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Background

Physician Services Benefit Rate (PSBR) is one of the indicators among the indicator suite produced from the National Physician Database (NPDB). The NPDB contains data on the demographic characteristics and activity levels of fee-for-service physicians. Information on activity levels includes total payments, total services, average payment per physician and full-time equivalent physician counts. The Canadian Institute for Health Information (CIHI) works with the provincial and territorial ministries of health to also include data on clinical activities remunerated under alternative reimbursement plans (such as salaries, contracts and sessional fees) to provide comprehensive information on total remuneration to Canada's physicians.

The NPDB is used by governments, professional associations, consulting firms, researchers and the media for medical human resources planning and utilization analysis. The establishment of the NPDB was approved in 1987 by the Conference of Deputy Ministers of Health upon the recommendation of the Advisory Committee on Health Human Resources.

On August 1, 1995, the NPDB was transferred to CIHI from Health Canada. The Advisory Group on Physician Databases — with representation from provincial/territorial ministries of health and medical associations, Health Canada, the Royal College of Physicians and Surgeons of Canada, the College of Family Physicians of Canada, the Association of Faculties of Medicine of Canada and the physician research community — advises CIHI on data quality, methodology and product development matters relating to the NPDB and Scott's Medical Database (formerly the Southam Medical Database).

Previously, PSBR information was published as a report. To facilitate users' analysis, the data tables are now being produced separately, in an Excel file. The current document contains methodological information only.

About the PSBR

The PSBR indicator enables interprovincial comparisons of fees paid for physicians' services. It compares fees for 10 service groupings, comprising most fee-for-service payments under the Canadian medicare system. Benefit indices are calculated for family medicine and 16 physician specialties. Previously, results were calculated for family medicine and 17 specialties; starting with the 2005–2006 analysis, anesthesia's results are suppressed due to uncertainties about the interprovincial comparability of the data, specifically service counts. CIHI is currently investigating methods to resolve the issues of comparability of this data and intends to reintroduce anesthesia in the future.

The PSBR indicator provides a means to standardize expenditure data from each province for differences in fee levels in order to more appropriately measure real differences in the utilization of physicians' services. PSBR results are being used by provincial governments and medical associations in the negotiation of physician fees.

The PSBR is 1 of 4 fee-for-service indicators that uses data from the NPDB, which is maintained by CIHI. The other indicators are the National Grouping System, the average payment per physician and physician full-time equivalence.

The objectives of the PSBR, as determined by federal, provincial and territorial stakeholder groups, are to

- Provide relevant information to inform fee negotiations between provinces and medical associations by comparing relative levels of fees between provinces and among specialties within provinces;
- Provide indices to facilitate the standardization of provincial fee levels to produce interprovincial comparisons of the utilization of physician services;
- Provide indices with an acceptable degree of accuracy (recognizing that absolute precision is seldom possible in aggregate price indices); and
- Provide an appropriate level of detail, consistent with the objectives of relevancy and accuracy.

The PSBR indicator is not intended to measure price changes through time or changes to physician income. Comparing 2015–2016 results with those of previous PSBR analyses should not be attempted.

Methodological changes

In 2010–2011, the PSBR indicator was reviewed by a group of technical experts. This review was led by the Hay Group Health Care Consulting and Health Intelligence Inc. and supported by a technical working group and CIHI's Advisory Group on Physician Databases. One of the recommendations from the review was that CIHI modify the PSBR methodology to reduce the frequency of missing values (by collapsing services and revising the trimming rules) and modify the approach to imputing values where data is not available.

Applying this recommendation means that the following methodological changes have been implemented, starting with the 2012–2013 analysis:

- **Collapsing categories:** Within certain National Grouping System (NGS) strata, categories are collapsed to increase the likelihood that a cell will be populated across all jurisdictions and to reduce the instances of missing cell values. The following categories are collapsed:
  - Consultations and major assessments — These are reported as 1 category, but within the category, the information will now be collapsed (summed) prior to any calculations being performed.
  - Other assessments
- **Imputing missing values:** It is recommended that CIHI continue to impute at the NGS strata level only and where there are more than 100 services for the specialty. In the past, this was done using the national average. Now, the imputation will use the *within-province average* first; if no within-province average is available, then the national average will be used.
  - For surgical and medical specialists, impute using the *within-province medical/surgical specialist average cost per service* for the NGS stratum.
    - If a within-province value cannot be calculated, use the national average cost per service for the specialty and NGS stratum.
  - Use the national average cost per service by NGS stratum for family medicine physicians.

Imputed values are now shown in the tables and are italicized.

Data sources and collection

NPDB data

Data is derived from physician fee-for-service claims submitted by provincial medical insurance programs to CIHI. The claims data and associated physician and patient demographic data are submitted in 5 files, listed in Table 1. Data files are usually received within 6 months of the end of the fiscal quarter to which the data corresponds. Any files that do not meet appropriate layouts, as defined in the *NPDB Data Submission Specifications Manual*, are returned for correction and subsequent resubmission.

Table 1 Files submitted

Title	Description
25 File	Dental services and other non-physician services file (not submitted by all provinces)
30 File	Reciprocal billing file*
35 File	Physician characteristics file
50 File	Utilization file (by fee code, unique physician identifier [UPI], sex and age group of patient)
55 File	Changes to UPI file

Note
* 30 File data is not applicable to the province of Quebec.

In addition to the NPDB data files described above, CIHI gathers annual, physician-level or aggregate-level alternative payment information through a variety of information sources, including provincial representatives of CIHI's Advisory Group on Physician Databases.

For a complete description of NPDB record layouts, please see the *NPDB Data Submission Specifications Manual* available at www.cihi.ca. For further information regarding the NPDB, including alternative payments, please contact the Program Lead, NPDB, CIHI (physicians@cihi.ca).

Physician Services Benefit Rate results

The PSBR results are calculated using data from the 50 File (utilization file) by fee code, unique physician identifier (UPI), sex and age group of patients. The utilization file contains direct payments to physicians for fee-for-service claims covered by the provincial medical care plans. Services by laboratories and diagnostic facilities as well as claims processed through the reciprocal billing system are not included in PSBR calculations.

Type of data: Date of service versus date of payment

Utilization data files are submitted on a date-of-payment basis for Newfoundland and Labrador, Manitoba and Saskatchewan, and on a date-of-service basis for Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Alberta and British Columbia. Provinces submitting on a date-of-service basis wait 6 months or until 98% of services are captured before submitting data files for processing. Provinces submitting on a date-of-payment basis submit files immediately following the end of the fiscal quarter. Please see Table 2 for a breakdown by province of the type of data file submission.

Table 2 NPDB file submission: Date of service (DOS) versus date of payment (DOP), 2015–2016

Province	Submission
N.L.	DOP
P.E.I.	DOS
N.S.	DOS
N.B.	DOS
Que.	DOS
Ont.	DOS
Man.	DOP
Sask.	DOP
Alta.	DOS
B.C.	DOS

Type of data: Billing versus payment data

Billing data reflects the full amount the physician billed the provincial medical services plan for a particular fee code item. Payment data reflects what was actually paid to the physician. The amount paid would be the billed amount less any adjustments applied due to threshold values being met, income capping or clawbacks. All provinces, except Quebec, submit payment data.

Payments related to Ontario's fee codes starting with the letter J, X or Y and ending with the letter B were excluded from this publication in previous years because the payments were typically not paid directly to the physician. Starting in 2005–2006, services and payments for these fee codes are included in PSBR calculations.

Payment mode: Level of fee-for-service coverage

The PSBR indicator is based on fee-for-service billing and payment information only. A variety of alternative forms of payment, such as salary and sessional payments, are commonly used across provinces. Alternative forms of reimbursement are currently not submitted comprehensively to the NPDB and therefore are not included in the statistics presented in this analysis.

Each province negotiates with its physician group whether a service should be paid under a fee-for-service plan payment or an alternative plan payment. Thus 1 province may pay for a service through the fee-for-service plan, whereas another province may pay for the same service within an alternative plan that would not be captured in this report. In addition, jurisdictions may vary with respect to how alternative payments are allocated to physicians. For example, alternative payments may represent a relatively small percentage of income for most physicians in one province, while in another province some physicians might be paid primarily through alternative plans, with others paid primarily through fee-for-service arrangements.

The PSBR calculations are based on fee-for-service payments; all other payment sources are excluded. Among the excluded payment categories are salary and sessional payments, rural retention premiums, workers' compensation board payments, insurance board payments and midwife referral claims.

Data quality

Error/validation routines

The files submitted to CIHI are from provincial medical care plan administrative systems; edit checks are conducted by the jurisdiction on the data prior to processing the NPDB files. All data files received by CIHI are subsequently processed through NPDB error/validation routines. The error/validation routines are limited in scope because the data cannot be confirmed against the source. Error/validation routines include reviewing the total record counts, service counts and dollar amounts for each file, checking each value against acceptable values, checking for invalid fee codes, checking for UPI numbers in illogical formats and conducting logical reviews of the processed data. Any files that do not pass through the error/validation routines are returned to the data providers for correction and subsequent resubmission.

In addition, the PSBR data is validated against previous years' data and against the data in CIHI's annual NPDB reports.

Data definitions

Physician services benefit rates

The data values in the data tables are average fees, in dollars, for physician services within each of the 10 provinces. The fee-for-service benefit rate estimates presented are based on simple cost per service calculations (i.e., total payments divided by total number of services). As such, the benefit rate estimates reflect average fees paid to physicians. Benefit rates are reported for a variety of clinical service areas (or strata).

There are a number of differences between the benefit rate estimates presented in the PSBR data tables and the cost per service information reported in the National Physician Database Data Release. The most notable difference is that the PSBR methodologies use national weights to calculate provincial benefit rate estimates. The use of national weights is explained in the Computations section, below.

Province of practice

The province of practice is the province where the physician is registered and receives payment from the provincial medical care plan. Physicians may practise in more than 1 province in a given fiscal year. For example, the physician may move from 1 province to another during the fiscal year, or he or she may provide services in 2 provinces on a regular basis (e.g., a physician providing services in provincial border areas such as Ottawa–Gatineau, which straddles the Ontario–Quebec border). This can result in the double counting of physicians (except at the national level, where physician counts are not based on the province of practice).

Specialty

Physician specialty designations in the NPDB are assigned by the provincial medical care plans and grouped within the NPDB to a national equivalent. Of the 2 specialties — latest acquired certified specialty and plan payment specialty — the latter is used for the purposes of this analysis.

Internal medicine includes subspecialties such as cardiology, gastroenterology, hematology, rheumatology and medical oncology. Starting this year, the 2 internal medicine subspecialties cardiology and gastroenterology will be reported. Data for these subspecialties is still included in internal medicine. Psychiatry includes neuropsychiatry. Specialists in the double specialty of ophthalmology/otolaryngology are included with ophthalmologists.

In some instances, jurisdictions have a unique way of grouping particular specialists. These unique groupings include the following:

- Nova Scotia, Quebec and British Columbia report data for public health specialists with family medicine.
- In Newfoundland and Labrador, Prince Edward Island, New Brunswick, Saskatchewan and British Columbia, non-certified specialists are reported under their respective specialties. All other jurisdictions report them with family medicine.

For a complete listing of the specialty designations and their groupings, please see Appendix A.

The PSBR companion data tables present weighted fee indices for family medicine and 16 specialties (Table 3). All specialties except anesthesia, imaging and pathology are included.

Table 3 Specialties reported on by the Physician Services Benefit Rate indicator

Family medicine	Medical specialties	Surgical specialties
Family medicine	Internal medicine	General surgery
	Cardiology	Thoracic and cardiovascular surgery
	Gastroenterology	Urology
	Neurology	Orthopedic surgery
	Psychiatry	Plastic surgery
	Pediatrics	Neurosurgery
	Dermatology	Ophthalmology
	Physical medicine	Otolaryngology
	Anesthesia	Obstetrics and gynecology

PSBR strata

Benefit rates are calculated for 96 categories of service where applicable (see the Specialty strata profiles section for more details). The NGS categories are aggregated into 10 logical groupings of services, known as strata, for reporting purposes (see Table 4). The service categories and strata are defined by the NGS used in the NPDB. For more detailed documentation of the NGS categories, please see the National Physician Database Data Release.

Table 4 PSBR strata

Visit services	Other services
Consultations and major assessments	Major surgery
Other assessments	Minor surgery
Hospital care days	Anesthesia
Special calls	Obstetrical services
Psychotherapy/counselling	Diagnostic/therapeutic services

Consultations and major assessments

Consultations requested by other physicians and complete examinations (including eye exams). Surgical specialties in some provinces do not have fees for either consultations or major assessments; therefore, these services are aggregated into 1 stratum for the price comparisons. These 2 NGS strata are combined into 1 line prior to performing any benefit rate calculations, given that not all jurisdictions can provide a location identifier for the service in the NPDB data submission.

Other assessments

Office visits and hospital outpatient or inpatient visits that are not paid at daily rates. Detention fees are also included. These categories are summed to 1 line prior to performing any benefit rate calculations, given that not all jurisdictions can provide a location identifier for the service in the NPDB data submission.

Hospital care days

Services for the daily care of hospital inpatients are usually billed at daily visit rates, but the rates often vary according to the length of stay (e.g., lower fees often apply after 1 month of hospitalization).

Special calls

Emergency visits and home or institutional visits paid at premium rates.

Psychotherapy/counselling

Individual and group psychotherapy and counselling services; benefit rates are calculated for services of 1 half-hour duration.

Major surgery

Services were classified as major or minor surgery in 1988 based on a threshold fee of at least $75 in the Ontario fee schedule that year. In subsequent years, new surgical procedures have been classified as major or minor depending on their classifications in provincial fee schedules.

Minor surgery

See the major surgery definition above.

Anesthesia

Starting in 2005–2006, anesthesia fees for major surgery, minor surgery and diagnostic/therapeutic services are suppressed due to uncertainties about the interprovincial comparability of the data, specifically the service counts. It is planned to have this data available in the future.

Obstetrical services

Normal and Caesarean deliveries, therapeutic abortions and services to the mother in the hospital at the time of delivery (such as induction of labour and repair of lacerations).

Diagnostic/therapeutic services

Procedures of a diagnostic nature, such as allergy testing and electrocardiogram (ECG). Also includes services, such as colonoscopy, that are used for treatment as well as diagnosis.

Unique physician identifier

A unique identifier is created by the province using components of the physician's first and last names (scrambled using an algorithm), date of birth, gender and place of medical doctorate (MD) graduation.

Computations

How are physician services benefit rates calculated?

The purpose of the PSBR is to provide a means of comparing the relative cost per service among provinces; that is, if each physician specialty across the country provided the same mix of services, how would the cost for each specialty in each province differ from a national average?

The PSBR calculation is based on the sum of adjusted payments and services for each service group (NGS code) and National Physician Specialty for a given province and year from the NPDB's NGS (for more information on adjusted payments, please see the section on Data adjustments; for more detailed documentation on the NGS, please see CIHI's National Physician Database Data Release). Therefore, the benefit rates reported in the PSBR 2015–2016 companion data tables are calculated as follows:

Calculate the average cost per service. The average cost per service of the given service group and specialty is calculated for a given province. This is the average price computed as the sum of payments divided by the sum of services.

These average benefit rates are calculated as

$$cb_i = e_i \div q_i$$

where cb_i is the average category benefit rate for category i; and
e and q are expenditure and quantity of services, respectively.

Calculate the national weight values. National weight values are calculated as the service totals, summed over all 10 provinces, within the specialty and stratum. In cases where there are no services for a particular fiscal year, province, specialty and stratum combination, the national services value for that case is replaced by 0. The strata used for this report differ slightly from the NGS strata (for definitions of the strata used in this report, see the PSBR strata section above).

Apply the national weight values to the cost per service. The national weight values are applied to cost per service to compute a weighted average of the province's cost per service (benefit rate) for the entire stratum. This can be interpreted as the average cost per service for a given specialty and stratum that a province would have had if the service distribution among the service groups within the stratum had matched the national average.

Calculate the strata benefit rates. Strata benefit rates for each of 10 defined strata in each province are then calculated by dividing the summed results of the previous step by total services. For each stratum, the median benefit rate represents the mid-point of the provincial benefit rates.

The strata benefit rates are calculated as

$$sb_j = \Sigma_i(cb_i \times wq_i) \div \Sigma_i wq_i$$

where sb_j is the strata benefit rate;
cb_i is the benefit rate from the previous equation for each service group; and
wq_i is the national total of services for each service group in the weighting system designated by w.

If the stratum has no services, we impute the stratum value depending on the specialty:

- For specialists, impute using the within-province medical/surgical specialist average stratum value. If a within-province value cannot be calculated, use the national average stratum value.
- For family medicine physicians, use the national average stratum value.

Calculate the summary benefit rates. The all services benefit rate, all visits benefit rate and all other services benefit rate for a specialty are calculated by multiplying the strata benefit rates by the number of services and dividing the summed result by total services.

The all services benefit rate for a specialty is calculated as

$$Asb = \Sigma_j(sb_j \times sq_j) \div \Sigma_j sq_j$$

where Asb is the all services benefit rate;
sb_j is the strata benefit rate from the previous equation; and
sq_j is the national total of services in the strata, as calculated in the denominator of the previous equation.

Calculate the summary benefit rates for all medical specialties, all surgical specialties and all physicians. The benefit rates for all medical specialties, all surgical specialties and all physicians are calculated as described in the above steps, except that payments and services are computed for the appropriate group of physicians.

How are the indices calculated?

The all services index is the highest level of price comparison in the PSBR analysis. This allows for the comparison of strata benefit rates, by specialty, across jurisdictions. The all services index is a nationally weighted average of the strata benefit rates calculated in the previous section. The result is a provincial value by specialty. These province-specific all services indices are derived by

dividing each province's all services benefit rate by the 10-province all services median benefit rate and then multiplying the result by 100. All services indices are calculated for each specialty, all medical specialties combined, all surgical specialties combined and all physicians.

Service threshold and missing values

The PSBR indicators are calculated for all categories with at least 100 services. If there are fewer than 100 services for a specialty in a province, or no utilization at all, the category is not used in calculating the strata benefit rate for that specialty and province. The threshold of 100 services helps to avoid data errors or unusual values that can have a distorting effect when multiplied by all-province weights to calculate strata prices.

A stratum may be missing for a specific specialty in a province but present for that specialty in all-province weights. In these instances, we impute the stratum value depending on the specialty:

- For specialists, impute using the within-province medical/surgical specialist average stratum value. If a within-province value cannot be calculated, use the national average stratum value.
- For family medicine physicians, use the national average stratum value.

All-province weights for such specialty–strata combinations usually represent only a small proportion of services provided by the specialty. Imputed rates for missing strata are italicized in the data tables. If a specialty does not exist in a province, no benefit rate is calculated for that province–specialty combination, and all-province comparisons are based on the provinces in which the specialty is present.

Annual utilization weights

The PSBR weighting system is based on services provided during the fiscal year for which the rates are calculated. The weighting system changes from year to year. Weights change as a result of a changing mix of services performed by physicians in a specialty and a changing mix of specialty utilization in the case of the all specialties benefit rates. As a result, the PSBR indices are not considered appropriate for measuring price changes over time.

Specialty–strata profiles

Rates are calculated for all strata normally claimed by each specialty. Valid specialty–strata combinations are shown in Table 5. Services for strata that are not normally claimed by particular specialties occasionally appear in the database as a result of patterns of practice that are unique to a minority of provinces or to individual physicians. These inappropriate specialty–strata combinations are excluded.

Table 5 Specialty and PSBR strata combinations used for the calculation of benefit rates

A Family medicine and medical specialties

Stratum	Family medicine	Internal medicine	Neurology	Psychiatry	Pediatrics	Dermatology	Physical medicine	Anesthesia*	All medical specialties
Consultations and major assessments	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Other assessments	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Hospital care days	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Special calls	Yes	Yes	Yes	No	Yes	No	No	No	Yes
Psychotherapy/ counselling	Yes	Yes	No	Yes	Yes	No	No	No	Yes
Major surgery	Yes	No	No	No	No	No	No	No	No
Minor surgery	Yes	No	No	No	No	Yes	No	No	Yes
Anesthesia*	No	No	No	No	No	No	No	No	No
Obstetrical services	Yes	No	No	No	No	No	No	No	No
Diagnostic/ therapeutic services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

B Surgical specialties

Stratum	General surgery	Thoracic/ cardiovascular surgery	Urology	Orthopedic surgery	Plastic surgery	Neurosurgery	Ophthal-mology	Otolaryn-gology	Obstetrics/ gynecology	All surgical specialties
Consultations and major assessments	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other assessments	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hospital care days	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Special calls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Psychotherapy/ counselling	No	No	No	No	No	No	No	No	No	No
Major surgery	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Minor surgery	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Anesthesia*	No	No	No	No	No	No	No	No	No	No
Obstetrical services	No	No	No	No	No	No	No	No	Yes	Yes
Diagnostic/ therapeutic services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note

* Anesthesia services and anesthesia specialists are excluded.

Table 6 presents 4 basic types of information: strata benefit rate (SBR) estimates, median benefit rates (MBRs), national weights (NWs) and all services index (ASI) values.

Table 6 Nationally weighted benefit rates, medians and national weights, by specialty, stratum and province, 2015–2016 — Physician group

Stratum	Province										Median	National weight (000)
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.		
Consultations and major assessments	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
Other assessments	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
Hospital care days	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
Special calls	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
Psychotherapy/ counselling	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
All visits	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
Major surgery	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
Minor surgery	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
Anesthesia	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
Obstetrical services	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
Diagnostic/ therapeutic services	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
All other services	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
All services	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	SBR	MBR	NW
All services index	ASI	ASI	ASI	ASI	ASI	ASI	ASI	ASI	ASI	ASI	—	—

Note
— Not applicable.

Strata benefit rates: SBRs describe average fees, in dollars, for physician services within each of the 10 provinces. SBRs are reported for a variety of clinical service areas (or strata) as well as at the summary levels of all visits, all other services and all services.

Median benefit rates: For each stratum, MBRs represent the mid-point of the province-specific benefit rates. MBR values are derived from the set of province-specific benefit rate values that appear in the columns to the left of the Median column. Readers are cautioned that rounding errors may result in minor differences between reporting years.

National weights: NW values report the 10-province sum of services within the clinical service area (or stratum) corresponding to the line of data being described within the table. The NW values that appear in the tables are used to calculate province-specific all visits, all other services and all services nationally weighted benefit rates.

All services index: Province-specific ASI values are derived by dividing each province's all services benefit rate by the 10-province all services MBR and then multiplying the result by 100. Readers are cautioned that rounding errors may result in minor differences between tables.

Data adjustments

Adjustments are included in expenditure or service counts for certain categories and specialties. These adjustments are intended to improve interprovincial comparability and are detailed in Appendix B. The following situations are of interest when interpreting rates for specific strata.

Premium fees and surcharges

Premium fees and surcharges for after-hours visit services are normally included in the special calls stratum. Adjustments are made in the NGS to capture the full amount paid for premium time services. For example, if a premium fee for a consultation is identified by a distinct fee schedule code, 1 consultation will be subtracted from the consultations and major assessments stratum and its value added to the special calls stratum for every consultation premium fee paid. Premium fees for surgical procedures are added to the amount paid for the procedure.

Add-on fee adjustments

Some provinces permit physicians to claim more than 1 fee for certain types of encounters (such as an assessment fee with a surgical procedure). These situations are treated as separate services in the PSBR. The option to claim for supplementary services in addition to a visit or procedure is considered to be a preamble issue rather than a price issue in the PSBR indicators (see the section Payment schedule preamble differences, below).

Anesthesia

Anesthesia rates are based on average anesthesia payments for services in the major surgery, minor surgery and diagnostic/therapeutic strata. Starting in 2005–2006, anesthesia's results are suppressed due to uncertainties about the interprovincial comparability of the data, specifically the service counts. It is planned to have this data available in the future.

Payment schedule preamble differences

Provincial fee schedules contain preambles that detail billing rules, which are often the subject of government and medical association negotiations. Some preamble rules may place limitations on the frequency of specific services or the conditions under which services are or are not payable. It is beyond the scope of this analysis to measure the effects of all preamble rules on average reimbursement levels.

Provincial holdbacks and clawbacks

A number of provinces implemented holdbacks or clawbacks during the 1990s to ensure physician payments stayed within global budgets. The data submitted by most provinces includes the effects of these temporary adjustments, and the PSBR rates reflect amounts actually paid.

Data limitations

Due to the variation in the role fee for service plays in physician compensation across jurisdictions, comparisons of the benefit rates across jurisdictions should be made with caution.

Data exclusions

Medical services covered by third parties, such as hospital insurance and workers' compensation plans, are not included in this report. The data also excludes certain categories of persons, among them members of the Canadian Armed Forces and the Royal Canadian Mounted Police and inmates of federal penitentiaries who are covered under other public programs (these persons account for less than half of 1% of the total population).

Certain payments made directly by patients are also omitted (e.g., amounts extra-billed or balance-billed by physicians and the costs of plastic surgery for cosmetic purposes).

The data excludes payments made through the reciprocal billing systems as well as payments made to out-of-province or out-of-country physicians not participating in reciprocal billing, such as those from Quebec and the United States.

De-insured and de-listed services

Certain services within each province have been de-insured or de-listed. These services may differ across provinces or from year to year. The impact of these services could explain minor fluctuations over years or minor differences between provinces. For further information on de-insured and de-listed services, please contact the Program Lead, NPDB, CIHI at physicians@cihi.ca.

De-insured services

Services that, at some point in time, were defined as an insured service (covered by a provincial health plan) but are no longer covered.

De-listed services

Services that used to have an individual fee code assigned to them but have since been included in another fee code.

Negative numbers

Negative numbers may appear in the data tables as a result of data adjustments applied by CIHI or because data is submitted to CIHI with negative values. CIHI adjustments are applied to improve comparability across jurisdictions but may also result in negative values. Negative value data submitted to CIHI by data providers may reflect retroactive claims adjustments, payment clawbacks or other accounting practices used within administrative payment systems.

Specialty designations

Provinces are requested to provide 2 types of specialty information on the NPDB files — latest acquired certified specialty and payment plan specialty. The latest acquired certified specialty is the most recently acquired specialty designation from the Royal College of Physicians and Surgeons of Canada, the Collège des médecins du Québec or the College of Family Physicians of Canada. The payment plan specialty may or may not be different from the latest certified specialty and should reflect the specialty area in which the physician provides the majority of his or her services. All provinces report physicians' payment plan specialty and all provinces, except for Newfoundland and Labrador and Prince Edward Island, report physicians' latest acquired certified specialty.

Any physician who practised under more than 1 specialty during the fiscal year was assigned the specialty under which he or she received the majority of his or her payments.

CIHI NGS categories' statistics may vary from provincial statistics because of differences in the way specialties are grouped. For example, CIHI groups neuropsychiatry with psychiatry, whereas Quebec groups it with neurology. CIHI includes electromyography with physical medicine, whereas Quebec does not. The subspecialties that constitute CIHI's internal medicine specialty are reported on individually in the Régie de l'assurance maladie du Québec's annual statistics report. Please see Appendix A for CIHI specialty categories.

Imaging and pathology (laboratory) physicians

Imaging physicians, pathologists and laboratory directors are excluded from this analysis. Payments for imaging and laboratory services performed by a physician who is not a radiologist, pathologist or laboratory director are included. Omitting such payments in all provinces improves comparability.

Privacy and confidentiality

CIHI employs a variety of safeguards to protect the privacy and confidentiality of physician data.

Unique physician identifier

Physician names are not used on the provincial files. Instead, a UPI is generated by the province using components of the physician's name, date of birth, gender and place of MD graduation. The name portion of the UPI is scrambled using an algorithm known only to the provinces. This algorithm is the same across jurisdictions. The UPI helps protect the privacy and confidentiality of the physician and allows for the tracking of the physician throughout his or her career in Canada.

NPDB data access/release policy

CIHI maintains a set of guidelines to safeguard the privacy and confidentiality of data we receive. The document *Privacy Policy on the Collection, Use, Disclosure and Retention of Health Workforce Personal Information and De-Identified Data, 2011* may be obtained from CIHI's website (www.cihi.ca). In compliance with these guidelines, CIHI prevents residual disclosure by implementing cell suppression for cells with counts from 1 to 4. These policies ensure the privacy and confidentiality of all health care providers and recipients.

Products and services

3 types of products are generated from the NPDB: ad hoc requests, publications and special projects. Ad hoc requests are generally short queries that do not require major programming resources. Service counts and dollar amounts by specific fee codes or procedures are the most common forms of ad hoc request. Most ad hoc requests can be handled through standard reports that are generated annually.

The following series of publications, among others, are currently available:

- *Physicians in Canada: Summary Report*
- *National Physician Database Data Release*

For details on publication years and reporting periods covered, please refer to CIHI's website (www.cihi.ca).

Special projects require project planning and the commitment of extra resources. Please contact the Program Lead, NPDB, CIHI (physicians@cihi.ca) for costs associated with these products and services.

Appendix A: NPDB physician specialty categories

Specialty of family medicine

01 Family medicine

- 010 Residency
- 011 General practice
- 012 Family practice
- 013 Community medicine/public health
- 014 Emergency medicine

Medical specialists

02 Internal medicine

- 020 General internal medicine
- 021 Cardiology
- 022 Gastroenterology
- 023 Respiratory medicine
- 024 Endocrinology
- 025 Nephrology
- 026 Hematology
- 027 Rheumatology
- 028 Clinical immunology and allergy
- 030 Oncology
- 031 Geriatrics
- 032 Tropical medicine
- 035 Genetics

04 Neurology

- 040 Neurology and EEG
- 041 Neurology
- 042 EEG

05 Psychiatry

050 Psychiatry and neuropsychiatry

051 Psychiatry

052 Neuropsychiatry

06 Pediatrics

060 Pediatrics

07 Dermatology

065 Dermatology

08 Physical medicine/rehabilitation

070 Physical medicine and rehabilitation

071 Electromyography

09 Anesthesia

075 Anesthesia

Surgical specialists

10 General surgery

080 General surgery

11 Thoracic/cardiovascular surgery

086 Thoracic surgery

087 Cardiovascular surgery

088 Cardiovascular/thoracic surgery

12 Urology

090 Urology

13 Orthopedic surgery

095 Orthopedic surgery

14 Plastic surgery

100 Plastic surgery

15 Neurosurgery

110 Neurosurgery

16 Ophthalmology

115 Ophthalmology

116 Ophthalmology/otolaryngology

17 Otolaryngology

120 Otolaryngology

18 Obstetrics/gynecology

126 Obstetrics

127 Gynecology

128 Obstetrics/gynecology

Note

Although genetics is no longer a subspecialty of internal medicine, it is included in the internal medicine category because the number of physician records assigned to this specialty is relatively small.

Appendix B: Fee code adjustments for services

Not only are provincial and territorial fee schedules different, but periodic changes to definitions, fees or assessment rules make it difficult to compare jurisdictions. In general, visit services and minor procedures have more differences and are less comparable than well-established and distinct major surgical procedures. As a result, CIHI adjusts service counts for certain types of services, visit services and diagnostic/therapeutic procedures to improve the comparability of the data. A description of each adjustment follows.

Adjustment A

Sometimes what would be considered 1 service is billed with more than 1 fee code — for example, when 2 or more surgical procedures are performed at the same time. To minimize the double-counting of services, an Adjustment A is attached to the fee service code (FSC); this excludes the service count for the additional part of the procedure but keeps the payments.

Example

FSC 1 — Pyloroplasty (surgery to widen the lower portion of the stomach, so that stomach contents can empty into the small intestine)

FSC 2 — With suture of bleeding peptic ulcer, additional amount

The service count is retained only for FSC 1, while the payments for FSC 1 and FSC 2 are retained.

Adjustment B

While some types of care, such as setting a broken bone, are clearly comparable, others can be defined very differently in each jurisdiction. Adjustment B is designed to make these variable services more comparable. They include services such as psychotherapy, hospital visits, resuscitation, intensive care, pre- and post-natal care, standby fees and diagnostic or therapeutic tests. CIHI adjusts the service count by dividing the total payment for the FSC by the calculated fee for the standardized service. In other words, CIHI looks at how much was paid for the service and sees how many standard services could be had for that much money. Then it assigns this calculated number of standard services instead of the original count.

These are the Adjustment B criteria:

- Psychotherapy — The average duration for all psychotherapy services is assumed to be 30 minutes, and group therapy sessions comprise 4 persons.
- Allergy tests — Since the number of allergy and hypersensitivity tests differs among jurisdictions, CIHI adjusts the price for allergy test codes across jurisdictions to be the price of 10 single tests.
- Detention — Detention is payable when a physician spends considerable extra time in the treatment of a patient to the exclusion of other work. CIHI assumes the duration of a detention service is a quarter-hour. Service counts are adjusted for jurisdictions that pay for either half an hour or 1 hour.
- Intensive care — The duration of 1 intensive care service or 1 intensive care per diem is assumed to be 1 hour.
- CIHI converts monthly rates to daily rates assuming 20 working days per month.

Adjustment C

This adjustment is used when a fee code is redefined during the year and the definitions apply to different categories — for instance, when laboratory surcharges apply to different procedures. This adjustment allows the services and payments for a specific FSC to be divided between 2 categories.

Adjustment D

This is the same as Adjustment B, except the service counts are revised on the basis of whether they were performed by a GP or other specialist, with a different fee for each.

Example

Fee schedule		Calculated fees	
General practitioner	$14 per 15 minutes	**General practitioner**	$56 per hour
Other specialist	$18 per 15 minutes	**Other specialist**	$72 per hour

Adjustment E

In many jurisdictions, physicians are entitled to premiums or additional fees for visits or procedures provided during off-hours such as evenings, nights, Saturdays, Sundays and statutory holidays, or if the visit or procedure is provided in an emergency. To eliminate double-counting, these premium codes are dropped and the payment for them is added to the primary code for the visit or service.

Example

FSC 1 — Surcharge for a consultation

The special charge for out-of-hours care is subtracted from the primary count, which is under Category 1, Consultations. The subtracted payments are calculated by multiplying the service count of FSC 1 by the fee for a consultation. In CIHI reports, Category 20, Out-of-Hours/Emergency, contains the services and payments for FSC 1 plus the payments removed from Category 1.

Adjustment F

Payment for obstetrical care may be all-inclusive fees (payment for delivery or Caesarean section and for all pre- and post-natal care) or by separate fees for delivery or Caesarean section and fees for associated pre- and post-natal services. To minimize the effect of these changes on comparisons among jurisdictions and over time, all-inclusive fees are separated into pre- and post-natal visits and deliveries or Caesarean sections.

Adjustment H

There are some fee service codes that can only be billed in addition to or when a broad application is described without a listing of specific fee service codes. An example of such a broad application is the body mass index (BMI) surcharge fee service code in some jurisdictions, which can be billed in addition to any surgical fee code; this fee service code is utilized by physicians when operating on patients with a BMI considered to be in the obese or morbidly obese range.

Jurisdiction-specific adjustments

For various reasons, several adjustments to the data are also made that do not apply consistently to each province or territory. For example, premium fees for off-hour visits and procedures are claimed in several jurisdictions. To maintain consistency, the dollar amounts for such premiums are included, but the service counts are dropped to eliminate double-counting of the services.

Special calls adjustment

A special call is an assessment rendered following travel to attend to a patient. This will normally be initiated by someone other than the physician outside a hospital, including visits to a first patient at home, in a nursing home, rest home or other setting. A home visit will usually occur in an emergency or because of the patient's condition.

In Quebec, Atlantic Canada, Alberta and Yukon, a consultation or assessment done normally has a different fee code from one that is a special call. In the other jurisdictions — Ontario, Manitoba, Saskatchewan and B.C. — the same fee code is used in both circumstances, but an extra surcharge with its own fee code is added in the case of a special call. So, for example, in Nova Scotia all the payments and services would fall into the special call stratum, but in Ontario the payments and services would be split between consultations or assessments and special calls. This adjustment moves payments from consultations and assessments to special calls. It also deletes services in consultations and assessments there as a result of special calls.