast, despite the fact that nearly 50% of Nova Scotia doctors are paid through APP arrangements, the highest proportion in the country, when the APP data is added to the FFS data, the average payment ratio falls slightly below what it was with only the FFS payments included. This suggests that there may be a higher proportion of physicians paid through FFS who are earning less than $60,000 than there are being paid through APP arrangements.

It is also interesting, but perhaps not surprising, that the 2 provinces that saw a decrease in their comprehensive average payment relative to the FFS average also have the largest portion of physicians paid solely via alternative payments. In Newfoundland and Labrador, 19.7% of physicians earning more than $60,000 were paid solely on an APP basis; the proportion was 35.1% in Nova Scotia. This compares with 8.7% in P.E.I., 5.2% in New Brunswick and 4.3% in B.C.

The results in Figure 6 reinforce how vital it is to integrate APP data into average payment per physician calculations, because its inclusion clearly alters the average in each province and offers additional confidence in an average that is comprehensive and not based on partial data. However, the offsetting impact of each province's average after the APP data is added produces a comprehensive average payment for the 5 provinces combined that is virtually the same as the FFS-only average. This seems counterintuitive and reinforces concerns about the limitations of using simple head counts in the denominator to calculate average physician payments, especially when sufficiently detailed data is available to calculate an average payment per FTE physician, at least for these 5 provinces.

Figure 7 offers a similar representation as in Figure 6, but in this example the comparison is of an average payment per FTE physician for each province based on just FFS data compared with a comprehensive FTE based on physician-level FFS and APP data. The FTE method includes all physicians who billed throughout the year regardless of their level of payments and provides an adjustment for their level of activity—the only average payment method with this feature. In each of the 5 provinces, and for the 5 provinces combined, the average based on the comprehensive FTE resulted in a higher ratio than the FFS-only version.

Figure 7: Comparison of Average Payment per FTE Physician, Comprehensive Versus Fee-for-Service Payments, 5 Selected Provinces, 2010–2011



Source
National Physician Database, Canadian Institute for Health Information.

Rankings of average payments per physician have little meaning on their own, because many factors influence the relative amounts paid for physician services in different jurisdictions. Nevertheless, Table 3 displays the change in the provincial rankings to illustrate that each province's relative position among the group is affected differently by the method used to calculate the average payment.

Furthermore, the change in the relative rankings of provinces, in descending order from highest to lowest average payment, is most dramatic in P.E.I., which had the highest comprehensive average payment per physician earning less than $60,000 and $100,000, but the lowest average per FTE physician.

Table 3: Rankings of Average Payments per Physician, by Method, 5 Selected Provinces, 2010–2011

Province	Mean Total Amount Paid per Contributing Physician				
	Mean	Trimmed at <$60,000	Trimmed at <$100,000	Tails Trimmed at Upper and Lower 10%	Full-Time Equivalent
N.L.	3	3	3	3	4
P.E.I.	4	1	1	4	5
N.S.	5	5	5	5	3
N.B.	1	2	2	1	1
B.C.	2	4	4	2	2

Source
National Physician Database, Canadian Institute for Health Information.

Further analysis needs to be undertaken to better understand some of the dynamics underlying the results of each method. Furthermore, an important aspect of the FTE methodology is the calculation of the benchmarks used to determine full-time equivalence. In this study, they are based on a sample of just 5 provinces, which makes them less stable than they would be if more and larger provinces also submitted comprehensive payments and utilization data in the future. CIHI will continue to work with jurisdictions to attempt to secure the information to move this analysis forward.

Conclusion

Canadian health care decision-makers have not had access to detailed, comprehensive and provincially comparable information on physician payments and services since the late 1990s, when virtually all physicians in Canada were paid almost entirely on an FFS basis. The information presented in this study demonstrates the emerging opportunity available to physician resource planners and decision-makers to once again have access to comprehensive and comparable physician indicators.

The average payments of physicians are an important and useful measure to understand how and where payments and services are being allocated in Canada. As FFS has declined as a proportion of total payments, it has become increasingly important to develop, collect and integrate detailed APP data into the indicators that, until now, were based only on FFS data. This study integrates the detailed APP data from 5 provinces with their FFS data to calculate, for the first time, a series of indicators that also includes a fully comprehensive, payments-based FTE measure for physicians by specialty.

Although further refinement is needed, it is clear from the analysis of these 5 provinces that the key to fully comprehensive and comparable information on physicians can be found in detailed APP data from all provinces. CIHI will continue to work with provincial and territorial governments to encourage the use of this new information and to continually improve its quality so that increasingly comparable information on physician activity can be reported in the future.

Appendix A: Details of CIHI's Measurement of an FTE Physician

Historical Measures

In Canada, physician supply has historically been measured in terms of the number of physicians available. This data is often used in physician-to-population ratios and has been used for planning and assessing policy. The number of physicians is considered an important health economic indicator because of the gatekeeper role that physicians play in the health care delivery system. Knowing how many physicians there are helps people understand increases in the cost of medical care, determine how many physicians are needed and follow trends in physician remuneration.

However, using simple head counts implies that all physicians have equal capacity to provide patient care. This is clearly not plausible; many physicians work part time, some are semi-retired and others who are licensed perform little or no clinical work. To try to produce a more meaningful measurement of physician supply, the concept of counting both full-time and FTE physicians was adopted.

One method of defining full-time physicians involves the use of income thresholds.[vi] A dollar amount was specified and any practitioner whose income met or exceeded it was counted as 1 full-time physician. Physicians who billed less were excluded from the count. The system was flawed because, depending on the choice of threshold, statistics could be generated that indicated anything from a serious lack of physician resources to a complete oversupply of all practitioner specialties. Later it was slightly improved by counting part-time physicians as fractions of full-time physicians.

Apart from the problems caused by the arbitrary choice of income threshold, the statistics are not suitable for any time-series analysis because the subset of earnings above the benchmark will be affected over time by increases in fees. National comparisons are also questionable because the provinces and territories may pay different amounts for the same services.

vi. It should be noted that the term "income" refers to physicians' gross clinical payments only.

To get better jurisdictional, inter-specialty and time-series comparisons, a revised approach defines a full-time practitioner as one billing among the top 70% of physicians. Percentile thresholds are better than dollar values because they implicitly adjust for changes over time, including fee increases and changes in service use or volume per physician. They also improve comparability among jurisdictions, although because fees still differ there is no guarantee the full-time benchmark in one province or territory reflects the same intensity of work as the benchmark anywhere else. FTE methods based on average or median earnings are variations on this methodology.

Development of an Improved Measure of Full-Time Equivalence

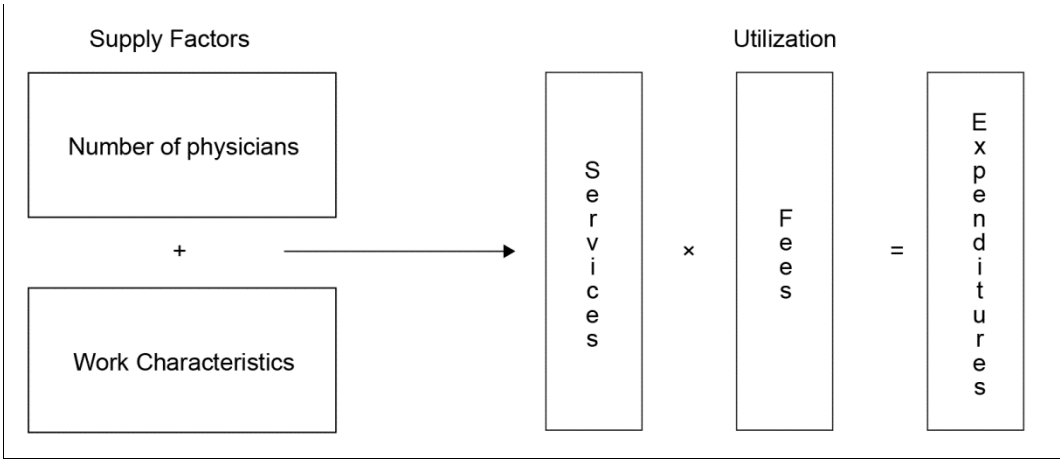
A national working group initiated the development of a full-time equivalence measure in 1984. Its objectives were to

- Provide a consistent basis for physician-supply comparisons within and across provinces and territories;
- Provide a consistent basis for measuring changes through time in physician supply; and
- Recognize workload differences among individual specialties.

Conceptual Model

All FTE measures are to some degree arbitrary, because there is no best measure to be derived through statistical techniques. The working group's choice was determined by the objectives and data availability. It was based on the following conceptual model:

Figure A1: Conceptual Model of Supply, Utilization and Expenditures



In an economic context, the number of physicians and hours of work are seen as measures of supply. Services produced by physicians are the most basic measure of utilization, while expenditure is the product of services and fees. The relationship between these 3 variables is illustrated in Figure A1. The realistic choices for estimation of full-time equivalence were hours of work, services provided and payments.

An internal study indicated a high degree of variability in income per hour worked by FFS physicians, after standardizing for specialty, which meant an FTE measure based on hours of work would not provide accurate estimates of the *potential output* (in terms of clinical services) of the physician population. As FTE measures are used most often in a context where output or expenditure is important, measuring output rather than hours of work (essentially an input measure) seemed preferable.

Services are measures of output, but they are not weighted for intensity or value. Expenditure, on the other hand, measures services weighted by fees—more difficult services are better paid. Payments to physicians were therefore chosen as the most appropriate measure of output for determining full-time equivalence.

Rationale

In the model adopted, gross income per physician is used to measure output or workload. But even in the same specialty, the amount of work doctors do can vary widely, so rather than using a single cut-off for full-time equivalence, the working group decided to use a range that would be realistic for a typical full-time physician. Because the range had to be statistically defined, the 40th and 60th percentiles of nationally adjusted payments were chosen as benchmarks to measure full-time equivalence.

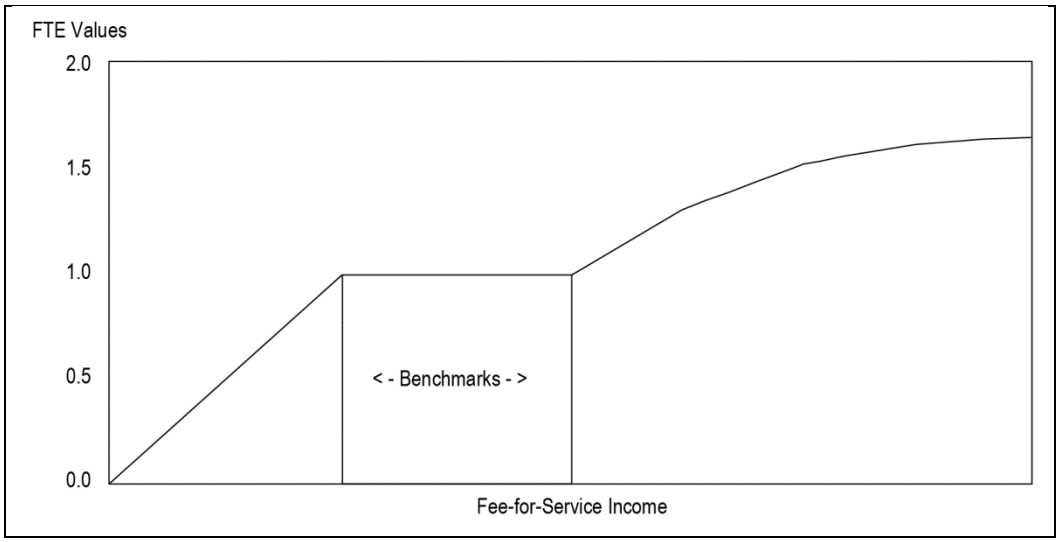
Simulations of alternative percentiles showed that the FTE counts were relatively insensitive to different benchmark ranges, as long as they were symmetric (e.g., the 30th to 70th percentiles yielded approximately the same total counts as the 40th to 60th percentiles).

Comprehensiveness

CIHI's full-time equivalence methodology is designed to provide a weighted count of all physicians providing FFS care paid for by medicare. Physicians with payments less than the lower benchmark are counted as fractions of an FTE, physicians within or equal to the benchmarks are counted as 1 and physicians above the benchmark are counted as more than 1 FTE. The decision to count physicians above the benchmark as more than 1 FTE was based on a recognition that many physicians have large workloads, which should be reflected.

At the same time, an algorithm incorporating logarithms was used to prevent high-income physicians from having a very large FTE (e.g., a physician whose income is 3 times the upper benchmark will have an FTE of 2.1, while a physician whose income is 4 times the upper benchmark will have an FTE of 2.4). The relationship between income and FTE count is illustrated in Figure A2.

Figure A2: Relationship Between Income and FTE Values



Consistency

For consistency across provinces and through time, the methodology removed the effects of different fee levels on physician income. It allows payments to each physician to be standardized for interprovincial fee differences in order to compute national benchmarks for a base year. The national benchmarks are then converted to provincial values. Each year, the provincial benchmarks are indexed by specialty-specific fee increases or decreases.

Benchmark values and FTE physician counts vary depending on the base year used for analysis. Physician reports for data years 1989–1990 to 1995–1996 were based on FTE benchmarks that were set using a 1985–1986 base year. Physician reports for 1996–1997 to 2001–2002 were updated and based on benchmarks using 1995–1996 NPDB data. In 2004, CIHI re-engineered the NPDB system, focusing on the application of payment source selection criteria at various stages of FTE data processing. Starting with the 2002–2003 data year, FTE physician reports were produced using a 2000–2001 base year. For a detailed discussion of base year changes and the potential impact on FTE results, please see Appendix A in *Full-Time Equivalent Physicians Report, Canada, 2002–2003*.

Step-by-Step Calculation

FTE values are calculated as follows:

$$FTE_i = \begin{cases} \text{total payments}_i \div \text{lower benchmark}_j & \text{If physician } i \text{ earns less than the lower benchmark value } j \\ 1 & \text{If physician } i \text{ earns an amount equal to or within the benchmark values} \\ 1 + \ln(\text{total payments}_i \div \text{upper benchmark}_j) & \text{If physician } i \text{ earns more than the upper benchmark value } j \end{cases}$$

Where

- FTE_i is the FTE value assigned to the *i*th physician;
- Total $payments_i$ is the sum of all payments made to the *i*th physician;
- Lower $benchmark_j$ is the lower benchmark value set for the physician specialty group within the province or territory of practice of the *i*th physician; and
- Upper $benchmark_j$ is the upper benchmark value set for the physician specialty group within the province or territory of practice of the *i*th physician.

1. Select a base year for estimation.

- Starting with the 2002–2003 data year, FTE calculations are produced using a 2000–2001 base year.

2. Create a national base year FTE database.

- Select from the NPDB all the records for physicians who received at least 1 FFS payment during each quarter of the base year, in 1 or more jurisdictions.
- To eliminate the interprovincial differences in payments, adjust the gross income of each physician by the relevant PSBR index.
- Create national-level medical specialty files corresponding to the medical specialty groups regularly reported in CIHI's physician reports. Physicians are assigned to the single national medical specialty file that accounts for the majority of their payments. The national medical specialty data files contain each physician's total payments in the base year.

Note: FTE statistics are not calculated for specialties in anesthesia, radiology or laboratory medicine.

3. Calculate base-year lower and upper benchmarks.

- Within each specialty, rank payments and establish the distribution of physicians by payment levels.
- Label the payment value corresponding to the 40th percentile rank as the national lower benchmark and the 60th percentile as the national upper benchmark.
- To calculate the provincial lower and upper benchmarks, adjust the national benchmarks by the PSBR index.

4. Calculate the benchmarks for years other than the base year.

- Inflate or deflate provincial benchmarks for each specialty using specialty-specific annual fee increase/decrease percentages.

5. Create an FTE database for estimation.

- From the NPDB, select all the records for physicians who received at least 1 fee payment during a fiscal year for services provided within the physician's province of practice to in-province patients.
- For each province and each specialty, create a data set that includes each physician's total billing in the fiscal year.

6. Calculate the FTE statistics.

- Count physicians with payments within or equal to the benchmarks as 1 FTE.
- Count physicians with payments below the lower benchmark as a fraction of an FTE equal to the ratio of their payments to the lower benchmark.
- Count physicians with payments above the upper benchmark using a log-linear relationship—that is, as 1 FTE plus the natural logarithm of the ratio of their payments to the upper benchmark.

Appendix B: Clinical Payments per Physician for 5 Selected Provinces

Table B1: Clinical Payments per Physician, by Specialty, 5 Selected Provinces* Combined, 2010–2011

	Count	Amount Paid by Quintile				Total Amount Paid		Payments Trimmed at $60,000		Payments Trimmed at $100,000		Tails Trimmed at 10%		Full-Time Equivalent	
		20	40	60	80	Median	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
Family Medicine	**8,699**	**87,345**	**171,606**	**241,987**	**327,129**	**206,256**	**217,612**	**7,442**	**250,171**	**6,694**	**269,068**	**6,782**	**208,635**	**8,151.17**	**232,254**
Medical Specialties	**4,476**	**133,603**	**214,236**	**296,392**	**404,064**	**255,969**	**279,088**	**4,017**	**308,405**	**3,795**	**321,790**	**3,481**	**264,028**	**3,595.45**	**282,599**
Internal Medicine	1,565	140,435	235,966	323,929	505,734	292,315	325,704	1,382	365,853	1,320	379,258	1,217	297,290	1,568.47	324,895
Neurology	172	121,175	185,487	285,494	409,915	230,562	261,377	154	288,434	145	301,911	136	248,386	170.85	263,047
Psychiatry	1,096	123,578	196,911	247,551	320,251	219,339	228,897	1,001	247,972	925	261,847	865	219,613	1,049.75	238,982
Pediatrics	639	121,171	173,936	267,403	351,201	227,848	238,931	555	272,839	530	281,909	486	227,634	620.31	246,304
Dermatology	103	199,990	302,640	440,612	544,009	369,578	383,301	96	409,383	90	431,298	79	365,266	103.58	381,155
Physical Medicine	86	116,011	174,385	254,639	299,556	192,056	214,022	77	236,850	72	247,896	68	203,656	82.49	223,129
Anesthesia	815	163,502	262,407	324,336	409,105	292,760	285,990	752	308,045	713	320,491	630	286,032	†	†
Surgical Specialties	**2,178**	**150,223**	**322,256**	**431,251**	**570,558**	**376,713**	**396,169**	**1,919**	**446,655**	**1,819**	**466,761**	**1,683**	**383,859**	**1,985.33**	**434,593**
General Surgery	443	102,734	291,761	414,812	538,072	356,051	348,644	376	407,113	357	424,456	339	343,632	387.63	398,160
Thoracic/Cardiovascular Surgery	118	315,354	438,850	503,121	632,853	473,480	461,273	110	492,540	106	508,200	93	461,760	111.11	490,933
Urology	144	243,914	401,387	494,840	639,912	437,921	451,807	135	479,870	128	501,622	111	440,738	138.08	471,178
Orthopedic Surgery	345	124,663	288,863	393,857	483,330	350,223	326,955	305	367,352	284	388,762	265	329,771	307.93	366,225
Plastic Surgery	125	89,306	270,786	367,860	483,971	340,526	312,268	105	368,579	97	391,901	100	303,282	109.05	357,941
Neurosurgery	64	295,561	349,527	500,056	645,324	409,544	452,444	59	488,423	58	495,201	49	438,021	60.97	474,888

(cont'd on next page)

Table B1: Clinical Payments per Physician, by Specialty, 5 Selected Provinces* Combined, 2010–2011 (cont'd)

	Count	Amount Paid by Quintile				Total Amount Paid		Payments Trimmed at $60,000		Payments Trimmed at $100,000		Tails Trimmed at 10%		Full-Time Equivalent	
		20	40	60	80	Median	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
Ophthalmology	318	178,260	476,423	668,704	950,472	570,030	623,936	284	696,096	272	723,200	250	570,675	302.92	654,997
Otolaryngology	159	220,195	359,571	452,126	555,458	403,208	406,039	148	434,426	141	452,049	126	390,307	149.06	432,969
Obstetrics/Gynecology	462	131,486	259,615	359,484	470,405	313,549	314,187	397	361,581	376	377,225	350	304,714	418.58	346,778
Total Specialties	**6,654**	**137,030**	**236,051**	**330,731**	**467,966**	**285,307**	**317,411**	**5,936**	**353,098**	**5,614**	**368,762**	**5,164**	**303,082**	**5,580.78**	**336,670**
Total Physicians	**15,353**	**100,629**	**194,771**	**276,103**	**381,716**	**235,094**	**260,865**	**13,378**	**295,841**	**12,308**	**314,541**	**11,946**	**249,462**	**13,731.95**	**274,690**

Notes

* Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick and British Columbia.

† Anesthesia specialists were suppressed in the FTE calculations.

Based on gross payments and with no adjustments for overhead expenses.

Radiology and laboratory specialists are not included.

Source

National Physician Database, Canadian Institute for Health Information.

Table B2: Clinical Payments per Physician, by Specialty, Newfoundland and Labrador, 2010–2011

	Count	Amount Paid by Quintile				Total Amount Paid		Payments Trimmed at $60,000		Payments Trimmed at $100,000		Tails Trimmed at 10%		Full-Time Equivalent	
		20	40	60	80	Median	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
Family Medicine	**707**	**78,063**	**177,444**	**234,554**	**319,153**	**211,632**	**202,453**	**587**	**251,520**	**540**	**266,474**	**567**	**203,355**	**687.52**	**217,628**
Medical Specialties	**387**	**99,427**	**248,027**	**319,475**	**443,775**	**292,815**	**281,450**	**329**	**340,927**	**309**	**357,984**	**317**	**283,048**	**350.84**	**258,996**
Internal Medicine	128	77,590	283,601	350,528	528,177	341,237	314,883	107	404,138	101	423,665	104	325,086	156.53	279,041
Neurology	17	62,644	198,407	261,051	317,752	236,870	240,974	15	266,095	13	297,561	15	228,756	15.49	259,960
Psychiatry	79	137,479	228,168	268,785	330,330	241,991	249,694	72	263,093	68	274,109	65	239,575	90.58	211,054
Pediatrics	82	31,563	176,805	262,759	335,296	213,427	220,703	62	276,697	57	293,363	68	199,610	72.67	240,829
Dermatology	10	428,399	542,846	664,213	808,153	654,273	601,437	10	654,273	10	654,273	8	610,903	15.57	420,214
Physical Medicine	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Anesthesia	71	124,127	306,130	367,873	465,904	316,244	350,012	63	353,809	60	367,580	57	323,734	†	†
Surgical Specialties	**183**	**109,905**	**322,256**	**432,118**	**550,636**	**370,764**	**357,720**	**155**	**434,092**	**148**	**451,017**	**155**	**367,221**	**182.08**	**372,637**
General Surgery	57	21,373	181,270	306,996	455,507	270,651	253,719	42	361,815	40	376,278	47	253,514	46.86	329,217
Thoracic/Cardiovascular Surgery	7	451,645	520,054	632,853	658,711	578,568	615,812	6	666,783	6	666,783	7	578,568	8.89	455,565
Urology	9	419,610	486,936	534,140	601,077	502,848	494,840	9	502,848	9	502,848	9	502,848	9.47	477,891
Orthopedic Surgery	23	282,686	407,136	483,761	523,377	433,356	417,471	22	452,631	22	452,631	19	427,096	25.74	387,225
Plastic Surgery	5	393,680	462,548	527,478	607,445	496,556	480,528	5	496,556	5	496,556	5	496,556	7.89	314,674
Neurosurgery	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ophthalmology	21	81,420	437,266	556,547	779,590	498,246	501,635	18	575,230	16	637,179	17	488,514	16.03	652,724
Otolaryngology	15	283,849	435,876	521,698	749,490	481,302	474,258	14	513,715	14	513,715	13	490,637	17.52	412,074
Obstetrics/Gynecology	46	83,906	273,329	337,005	465,048	298,140	322,479	39	348,074	36	370,711	38	293,366	49.68	276,056
Total Specialties	**570**	**101,543**	**258,925**	**343,107**	**486,770**	**317,841**	**300,256**	**484**	**370,763**	**457**	**388,113**	**472**	**310,690**	**532.92**	**297,823**
Total Physicians	**1,277**	**85,444**	**198,638**	**282,686**	**391,248**	**259,039**	**242,100**	**1,071**	**305,408**	**997**	**322,230**	**1,039**	**252,115**	**1,220.44**	**252,646**

Notes

* Data was suppressed when physician counts were between 1 and 4. Data is not included in column totals.

† Anesthesia specialists were suppressed in the FTE calculations.

Based on gross payments and with no adjustments for overhead expenses.

Radiology and laboratory specialists are not included.

Source

National Physician Database, Canadian Institute for Health Information.

Table B3: Clinical Payments per Physician, by Specialty, Prince Edward Island, 2010–2011

	Count	Amount Paid by Quintile				Total Amount Paid		Payments Trimmed at $60,000		Payments Trimmed at $100,000		Tails Trimmed at 10%		Full-Time Equivalent	
		20	40	60	80	Median	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
Family Medicine	**181**	**27,231**	**151,787**	**257,289**	**324,215**	**204,473**	**210,775**	**131**	**274,887**	**117**	**298,768**	**145**	**189,453**	**170.56**	**216,989**
Medical Specialties	**78**	**10,064**	**269,893**	**338,687**	**414,605**	**264,688**	**304,191**	**56**	**365,829**	**55**	**371,142**	**66**	**256,968**	**70.26**	**239,153**
Internal Medicine	30	6,092	218,033	412,923	503,795	289,633	371,246	19	452,684	19	452,684	24	277,383	30.22	287,525
Neurology	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Psychiatry	17	188,191	277,474	307,618	350,384	299,897	299,807	17	299,897	16	314,042	15	290,089	22.22	229,444
Pediatrics	16	6,414	11,762	276,330	341,195	188,476	256,316	9	330,157	9	330,157	14	181,794	17.82	169,226
Dermatology	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Physical Medicine	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Anesthesia	15	13,161	294,613	336,370	390,672	256,186	324,415	11	346,885	11	346,885	13	262,019	†	†
Surgical Specialties	**49**	**24,942**	**175,754**	**410,232**	**482,899**	**299,163**	**349,862**	**27**	**411,352**	**26**	**424,789**	**45**	**298,993**	**38.31**	**382,641**
General Surgery	18	7,678	102,561	176,960	444,749	218,190	128,958	12	318,290	11	341,589	16	204,076	10.40	377,637
Thoracic/Cardiovascular Surgery	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	n/a	n/a
Urology	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Orthopedic Surgery	9	7,767	26,469	349,862	522,730	224,517	36,501	*	*	*	*	9	224,517	5.52	366,060
Plastic Surgery	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Neurosurgery	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	n/a	n/a
Ophthalmology	6	346,851	366,015	513,113	720,107	578,265	439,564	6	578,265	6	578,265	6	578,265	4.84	716,858
Otolaryngology	5	12,962	206,924	395,342	480,319	275,094	388,906	*	*	*	*	5	275,094	3.36	409,366
Obstetrics/Gynecology	11	175,754	439,706	449,941	456,444	351,440	449,373	9	424,160	9	424,160	9	369,304	14.19	272,434
Total Specialties	**127**	**10,402**	**228,091**	**349,862**	**449,941**	**277,989**	**324,258**	**83**	**380,638**	**81**	**388,362**	**111**	**274,005**	**108.57**	**289,784**
Total Physicians	**308**	**21,165**	**173,047**	**286,906**	**384,712**	**234,787**	**237,752**	**214**	**315,902**	**198**	**335,420**	**256**	**226,114**	**279.13**	**245,303**

Notes

* Data was suppressed when physician counts were between 1 and 4. Data is not included in column totals.

† Anesthesia specialists were suppressed in the FTE calculations.

Based on gross payments and with no adjustments for overhead expenses.

Radiology and laboratory specialists are not included.

Source

National Physician Database, Canadian Institute for Health Information.

Table B4: Clinical Payments per Physician, by Specialty, Nova Scotia, 2010–2011

	Count	Amount Paid by Quintile				Total Amount Paid		Payments Trimmed at $60,000		Payments Trimmed at $100,000		Tails Trimmed at 10%		Full-Time Equivalent	
		20	40	60	80	Median	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
Family Medicine	**1,437**	**41,949**	**114,869**	**198,653**	**286,719**	**174,500**	**157,769**	**1,067**	**225,563**	**911**	**250,722**	**1,152**	**162,151**	**1,066.54**	**235,113**
Medical Specialties	**902**	**151,317**	**171,904**	**214,149**	**288,661**	**217,933**	**191,285**	**797**	**243,921**	**775**	**248,709**	**744**	**202,253**	**625.43**	**245,149**
Internal Medicine	304	153,248	173,689	209,217	300,856	225,324	186,986	261	258,736	257	261,613	244	206,500	238.68	286,988
Neurology	31	152,551	167,712	182,682	224,113	232,634	169,247	28	253,467	27	260,208	25	198,214	31.33	230,183
Psychiatry	191	165,333	200,402	218,919	251,411	211,487	212,553	175	228,065	168	234,552	153	204,595	181.93	222,031
Pediatrics	168	68,854	150,586	162,285	208,109	163,074	152,730	135	200,578	134	201,561	152	136,702	144.41	189,713
Dermatology	18	201,078	434,941	468,821	535,869	395,398	452,262	18	395,398	17	413,985	16	398,921	13.89	512,394
Physical Medicine	14	153,252	174,385	186,344	289,934	193,277	174,529	13	205,811	12	217,764	12	193,898	15.19	178,135
Anesthesia	176	153,446	200,725	270,379	316,482	245,749	236,972	167	257,461	160	265,155	142	241,856	†	†
Surgical Specialties	**394**	**87,673**	**274,279**	**377,637**	**484,402**	**332,071**	**324,806**	**337**	**385,539**	**310**	**411,654**	**329**	**314,600**	**326.47**	**400,760**
General Surgery	84	87,045	252,229	349,106	435,613	292,978	289,488	71	342,663	64	371,120	68	280,280	66.51	370,022
Thoracic/Cardiovascular Surgery	22	268,180	329,359	438,850	486,616	372,567	391,760	20	407,521	20	407,521	18	379,070	18.72	437,846
Urology	20	255,320	421,926	490,242	736,666	492,382	443,388	20	492,382	20	492,382	16	480,677	21.24	463,637
Orthopedic Surgery	49	87,045	325,183	419,337	468,209	319,642	370,725	44	353,392	39	387,539	41	322,227	48.04	326,030
Plastic Surgery	16	87,045	260,464	393,202	484,076	305,505	332,423	13	374,008	12	397,922	14	298,093	13.60	359,417
Neurosurgery	17	295,561	295,561	332,615	348,762	312,976	311,293	17	312,976	17	312,976	15	317,489	15.09	352,591
Ophthalmology	67	91,948	276,083	541,506	731,455	445,875	380,971	58	512,472	52	561,774	55	403,632	49.38	604,974
Otolaryngology	34	153,064	300,328	448,319	553,351	364,311	387,954	31	398,100	28	431,431	28	364,913	27.53	449,930
Obstetrics/Gynecology	85	21,458	181,773	298,913	381,501	235,887	236,343	63	314,336	58	333,810	74	207,648	66.36	302,145
Total Specialties	**1,296**	**145,894**	**181,597**	**249,343**	**371,747**	**252,632**	**210,390**	**1,134**	**286,007**	**1,085**	**295,265**	**1,073**	**236,700**	**951.90**	**298,518**
Total Physicians	**2,733**	**63,031**	**158,143**	**221,298**	**319,570**	**211,551**	**186,986**	**2,201**	**256,705**	**1,996**	**274,935**	**2,225**	**198,102**	**2,018.44**	**265,015**

Notes

† Anesthesia specialists were suppressed in the FTE calculations.

Based on gross payments and with no adjustments for overhead expenses.

Radiology and laboratory specialists are not included.

Source

National Physician Database, Canadian Institute for Health Information.

Table B5: Clinical Payments per Physician, by Specialty, New Brunswick, 2010–2011

	Count	Amount Paid by Quintile				Total Amount Paid		Payments Trimmed at $60,000		Payments Trimmed at $100,000		Tails Trimmed at 10%		Full-Time Equivalent	
		20	40	60	80	Median	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
Family Medicine	**836**	**131,250**	**206,693**	**268,030**	**342,054**	**246,072**	**233,958**	**757**	**269,273**	**707**	**282,732**	**670**	**237,951**	**821.47**	**250,425**
Medical Specialties	**463**	**105,975**	**248,917**	**302,304**	**378,785**	**276,505**	**277,453**	**398**	**318,594**	**376**	**332,294**	**377**	**271,427**	**362.17**	**290,521**
Internal Medicine	165	138,832	275,087	370,732	512,073	330,215	323,895	144	375,631	137	390,474	133	321,009	165.89	328,444
Neurology	16	170,671	290,368	323,924	375,921	288,528	296,530	15	307,728	14	323,538	14	291,700	22.01	209,743
Psychiatry	89	133,940	237,874	279,564	331,477	240,314	257,813	81	261,413	76	273,327	73	239,995	83.74	255,409
Pediatrics	75	17,888	162,918	287,972	342,307	220,114	267,764	51	315,994	50	320,361	61	204,317	63.14	261,459
Dermatology	12	267,515	349,094	512,397	549,793	418,808	431,194	12	418,808	11	448,851	10	414,666	10.64	472,340
Physical Medicine	12	259,835	261,141	276,278	288,257	266,164	271,699	12	266,164	12	266,164	10	273,542	16.75	190,684
Anesthesia	94	102,587	241,564	290,199	335,725	242,593	266,765	83	272,092	76	289,420	76	245,855	†	†
Surgical Specialties	**293**	**80,300**	**296,286**	**394,405**	**512,950**	**347,092**	**357,185**	**239**	**421,423**	**227**	**439,441**	**243**	**344,963**	**238.46**	**426,478**
General Surgery	64	31,498	223,538	354,640	483,660	285,854	313,945	48	375,681	44	402,134	52	271,334	44.67	409,551
Thoracic/Cardiovascular Surgery	16	296,286	374,338	484,203	590,328	404,244	404,355	14	457,060	14	457,060	14	413,274	13.36	484,124
Urology	21	331,951	411,467	475,354	554,504	440,339	445,300	20	460,419	20	460,419	17	445,554	19.08	484,650
Orthopedic Surgery	47	25,679	263,318	375,210	445,088	276,768	312,625	35	366,595	34	375,519	39	273,879	35.05	371,130
Plastic Surgery	17	197,534	267,421	336,937	478,769	296,656	312,120	14	356,119	14	356,119	15	298,943	14.00	360,225
Neurosurgery	10	546,132	599,482	645,942	647,712	565,487	645,458	10	565,487	9	617,728	8	609,817	10.85	521,186
Ophthalmology	29	178,260	503,586	793,028	1,074,262	665,019	725,858	24	798,618	24	798,618	25	652,203	32.24	598,187
Otolaryngology	22	200,796	254,391	393,139	482,882	348,981	356,111	20	382,799	19	398,121	18	340,759	18.74	409,690
Obstetrics/Gynecology	67	63,094	200,936	347,106	394,735	254,016	286,425	54	310,851	49	334,859	55	252,251	50.47	337,212
Total Specialties	**756**	**98,617**	**260,054**	**333,428**	**447,505**	**303,862**	**293,468**	**637**	**357,175**	**603**	**372,630**	**620**	**300,248**	**600.63**	**344,498**
Total Physicians	**1,592**	**118,097**	**225,427**	**297,819**	**389,609**	**273,515**	**261,950**	**1,394**	**309,441**	**1,310**	**324,112**	**1,290**	**267,892**	**1,422.10**	**290,157**

Notes

† Anesthesia specialists were suppressed in the FTE calculations.

Based on gross payments and with no adjustments for overhead expenses.

Radiology and laboratory specialists are not included.

Source

National Physician Database, Canadian Institute for Health Information.

Table B6: Clinical Payments per Physician, by Specialty, British Columbia, 2010–2011

	Count	Amount Paid by Quintile				Total Amount Paid		Payments Trimmed at $60,000		Payments Trimmed at $100,000		Tails Trimmed at 10%		Full-Time Equivalent	
		20	40	60	80	Median	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
Family Medicine	**5,627**	**94,908**	**173,762**	**245,206**	**332,610**	**222,150**	**208,625**	**4,912**	**250,784**	**4,416**	**269,739**	**4,503**	**212,007**	**5,405.08**	**231,271**
Medical Specialties	**2,728**	**123,090**	**223,888**	**308,191**	**421,446**	**289,783**	**266,072**	**2,457**	**319,052**	**2,296**	**335,826**	**2,188**	**276,325**	**2,186.75**	**297,181**
Internal Medicine	959	130,873	261,734	341,645	541,365	348,526	306,201	858	386,722	813	403,645	769	322,802	977.15	342,052
Neurology	112	101,233	185,487	294,071	411,600	259,704	241,363	98	292,400	90	311,682	90	249,399	102.02	285,109
Psychiatry	727	111,631	186,046	248,916	328,333	226,786	216,101	660	247,030	600	263,725	583	218,335	671.28	245,611
Pediatrics	330	129,947	221,776	284,054	391,953	267,767	247,800	299	293,533	282	306,453	264	255,920	322.27	274,190
Dermatology	63	118,997	234,603	366,943	513,048	330,070	302,640	56	368,129	52	390,365	51	313,234	63.48	327,574
Physical Medicine	60	98,024	140,664	209,185	314,477	208,434	181,297	52	237,846	48	250,862	48	191,120	50.55	247,399
Anesthesia	477	158,074	266,132	342,114	424,962	294,899	313,748	434	321,792	411	335,393	383	297,434	†	†
Surgical Specialties	**1,294**	**168,863**	**336,568**	**455,280**	**592,442**	**423,313**	**397,454**	**1,163**	**468,184**	**1,102**	**489,720**	**1,042**	**407,980**	**1,200.01**	**456,469**
General Surgery	230	188,027	355,321	480,446	581,590	400,345	419,101	206	444,228	199	457,078	184	398,076	219.19	420,089
Thoracic/Cardiovascular Surgery	75	338,042	445,263	540,521	643,029	477,776	483,896	71	503,264	67	528,680	61	487,382	70.14	510,882
Urology	94	177,563	364,344	498,953	659,605	440,849	421,706	86	479,078	79	514,252	76	419,198	88.29	469,360
Orthopedic Surgery	220	150,184	277,193	379,156	483,697	327,788	330,415	201	356,791	183	384,418	176	323,669	193.58	372,525
Plastic Surgery	88	82,443	242,859	365,622	476,467	302,494	340,704	73	361,093	66	390,310	72	291,347	73.56	361,874
Neurosurgery	37	289,118	413,092	530,472	640,525	485,904	452,718	32	557,468	32	557,468	31	461,769	35.03	513,230
Ophthalmology	201	190,132	518,942	749,078	1,026,760	673,233	611,598	180	749,432	174	772,491	161	622,593	200.43	675,147
Otolaryngology	87	233,446	359,571	450,382	540,736	412,405	412,699	81	441,155	77	460,300	71	397,803	81.91	438,032
Obstetrics/Gynecology	262	154,706	274,059	399,057	509,487	345,437	332,067	233	384,160	225	394,936	210	331,144	237.88	380,463
Total Specialties	**4,022**	**130,614**	**246,084**	**343,947**	**489,608**	**332,744**	**299,173**	**3,620**	**366,963**	**3,398**	**385,735**	**3,230**	**318,797**	**3,386.76**	**353,620**
Total Physicians	**9,649**	**105,326**	**196,615**	**281,689**	**391,284**	**268,249**	**239,113**	**8,532**	**300,077**	**7,814**	**320,181**	**7,733**	**256,612**	**8,791.84**	**278,402**

Notes

† Anesthesia specialists were suppressed in the FTE calculations.

Based on gross payments and with no adjustments for overhead expenses.

Radiology and laboratory specialists are not included.

Source

National Physician Database, Canadian Institute for Health Information.

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1. Canadian Institute for Health Information. *National Health Expenditure Trends, 1975 to 2014*. Ottawa, ON: CIHI; 2014.
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Production of this document is made possible by financial contributions from Health Canada and provincial and territorial governments. The views expressed herein do not necessarily represent the views of Health Canada or any provincial or territorial government.

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ISBN 978-1-77109-348-4 (PDF)

© 2015 Canadian Institute for Health Information

How to cite this document:
Canadian Institute for Health Information. *Approaches for Calculating Average Clinical Payments per Physician Using Detailed Alternative Payment Data*. Ottawa, ON: CIHI; 2015.

Cette publication est aussi disponible en français sous le titre *Méthodes de calcul des paiements cliniques moyens par médecin à l'aide des données détaillées sur les autres modes de paiement*.
ISBN 978-1-77109-349-1 (PDF)

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