Title: Pre-pregnancy predictors of hypertension in pregnancy among Aboriginal and Torres Strait Islander women in North Queensland, Australia: a prospective cohort study.

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Letter to the Editor

BMC Public Health

Dear Mr Silvestre

Re: MS ID 3112930078881025 Pre-pregnancy predictors of hypertension in pregnancy among Aboriginal and Torres Strait Islander women in North Queensland, Australia; a prospective cohort study.

Many thanks for your further consideration of this manuscript. Please find below, our point-by-point response (highlighted with *italics*) to the reviewers’ comments.

Kind regards

Dr Sandra Campbell (on behalf of the manuscript authors)

Reviewer 1.

**Abstract**

In the background, does the term indigenous refer to both Aboriginal and Torres Strait Islander women.

Yes. There are two Indigenous groups in Australia, Torres Strait Islanders and Aboriginal Australians are ethnically, culturally and historically distinct groups. The traditional lands of Torres Strait Islanders are limited to the islands and waters of the Torres Strait between the northern most tip of Queensland and Papua New Guinea.

Please remove the phrase ‘potentially amenable to intervention before pregnancy’ from the abstract.

The phrase has been removed.

It is unclear what the work ‘linked’ means in the methods. Also, it is not known what and/or who the two population of data represent. Were all the women in the ‘hospitalisations data’ indigenous; were all the women in the ‘perinatal data’ non-Indigenous: Did all the women included in the study become pregnant: the term childbearing age is ambiguous.

The methods section of the Abstract has been amended to enhance clarity (below).

**Methods**

Data on a cohort of 1009 Indigenous women of childbearing age (15-44 years) who participated in a 1998-2000 health screening program in north Queensland were combined with 1998-2008 Queensland hospitalisations data using probabilistic data linkage. Data on the women in the cohort who were hospitalised for birth (n=220) were further combined with Queensland perinatal data which identified those diagnosed with hypertension in pregnancy.

The literature has varying definitions of the metabolic syndrome. Can the aspects of this syndrome that were examined in this study as risk for hypertension in pregnancy be defined in the abstract? Please define what the authors consider the metabolic syndrome.

In the Abstract “International Diabetes Federation Criteria” is included after metabolic syndrome.
Among those free of diabetes at baseline, the presence of the metabolic syndrome (International Diabetes Federation criteria) predicted over a three-fold increase in age-ethnicity-adjusted risk (3.5; 1.50-8.17).

The complete definition has been added to the manuscript methods section at p7. The definition is also repeated in the tables (footnoted).

**Metabolic syndrome**

The metabolic syndrome in this study is defined according to the International Diabetes Federation criteria as comprising waist circumference $\geq 80$ cm plus two or more of the following: raised triglycerides ($\geq 1.7$ mmol/L), reduced high-density lipoprotein ($< 1.29$ mmol/L), raised blood pressure (systolic $\geq 130$ mm Hg or diastolic $\geq 85$ mm Hg) and raised plasma glucose ($\geq 5.6$ mmol/L) (http://www.idf.org/metabolic-syndrome).

In the results and conclusion, please do not use the word subsequent. This phrasing makes it seem that multiple pregnancies were assessed in this study.

The word subsequent has been removed from the results and conclusion (and indeed the entire manuscript).

**Introduction**

The introduction is repetitive. The introduction should be more tightly organized. In the first paragraph, although the % values are there, it needs to be highlighted that reason the specific populations were included is because there are at the extreme risk for developing hypertension in pregnancy. This paragraph needs to point readers in the direction the study was taken, i.e., it is unclear what causes the increased risk for hypertension in pregnancy in the indigenous populations.

Actually, it seems that the first, second, and third paragraphs and the first three sentences of the last paragraph need to be combined. Although the information in the second paragraph is necessary, it seems that this paragraph breaks the natural progression of the background (it separates two paragraphs where the Australian populations are discussed). The new first paragraph should have the following organization: 1: highlight the reason the indigenous populations were studied by combining the first and third paragraphs and those sentences in the last paragraph and use points from the second paragraph when it is necessary to define the types of hypertension during pregnancy) and 2: state that it is unclear why the indigenous populations have this increased risk for hypertension in pregnancy.

The last paragraph should begin with the fourth paragraph and tack on the last two sentences of the last paragraph.

The background section has been rewritten according to the reviewers suggestions.

**Methods**

The Methods section needs to be reorganized: The ‘Study population’ paragraph should be the first section of the methods.

The Study population paragraph has been moved.

The next paragraph should be the “Study design and data sources’ section, however, renamed this as ‘Data sources’. In the first sentence, replace the semicolon with a comma. Also in the first sentence replace the last ‘the’ with ‘this’. Please state where the second dataset begins in the first paragraph. In the second sentence, the ‘c’ in check should be capitalized; place a sentence in parentheses that indicates that the specifics of the WPHC are detailed below. In the last sentence of the first paragraph, capitalize the ‘c’ in classification and replace ‘health check’ with ‘WPHC’.
The paragraph has been amended according to the above recommendations.

Why is the third dataset paragraph separated from the paragraph describing the other two datasets? Was the third dataset related to the WPHC? Were pre-pregnancy parameters assessed in this population? It should be stated clearly the purpose for including each data set in this study.

The ‘Data sources’ paragraph is now one paragraph and the purpose for including the dataset (to identify cases with hypertension in pregnancy) is clearly stated.

The ‘Data collection’ section should be retitled the ‘Well Person’s Health Check’.

The section has been retitled.

Self-reported behavioural factors should be separated from the blood pressure details and placed in its’ own section.

These have been separated.

Cities and country details for products should be kept consistent. If cities and countries are mentioned for one product, both details must be mentioned for all products.

City and country details for products are not necessary and have been removed from the manuscript.

Results

Please retitle the first section: ‘Pre-pregnancy characteristics at WPHC’. The first sentence should begin by saying, ‘At the baseline WPHC…’

Changes have been made.

What ‘characteristics’ are you referring to in the first paragraph” Does this include baseline blood pressure and circulating lipid values that are described later in the results? Perhaps a list of these values followed by the citation would prepare the reader for what will be included in the results. Remove the word ‘briefly’ because these values are important for the topic at hand.

All the suggested changes have been made. (Results-para1)

Second paragraph: remove ‘among the women who had a baby’ from the title. Change phrase health check to WPHC.

Changes have been made.

Third paragraph: retitle to ‘Pre-pregnancy characteristics as risk for hypertension in pregnancy: unadjusted analyses’. Fruit and vegetable intake are included as a pre-pregnancy characteristic, was this parameter included in the unadjusted analysis.

Fruit and vegetable intake was not analysed due to very small cell size (n=1). It has been removed from the table and the text.

In the third section it is not clear why the section was broken into two paragraphs. It seems that the authors are just listing their results when there should be some type of coherent flow to make it easy to read. Maybe ‘metabolic syndrome’ should be defined in the background; remove the parentheses-enclosed statement.
The third section is now presented in one paragraph, the flow has been improved and metabolic syndrome is now defined in the methods section of the paper.

In the fourth section, please retitle to ‘Pre-pregnancy characteristics as risk for hypertension in pregnancy; analysis adjusted for age and ethnicity. Again, it is not clear why this section was separated into two paragraphs, please give a nice direction for your results.

The section has been retitled, combined in one paragraph and the flow improved.

Tables

Why is Torres Strait Islander mentioned twice?

The two groups included are first, women who identified as Aboriginal, and second, women who identified as Torres Strait Islander or as having both Torres Strait Islander and Aboriginal ancestry. This information is now footnoted at the bottom of the Table.

In the heading for table two, remove ‘during the subsequent’. It should be said in the methods that pregnancy characteristics were assessed after the WPHC.

‘during the subsequent’ has been removed from the heading and it is clear in the methods that pregnancy characteristics were assessed after the WPHC. (Methods-Data sources-para 1).