**Reviewer’s report**

**Title:** Fluctuations in the Incidence of Type 1 Diabetes in the United States from 2001-2015: A Longitudinal Study

**Version:** 0  **Date:** 26 Jul 2017

**Reviewer:** Anne Peters

**Reviewer's report:**

This is an important paper, one of the first of its kind, attempting to estimate incidence rates of type 1 diabetes in both pediatric and adult patients. They use the Clinformatics Data Mart Database for their analysis.

The paper is well written, clear and concise. It summarizes the existing data and the rationale for this analysis well.

Although I am not a biostatistician, the approach to finding cases with type 1 diabetes seems valid (with one perhaps major exception) and if anything far underestimates the number of adult onset cases of type 1 diabetes. It strengthens the argument that new cases are being found because of the combination the claims and pharmacy databases.

My biggest issue with this study is that in my experience MOST people with adult onset type 1 diabetes don’t present acutely. They manifest their diabetes as what is diagnosed as "type 2 diabetes" and are often treated with oral agents and GLP-1 RA's for the first several years. Because adult patients not treated with insulin initially are not counted here (and arguably can't be identified from a database such as this) I think this needs to be more strongly brought out in the discussion. I realize the authors try to guarantee that they are only counting those with adult onset type 1 diabetes, their methods (by necessity) may miss many cases. There is a body of literature, largely from Europe, that discusses "LADA" and how it presents. That needs to be brought up in the discussion since conservatively speaking this approach would miss most of those slowly evolving patients who might account for 80% (I am completely guessing here) of the adult onset type 1's.

In order to be very clear regarding this point, I would change the title of this manuscript to reflect what is being reported "Fluctuations in the Incidence of ACUTE-ONSET Type 1 Diabetes in the US from 2001-2015". And I would early-on discuss the fact that this misses slowly-evolving-treated-like-type-2 cases. The data presented here remain important, because it underestimates, not over estimates the incidence of the disease.

Figures 2 - 5 are perhaps unneeded, but are not incorrect.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
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