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Title	Access to primary care and other health care use among Western Canadians with chronic conditions: a population-based survey
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Reviewer 1	Rick Glazier
Institution	Institute for Clinical Evaluative Science, Toronto, Ont.
General comments	Major comments 1. Access to primary care including an inter-professional team is a topic of major importance to the health care system and to patients and providers so this research is timely and relevant. The study adds important current information about access to care among people with chronic conditions in the western provinces. 2. The association between obesity and not having a regular medical doctor appears to be novel. The authors have done a good job in raising possible explanations. 3. The authors have not explicitly addressed potential solutions to the main issues they have raised including lack of access to care after hours and lack of access to members of an inter-professional team. It would strengthen the paper if a brief overview of successful interventions elsewhere was included. Minor comments 1. It is unclear how covariates were chosen and included or not included in the multivariable regression models in Table 4. A more complete description in the methods is recommended. 2. It may be useful to add a brief explanation of why diabetes, hypertension, heart disease and stroke were chosen. This is a heterogeneous group of conditions, especially hypertension which is asymptomatic, much more prevalent than the others, and rarely a cause of emergency department visits or hospital admissions. It may also have less of an indication for inter-professional care than the other conditions. 3. The Conclusion mentions nurse practitioner-led clinics. This term and concept does not appear anywhere else in the paper so it seems awkward here. In expanding on potential solutions, the authors may wish to describe such clinics and their implementation elsewhere in Canada.
Reviewer 2	LC Yasaitis
Institution	Center for Population and Development Studies, Harvard University, Cambridge, Mass.
General comments	The authors do a good job of summarizing their findings on potential barriers to primary care for patients with chronic illnesses. A few areas could benefit from some further clarification. First, there is a quite a bit of discussion of obesity in the article and conclusion, but it is not mentioned in the abstract. If this is an important finding, it should be mentioned from the beginning. The initial population eligible for this survey was selected from the CCHS, a survey that had already been completed. What was the response rate for that initial survey? Were any specific populations (aside from the ones mentioned that were ineligible) more or less likely to respond to the initial CCHS? Also, do the authors have access to all of the initial CCHS data? If so, it would be helpful to know if respondents to the survey described in this paper were any different from non-respondents. In the "Other Health Care Use" paragraph in the Results section, it would be helpful to have some context regarding the overall hospitalization rates and ED visit rates for populations with similar demographics. What percent of the general population of this age range visits the ED in a year? Is 8.1% a lot higher than this? In the "Interpretation" section, the authors note that two-thirds of the study population did not have access to after-hours appointments with their physicians, while one-third of those who visited the ED for their chronic condition believed that visit could have been avoided had they been able to see their physician. The authors seem to imply that providing after-hours access would make physicians available, and thus prevent those ED visits. Yet, they don't provide any statistics regarding the overlap of these two populations. Were there any respondents who felt they could have avoided the ED had their physician been available, yet also reported having access to after-hours appointments? There may be more than one reason (aside from the time of day) that patients cannot get access to their physicians.
Reviewer 3	Willemijn Schäfer

Institution	Netherlands Institute for Health Services Research, Utrecht, The Netherlands
General comments	In general, the publication is clearly written and yields a lot of interesting and relevant information. However, the aim of the paper is not completely clear and it could benefit from structuring by e.g. including research questions. This is more clearly outlined below. Title and abstract (p2/3) While the title of the article states that it is about primary care and "other health care" the abstract does not go into results related to other health care than primary care. In general, the title seems somewhat misleading. I expected that the complete article would focus on the relationship between primary and hospital care, however, this is not the case. In your interpretation, you recommend to include involvement of nurse practitioners. However, the continuity related to out of hours care seems to be an even bigger problem and should probably be included in your interpretation. Introduction The objectives mentioned in the introduction are very broad and while reading this, it was not yet clear to me what I could expected from the paper. It would be good if you could include one or several research questions which are leading for the article. Also: which relationships are being researched? Maybe you can even include some hypotheses. Methods In the methods the key variables are summed up, but the function the variables is not mentioned. What are your outcomes and what are the explanatory variables? Results The results are written clearly, even though the part could benefit from 'guidance' through research questions. Interpretation From the interpretation it becomes clear that the study consists of three parts: 1. The availability of ooh primary care and the use of hospital care 2. The effect of obesity on having a personal doctor 3. Use of allied health care professionals in Primary Care Coherence between these three topics seems to be missing. In your conclusion you try to link them through associating them with 'barriers in access.' However, it can be expected the relationship between obesity and having a personal doctor relies on the personal preferences/ propensity to seek care of these patients rather than on actual barriers in (primary) care. It is also not clear what the barriers for the use of e.g. nurse practitioners would be. Finally, please add some information on the generalizability of your results. Tables The tables are clear, but somewhat extensive. Especially the table with demographic variables could be comprised. Recommendation: Major Revision
Author response	**Reviewer 1:** Major comments 1. Access to primary care including an inter-professional team is a topic of major importance to the health care system and to patients and providers so this research is timely and relevant. The study adds important current information about access to care among people with chronic conditions in the western provinces. *Thank you.* 2. The association between obesity and not having a regular medical doctor appears to be novel. The authors have done a good job in raising possible explanations. *Thank you.*

	3. The authors have not explicitly addressed potential solutions to the main issues they have raised including lack of access to care after hours and lack of access to members of an inter-professional team. It would strengthen the paper if a brief overview of successful interventions elsewhere was included. *While we agree that these are important questions, we feel that addressing them in detail would be beyond the scope of this paper, particularly given the space limitations, which we have already exceeded. We have, however, noted that greater involvement by nurse practitioners has been found to be successful elsewhere, and could potentially address access issues.* *Further, since most patients indicated they would be willing to see a nurse practitioner if their regular primary care physician were not available, and given that nurse practitioner-led clinics have been shown to be effective for chronic disease management (2-4), greater utilization of nurse practitioners in primary care practices, possibly including after-hours care, may be an option to improve access to primary care and outcomes for these patients.* Minor comments 1. It is unclear how covariates were chosen and included or not included in the multivariable regression models in Table 4. A more complete description in the methods is recommended. *Thank you for this suggestion. Covariates tested for inclusion in the models were chosen for each outcome (drawn from the variables in Table 1) which we had identified a priori as being potentially associated with that outcome. We followed a forward stepwise approach in model-building, retaining covariates which were statistically significant at the .05 level, as we were limited in the number of variables that could be included in the model by both the sample size and model convergence issues.* *We have added a sentence to Methods to describe this model-building process.* *Models were constructed using a forward stepwise approach, testing variables (see Table 1 for list of variables) for inclusion (using P<.05) which we had identified a priori as being potentially associated with that outcome.* 2. It may be useful to add a brief explanation of why diabetes, hypertension, heart disease and stroke were chosen. This is a heterogeneous group of conditions, especially hypertension which is asymptomatic, much more prevalent than the others, and rarely a cause of emergency department visits or hospital admissions. It may also have less of an indication for inter-professional care than the other conditions. *Our primary interest was in studying barriers to primary care related to vascular disease. Since hypertension and diabetes are both conditions that, if untreated, increase the risk of vascular disease, we included them as conditions of interest. Doing so also increased our sample size significantly since, as you identify, hypertension is more prevalent than the other conditions. In addition, as you also note, hypertension may have less of an indication for inter-professional care than the other conditions. However, we were able to adjust where necessary for the type of chronic disease in our models of the prevalence of inter-professional care, so these differences have been taken into account in our analysis. We have added a sentence to the Introduction clarifying why the conditions were chosen.* *Hypertension and diabetes were included given their association with vascular disease.* 3. The Conclusion mentions nurse practitioner-led clinics. This term and concept does not appear anywhere else in the paper so it seems awkward here. In expanding on potential solutions, the authors may wish to describe such clinics and their implementation elsewhere in Canada. *Thank you for this suggestion. While we refer to several studies of nurse practitioner-led clinics in our comparison with other findings, we agree that greater use of nurse practitioner-led clinics is not directly supported by our data, so we have changed the wording in the concluding paragraph to "greater use of nurse practitioners." While we agree that a more extensive review of nurse practitioner-led clinics would be informative, we also feel that it would be beyond the scope of this paper, particularly given that we are already exceeding the word count.*

Importantly, we identified opportunities for greater involvement by allied health care professionals in these patients' care—in the primary care physician's office, or through greater use of nurse practitioners—that could help to address service gaps such as lack of after-hours access.

Dr. Rick Glazier
Institute for Clinical Evaluative Sciences Toronto, ON

Reviewer 2:

The authors do a good job of summarizing their findings on potential barriers to primary care for patients with chronic illnesses. A few areas could benefit from some further clarification.

1. First, there is a quite a bit of discussion of obesity in the article and conclusion, but it is not mentioned in the abstract. If this is an important finding, it should be mentioned from the beginning.
At present, we note in the Results section of the abstract that obesity was associated with not having a regular medical doctor. We feel that further elaboration is precluded by the abstract word count limit.

2. The initial population eligible for this survey was selected from the CCHS, a survey that had already been completed. What was the response rate for that initial survey? Were any specific populations (aside from the ones mentioned that were ineligible) more or less likely to respond to the initial CCHS? Also, do the authors have access to all of the initial CCHS data? If so, it would be helpful to know if respondents to the survey described in this paper were any different from non-respondents.

Statistics Canada undertakes significant efforts to maximize the response rate to the CCHS, including offering the capacity to conduct interviews in many languages (5). The overall combined response rate for the 2011 CCHS was 69.8% (made up of a 79.5% household response rate and an 87.8% person (i.e., within household) response rate. Response rates were similar across provinces, and in the four western provinces were: B.C. 67.7%, Alberta 66.5%, Saskatchewan 72.5%, Manitoba 71.1%, giving an overall response rate for the four Western provinces of 68.7%. Non-response to the CCHS was addressed by Statistics Canada's complex weighting techniques in order to ensure that the weighted sample of respondents represented the eligible population as closely as possible. We are not aware of any studies that have shown the CCHS to be non-representative of the population from which it draws. We have added a sentence to the first paragraph of the Methods section describing the representativeness of the CCHS.

The response rate to the CCHS in the four provinces was 68.7%, with non-response being addressed through Statistics Canada's complex weighting techniques.

The response rate for the BCPCHC was 80%. We did not have access to the responses to the CCHS of all individuals who were eligible for the BCPCHC, so we cannot determine directly if respondents to the BCPCHC differed from the pool of CCHS respondents from which they were drawn. However, Statistics Canada adjusted the sampling weights for the BCPCHC to take into account differences by province, type of chronic condition, and age group between those who responded to the BCPCHC and the pool of eligible respondents (6). This ensured that the weighted sample of BCPCHC respondents matched the eligible population as closely as possible. We have reworded a sentence in the Analysis section to better describe this process.

Frequency weights for the survey were calculated by Statistics Canada based on the weights from the 2011 CCHS, which were adjusted for non-response by province, disease and age group; after weighting the sample was representative of the adult population aged 40 years and older with the chronic conditions in the four western provinces.

3. In the "Other Health Care Use" paragraph in the Results section, it would be helpful to have some context regarding the overall hospitalization rates and ED visit rates for populations with similar demographics. What percent of the general population of this age range visits the ED in a year? Is 8.1% a lot higher than this?

	We apologize for our lack of clarity in some cases in referring to hospitalization and ED visit rates among the respondents. The rates referred to in our paper were for hospitalizations and ED visits specifically related to the respondent's chronic disease(s), which were likely much lower than the overall rates of hospitalization and ED visit for any cause. Because of the way the rates in our paper were defined, it is not possible to define a comparable rate in the general population. We have revised our wording to clarify that we are referring to hospitalizations and ED visits specifically related to the chronic disease(s). 4. In the "Interpretation" section, the authors note that two-thirds of the study population did not have access to after-hours appointments with their physicians, while one-third of those who visited the ED for their chronic condition believed that visit could have been avoided had they been able to see their physician. The authors seem to imply that providing after-hours access would make physicians available, and thus prevent those ED visits. Yet, they don't provide any statistics regarding the overlap of these two populations. Were there any respondents who felt they could have avoided the ED had their physician been available, yet also reported having access to after-hours appointments? There may be more than one reason (aside from the time of day) that patients cannot get access to their physicians. *Thank you for raising this point. We did look at this question in our survey data, and found that fewer individuals who had after-hours access to their physician reported an avoidable ED visit for their chronic condition compared to those who did not have after-hours access, although the difference was not statistically significant. Our ability to discern a significant association in our data was limited by our small sample size and the prevalence rate of avoidable ED visits of about 3%. A larger study in Ontario did find that increased after-hours access to a primary care physician was associated with a reduction in ED use, as we noted in our paper (7).* *We agree that there may be other reasons for patients not being able to access their regular physician for an appointment, such as not being able to obtain an appointment on short notice, regardless of the time of day. Improving after-hours access would therefore not prevent all avoidable ED visits, but would address one important barrier.* Dr. LC Yasaitis Harvard University Center for Population and Development Studies Cambridge, MA **Reviewer 3:** 1. Title and abstract (p2/3) While the title of the article states that it is about primary care and "other health care" the abstract does not go into results related to other health care than primary care. In general, the title seems somewhat misleading. I expected that the complete article would focus on the relationship between primary and hospital care, however, this is not the case. *The main purpose of the paper was to describe certain aspects of access to primary care in this population. We also include a discussion of other aspects of health care use, such as hospitalizations and ED visits for the chronic condition, mainly as potential indicators of poor access to primary care.* *In light of this, we would consider dropping the reference to "other health care use" in the title, making it "Access to primary care among Western Canadians with chronic conditions: a population-based survey." We would defer to the editor's judgment in this regard.* In your interpretation, you recommend to include involvement of nurse practitioners. However, the continuity related to out of hours care seems to be an even bigger problem and should probably be included in your interpretation. *We apologize for our lack of clarity here. Our intention in the Interpretation section was to suggest that nurse practitioners could potentially be used to address lack of access to after-hours care. We have clarified this in our discussion of nurse practitioner involvement.*

	…greater utilization of nurse practitioners in primary care practices, possibly including after-hours care, may be an option to improve access to primary care and outcomes for these patients. 2. Introduction The objectives mentioned in the introduction are very broad and while reading this, it was not yet clear to me what I could expected from the paper. It would be good if you could include one or several research questions which are leading for the article. Also: which relationships are being researched? Maybe you can even include some hypotheses. *Thank you for this suggestion. We have reworded our statement of objectives to describe more specifically the focus of our work. Because our research was exploratory, we did not have specific hypotheses about associations between variables. While we did identify a priori lists of covariates that we thought could potentially be associated with the outcomes that we modelled in Table 4, we think it would be unwieldy to list them all.* *The objectives of this paper were to describe access to primary care (primary care physicians and other health professionals) and other health care use (specialist care, hospitalizations and emergency department visits) in adults with these chronic conditions…* 3. Methods In the methods the key variables are summed up, but the function the variables is not mentioned. What are your outcomes and what are the explanatory variables? In our description of key variables, we have now identified which were subsequently used as outcomes in the multivariable modelling, in addition to including this information in the description of the modelling. We have also clarified our process for selecting explanatory variables (see also Reviewer 1, minor comment 1) *Not having a regular medical doctor, having another health professional involved in care, and having contact with a nurse in the prior year were the outcomes and indicators of access to primary care.* *Those who had visited an emergency department for their chronic condition were asked whether they thought this could have been avoided had their regular provider been available; this item was also used as an outcome indicating poor access to primary care.* 4. Results The results are written clearly, even though the part could benefit from 'guidance' through research questions. *With the above revisions, we believe the link between our research objectives and the description of results should be clearer.* 5. Interpretation From the interpretation it becomes clear that the study consists of three parts: a. The availability of ooh primary care and the use of hospital care b. The effect of obesity on having a personal doctor c. Use of allied health care professionals in Primary Care Coherence between these three topics seems to be missing. In your conclusion you try to link them through associating them with 'barriers in access.' However, it can be expected the relationship between obesity and having a personal doctor relies on the personal preferences/ propensity to seek care of these patients rather than on actual barriers in (primary) care. *We have clarified in our objectives that our main focus was to investigate barriers to accessing primary care (including both physicians and other health care professionals), and to describe other health care use, particularly to the extent that it reflects access to primary care. Obesity emerged as an important characteristic associated with lack of access to a primary care physician, while we also identified characteristics associated with access to allied health care professionals in primary care.*

	We acknowledge that we may have been unclear in how what we meant by barriers; we defined it broadly, including those at the patient, provider and system levels. From this perspective, the factors associated with obese patients not having a regular physician could be seen as provider-level barriers (negative physician attitudes) or patient-level barriers (fear or embarrassment). We have clarified this in our statement of objectives. *…and to identify some potentially modifiable barriers at the patient, provider and system level related to lack of access to primary care.* *It is also not clear what the barriers for the use of e.g. nurse practitioners would be. Again, we apologize for any confusion. The question on the survey about patient attitudes to the use of nurse practitioners was included as an option that could potentially be used to improve access to primary care, so was not associated with a barrier but rather a potential strategy for overcoming a barrier. We have clarified this by noting specifically that nurse practitioners could be used to provide improved after-hours access.* *…greater utilization of nurse practitioners in primary care practices, possibly including after-hours care, may be an option to improve access to primary care and outcomes for these patients.* Finally, please add some information on the generalizability of your results. *As requested, we have added a sentence to Limitations indicating that our findings are likely generalizable to all of Canada, notwithstanding some interprovincial differences in health care delivery.* *Finally, recognizing that there are some interprovincial differences in health care delivery (e.g. drug insurance coverage), we believe that our main findings are likely generalizable to the rest of Canada.* 6. Tables The tables are clear, but somewhat extensive. Especially the table with demographic variables could be compressed. *We have revised Table 1 so that two rows which present data for binary variables now contain the prevalence of one of the categories, rather than both.* Dr. W. Schafer Netherlands Institute for Health Services Research Utrecht, Netherlands