PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Practice patterns among early-career primary care (ECPC) physicians and workforce planning implications: protocol for a mixed methods study
AUTHORS	Lavergne, M.; Goldsmith, Laurie J.; Grudniewicz, Agnes; Rudoler, David; Marshall, Emily; Ahuja, Megan; Blackie, Doug; Burge, Fred; Gibson, Richard; Glazier, Richard; Hawrylyshyn, Steve; Hedden, Lindsay; Hernandez-Lee, Jacalynne; Horrey, Kathleen; Joyce, Mike; Kiran, Tara; MacKenzie, Adrian; Matthews, Maria; McCracken, Rita; McGrail, Kimberlyn; McKay, Madeleine; McPherson, Charmaine; Mitra, Goldis; Sampalli, Tara; Scott, Ian; Snadden, David; Murphy, Gail; Wong, Sabrina

VERSION 1 – REVIEW

REVIEWER	Anastasia Coutinho La Clinica de la Raza Community Health Center Concord, California, USA
REVIEW RETURNED	17-Apr-2019

GENERAL COMMENTS	I appreciate being able to review this study protocol. The use of a mixed methods approach is unique and I am excited to see what the authors discover in their study. I have a couple of questions/points of inquiry. 1. There is no mention of geographic distribution in regards to the PCP ratio or scope of practice. As comprehensiveness of family physicians is likely different in rural versus urban areas due to availability of specialists, I would be interested separating physicians by this characteristic. There is already data published on the urban:rural scope disparity. 2. Given that BC, ON, and NS do have different health delivery systems, I wonder how generalizable this study will be to Canada as a whole? Or even within the province given the number of IDIs planned. If possible, increasing the number of interviews in each province would be beneficial to be able to better group physician characteristics - intersectionality may be a large part of practice patterns. 3. Emphasizing the possibilities of practice options will be important rather than just choice of scope of practice; this is mentioned in the proposal and I am wondering how much of this differs between provinces? This would relate to the number of IDIs as indicated above. I appreciate the authors lack of a priori identifying what an "early career physician" constitutes. Through other similar studies I am working on, we have found that intentions of residents do not at all

	match the scope of practicing physicians 10 years out. However, there is quite a bit of flux and change throughout those 10 years from in-process analyses. In the US, scope of practice declines among 10 year cohorts 10 years out until retirement (see Coutinho et al. in JAMA). I am interested to see how this compares. The availability of data may influence the ability to determine the choice of scope throughout years. Recruitment is described as though residency programs and through the FB First Five group, however, how will those 5-10 years out be recruited. Additionally, surveys seems to be given to residents and those 3 years out, but then no additional information after this. These are just limitations to be considered if able to be improved. Overall, the study is well defined and robust.

REVIEWER	Sven Streit University of Bern Institute of Primary Health Care (BIHAM) Switzerland
REVIEW RETURNED	05-May-2019

GENERAL COMMENTS	Well drafted protocol addressing a topic important to primary care physicians as well as patients. It will be informative to see the results of this mixed methods study. Congratulations to the study team for their will in investing time and resources in this topic. Some remarks to consider: 1. Page 5, Line 7-8: The gap between patient needs and physicians available: To which extent to the authors have an explanation if e.g. the need of patients has increased (e.g. due to multimorbidity and complexity)? The introduction now reads about what early-career physicians might lack in but what if it is the increasing demand causing the gap? 2. Page 5, line 33. The authors might be interested in seeing how Swiss early-career GPs state what they intend to do after completing residency. We as study authors were also interested in understanding if their decisions (here: working as employees rather than self-dependent) is a long-term decision and only by asking them for how long they would like to work employed we learned that their decision was rather a step in their career that will change. Translated to this paper, the authors could try and integrate questions like if early-career GPs are planning to change their e.g. service type within the next 5 years. PMID of the paper in question if interested: 28148245 3. Semi-structured inteviews page 8-9. Would it be an idea to also select specifically participants who in deed have chosen e.g. a reduced service load or spectrum of service in order to better understand their decisions and reasons behind that? 4. It was not clear to me if the survey being sent by email collects data anonymously and if not, if socially desired answering could be a concern. 5. Additionally, workforce of primary care physicians can be also influenced by stress levels and mental health issues. To which

	extend will this new study reflect on increasing problems of burnout?

VERSION 1 – AUTHOR RESPONSE

Reviewers' Comments to Author:

Reviewer: 1

I appreciate being able to review this study protocol. The use of a mixed methods approach is unique and I am excited to see what the authors discover in their study. I have a couple of questions/points of inquiry.

1. There is no mention of geographic distribution in regards to the PCP ratio or scope of practice. As comprehensiveness of family physicians is likely different in rural versus urban areas due to availability of specialists, I would be interested separating physicians by this characteristic. There is already data published on the urban:rural scope disparity.

Thank you for highlighting this point. We agree that analysis separated by rural and urban settings is very important. We plan to use purposeful sampling to ensure adequate representation of rural practice experiences and intentions in the qualitative component. We plan to make comparisons across remote, rural, small urban, and metropolitan settings within quantitative analysis.

We now clarify plans for qualitative recruitment on pages 8-9 and for stratified quantitative analysis on page 11.

2. Given that BC, ON, and NS do have different health delivery systems, I wonder how generalizable this study will be to Canada as a whole? Or even within the province given the number of IDIs planned. If possible, increasing the number of interviews in each province would be beneficial to be able to better group physician characteristics - intersectionality may be a large part of practice patterns.

With respect to the qualitative arm of the study, the intention is to generalize to theory rather than to generalize to populations. We expect quantitative findings can generalize to other provinces within Canada.

Regarding sample size for qualitative interviews, British Columbia, Ontario, and Nova Scotia have similar health systems insofar as they are all single-payer systems organized under the Canada Health Act thought options for primary care practice differ. We are also dealing with fairly homogenous stages of career and focusing on one profession within Canada. A sample size of 90 in-depth interviews, combined with a purposeful sampling strategy, including sampling from three provinces and multiple other characteristics thought to affect practice patterns, gives us a large and powerful dataset for qualitative research.

We will provide detailed description of our qualitative sample in any published qualitative results so a potential reader can consider the transferability of the study results to their population of interest, which will also help with this reviewer's concern about transferring the qualitative results to other provinces.

To our knowledge, this if the first qualitative investigation of the possible multiple factors influencing early career physicians' practice patterns. We agree that future work should continue to undertake

additional in-depth interviews to build on what we find and expand the theoretical understanding of the multiple influences.

3. Emphasizing the possibilities of practice options will be important rather than just choice of scope of practice; this is mentioned in the proposal and I am wondering how much of this differs between provinces? This would relate to the number of IDIs as indicated above.

I appreciate the authors lack of a priori identifying what an "early career physician" constitutes. Through other similar studies I am working on, we have found that intentions of residents do not at all match the scope of practicing physicians 10 years out. However, there is quite a bit of flux and change throughout those 10 years from in-process analyses. In the US, scope of practice declines among 10 year cohorts 10 years out until retirement (see Coutinho et al. in JAMA). I am interested to see how this compares.

The availability of data may influence the ability to determine the choice of scope throughout years. Recruitment is described as though residency programs and through the FB First Five group, however, how will those 5-10 years out be recruited. Additionally, surveys seems to be given to residents and those 3 years out, but then no additional information after this. These are just limitations to be considered if able to be improved.

Overall, the study is well defined and robust.

Thank you for these helpful suggestions. With respect to the possibilities of practice options, similar models exist in all provinces, but they differ with respect to how widespread they are and the degree to which there are opportunities for early-career physicians to join each model. All provinces physicians have the option of solo or group physician fee-for-service practice. In Ontario blended payment models and support for team-based care are more widespread, but there are some options for alternate payment and team-based practice in both NS and BC. This is mentioned at the bottom of page 6.

Thank you for the very helpful comment and citation, now included and discussed on page 5. We are also very interested to see how patterns compare. While the Canadian survey data is limited to one time point (three years into practice), administrative data will allow us to examine changes by year in practice. We look forward to seeing how these results compare to your findings.

The reviewer makes an excellent point with respect to qualitative recruitment. In addition to the sources previously mentioned we have now obtained approvals to recruit through mailing lists managed by provincial medical associations. This will allow us to reach physicians 5-10 years out more directly. We have noted this addition on page 9.

Reviewer: 2
Reviewer Name: Sven Streit
Institution and Country: University of Bern, Institute of Primary Health Care (BIHAM), Switzerland
Please state any competing interests or state ‘None declared’: None declared.

Well drafted protocol addressing a topic important to primary care physicians as well as patients. It will be informative to see the results of this mixed methods study. Congratulations to the study team for their will in investing time and resources in this topic.

Some remarks to consider:

1. Page 5, Line 7-8: The gap between patient needs and physicians available: To which extent to the authors have an explanation if e.g. the need of patients has increased (e.g. due to multimorbidity and complexity)? The introduction now reads about what early-career physicians might lack in but what if it is the increasing demand causing the gap?

This project is focusing on the physician side of this gap to expand on the literature examining physician choices and patterns reviewed prior to page 5. We agree that understanding patient needs is also important, and may to some degree shape changing practice patterns, but that is outside the focus of this study. As we said in the first paragraph of the paper on page 1, we do know that as physician supply has grown, the age of Canada's population and the complexity of care it is receiving have also grown, but not at rates that can explain the gap between physician supply and patient access. One of the limitations we note on page 4 is as follows:
"This study focuses on changes in services delivered by physicians but does not examine alignment with patient or populations needs, an important topic for future inquiry."

2. Page 5, line 33. The authors might be interested in seeing how Swiss early-career GPs state what they intend to do after completing residency. We as study authors were also interested in understanding if their decisions (here: working as employees rather than self-dependent) is a long-term decision and only by asking them for how long they would like to work employed we learned that their decision was rather a step in their career that will change. Translated to this paper, the authors could try and integrate questions like if early-career GPs are planning to change their e.g. service type within the next 5 years. PMID of the paper in question if interested: 28148245

Thank you for this very helpful citation. We have included it in the background (page 7) along with other recent survey literature. We also include a question about how residents and family physicians anticipate their practice might change within the interview guide.

3. Semi-structured inteviews page 8-9. Would it be an idea to also select specifically participants who in deed have chosen e.g. a reduced service load or spectrum of service in order to better understand their decisions and reasons behind that?

Yes, our purposeful selection strategy will allow us to select participants based on a range of attributes, including practice setting and services provided. We have expanded our explanation of relevant characteristics on page 9.

4. It was not clear to me if the survey being sent by email collects data anonymously and if not, if socially desired answering could be a concern.

While data are collected anonymously, it is possible that perceived desirability of comprehensive family practice may have biased respondents and led to over-reporting of intentions for comprehensive practice. It is for this reason that our mixed methods approach, including analysis of administrative data capturing observed practice patterns is particularly important.

We have added a sentence on page 10 to note this limitation: "It is also possible that perceived social value or desirability of specific forms of practice (e.g. comprehensive practice, home visits) may have biased respondents and led to over-reporting of intentions. Administrative data covering all physicians will not be biased in this way."

5. Additionally, workforce of primary care physicians can be also influenced by stress levels and mental health issues. To which extend will this new study reflect on increasing problems of burnout?

Qualitative data collection is positioned to collect information on how experiences of burnout, or efforts to prevent burnout shape practice choices and intentions. We cannot identify burnout within quantitative data as an independent factor shaping service volume.

VERSION 2 – REVIEW

REVIEWER	Anastasia Coutinho La Clinica Monument California, United States
REVIEW RETURNED	02-Aug-2019

GENERAL COMMENTS	Thank you for the addendums to your study protocol. I believe the expanded awareness of geographic differences and practice setting differences in the IDIs will make a difference in the results obtained. I am looking forward to reading the results.

REVIEWER	Sven Streit Institute of Primary Health Care (BIHAM) University of Bern Switzerland
REVIEW RETURNED	11-Jul-2019

GENERAL COMMENTS	I thank the authors for their revision and responses that answered all my comments and suggestions. Good luck with the study and I am looking forward to seeing it published.