Author’s response to reviews

Title: Periodic health visits by primary care practice model, a population-based study using health administrative data.

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Author’s response to reviews:

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November 15th, 2018

Dr. Tovah Honor Aronin, BMC Family Practice Editor

Dear Dr. Aronin,

Please find enclosed a revised manuscript entitled; “Periodic health visits by primary care practice model, a population-based study using health administrative data.” (FAMP-D-17-00391)
which we are re-submitting for exclusive consideration of publication as a Research Article in the BMC Family Practice.

We thank the editors and reviewers for their thoughtful consideration of our manuscript and valuable suggestions for improving this study. We have carefully considered the recommendations and have included with our submission an itemized list of our responses to the comments and issues raised in the initial review of this manuscript.

We look forward to hearing from you regarding our submission. We would be glad to respond to any further questions and comments that you may have. Please address all correspondence concerning this manuscript to me at The Hospital for Sick Children and feel free to correspond with me by email at natasha.saunders@sickkids.ca.

Sincerely,

Natasha Saunders

Staff Pediatrician and Associate Scientist, The Hospital for Sick Children
Adjunct Scientist, The Institute for Clinical Evaluative Science

FAMP-D-17-00391

Reviewer 1

This is a well written and elegantly presented paper on an important topic. The sample size and the power of the comparison adds considerable weight to current debates on the effects of forms of remuneration on physician behaviour.

The comparators need more detailed description - how does fee-for-service work in Ontario. What is the main form of capitation - does it relate to a bundled payment, possibly excluding periodic health checks. more detail on these rival payment systems would be useful, as this paper should receive a lot of interest in other settings having similar debates.

We agree with both reviewers that a clearer and more detailed description of primary care models in Ontario would be helpful to the reader. We have added a table to the manuscript that
further explains the models of care in Ontario, including the basket of services provided by practitioners in each model.

My comments are very minor:

Lines 83-85 something is missing from this sentence.

We have added the word “and” between “important” and “have”. The sentence now reads: “Understanding physician and health system drivers of periodic health visit billing practices are important and have not been studied.”

Line 178 correctly cautions us that ‘causation is not established’. Then tone of the discussion on 170-171 is considerably less cautious and undermines the careful presentation of the rest of the analysis.

We have reworded lines 170-171 to make it more cautious. It now reads, “However, our findings support the notion that provision of the periodic health visit to healthy patients and of evidenced-based care may be related, in part, to financial incentive and not only to a desire to provide quality care and build relationships.”

Reviewer 2

Thank you for the opportunity to review this manuscript that explores the association between primary care service payment models and the annual rates of periodic health examination. You concluded that fee-for-service models were associated with more periodic health examinations for adults without co-morbidities that is not evidence-based. You did point out the limitation of your study being cross-sectional and not considering PCP characteristics and other practice characteristics.

An exploration on how service payment model affects practice behavior and service uptake is important because it may inform policy to drive doctor and patient behavior although the findings are not surprising. This study has the strength of a very large sample and almost universal inclusion of the whole population in one large province in Canada. However, the literature review, data analysis and discussion are rather brief, which do not provide a sufficient
objective information to inform policy or practice. I would like to point out that the effect on payment model on primary care service delivery is complex which does not only affect PCP behaviour but it can also affect patient behavior. Furthermore, the specific incentive/ bonus/ performance indicators in non fee for service models greatly affect service provision.

I hope you will consider the following revision:-

1. Title: Delete the last statement "Using enrollment models to understand the provision of evidence-based practice" because this was not achieved in this cross-sectional study that cannot provide the details on the reason for the periodic health examination.

This second sentence has been removed. We modified the title to “Periodic health visits by primary care practice model, a population-based study using health administrative data.”

2. Introduction

a. Please provide a more in-depth literature review on the conceptualization of how payment method can and may affect service delivery and PCP behavior.

We have added a paragraph to the introduction that describes how different models of care can affect provision of services and PCP behaviour.

b. Please provide a more detailed explanation on the primary care system of the study setting, especially in relation to the changes/reforms in 2013. Please clarify the recommendations for periodic health exam for individuals with or without co-morbidity by the Canadian guidelines/Task Force in 2014.

We have added a more specific description of how the fee code was introduced and how it was paid, relative to the annual physical exam in prior years.

We have added a table to the manuscript that further explains the models of care in Ontario, including the basket of services provided by practitioners in each model (Table 1).
We are not familiar with Canadian guidelines/Task force in 2014 that makes recommendations for periodic health exams. The most recent Canadian Task Force on Preventive Health Care is more than a decade old and not reflective of current evidence. In 2017, the CTFPHC published a commentary (not a formal guideline) that said, “The traditional annual physical examination of asymptomatic adults is not supported by evidence of effectiveness and may result in harm. There is better value in a periodic (i.e., according to age, risk, and specific test intervals) preventive visit to provide preventive counseling and screening tests proven to be of benefit. Periodic preventive visits are particularly useful for people older than 65 years of age.” We have added this in to give context with Canadian recommendations.

c. Please provide a table showing the details on the distribution of the payment by components so readers outside Ontario can appreciated how they might affect the provision of periodic health examination, e.g. is population coverage of periodic health examination an indicator for bonus?

We have added a table that describes the models of care (including some bonuses). Please see the new Table 1. We have also added (to the same table) the proportion of physician office visits in 2014 that were for periodic health visits by each model in Ontario.

d. Please state your hypothesis on how payment system may be associated with periodic health examination rate for individuals with and without morbidity in the study setting.

We have added our hypotheses at the end of the introduction.

3. Methods

a. Please provide more details on who and how the data were extracted, and how data quality was assured. Is it possible to also examine data on co-morbidity in the years 2014 and 2015 to find out whether the "healthy" individuals were really healthy and whether these examinations might have detected diseases?

We have added that databases were linked based on each patient’s unique, encoded Ontario Health Insurance Plan (OHIP) number and the cohort was extracted by a trained analyst. We have also added information about the linkability of the dataset and validity of data elements.
Several trials have already reported that general health checks increase the number of people identified as having cardiovascular risk factors and total number of diagnoses compared with usual care (Birtwhistle et al. 2017, Canadian Family Physician and Krogsboll et al. 2012, Cochrane Database Rev). The purpose of the current study was not to examine whether periodic health examinations for healthy individuals were valuable in ‘picking up’ disease, rather its purpose was to examine drivers of uptake of this visit. As such, examining comorbidities picked in subsequent years in our population is out of the scope of our manuscript and has already been well studied by others.

b. Please clarify whether each PCP belongs to only one payment model, and whether the PCP of patients assigned to the traditional fee-for-service model overlap with PCP who are also paid by other payment models.

PCP’s belong to only one payment model for delivery of primary care services. We have added this to the methods section of the manuscript for clarification.

c. Please clarify what is the meaning of " OHIP was used to define periodic …" (line 124, p.7). Please define the " No PCP" group.

This has been clarified to say, “Physician fee codes (A003, General Assessment with a diagnostic code 917 [annual health examination adolescent/adult] or K131 and K132 [periodic health visits]) billed using OHIP were used to ascertain periodic health visits and the corresponding PCP who provided the service from January to December 2014.” We have clarified the description of the “no PCP” group in the “Assignment of Primary Care Provider” section under the methods.

d. Please carry out a regression analysis of factors associated with periodic health examination among individuals who did not have any co-morbidity, to find out whether there is any difference from those found for the whole population.

We first carried out a regression analysis to test for an interaction between comorbidity group and PCP enrollment model. There was a significant interaction. Therefore, we have now reported our regression models separately for each comorbidity group.
4. Results

a. The findings on relatively lower rates of periodic health examination among patients with co-morbidities associated with the "family health team", "primarily capitation" and "salaried" models deserve more attention.

We have added a description of these results to our results section and expanded our discussion about our findings in patients with comorbidities. Please see revised discussion.

b. Please present regression results by morbidity subgroups

This has now been done. Please seen 3d.

5. Discussion

a. The statement that "However, we have shown provision of the periodic health visit …. may be more related to financial incentive than to a desire to provide quality care..." (line 169-172, p.9) is very strong, and not substantiated by the limited results that did not explore or adjust any PCP factors.

We have modified this statement to say, “However, our findings support the notion that provision of the periodic health visit to healthy patients and of evidenced-based care may be related, in part, to financial incentive and not only to a desire to provide quality care and build relationships.”

b. The results of the relatively low rates of periodic health examination among individuals with co-morbidity among patients managed in non fee-for-service payment models deserve more discussion, and why were there marked differences in rates among them.

Patients in non fee-for-service models both with and without comorbidities had relatively low rates of periodic health visits. For example, in the salaried model, rates were lowest relative to other PCP models and similarly low across all comorbid groups (aRR 0.79 to 0.84). While not directly measurable in the stratified models, the relative differences in rates within comorbid groups were similar across comorbid groups, except in the fee-for-service model. For example,
capitation model was had an aRR of 1.13, 1.23, and 1.29 for each of the comorbid groups, respectively.

We have added discussion about why we may have observed low rates in periodic health visits across the non fee-for-service groups as well as in the high comorbidity groups.

c. The possibility of the payment model hindering PCP from providing periodic health examination to those who may benefit from them deserves more discussion.

The Cochrane review suggest that both the annual physical exam and periodic health visit provide little benefit. However, the Canadian Task Force on Preventive Care suggests they may be useful in individuals over 65. Our data show that older individuals were more likely to receive the periodic health visit (across all comorbid groups) independent of care model. There is some evidence to support these visits in ‘higher risk’ groups (including those with comorbid conditions). We have shown that with increasing comorbidities, there are increasing rates of the periodic health visit. Individuals with comorbidities followed in fee-for-service (and even in enhanced fee-for-service) models may not be receiving sufficient preventative visits as they often require more time than visits with healthy individuals. Volume based care is incentivized in these models and because these visits may be more time consuming with no bonus or financial incentive for those with comorbidity, they may occur less frequently than healthy individuals in the same model. We have added this concept to our discussion.

d. Please explain why PCP characteristics could not be included in the analysis in this study.

We do have some PCP characteristics in available databases. However, the purpose of this study was to explore health system drivers/models of care (i.e. primary care reform initiatives, remuneration models, etc.) that contribute to provision of the periodic health visit, rather than individual level/provider level factors. Individual level provider factors are important in understanding delivery of primary care but were outside of the scope of this paper. We have added this to the conclusion to say that this is also an important area to study. “While individual patient and provider characteristics may be important, primary care reform initiatives must also consider the influence of remuneration as a hindrance for delivery of evidence-based care”
6 Conclusion: The statement "Primary care ..... remuneration as a hindrance for delivery of evidence-based care" is very strong, and not fully substantiated by the results. The last statement in the conclusion is mainly speculation. Please revise both.

These have been revised.