

**Article details:** 2021-0068

**Title:** Sex differences in supply, payments and clinical activity of family physicians in Ontario: a retrospective population-based cohort study

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**Reviewer 1:** Dr. Lindsay Hedden

**Institution:** University of British Columbia School of Population and Public Health  
General comments (author response in bold)

Better understanding activity and remuneration differences between male and female physicians is critically important and I commend the authors for their work in this area.

I appreciate your choice to stratify your models into FTE groupings. That said, I have some significant concerns about other methodological choices made within this paper that I think prevent it from being publishable at this time. Chief among them, your modeling work does not account for different rates of representation by women across specialties or specialty groups. This will of course have a huge effect on both remuneration and activity levels. It will directly impact your FTE groupings since remuneration varies dramatically by specialty. Furthermore, specialty choice is itself highly gendered. While I understand that this cannot be explored from a qualitative lens given your data sets, it should definitely be accounted for within your models. I would suggest either including specialty group and a specialty grouping\*sex interaction term at a minimum. Stratification based on primary care, medical or surgical specialty would be even better.

[Editorial note: we recognize that only primary care is included in this study so this is outside the scope of your work.]

**As noted above, this study only included primary care and as such the reviewer's comment is not relevant to this paper.**

Additionally, your models do not appropriately account for potential cohort effects, which are known to conflate with gender differences in practice choices and patterns (see work by Lavergne and colleagues for example). Year of study addresses period, but not cohort.

**We do not have information regarding cohort effects. As stated in our response to Comment 3 on pages 2-3 of this response letter: "The database we are working with is the IPDB (ICES Physician Database, <https://datadictionary.ices.on.ca/Applications/DataDictionary/Library.aspx?Library=IPDB>). Only the CPDB database (Corporate Provider Database, <https://datadictionary.ices.on.ca/Applications/DataDictionary/Library.aspx?Library=CPDB>) has information on "Year of MD Graduation". The ICES analyst informed us that ICES does not have an agreement or permission to share the CPDB information and as a result, we cannot look at physician cohorts by year of graduation or year of entry into practice.**

It is also unclear to me how your models deal with alternative remuneration schemes, despite the paragraph on this in the discussion. You haven't stated in the methods whether physicians paid under alternative models are required to shadow bill fee-for-service, or on the accuracy of those billings in OHIP. Given that women are more likely to choose a non ffs remuneration scheme, this is an important limitation to address.

**We do not have information on payment models. As stated in our response to Comment 15 on page 7 of this response letter:**

**“The database provided two types of information on payment: Total OHIP payment and proportion of OHIP payment from fee-for-service >50%. We do not have access to information regarding physician payment models.”**

Sex and gender are conflated throughout this article. Having used administrative data sets for my own work, I am familiar with the limitations related to sex/gender determination within them. At a minimum, however, you need to state as a limitation that the two are conflated within these datasets (i.e they are not a measure of sex as you note in your methods), and that you are making an assumption that the field is a suitable proxy for gender. Furthermore, your suggestions in the discussion about providing supports to women physicians who have children is unnecessarily gendered. Rather, all physicians regardless of gender should be provided with the supports necessary to balance family responsibilities and career.

**The revised limitation reads “Finally, this study focused only on biological females and males and did not consider gender and other characteristics including family size, geographic location, socioeconomic status, ethnicity background, immigration status and those with disabilities, which are not available in the data set.” (page 12, lines 256-259).**

**We agree that singling out females for support in childcare is a gendered statement, it is however an unfortunate reality for many, that women carry a disproportionate amount of the burden related to childcare. The current pandemic has also highlighted this gender inequity. However, in an ideal world this should be a shared responsibility and to address this, the following change was made on page 10, lines 216-217, “... unless female physicians with families have strong support systems (of course male physicians should have strong support system too).”**

Finally, there is a robust body of literature exploring remuneration and activity differences for physicians by gender. The majority of that literature is not reviewed or cited within your introduction or discussion. This is a significant oversight. Reviewing that literature will allow you to better situate this work within the existing body of evidence.

**We do not have information on gender and therefore we cannot comment on remuneration and activity differences by physician gender. Given the word limit of CMAJ Open we are unable to explore this further.**

**Reviewer 2:** Mr. Tharmegan Tharmaratnam

**Institution:**

General comments (author response in bold)

This population-based retrospective study by Jin et al. aimed to examine sex differences amongst Ontario-based family physicians in supply, payments and clinical activity using OHIP claims and ICES provincial datasets. Based on OHIP claims over a 16 year period, the authors examined sex-differences based on physician workload and clinical activity such as # of patient visits, an # of unique patients. The authors found female family physicians to have less >1 FTE, less payment from FFS model, a fewer number of patients and fewer number of visits versus male physicians. Male physicians were shown to have greater reimbursement, see more patients, and more males were >1 FTE. However, over time, female physicians have gradually increased their clinical activity. Overall this study shows that female physician may provide greater continuity of

care, and the fewer number of visits may suggest better healthcare utilization (i.e., greater use of preventive care preventing repeat visits). Based on volume it may be expected family physicians who see more patients, bill more often, and have greater FTE would accrue higher billing in a fee-for-service model. This is an interesting paper and the authors do a great job of seeking to identify the differences in clinical activity and physician workload based on sex differences and the social factors that may affect this. It also has policy implications for system administrators on healthcare delivery. I have a few minor comments and questions for the authors, please see below.

#### Introduction:

-very well written and highlights the objectives and purpose of the study well.

**Thank you for your encouraging comment.**

#### Methods:

-The authors do a good job of explaining and describing the statistical analyses used in the study, a few comments/questions below:

-Page 8, line 41: can the authors clarify what is meant by “unique patients”

**“Unique patients” means distinct patients, i.e. if a patient was seen by a family physician more than once in a study year, that patient is only counted once. As a result, the number of unique patients is different from the number of patient visits.**

-Did the authors account for family physician practise models such as FHTs, FHOs, or were providers in the study largely solo practitioners. Additionally, given that the proportion with >50% of payment from fee-for-service was lower in females vs. males, why did the authors not consider other reimbursement models such as capitation or salary, which may capture academic physicians who practice differently than community based providers.

**Unfortunately, we do not have information about physician practise models. The only information available was the proportion of FPs with >50% of payment from fee-for-service. This information has been incorporated into the manuscript.**

“Information available included unidentifiable physician number, physician birth year, sex and specialty, number of patient visits, number of unique patients, physician total payment from OHIP, if an individual physician’s fee-for-service payment was greater than 50% of his/her total OHIP payment and year of service.” (Page 5, lines 97-100)

-If patients in this cohort had multiple eligible family physician visits, did the authors exclude any visit that occurred on the same day as another outpatient visit, billed by a different physician? This can reduce the risk of misclassifying the family physician responsible for the patient’s care.

**Counts were based on the physician and not the patient. For each physician we had counts for the number of unique patients seen per year and number of patient visits per year. If one patient was seen by more than one FP on the same day, we would not have this information. As our main outcome was physician payments, multiple visits by a patient to different FPs on the same day would not impact this analysis.**

#### Interpretation:

- Administrative data lacks clinical granularity as to patients signs/symptoms and disease severity. Therefore, it may be plausible that patients in the study may have had more/less chronic disease, necessitating more physician visits. Did the authors explore adjusting for this confounding variable (i.e., adjusting regression model based on chronic conditions (i.e., CAD, COPD, etc) based on disease specific registries (i.e., CorHealth for cardiac disease).

**In this study, physicians are the study unit. Information on the patient level (e.g. chronic conditions etc) is not available in our study database.**

-In the interpretations section, Line 38: can the authors clarify the term gender characteristics?

**The term gender in previous line 38 was removed to accommodate the word limit by CMAJ Open. In the revision, we explain gender on page 12, lines 256-259:**

**“Finally, this study focused only on biological females and males and did not consider gender and other characteristics including family size, geographic location, socioeconomic status, ethnicity background, immigration status and those with disabilities, which are not available in the data set.”**

-Page 11, line 45: “having” should be changed to “have”

**“having” has been changed to “have” as suggested.**

“These findings are consistent with reports that female FPs spend more time with their patients and have a tendency to provide continuity of care.27-29” (Page 11, lines 244-246)

- In addition to the other limitations outlined, the authors should note that generalizability of their findings may also be compromised by the fact that all of the physicians were from Ontario, given that provider practise patterns display geographic variation which can affect healthcare utilization and practise patterns.

**We agree with the reviewer and the revised limitation now states “Data analyzed were from Ontario covering the years 1992-2018. Results may not be reflective of other jurisdictions or time periods.” (page 12, lines 252-254).**