Author's response to reviews

Title: Tracking Family Medicine Graduates. Whom do they see, what services do they provide and where do they go?

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Author's response to reviews: see over
BMC Family Practice

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Dear Editor of BMC Family Practice,

I am submitting a revision to a paper titled “Tracking Family Medicine Graduates. Where do they go, what services do they provide and whom do they see?” for consideration of publication in the BMC Family Medicine. Please note that the title has also been revised.

Thank you for the editor’s comments and to both reviewers. These comments were very helpful and we have revised the manuscript based on their suggestions. Specifically we reorganized the paper’s objectives to better align with the title, analyses, work presented and discussion.

The tables and graphs were also revised for clarification. For the original table No: 2, we deleted the last row which included all FPs in Ontario. This was confusing and it was actually graphically presented in the original graph No: 3. We also made an error and included other specialists (not just family physicians) in the original graph No: 3 and we have deleted this information. The table and graphs were edited and their numbers changed to match the revised flow of the paper.

The demographic characteristics of the different family (FM) graduate cohorts, along with the overall group of all FM graduates is provide in Table No: 1. This includes graduating physician age, gender and location of their undergraduate medical education. The methods and results section have been reorganized to be more consistent with the physician groups used. The statistical analyses were clarified in the paper.

The workload measures used in this study have been developed by health economists in Canada for physician workforce planning. References to work that use these methods were added to the methods section (and there is a link below). The development of a new measure for full time equivalent (FTE) was undertaken in 1984 by a working group comprised of representatives from Canadian National Health & Welfare, provincial health care agencies, and academic consultants. The working group identified the following objectives of a FTE measure:

- provide a consistent basis for interprovincial and intraprovincial comparisons of physicians supply;
- provide a consistent basis for measuring changes through time in physician supply;
- and
- recognize workload differences among individual specialties.

All measures of full-time equivalence are to some degree arbitrary, in the sense that there is no "best" measure to be derived through statistical techniques. For example, while head count or number of physicians is often used, it does not reflect the amount of work provided. The choice of a measure was therefore determined by the objectives, and by data availability. The measure developed by the Working Group was based on the following conceptual model.

In an economic context, physicians and hours of work are seen as measures of supply. Services produced by physicians are the most basic measure of utilization, while expenditure is the product of services and fees. The realistic choices for estimation of full-time equivalence were (1) hours of work, (2) services provided, and (3) payments. An internal study indicated a high degree of variability in income per hour worked by fee-for-service physicians, after standardizing for specialty. Consequently, a FTE measure based on hours of work would not provide accurate estimates of the potential output (in terms of...
clinical services) of the physician population. As FTE measures are used most often in a context where output or expenditure is an important consideration, it was decided that a measure of output would be preferable to hours of work, which is essentially an input measure.

Although services are measures of output, they are not weighted for intensity or value. Expenditure measures services weighted by fees. Payments to or claims made by physicians were therefore chosen as the most appropriate measure of output with which to determine full-time equivalence. In the model adopted, gross income per physician is used to measure output or workload. As there is a wide range of output among physicians within the same specialty, a single cutoff to measure full-time equivalence status did not seem appropriate. It was therefore decided to use a range of output that would be realistic for a typical full-time physician. It was essential that this range could be defined statistically, and after some experimentation the 40th to 60th percentiles of fee adjusted, nationally defined payment distributions were chosen as the benchmarks within which to measure full-time equivalence. This reference is included in the revised paper.


The research aims/objectives were reorganized in the paper and in the abstract. The title of the paper was also reorganized to follow the new flow of the paper.

Responses to Maria Mathews (Reviewer 1)

1. We have clarified the specific study questions to go along with the study objectives. This was not clear in the original paper.

2. We agree that the methods section was not clear and that the methods (and results) did not flow from the question and objectives. The first analyses were of the three cohorts of FM graduates over a 10 year time period. These cohorts were based on their exit year of their FM training. The second analysis was for FM graduates practicing in 2005/06. In the original paper we only present information on patient socioeconomic status (SES) and comorbidity (ACGs) for FM graduates. As per your suggestion, we have now included patient age and gender for FM graduates. We then made some comparisons of these patient characteristic for the FM graduate group in 2005/06 with all practicing FPs in Ontario in 2005/06.

3. We did not present the two types of analyses clearly and we have separated them out in the paper. The three cohorts of FM graduates came from the U of T only. We do not have information from the other four family medicine training programs in Ontario. This is a limitation of our study. We did look at the U of T FM graduates in 2005/06 and all FPs practicing in 2005/06 in Ontario.

4. We agree that the analyses were mixed together. We reorganized the methods section to include the two types of analyses. Most of the data in this results section are either a proportion or a ratio. The proportions are presented in categories (for example FTE/head count ratio for female FM graduates), but we do not have categorical data in this study. The two sample t-test in this case appropriate to use (and we clarified this in the analysis section). When we looked at FPs practicing in Ontario in 2005/06 this is actually not a sample, but includes all family physicians.

5. In order to examine changes over time we created three cohorts of FM graduates by their exit year from training. We felt we needed to group three years of graduates into a group to see if any changes in types of services or practice location could be demonstrated. Also, since a policy
initiative to reduce payments to new FM graduates was in place from 1997 to 1999, we thought this provided a natural experiment to see if this initiative had an impact on practice location for this middle exiting cohort.

6. We agree that the results do not appear to match the objective. I hope the revised paper is easier to follow.

7. We’ve added more information about the meaning of LHINs in the paper. Ontario is the largest province in Canada with huge geographic diversity. The Ontario Ministry of Health and Long-Term Care divided the province into 14 regions or Local Health Integration Networks (LHINs) because, it was thought, people living locally were better able to plan, fund and integrate health services in their own communities. The LHINs have the responsibility for health services in their communities. We geographically presented the results by LHINs because the supply of FM graduates is important to know for resource planning in communities. The challenge remains in an undersupply to Northern and more rural LHINs compared to LHINs which include large cities.

8. The conclusions are subdivided with the first paragraph being a conclusion and the next paragraph discussing further research.

Responses to Jan Schuling (Reviewer 2)

1. In Ontario, Canada we have universal funding for physician services, hospital care and drugs for people over 65 years of age. The OHIP physician claims data represents payment for all physician encounters in Ontario. I’ve provided a link to other work we have done looking at primary care services in Ontario using OHIP claims (http://www.ices.on.ca/file/PC_atlas_prelims_complete.pdf). Patients are able to see any family physician and doctor shop. We developed a method to assign patients to a family physician based on their OHIP billings (a majority rule). More recently with Primary Care Reform in Ontario, patients formally roster to a specific family physician and were able to identify these formal agreements in the CAPE tables. Even in this case if they see other FPs, we can track their usage to all physicians.

2. There are a select number of office-based OHIP claims for family physicians. Some claims are more time-based and others are not. We did not create new measures for physician workload and in fact used measures that are based on physician claims data. A reference was added to the paper. In 2005/06 newer remuneration models were introduced for FPs, including bonus payments and capitation-based payments. Shadow billing was introduced with these newer capitation payment models. For this study, fewer than 5% of FPs were remunerated via an alternative payment model that had shadow billing. While still a concern, this is not likely to change the results much. We have recently compared billings in our Ontario administrative data within a sample of FPs participating in capitation type remuneration models (which shadow billing) to billings recorded in their family medicine electronic medical records. Fortunately, the agreement between the two are around 97% and we do not seem to be losing claims data.

3. Community health centre (CHC) physicians do not submit OHIP encounter claims (they are paid under a global CHC budget). In 2005/06 there were about 6400 FPs submitting OHIP claims.
Currently there are 73 CHCs in Ontario and less than 4% of Ontario FP/GPs practicing in a CHC. We are not likely to miss a large proportion of patients in this study. FP/GPs working in CHCs are more likely to work in rural areas and with marginalized populations, so there is a definite bias in not being able to include them. I have worked with the association of CHCs in Ontario on a small project to describe their care and I am working to include their encounter data for comparison, but to date this has not happened. This is a limitation we have with all our studies in which use Ontario health administrative data. Other provinces have different proportion of community health centre patients.

4. We have compared patients seeing FM graduates to patients see all other FPs in Ontario. This has been added, revised in the current version.

5. We did add some of the demographic and attitudinal factors that were referred to in the Introduction of reference 9. I did not add all the factors mentioned in the paper since some were likely not relevant to policy makers (for example whether a medical trainee has as a family in the medical profession).

6. We have added age and sex to the patients seen by FP graduates. The paper was not well structured to flow from the objective, methods and results and we have edited this to hopefully flow better.

7. We could not say from this analysis if the family practitioner is only working in the emergency room or if this is part of their comprehensive practice. Most FPs in Ontario who work in the emergency room, also do office-based care and a smaller proportion only do emergency room care. But this subgroup analyses wasn’t done in this paper.

8. We added a further comparisons of results provided to articles 11 to 15 in the discussion.

9. We did restructure the paper. We looked at the three cohorts of FPs over time to look at where they went in Ontario, what they did and workload. We then look at who they say and did some comparison to all other FPs practicing in the province. The title was also changed to follow the objectives through to the results.

I appreciate your consideration of the revised version of this research article for publication. If you need any more information, please let me know.

Yours sincerely,

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