OMA Ontario Medical Association

The OMA Physician Resources Committee (OHRC) **Report to Council, Understanding Gender Pay Gaps Among Ontario Physicians** (July 2020) was adapted and extended for peer-reviewed publication (September 2021).

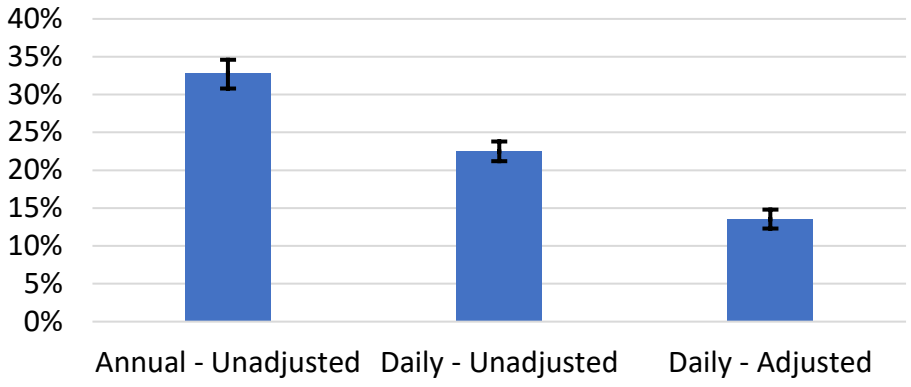
Disparities in Physician Compensation by Gender in Ontario, Canada

This study by the Ontario Medical Association, published in JAMA Network Open (September 2021), set out to determine whether there are unexplained differences in pay for male and female physicians in Ontario, Canada.*

The OMA examined data on fee-for-service billings and non-fee-for-service payments for 31,481 physicians in Ontario over a one-year period from April 1, 2017, to March 31, 2018, covering almost all active physicians practicing in Ontario.

By definition, annual pay depends upon both daily pay and the number of days worked. As illustrated in Figure 1 from the article (reproduced below), on average, women physicians in Ontario were paid 32.8% less during the year of the study. Part of this pay gap was explained by differences in number of days worked, since on average, women billed for services provided on 12.5% fewer days. However, the largest part of the annual gap was attributed to differences in daily pay. On average, women earned 22.5% less than men each workday (shown by the "daily, unadjusted" bar from Figure 1). Or to put it another way, women earned less than 78 cents for each dollar paid to men on a daily basis.

Figure 1. Female-to-Male Gross Clinical Payment Gap in FY 2017, All Physicians



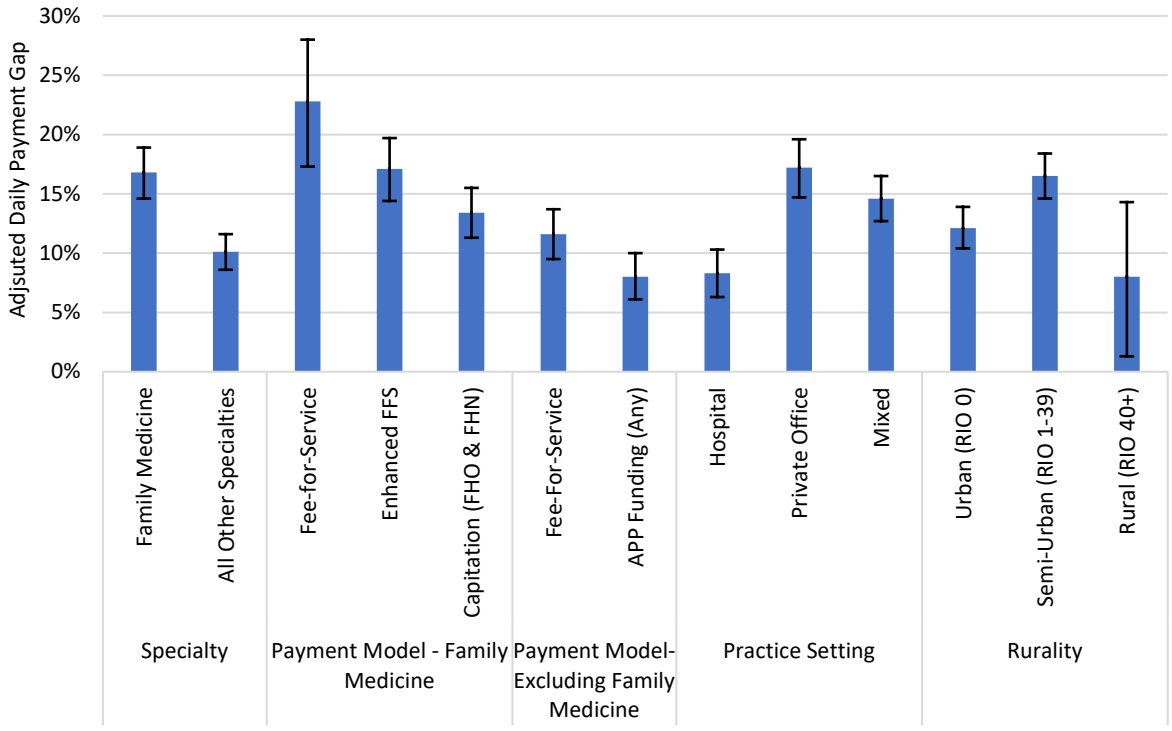
Black error bars represent the 95% confidence interval; Adjusted Daily Payment Gap controls for tenure, specialty, primary care payment model, part-time status, after hours work, holiday work, weekend work, practice setting, academic physician status and rurality.

* Information on physician gender is recorded as either male or female; it is not possible to analyse non-binary gender-based outcomes using the available data.

After accounting for physician specialty, years of experience, practice setting, location, academic status, and the proportion of work done on evenings, weekends, and holidays, the gap narrowed to 13.5% (as shown by the "daily, adjusted" bar in Figure 1). Equivalently, from the perspective of female physicians, it would be necessary to earn 15.6% more than they do currently to reach the level of daily payments of their male colleagues.

The gender pay gap also varies by practice characteristics, as illustrated in Figure 2 from the article (reproduced below). For example, women in Family Medicine experience a larger pay differential (16.8%) than do women in other specialties overall (10.1%). However, the size of the pay gap varies widely among particular specialties, with some surgical specialties having larger pay gaps.

Figure 2. Adjusted Daily Payment Gap by Selected Practice Characteristics



Black error bars represent the 95% confidence interval; Adjusted Daily Payment Gap controls for tenure, specialty, primary care payment model, part-time status, after hours work, holiday work, weekend work, practice setting, academic physician status and rurality.

The situation also varies for physicians depending on their payment model. For example, fee-for-service Family Medicine physicians have a higher daily pay gap (22.8%) than those in capitation models (13.4%).

Practice setting and geography also matter. Hospital-based physicians have a lower pay gap (8.3%) than either office-based physicians (17.2%) or those working in mixed settings (14.6%). Physicians working in semiurban areas have a higher pay gap (16.5%) than either those in urban centres (12.1%) or rural areas (8.0%).

These findings point to the complexity of the gender pay gap and suggest that no single intervention will be adequate to fully address it. As such, the OMA is taking a multipronged approach to address gender equity in physician pay, such as modernizing the fee schedule, introducing novel payment models, and facilitating a fair allocation of pay increases to specialties through relativity. Future research and policy development will build on these findings and include engagement with all relevant stakeholders.

Citation

Steffler M, Chami N, Hill S, Beck G, Cooper SC, Dinniwell R, Newbery S, Simkin S, Chang-Kit B, Wright JG, Kantarevic J, Weir S. Disparities in Physician Compensation by Gender in Ontario, Canada. *JAMA Network Open* 2021;4(9):e2126107. doi:10.1001/jamanetworkopen.2021.26107

Ontario Medical Association

Report to Council: Understanding Gender Pay Gaps Among Ontario Physicians

OHRC Recommendations

OMA Physician Human Resources Committee (OHRC)|July 2020

OMA*Thoughts*

A Thought Leadership initiative by Ontario's doctors

Contents

0.0 Executive Summary

At the OMA Spring Council in May 2019, a motion was proposed and carried, “That the OMA initiate a thorough study of the sources and magnitude of physician-gender pay gaps in Ontario.” The motion was assigned to the OMA Physician Human Resources Committee (OHRC) for examination and analysis, with support from OMA Economics Policy & Research (EPR) staff.

EPR staff conducted a theoretical review, a literature review and original research using OMA’s administrative data holdings. Physician consultation sessions were invaluable to informing the work on the gender pay gap. These sessions included: The Outreach to Women Physicians Committee (OWPC), the Section of Medical Students, Section of Residents, Rural Expert Panel and a handful of leading academic researchers with relevant subject matter expertise.

This work found that, on average, male physicians bill 15.6 per cent more than their female counterparts, after controlling for available practice characteristics and labour market inputs . Substantial variation in the billings gap was observed across Assembly, geography, payment model and practice setting. The differences observed among physician groups are central to understanding how to combat pay inequities.

1.0 Recommendations

After reviewing available evidence and consulting with physician stakeholder groups, the OHRC has developed four policy recommendations to reduce gender disparities among Ontario physicians. It is important to note that success is contingent upon bilateral co-operation with government.

1. OMA Leads Schedule of Benefits Reform

The OMA should take a leadership role to revise the Schedule of Benefits in a way that better reflects the work required to perform each service. Any revisions should be considered through a gender lens to ensure that all physicians are advantaged equally by the changes proposed.

2. OMA Advocates for Pay Equity

The OMA should launch an advocacy campaign directed toward health-system partners (e.g., hospitals, medical schools) to raise awareness about the gender pay/billing gap in medicine. The campaign could promote fair and equitable career advancement in medicine and institutional policies that promote equal pay for equal work.

3. OMA Advocates for Expanding Opportunities for Female Physicians

The OMA should work to expand opportunities for female physicians (e.g., leadership development and networking opportunities) and medical learners (e.g., mentorship opportunities and career planning). The OMA should take steps to ensure female learners are not subjected to a hidden curriculum of inherent bias.

4. OMA Advocates for Improved Benefits for Ontario Physicians

The OMA should advocate for access to benefits and supports similar to those enjoyed by other professionals (e.g., improved parental benefits would lessen financial burden associated with family formation and would benefit both male and female physicians).

2.0 Introduction

Although research on pay equity is plentiful, little is understood about the drivers of earnings inequity in medicine, particularly in Ontario. As the medical profession becomes increasingly gender balanced, the issue of remunerative equity has become an issue of increasing concern to physicians. At the OMA Spring Council in May 2019, a motion was proposed and carried, "That the OMA initiate a thorough study of the sources and magnitude of physician-gender pay gaps in Ontario." The motion was assigned to the OMA Physician Human Resources Committee (OHRC) for examination and analysis, with support from OMA Economics Policy & Research (EPR) staff.

When it comes to exploring pay inequity, physicians are unique because most do not earn a wage or salary. Instead, most physicians bill for the services provided, (usually to the Ontario Health Insurance Plan [OHIP], the province's public insurer). Payments are made at a flat rate regardless of age, gender, or other physician characteristics and circumstances. This presents both a unique challenge and an opportunity. On one hand, a pay gap cannot exist (at least for OHIP-funded services). However, large differences in billings across gender lines are difficult to ignore. It is possible that structural issues, sociological factors and discrimination may be driving a gap in gross clinical payments (a billing gap) and, therefore, a disparity in earnings.

The OMA recognizes that gender issues are multifaceted and complex. The scope of this project allows only a focused examination of gender pay disparities in medicine. Physician consultations were invaluable in helping to define the scope of this research and the features to be included in the study. As a disclaimer, this study was largely limited to the OMA's data holdings; therefore, many topics discussed in consultations were ineligible for inclusion in the study.

The specific research questions addressed in this report include:

i. What is the difference in daily billings between male and female physicians?
ii. How do physician working characteristics vary by gender?
iii. Using a regression framework, what part of the gender pay gap remains unexplained by differences in productive characteristics (i.e., adjusted pay gap)?

3.0 What Do We Know?

What is the gender pay gap?

In simple terms, the male-female earnings gap is the difference between what a typical man and a typical woman earns. However, there are numerous ways of expressing this gap, depending on the purpose of the analysis. The gross earnings gap describes the overall difference between average female to male earnings — a measure that does not consider time spent working or other productive factors. In contrast, an adjusted earnings gap is meant to account for the factors that can justify differentials in pay between men and women. This type of analysis is frequently conducted in terms of hourly wages. However, due to the lack of physician data on overhead and hours of work, we instead compare male and female physicians by reporting a daily billings gap. In this report, we provide information on a gross daily billing gap and an adjusted billing gap, with the latter considering productive factors that can help explain some of the differences observed between males and females. The remaining difference is sometimes referred to as the unexplained gap and is typically of greater concern to policy makers.

Why do women earn less?[1]

Several theoretical explanations exist on why males earn more than their female peers. They can be grouped into demand-side theories, supply-side theories, and market failures.

Demand-side theories

- One set of theories concerns the demand for female labour and asserts that it is lower relative to the demand for male labour, due to discrimination by employers (or customers/patients).
- Employers could be erroneously underestimating the productivity of female labour and therefore demanding less of it. In the case of physicians, patients or colleagues may underestimate the quality or efficiency of care provided by women.
- Statistical or signal theories of discrimination point to employers using information about average female characteristics and applying this to decision-making about individual women.

[1] *A leading Canadian text summarizes many of the theoretical arguments on why women earn less than their male peers. The following arguments are summarized from Labour Market Economics, by Dwayne Benjamin, Morley Gunderson, Thomas Lemieux and W. Craig Riddell, the seventh edition of which was published in 2017.*

- A second theoretical possibility is that referral patterns may negatively influence the demand for female physician labour if physician networks systemically disadvantage these practitioners.

Supply-side theories

- If women are highly concentrated in certain areas of specialty due to systemic discrimination (so-called pink occupations), this can lead to an abundance of qualified labour supply and will push down earnings.
- Women are more likely to leave a job to undertake maternity and child care responsibilities, care for sick family members or follow their spouse to a new job. As a result, female workers may be crowded into the secondary job market, categorized by more precarious and lower-paying work.
- Women may be more risk averse, less aggressive in their bargaining and less confident in their abilities, compared to their male peers. Moreover, the same personality traits that can benefit men may disadvantage women. Qualified women may be overlooked for (or not pursue) promotions.
- Women may be streamed into fields in the education system according to social norms or may be drawn to fields that emphasize people or family over money.

Market failures/ non-competitive market features

- Since female workers may have higher attachment to their household and their partner's work preferences, market theories suggest that firms would choose to pay higher wages to those who could more credibly move in search of new work, i.e., males.
- An employer may also be responding to the discriminatory values of their workers by limiting the entry or advancement of female labour. Workers may use existing power structures, such as those found in male-dominated unions, governments and monopolies to further their own ends.

What evidence of a pay gap exists in the literature?

Pay disparities in Canada — and in Ontario specifically — have been studied extensively. Worker traits that vary across gender lines (e.g., hours of work, tenure) have been shown to have an influence on earnings and can help explain the crude and often-cited differences observed.

Among all workers, the raw (unadjusted) difference between male and female hourly earnings in Ontario was estimated to be 18.6 per cent (in 2014). However, after controlling for age, education, marital status, union status, tenure, industry and occupation, this gap shrunk to 12.4 per cent (Schirle,

2015). Another set of estimates found that the unadjusted gender wage gap in Canada declined from 18.8 per cent to 13.3 per cent, while the adjusted gap fell from 13.5 per cent to 8.4 cent between 1998 to 2018 (Pelletier et al., 2019). This notion of a persistent but shrinking wage gap is reinforced by other studies in Canada (Schirle, 2015; Baker & Drolet, 2010; Moyser,2017; Morissette et al., 2013) and abroad (Mandel & Semyonov, 2017). Recent work from Canada tests different sets of controls to adjust earnings. When controlling for age, education, marital status, child status and province, adjusted wage gaps are actually larger than crude unadjusted comparisons. Adding controls for union coverage, tenure, industry and occupation minimized the size of the gap considerably (Schirle & Moyosoreoluwa, 2020). The body of work from Canada highlights the presence and persistence of a male-female pay gap across all occupations, but comparatively less is known about the male-female gap in physician remuneration.

The gender pay gap among physicians

The remuneration of physicians in Ontario is very different than that of other salaried or hourly workers. Most physicians bill a fee for each service performed (FFS) or receive a capitation payment based on their patient roster. Others belong to Alternate Payment Plans (APPs) and may or may not be required to shadow bill[2]. In either case, work performed generally occurs without an associated time unit (except for surgical procedures). These earnings represent gross income and physicians have to pay overhead expenses out of the revenue received. In theory, such a system ensures that men and women receive the same remuneration for the work completed. However, there is evidence of billings disparities between male and female physicians that may not be explained by time or effort alone. Buys et al. (2018) made use of a cohort analysis to assess payments and clinical activity among demographic groups of Ontario physicians. They found a pay gap that persisted among all physicians, even after controlling for available productive factors. However, no significant gap was found among General Practitioners (GPs). For a large set of operative procedures with an associated time, male surgeons in Ontario experienced a 15 per cent billings premium (per hour worked), even after adjustments. Pay disparities of differing magnitudes were also noted across surgical specialties (Dossa et al., 2019).

Pay gap estimates across jurisdictions are somewhat disparate, possibly owing to differences in data availability, controls chosen and methodology. Studies from a number of international jurisdictions (i.e.,

[2] Shadow billing data are similar to OHIP claims, as they are used to track service provision. However, the full value of the service is not paid to the physician based on the claim.

France, Sweden and Austria) made use of a variety of dissimilar factors, making comparison difficult. However, across studies, the unexplained portion of the pay gap ranged from seven per cent to 15 per cent (Theurl & Winner, 2011; Magnusson, 2016; Dumontet, 2012). Self-reported survey data in the US showed that female hospitalists reported earning less than their male peers, even after productive differences were accounted for (Weaver, 2015) and the same was true for physicians at large (Apaydin et al., 2018). Other studies have been unable to establish a significant pay gap between males and females within specific specialties (Dermody et al., 2018; Holliday et al., 2018; Kapoor et al., 2017). Jena and colleagues (2016) found an eight per cent salary gap (after adjustment) among academic physicians at US public institutions. Evidence from the UK has also established pay gaps under salaried regimes; after controlling for relevant differences, a pay gap of 5.6 per cent was estimated among consultants (Connolly & Holdcroft, 2009).

4.0 What Have We Heard?

In late 2019, OMA staff and OHRC members conducted a series of consultation sessions to better understand barriers faced by women physicians in Ontario. The conversations focused primarily on possible causes and consequences of gender pay disparities in medicine, as well as approaches to study such disparities. Consultations were undertaken with OMA Women, the Section of Medical Students, the Section of Residents, the Rural Expert Panel and a handful of leading academic researchers with relevant subject matter expertise. The feedback was used to inform the OMA's original analysis and may be used to guide future research on gender issues in medicine. Comments received from the consultation sessions are summarized below.

Important considerations when estimating a physician pay gap

- Controlling for some measure of workload or hours of work will be especially important for creating an apples-to-apples comparison between male and female physicians.
- Available measures of workload may not serve as sufficient measures of productivity.
- Referrals have been identified as a potential source of inequality between male and female physicians. The size of the referral network — as well as the composition of that network and the types of the referrals received — are possible determinants of pay. Female physicians may be disadvantaged in this area.

- In defining referral patterns, special care should be taken to ensure that the type of referral is captured and that the propensity of a referral to yield a surgical or procedural billing is identified.
- Gaps in pay may be prevalent among physicians who were not eligible to be included in this study (e.g., those in leadership roles such as Chief, President and Dean), due to lack of available data to study.
- Limited data surrounding research funding, teaching roles and locums may present a challenge for estimating an earnings gap.
- Leaves of absence have the potential to influence earnings beyond the period when the leave is taken. Further, specific leaves of absence, such as parental leave, may look very different for physicians than for other occupations (e.g., they may be shorter in length).
- Changing practice locations may have an impact on a physician's earnings. If there are concerns about female physicians more commonly being the trailing spouse, identifying relocation status may be important for the analysis.
- The Schedule of Benefits may not be entirely free from bias. For example, if services unique to female patients are under-remunerated, this may disproportionately impact female physician earnings if female physicians see more female patients.
- The OMA is studying a billings gap, not an earnings gap. In absolute terms, the billings gap may appear exaggerated, due to the inability to account for overhead in OHIP claims data.
- The fixed nature of overhead may disadvantage female physicians more, if, on average, females work less to offset those costs.
- Analysis should be limited to questions that can be addressed well using the data at the OMA's disposal e.g., Is there a billings gap between male and female physicians in Ontario? If so, how big is it? What are the factors that influence the size of the gap?
- International comparisons may be important to include for context.
- Female physicians may practise differently, e.g., spending more time with patients and therefore earning less when remunerated on an FFS basis.
- Female physicians may receive referrals of more complex cases that require more time to manage.
- Any case-mix adjustment needs to be robust and should adequately capture the time required to care for complex patients.

Medical education and early career

- The concept of a hidden curriculum may be streaming female physicians into areas of practice that may be disconnected from students' interests and abilities.
- The opportunity gap experienced by female physicians is likely an important factor in determining career prospects. Women, especially early in their careers, may face barriers in negotiating salaries (e.g., locum), or may simply have fewer opportunities available to them.

Experiential dimensions

- Qualitative aspects associated with physician practice may be hidden from the researcher. (e.g., understanding the treatment of female physicians in the workforce, quality dimensions, patient satisfaction).
- Social media may have a disproportionately negative effect on female physicians, especially through review sites like RateMDs.com.
- Patient behaviour has been discussed as a driver of pay inequity. For example, if male patients question a female physician more so than a male, this increases the time required to perform a service.
- Cases of harassment may be disproportionately borne by female physicians. This can have negative consequences on a physician's work and personal life.
- The impact of family life was discussed as being particularly challenging as a physician (e.g., family formation disproportionately impacts female physician earnings).
- Interviews with stakeholders and experts may be necessary to better understand the consequences of a pay gap, as well as features that cannot be addressed quantitatively.
- Societal expectations likely place a disproportionate burden on female physicians. This can occur at work (e.g., treatment by coworkers or patients) and in the home (e.g., child and elder care).

5.0 What Did We Do?

The gross clinical payments (billings) of male and female physicians were compared using the OHIP claims database.[3] Unadjusted (crude) estimates of a billing gap were computed and compared against regression-adjusted estimates. The adjusted billing gap was estimated in an attempt to create an apples-to-apples comparison of physician billings.

Study population

The study included most of the practising Ontario physician population in the 2017-18 fiscal year . Physicians who did not appear in OHIP claims or shadow billing data were excluded from the study, due to an inability to capture either their billings or their practice behaviour (see Appendix 1 for details).[4] In cases with small cell sizes, outputs were supressed to protect member privacy.

Statistical analyses

As a starting point, summary statistics were produced to describe the productive and practice characteristics of male and female physicians in Ontario. The primary variable of interest, daily OHIP billings (FY2017) was then used to assess the raw difference between male and female physicians' gross clinical payments; this is referred to as the unadjusted billings gap. A second set of estimates was created that controlled for productive factors, practice characteristics, geography and academic status. This adjusted set of estimates was meant to represent an apples-to-apples comparison between male and female billings and was reported as a male billing premium, in percentage terms. Results were reported with respect to Assembly, practice setting, rurality and payment model. Consultation with physician stakeholders helped OMA staff select relevant physician characteristics to compare male and female billings more meaningfully. These variables are described in greater detail in Appendix 2.

[3] For physicians in Alternate Payment Plans, Blended-Fee-For Service and Capitation models, payments were ascribed individually where possible; some payments are assigned based on physician rosters.
[4] Some physicians with billing records in this fiscal year were excluded from the study population (one per cent); these cases included those with data discrepancies related to their sex, date of birth, postal code and those who had anomalous billing data.

Exploratory analysis

A number of characteristics were identified as possible mitigating factors affecting a billings gap. These are factors that are unrelated to physician workload decisions and that may be influenced through policy levers to improve pay disparities. The features selected for study in the exploratory analysis included leaves of absence, physician relocation, referral patterns and patient characteristics. The relationship between each of these features and physician gender was explored.

6.0 What Did We Find?

Descriptive statistics

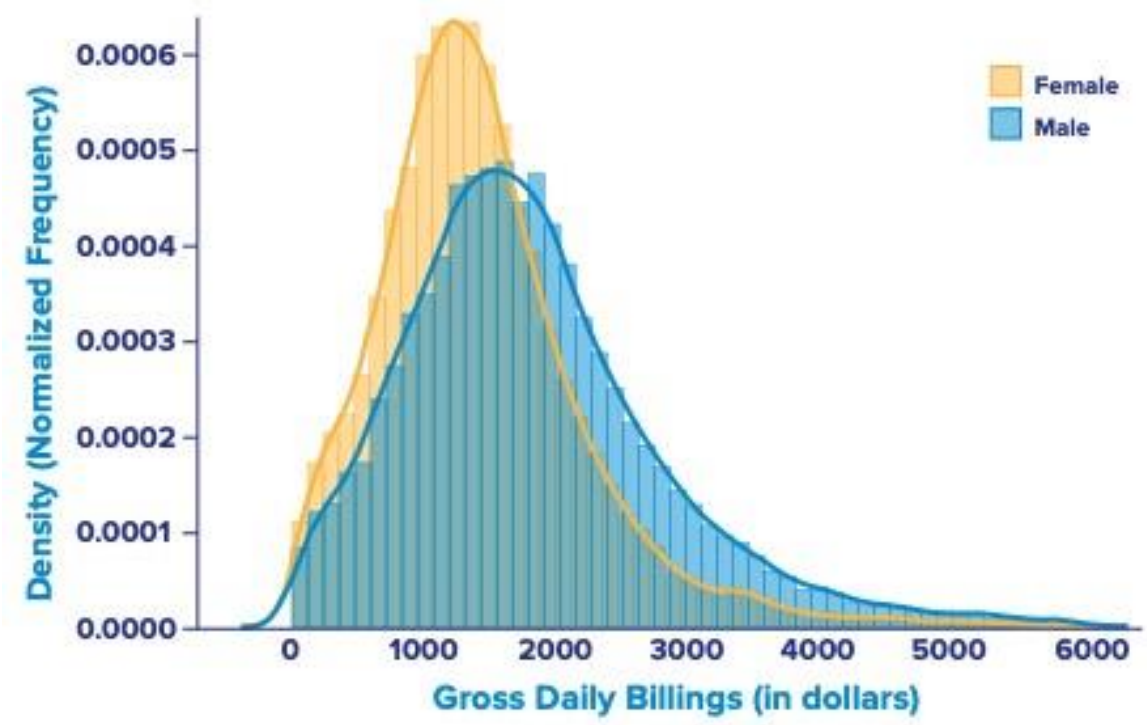
The average characteristics for male and female physicians in Ontario are summarized in Table 1. Male physicians have higher average daily billings than female physicians, but also have different working characteristics. On average, male physicians have seven additional years of work experience (tenure) and tend to work more days in the year, with a lower likelihood of working part time. Female physicians also tend to be concentrated in Assemblies (and OHIP specialties, not shown) with lower average billings. These features are used in a later section to create an adjusted estimate of a daily billings gap.

Table 1: Summary Statistics on Key Physician Characteristics

Descriptive Statistics FY2017 - Averages for All MDs			
		Female	**Male**
N		12,604	18,877
Clinical payments	Daily gross clinical payments (billings)	$1446.94	$1869.87
Working characteristics	Tenure, average years since graduation*	19.2	26.1
	Days worked, annual average*	176.3	201.6
	Weekend days worked, etc.*	18.9	27.2
	Days with after-hours codes, annual average*	7.2	12.6
	Holidays worked, annual average*	3.5	4.5
	Part-time status*	34.0%	23.6%
Academic	Received payment from academic centre*	12.0%	13.8%
Practice setting	Hospital*	30.1%	34.3%
	Office*	40.2%	32.8%
	Mixed*	29.7%	32.9%
Rurality	Major urban (RIO 0)*	61.7%	58.4%
	Suburban (RIO 1-39)*	32.0%	34.9%
	Rural (RIO 40+)	3.9%	4.0%
	No RIO score	2.5%	2.7%
Assembly	General and family practice *	55.1%	44.1%
	Diagnostic*	3.6%	5.7%
	Medical	29.1%	29.3%
	Surgical*	12.2%	20.9%
** denotes variables with a statistically significant difference (95 per cent level) between male and female averages.*			

The daily gross billings for physicians by gender are presented in Figure 1. Male physicians bill more on a daily basis than female physicians and billings of female physicians tend to be more narrowly distributed. The trends depicted in Figure 1 are driven, in part, by differing practice characteristics and specialty selection (not shown).

Figure 1: Daily Gross Clinical Payments FY2017, by Gender



Note: Daily Billings over $6000 are outliers and are excluded.

A number of features that have been identified as potential mitigating factors in earnings disparities are described in Table 2. Using available data sources, patient characteristics, physician mobility, leaves of absence and referral networks were summarized. The characteristics in Table 2 were not included in the adjusted models presented below.

Table 2: Potential Mitigating Factors Described

Descriptive Statistics – All MDs			
		Female	**Male**
Patient characteristics	Average patient age	45.0	50.6
	Average patient Canadian Institute for Health Information (CIHI) resource intensity weight (RIW)	2.4	2.7
	% Patients male	38.0%	48.0%
	% Patients low-income (LICO-30 DA)	5.0%	4.7%
Mobility	% Changed postal region within 4 years	4.3%	3.5%
LOA	Gap in billing for 8+ weeks FY2017	6.4%	4.6%
Referrals	Daily referrals	3.18	5.19
	% of referrals from male MDs	42.1%	49.9%
	% of referrals from GPs	48.2%	51.5%
N		12,604	18,877

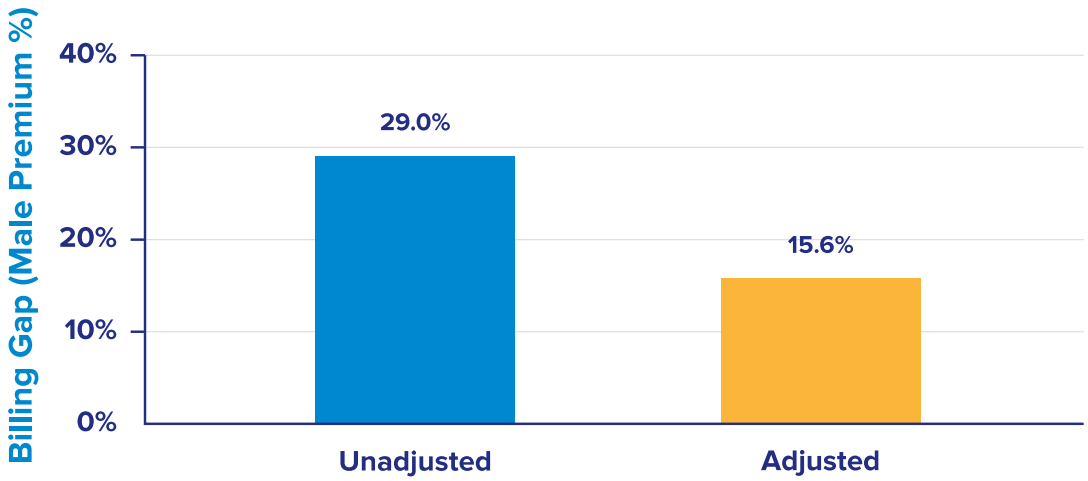
Note: Average patient RIWs exceed 1.0 as patients seen by physicians tend to be resource-intensive on average (and will see multiple physicians).

All descriptive statistics between male and female physicians are significantly different at the 95 per cent confidence level.

Estimating a gender pay gap

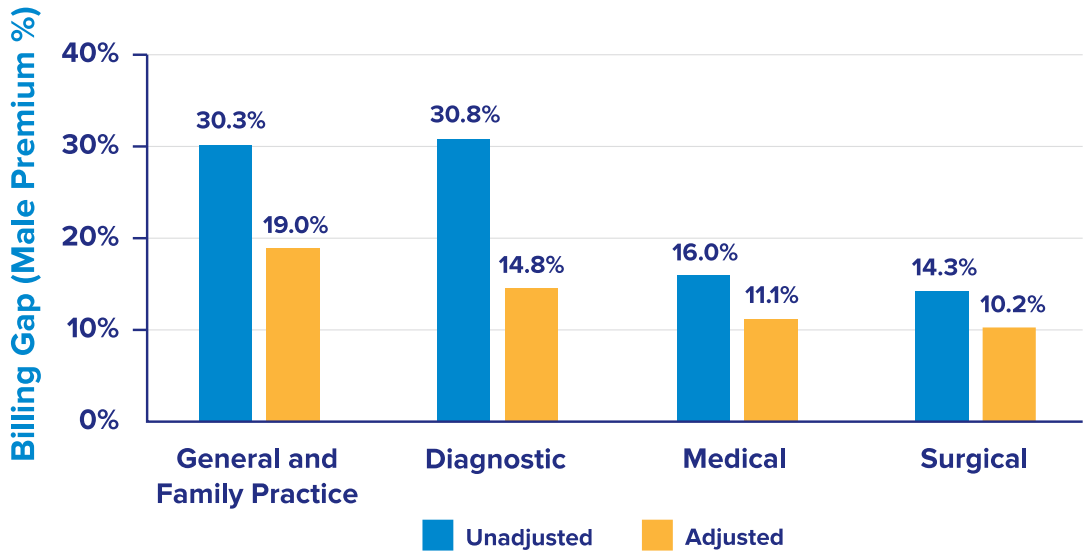
Among all physicians eligible for study in Ontario, the unadjusted billings gap was estimated to be 29 per cent (Figure 2). However, after accounting for working characteristics, geography and OHIP specialty, the male physician billing premium declined to 15.6 per cent.

Figure 2: The Gender Billing Gap Among Ontario Physicians, FY2017



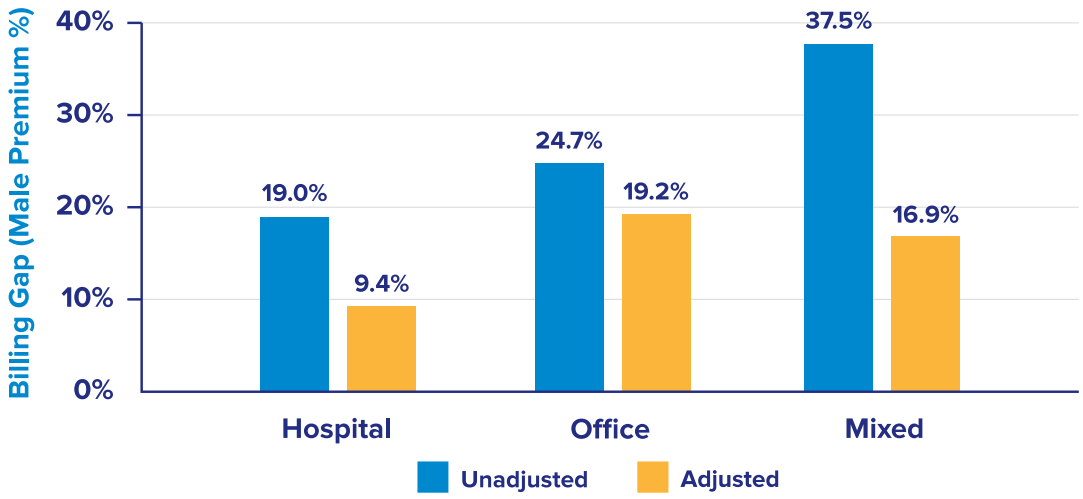
Across Assemblies, substantive differences were found in the estimated billings gap between male and female physicians. The adjusted billings gaps in General and Family Practice, Diagnostic, Medical and Surgical Assemblies were 19 per cent, 14.8 per cent, 11.1 per cent, and 10.2 per cent, respectively (Figure 3).

Figure 3: The Gender Billings Gap FY2017, by Assembly



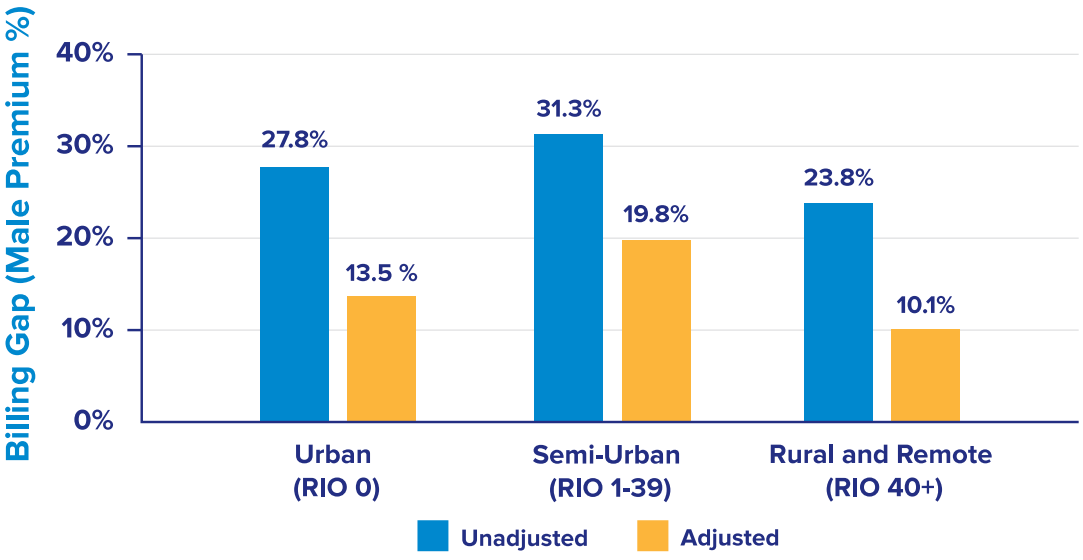
The billings gap across practice settings is depicted in Figure 4. Male physicians who billed most frequently in a hospital setting had a 9.4 per cent billing premium over their female counterparts, after adjustments. A larger billings gap (19.2 per cent) was found among physicians who practiced primarily in private office settings.

Figure 4: The Gender Billing Gap FY2017, by Practice Setting



The billing gaps across physician rurality index score (RIO, the Rurality Index for Ontario) are depicted in Figure 5. A 10.1 per cent billings gap was found in rural settings, compared to a 19.8 per cent and 13.5 per cent gap in semi-urban and urban geographies, respectively.

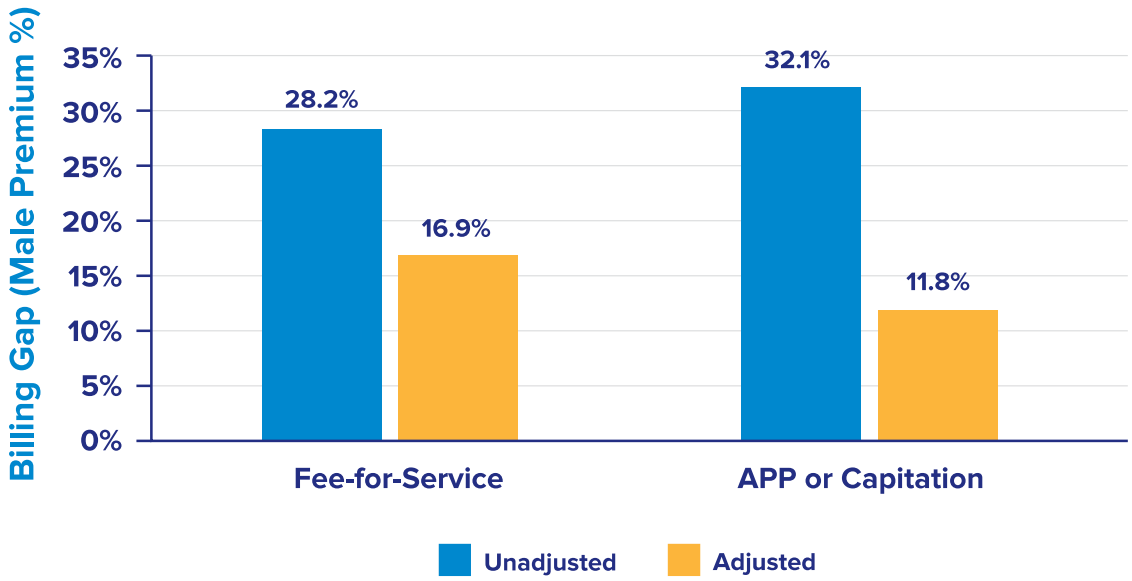
Figure 5: The Gender Billing Gap FY2017, by Rurality



Note: Those without a RIO score were excluded from the figure (2.6 per cent).

The estimated billing gap between physicians of different payment regimes is depicted in Figure 6. Those in traditional FFS models have an estimated pay gap of 16.9 per cent, while the gap for those in capitation models or with any APP payments was estimated at 11.8 per cent.

Figure 6: The Gender Billing Gap FY2017, by Payment Type



Note: Those with any APP payments were considered an APP recipient.

Exploratory analysis on mitigating factors

Holding other factors constant, being male had a significant positive association with six of the outcomes (Table 3). For example, having older patients, more complex patients, male patients, low-income patients and geographically mobile patients were all more likely for male than for female physicians. Surprisingly perhaps, there was no significant association between taking a leave of absence and gender. The percentage of referrals from male physicians was higher for men than women. However, neither the number of daily referrals nor the percentage of referrals that came from GPs had a statistically significant association with physician gender.

Table 3: Regression Findings Related to "Mitigating Factors"

	Outcome Variable	Male MD
Patient characteristics	Average patient age	↑
	Average patient CIHI RIW	↑
	% Patients male	↑
	% Patients low-income (LICO-30 DA)	↑
Mobility	% Changed postal region within 4 years	↑
LOA	Gap in billing for 8+ weeks FY2017	**n/s**
Referrals	Daily referrals	**n/s**
	% of referrals from male MDs	↑
	% of referrals from GPs	**n/s**
Note: Results reported are significant at the 95 per cent level. ↑ indicates that MD male status was associated with higher levels of the outcome variable, holding constant the controls listed in Appendix 2.		

7.0 Discussion

This is the first report in Canada to estimate a billings gap among a large physician population, including nearly all practising physicians in the province of Ontario. We estimate that male physicians, on average, earn 15.6 per cent more than their female counterparts, after controlling for available productive characteristics. Though this adjusted gap is considerably smaller than the 29.0 per cent gap in crude (unadjusted) daily billings, a little over half of this gap remains unexplained. Significant variation in the billings gap was observed across Assembly, geography and practice setting; these differences may be central to understanding how to better combat pay inequities. During consultations, several potential drivers of the billings gap among physicians were identified, including patient characteristics, leaves of absence, referral networks and physician mobility. Significant differences by gender were found in all of these characteristics, but this study was unable to establish a definitive connection between any of these factors and the gender pay gap.

Available comparisons are limited, but surgeon-specific appraisals from Ontario estimated the pay gap at 14 per cent (Dossa et al., 2019). Figures produced internationally ranged from seven per cent to 15

per cent (Theurl & Winner, 2011; Magnusson, 2016; Dumontet, 2012). Finally, in comparison to non-physician-specific studies in Canada, this study's estimates are somewhat similar, though physician wage data are not available in Ontario for a more meaningful comparison (Schirle, 2015; Pelletier et al., 2019).

The cause of such a prominent gap in billings remains perplexing, especially because of the FFS nature of most physician work. Policy recommendations tailored to addressing numerous system features may be required to bring pay equality to medicine in Ontario. This report will contribute to informing such policy decisions.

Limitations

We were unable to identify overhead expenses or hours worked, making a net income gap comparison infeasible. Instead, we constructed a comparison of average daily public billings, while controlling for available productive characteristics.

Private income (income from non-OHIP funded services) is not available for study; thus provision of private services may have implications for gender pay disparities that cannot be observed. Additionally, some public money such as research grants were excluded from this analysis due to insufficient data. Many salaried physicians and government employees were excluded for similar data limitations.

Clinical income is not always attributable to individual physicians. We used assumptions regarding the flow of group payments (e.g., primary care payments based on rostering) to individual physicians. Some APPs and salaried physicians were necessarily excluded from the analysis due to the lack of individual-level data and associated work characteristics. Physicians working in leadership roles may be of special interest in a study on gender pay differentials, especially if there is a concern regarding inequality of opportunity to reach these levels. However, this study is limited to clinical work funded by OHIP and therefore does not include income earned from academic leadership and executive roles in hospitals or government.

Female physicians may be streamed into lower billing specialties and subspecialties through their training pathways. No data were available to us on the training journey of medical students and residents. As a result, our exploration of whether female physicians tend to select the lower billing

specialties was examined only superficially. These estimates do not address gender differences in training selection.

A number of other important issues were raised during the physician consultation sessions. Many features were identified as important for understanding the barriers female physicians face, but data limitations prevented their inclusion in this study. For example, scope of practice, referral quality, sociological influence on physician labour-market choices, hidden curriculum and patient accountability (to name a few) are all considered to be deserving of more research. However, these factors are beyond the scope of this study due to lack of requisite data. Barriers may be preventing females from working as many hours as their male peers, completing additional training, or receiving due consideration for academic appointments or leadership positions; this may well represent an inequality of opportunity that deserves further study. However, disentangling societal expectations and systemic discrimination surrounding physician choice was beyond the scope of this research.

8.0 Next Steps

The purpose of this report was to present preliminary findings in a way that supports policy making at the OMA. EPR is currently exploring the prospect of extending this project to include trends in the gender pay gap. Such a study may include up to a 15-year period (FY2003-FY2017). This period has the richest and most complete data and also captures recent changes to primary care in Ontario that may have important implications for gender pay disparities. A common methodology that would add depth to the preliminary findings described in this report is the Oaxaca-Blinder decomposition (Oaxaca, 1973; Blinder, 1973). The purpose of this methodology is to determine the size of a pay gap, as well as how much of it can be explained by differences between the working characteristics of the groups compared.

There may also be value in pursuing external publication on this topic, as the OMA positions itself as a thought leader on topics that affect physician practice. Given the importance of the topic and the status of the medical profession, the OMA has a role to play in informing public and academic discourse on pay equity.

9.0 Policy Recommendations

After reviewing available evidence and consulting with physician stakeholder groups, the OHRC has developed four policy recommendations to reduce gender disparities among Ontario physicians. It is important to note that success is contingent upon bilateral co-operation with government.

1. OMA Leads Schedule of Benefits Reform

The OMA should take a leadership role to revise the Schedule of Benefits in a way that better reflects the work required to perform each service. Any revisions should be considered through a gender lens to ensure that all physicians are advantaged equally by the changes proposed.

2. OMA Advocates for Pay Equity

The OMA should launch an advocacy campaign directed toward health-system partners (e.g., hospitals, medical schools) to raise awareness about the gender pay/billing gap in medicine. The campaign could promote fair and equitable career advancement in medicine and institutional policies that promote equal pay for equal work.

3. OMA Advocates for Expanding Opportunities for Female Physicians

The OMA should work to expand opportunities for female physicians (e.g., leadership development and networking opportunities) and medical learners (e.g., mentorship opportunities and career planning). The OMA should take steps to ensure female learners are not subjected to a hidden curriculum of inherent bias.

4. OMA Advocates for Improved Benefits for Ontario Physicians

The OMA should advocate for access to benefits and supports similar to those enjoyed by other professionals (e.g., improved parental benefits would lessen financial burden associated with family formation and would benefit both male and female physicians).

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Appendix 1: Study Inclusion Criteria

Study Exclusions	Number Removed	Total Remaining	% of FY2017 Billers Removed
Any physician with billing records in FY2017	-	31,798	-
Exclusions:			
Missing record of "sex" on file	19	31,779	0.1%
Missing or invalid Ontario postal code	9	31,770	0.0%
Missing date of birth	0	31,770	0.0%
Belongs to group without individual income information, or if physician services were limited to a set of codes not considered for study*	253	31,517	0.8%
Anomalous billing information (billings total $0 or less)	36	31,481	0.1%
Final study population	**-**	**31,481**	**1.0%**
Notes:			
***Fees from OTN, L codes, and B400 are excluded from the analysis. Cases where billings could not reasonably be attributed to individuals are also excluded.**			

Appendix 2: Variables Featured in Analysis

Outcome Variable		Methodology	
Daily physician billings		Total daily professional billings FY 2017 attributable to the individual physician.	
Practice feature	**Variable**	**Methodology**	**Adjusted Model**
Demographic characteristics	Male	Male or Female (please note the data contain only binary information).	✓
	Tenure	Number of years since graduation	✓
Practice characteristics	Days of work	Billing days (OHIP) – used in conjunction with billings to create outcome variable	✓
	Specialty	Primary OHIP Specialty number. Fixed effects.	✓
	Payment model	For GPs and for specialists with APP income. This can be used to break up primary care groups.	✓
	Part-time status	Billing less than 3 days per week, on average.	✓
	After-hours work	Percent of workdays with after-hours premiums	✓
	Holiday work	Work performed on days designated as holidays	✓
	Weekend work	Saturdays and Sundays with any service performed	✓
	Practice setting	Facility codes in billing data are used to identify practice setting (e.g. Hospital, clinic, or mixed)	✓
	Academic physician	Received any payment from academic centre in FY2017	✓

	Leave of absence	Leave observed in billing data 8 weeks or longer in FY2017	
Geographic characteristics	Rurality	RIO Score of practice location	✓
	Relocation	Significant change in location based on postal code.	
Structural characteristics	Gender of referral network	Share of referrals from male physicians.	
	Source of referrals	Share of referrals from GP, Specialist, Surgeon.	
	Referral network size	Established OMA referral network methods.	
Patient mix	Low-income patients	Share with Neighbourhood low-income cut-off measure.	
	Patient gender mix	Share of patients seen in FY2017 male.	
	Patient complexity	CIHI Case Mix Methodology for chronic and acute conditions. Average RIW.	