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Title	Prenatal care of women who give birth to children with Fetal Alcohol Spectrum Disorder in a universal health care system: a case control study using linked administrative data
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Reviewer 1	Laurence Svenson
Institution	Analytics & Performance Reporting, Alberta Health, Edmonton, Alta.; Division of Preventive Medicine, Faculty of Medicine and Dentistry, and School of Public Health, University of Alberta, Edmonton, Alta.; Department of Community Health Sciences, Cumming School of Medicine, University of Calgary, Calgary, Alta.
General comments (author response in bold)	Minor comments: Thank you Dr. Svenson for your thoughtful review. There are a number of typographical errors which need to be addressed. For example on page 3 line 24 "...general population whose children who did not..."; the word who should be removed. Page 8, line 54 "...address this limitation we a gamma...", the word a should be removed. **We have corrected all typographical errors indicated in your review.** Page 4, line 3, "...women across the world consume...". It may be better to say 'report' rather than 'consume'. it is difficult to fully assess consumption. **We have made this correction and used the word "report"** Page 4, line17 - the authors state that the high rates of FASD make prevention important. While I agree, it is more accurate to say that the lifelong impact is what makes this important, not just the frequency. If this was a short term or transient condition, then high rates would be less important. **Thank you for your comment, we agree with your suggestion. We edited the statement to read: The lifelong impact of this disorder makes FASD a global public health concern and significant clinical and policy challenge.** Page 5, line 26, in general it is best not to claim to be the first study, even if the language is to say "To the best of our knowledge..." I understand this is an attempt to demonstrate the novelty and importance of the study. Best to speak to the importance of the topic over being first, which is difficult to confirm. **We have removed the words "first study" and edited the sentence to read: "This study uses a population-based cohort from a country with a universal health care system to compare rates of PNC utilization among women whose child(ren) have FASD relative to women whose children do not have FASD".** Page 6, lines 47-54, the sentence could end with "...not residents of Manitoba" Retaining the comment on those that could not be linked is reasonable, but there should be mention of what proportion couldn't be linked. **Details of how our study cohort was formed are provided in Figure 1: Study Cohort diagram. We have added references to this figure after these statements. 17 women were not linked because they were not covered by Manitoba health.** Page 8-9, A reference to support the use of a gamma sensitivity analysis would be useful. **We have added the following references:** **Rosenbaum P. (2010). Observational studies (2nd ed.). New York, NY: Springler-Verlag** **Lie et al 2013. An Introduction to sensitivity analysis for unobserved confounding in non-experimental prevention research.** Major comments: In the abstract and in the methods generally, it is unclear why a cohort between 1984 and 2012 would be used when the availability of FASD data starts in 1999. For children born in 2012, there is only a year of follow-up for some in that cohort. Given FASD can take some time to be diagnosed, it is unclear if the follow-up for the youngest children was sufficient for case ascertainment. If not, this would bias the results. For children born between 1984 and 1999, there is a higher likelihood that they were missed as cases. Ideally, the authors would have assessed the literature to see the typical age of diagnosis, then created a cohort that matched this. It seems that the data from the 1980s was included because it was available. The authors need to speak to the rationale for the time periods used an the potential confounding this may bring to the analysis. **We used the PATHS Data Resource – a distinct subset of data derived from the data within the Population Health Research Data Repository which provides researchers a unique opportunity to conduct child health and development research using data from a diverse set of sources. The resources contains data on individuals aged 0-18 ears, residing in Manitoba and born between 1984 and 2012. We used this cohort to maximize our chances of capturing all children who may or may not have been diagnosed with FASD throughout their early childhood and adolescence at the Manitoba FASD Centre. We agree with the reviewer that having few follow up years for children born later in the cohort may not have provided sufficient follow up years for children – however, this would imply that some of the children in our comparison group (child woman dyads) may be cases (children with non-diagnosed FASD), which would not weaken our results, rather weaken differences between groups.** On page 12, first paragraph, it would be good to speak to how the FASD Centre data will provide good specificity, but uncertain sensitivity. It is unclear in the paper how children are referred to the Centre. Depending on referrals, the cohort may be missing important sub-populations. If the bias is towards missing women at medium to high risk, this will result in biased results. **We have added the following statement:** **"However, while the FASD Centre data provide good specificity, they provide uncertain sensitivity, as women whose children are not referred to the clinic for assessment will be excluded from the study group. Although the centre receives referrals throughout the province, depending on the biases inherent in the referral process, the cohort may be missing important sub-populations, thus, limiting the generalizability of the findings."** An important limitation is not knowing if any prenatal alcohol screening was conducted, or the overall quality of PNC services. This is not measurable from the data available, but should be mentioned in the limitations. **We agree that this is a very important point and attempted to raise it on page 13 "This study cannot determine if physicians have screened patients for alcohol use during pregnancy or counselled these women about the importance of refraining from alcohol use during pregnancy". We have also added the statement** Table 3 does a nice job providing the descriptive statistics on the cohort and control group. Important variables listed in the

	table like gravity, parity, psychological distress, and involvement with child and family services are not mentioned in the paper. It is also unclear if they were included in an regression models. From the descriptive statistics provided, they are clearly important and would tie together the comments in the interpretation about harder to reach populations. They also speak to the need to examine health data in the context of the social environment. Next steps could be proposed that speak to the need to link health and non-health data together, as would provide valuable information for policy and programs. **We agree that there are very important descriptive statistics on the cohort and control group that are worth commenting and exploring. The current paper is part of a program of work investigating the health care utilization and characteristics and risk factors of women who give birth to children with FASD in Manitoba (as referenced in our protocol paper, which is referenced in the paper). We are working on a paper in progress: "Health and Social Characteristics of Women Who Give Birth to Children with FASD" Results of the Manitoba Mothers and FASD Study". In the interest of word count and not replicating published results we did not focus on the social environment in this paper, but focused on there results of the parental care used among this population. We hope that the forthcoming paper will provide the valuable discussion and information the reviewer is referring to. However, we do agree that it would strengthen our interpretation for this paper, therefore we have added in a richer discussion about these issues in the discussion section (also see comment below). Furthermore, we did not include these variables in the regression models, as many of them occurred after pregnancy and after prenatal care would have occurred, thus they would not have been appropriate confounders.** The interpretation at the end of the paper seems a bit superficial. It mentions outreach programs for harder to reach women, but this concept is not touched upon in the paper. Also, there should be a call for additional research to better understand the quality of PNC and the opportunities to reduce or eliminated alcohol consumption. **Thank you for this comment, we have re-written the interpretation to include insights from your comment: "Women who give birth to children with FASD have higher rates of inadequate PNC, as well as higher rates of social complexities including poverty, mental health issues and involvement with child welfare services. Multi sector interventions that address the social determinants of health are needed that facilitate access to prenatal care for vulnerable women with alcohol use. Results of this study also demonstrated that a substantial percentage of these women did receive adequate PNC and consumed enough alcohol during pregnancy to affect the fetus, highlighting an important need for additional research to better understand the quality of prenatal care and the opportunities to reduce or eliminate alcohol consumption through this health service."**
Reviewer 2	Audrey McFarlane
Institution	Canada FASD Research Network, Vancouver, BC
General comments (author response in bold)	Comments to the Author **Thank you Dr. McFarlene for your review and support of our paper.** On page 20, please consider changing the wording from the women to "admit" to alcohol use during pregnancy with health care provider but perhaps to "discuss". Admit is very judgmental and as we remember that women use alcohol and other substances for many reason. Also, very interesting the number of women who experienced post partum issues. Next paper? Paper is a good read and a welcome addition to the field. **We have changed the word admit to discuss, as we agree with the judgemental nature of the word "admit".** **The mental health of this cohort of women is a very interesting and important topic. We have explored this aspect of this project in two other papers that were published last year. I would be happy to provide copies of these papers if you wish:** **"Suicide and suicide attempts among women in the Manitoba Mothers and Fetal Alcohol Spectrum Disorder cohort: a retrospective matched analysis using linked administrative data" CMAJ Open, 2017** **and** **"The Psychiatric Morbidity of Women Who Give Birth to Children with FASD: Results of the Manitoba Mothers and FASD Study" The Canadian Journal of Psychiatry, 2017.** **We also included references to these two papers in this current paper, as the mental health of our study group is important to comment on.**