Author's response to reviews

**Title:** The British Columbia Nephrologists' Access Study (BCNAS) - A Prospective, Health Services Interventional Study to Develop Waiting Time Benchmarks and Reduce Wait Times for Out-Patient Nephrology Consultations

**Authors:**

- Michael E Schachter (mschac1@gmail.com)
- Alexandra Romann (aromann@bcpra.ubc.ca)
- Ognjenka Djurdjev (odjurdjev@phsa.ca)
- Adeera Levin (ALEvin@providencehealth.bc.ca)
- Monica Beaulieu (mbeaulieu@providencehealth.bc.ca)

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**Author's response to reviews:** see over
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Dear Dr. BMC Nephrology Editorial Team,

MS ID#: 1051359642879892

MS TITLE: The British Columbia Nephrologists' Access Study (BCNAS) - A Prospective, Health Services Interventional Study to Develop Waiting Time Benchmarks and Reduce Wait Times for Out-Patient Nephrology Consultations

Thank you for encouraging us to submit a revised version of the above titled paper for re-evaluation by your expert Reviewers. We thank your Referees for their insightful comments, which have been addressed in a manuscript that we believe is now much improved.

Enclosed, please find our responses to Reviewers, which highlight the changes made to our manuscript and conform to the style of your journal.

If the Editors would like us to make additional changes, we will be happy to do so.

Sincerely,

Michael Schachter, Alexandra Romann, Ognjenka Djurdjev, Adeera Levin and Monica Beaulieu
In the article entitled ‘The British Columbia Nephrologists’ Access Study (BCNAS) – a prospective, health services interventional study to develop waiting time benchmarks and reduce wait times for out-patient nephrology consultations’, Schachter et al. evaluated a collaborative approach between family physicians and nephrologist to reduce waiting times for patients in the British Columbia region. The measured wait times in the region pre- and post-intervention and developed wait-time categories. This is an example of a real-life study with the limitations associated with this approach, but above all this study nicely demonstrates that by applying such an approach wait times can be effectively reduced.

The study questions are clearly defined and the study approach taken is appropriate. The authors used a Delphi approach to obtain a consensus regarding wait-time categories, and by introducing these wait-time categories were able to significantly reduce wait times in the BC area. The data are sound, appropriate statistical methods are applied and the manuscript is well written. The main limitation of this study is that patient satisfaction and outcome were not evaluated. But this was beyond the scope of the study and this is also acknowledged by the authors. Furthermore, in a study like this it is impossible to control for all factors possibly affecting referral and wait times, but the authors tried their best to explore alternative explanations for the observed reduction in wait times. In conclusion, I feel this paper should be published as such in the BMC nephrology.

*We would like to thank the Reviewer for his comments. No specific changes were suggested, so none have been addressed.*
Schachter et al describe and evaluate an intervention aimed at standardizing and decreasing wait times for new outpatient nephrology clinic appointments. Given the recent push for patient-centered and accountable care, this project is timely and important. …Specific comments listed below.

Major Compulsory Revisions:
1. Abstract: Analytic methods are not specified. The last sentence of the introduction addresses

_We would like to thank the Reviewer for the words of encouragement. As suggested, we have now added the following sentence into the abstract, Methods section: “…Rules were developed to weigh-in nephrologists’, FPs’, and patients’ perspectives in order to generate waiting time benchmarks…”_

2. Figure 1: This is introduced a little too early in the Methods section, since MOAs are not defined until later. Also, the figure refers to surveys that have not yet been introduced in the text. This figure might provide more insight into the process/intervention if it were constructed as a timeline. Could the authors be clearer about the contents of the boxes? Does the middle box represent the intervention?

_We have delayed introduction of Figure 1 until the Data Collection sub-section of methods (pg. 4), after MOAs are defined. We also re-designed Figure 1 as a timeline and have been more specific with the content of the boxes to improve clarity. The figure is now explicit with respect to which box represents the intervention._

3. Methods: Can the authors make more clear how many providers participated in the intervention? What was the response rate among nephrologists and PCPs? Was there overlap in the nephrologists whose offices were audited and those who participated in the intervention? And, how many nephrologists are there in BC?

_The “intervention” was a Province wide campaign to focus nephrologists’ attention on addressing waiting time 1. In that sense, all Provincial nephrologists were meant to participate and we can confirm that all participating nephrologists received the intervention. We also measured the provincial reduction in waiting time 1 in aggregate, which shows the intervention was effective at the Provincial level. With respect to participating in data-collection for our study, Figure 1 has been revised to show that 43 of 52 (2010), and 46 of 57 (2012) BC nephrologists participated in pre- and post-intervention MOA Data entry cycles. This is also described in text in the first sentence of the results section (pg. 7)._  

_In the Results section, sub-section on Nephrolgists and Family Physicians (pg. 7) we now state that 35 of 43 FPs (81%) attending a one-day course in nephrology participated in the PF survey._
The total number of nephrologists in BC was 52 in 2010 and 57 in 2012 as stated above.

4. Methods: A Delphi process implies a formal consensus-building process that incorporates data/opinions from multiple stakeholders. Can the authors explain how their process allowed for consensus building? It seems as though expert opinions about appropriate wait times were sought from PCPs and specialists separately but that neither group was told about the other group’s opinions.

*We have revised the wording (Methods section, subsection Intervention; pg. 5) to: “Through further face-to-face meetings and surveys, we used an iterative process modeled on the modified Delphi technique. Input from stakeholders including BC nephrologists and Family Physicians (FP) was used together to develop condition-specific wait time recommendations...”.*

Later in this section (pg. 6), we state how the final step of consensus-building was achieved, “...to confirm consensus, the final step in our iterative benchmarking method included approval of benchmarks by BC Nephrologists at the BCPRA Medical Advisory Committee meeting (June 3, 2011)...”.

5. Methods and Table 4: Change in wait time is impacted by demand in addition to supply of nephrologists (as the authors point out in Figure 2). Can the authors present data on referral rate to nephrology over time? Can the number of new patients seen by each Health Authority be added to Table 4? Currently, there is a mention of a 22% reduction in referral rate in the discussion, but these data belong in the results section.

*Our study was done using two cross-sectional data-collection periods. We chose the same two-week period in 2010 and 2012 to minimize the likelihood of systematic seasonal variation in referral rates. Measurement of longitudinal referral rates to nephrology over time is beyond the scope of our investigation, and we did not collect data to address this.*

*We unfortunately are unable to present the number of new patients seen by each Health Authority, because we agreed to keep the identity of health authorities confidential. Given that there are some large, and some small health authorities, knowledge of the number of referrals would allow readers to infer health authority identity.*

*With regard to the 22% reduction in referral rate mentioned in the discussion, these data are presented in Table 1 (Patients row, n=518 in 2010 and n=402 in 2012). We have revised this sentence in the Discussion Section (pg. 10) to read, “... The 35% reduction in actual wait times (from median 98 to 64 days) was proportionately greater than the 22% reduction in total referrals (from 518 to 402, Table 1), ...”.*

6. Results: Of the 43 respondents and 46 office audits, how many different practice groups were represented? There are likely practice group-level variables that influence change in wait time more than individual nephrologist
characteristics. If many nephrologists were in the same practice group, the analyses should account for clustering by practice group. A sensitivity analysis examining this type of clustering would strengthen the manuscript.

In the Results section (pg. 7) the following sentence has been added regarding nephrology practice groups, “Ten of 12 (83%) nephrology practice groups had at least one member participate in 2010 and 2012 MOA data-collection cycles.”

While a sophisticated sensitivity analysis examining cluster effects would be ideal, the small sample size, non-identifiable nature of the individual nephrologists, and to which practice group they belong make this problematic. We have added the following sentence in the manuscript (Discussion section, sub-section Strengths and Limitations, pg. 13), which describes this relative limitation, and thank the reviewer for the thoughtful comment:

“...Finally, due to nephrologist anonymity, and an inability to link nephrologists with practice groups, we were not able to conduct a sensitivity analysis examining the impact of group practice level variables, which might allow additional conclusions to be drawn from these data...”

7. Results: In paragraph 2 of the results section, can the authors provide examples of the type of patient factors that resulted in appointment rescheduling?

We did not record the specific reasons (“patient factors”) why patients asked to re-schedule. For clarity, the sentence has been modified to read, “... Overall, rescheduling was more often due to patients cancelling or re-scheduling (55%)…”

Minor Essential Revisions:
1. Introduction: In the last paragraph, please define “pooled triage”.

The definition of pooled triage has now been included as follows (pg. 3), “… 3) Encouraged pooled triage (patients assigned to first-available nephrologist in group practice) where possible ...”.

2. Methods: How were referral letters received by nephrologists? Fax? Email?

The majority of referrals are received by fax. This has now been noted in the Methods section, sub-section on Data Collection (pg. 4) as follows: “...The first group included patients whose referral requests were received by fax during the study and the second group were new patients that were seen in the office for the first time during the study period...”.

3. Methods: In the paragraph about outcomes measures, the primary outcome was the proportion of ‘new patients” that were seen within recommended wait
time targets, correct?

Yes. The sentence now reads, “… The primary outcome was the proportion of new patients that were seen within the recommended wait time targets …”.

4. Results: In the second paragraph, authors mention a mean of 8.1 (5.9) hours dedicated to office practice. Do the data in the parentheses represent a standard deviation?

Yes. The sentence now reads, “…Nephrologists allocated a mean 8.1 (standard deviation, 5.9) hours …”.

5. Table 2: Isolated microscopic hematuria does not have a proposed median waiting time recommended by FP. Is this because family practitioners did not feel that these patients needed to be seen by a specialist?

FPs felt comfortable discussing microscopic hematuria with a nephrologist via telephone.

6. Figure 2 is not clear.

Figure 2 has been re-submitted. The file should now be clear.

Discretionary Revisions:
1. Methods: What types of clinical and demographic data were obtained from the data collection forms?

In the Methods section, sub-section Data Collection (pg. 4), the following sentence has been added: “… Specifically, we recorded patients’ age and sex, renal function, proteinuria, reason for referral, and how many times they were re-booked before being seen...”.