Reviewer's report

Title: No consensus on gestational diabetes mellitus screening regimes in Sweden. Pregnancy outcomes in relation to different screening regimes 2011 to 2012: a cross-sectional study

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Reviewer: Mukesh Mansha Agarwal

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Review:

No consensus on gestational diabetes mellitus screening regimes in Sweden. Pregnancy outcomes in relation to different screening regimes 2011 to 2012: a cross-sectional study;

Maria Lindqvist, Margareta Persson, Marie Lindkvist and Ingrid Mogren:

Lindqvist et al., investigate the state of gestational diabetes screening in Sweden. They analyze the pregnancy outcome amongst 4 main methods used in their country.

Major comments and compulsory revisions:

1. We know that the screening practices for GDM, in most countries, are varied and very diverse. Europe and Sweden are no exception. In 2011, I reviewed the screening practices worldwide and screening for GDM in Sweden was among the countries with the most ‘ad-hoc’ practices (Kim & Ferrara: Gestational Diabetes During and After Pregnancy 2011, pp 35-49). Some Swedish counties followed locally derived guidelines; other Swedish counties used a modification of the now outdated (1991) EASD criteria, which has not been updated in 2 decades using new available studies. In Sweden, there was the added unique problem of using the hemocue and capillary glucose for diagnosis. Capillary glucose has major differences compared to plasma glucose (see below) and all thresholds for GDM diagnosis are based on plasma venous glucose.

2. Thus, though this manuscript tell us nothing new, the strength of this paper is that it quantifies the variation of practice of GDM approaches in Sweden. There are 4 main methods of screening and diagnosis. However, the main weakness is that comparing outcome with 4 current diagnostic methods in Sweden (no one knows how they were derived: expert based, economic based, convenience based) is of little value in the current scenario. As a result, the authors have not been able to conclude anything from the differences in outcome of the 4 screening & diagnostic methods. Based on their findings, no interpretations can be made. More important, they fail to suggest any way forward.
3. Furthermore, despite the tremendous efforts of the authors, the major problem with this paper is that it is anachronistic: it is out of time since new winds blowing in the screening and diagnostic approaches to GDM. In 2013, there are ONLY two major internationally accepted screening and diagnostic algorithms: IADPSG & ACOG/NIH. The former has been formally accepted by American Diabetes Association (ADA), WHO, Australasian (ADIPS) and Canadian Diabetes Association (CDA, partly). Thus, there are two major camps: IADPSG (which is now the same as ADA, WHO, ADIPS, and partially CDA; it is also accepted by many countries like Japan, China and Germany) and the ACOG/NIH. (Please see Sacks DB: Diagnosis of GDM: It is time for International census; Clinical Chemistry: in press). Thus, one has to align themselves with these recommendations. Also, please note the conclusions of authors reference 20 (O’Sullivan et al.) why the IADPSG should be used in Europe.

4. The authors have done well to document the current scenario in Sweden, but they must suggest a way forward. Possibly find the maternal and fetal outcome with IADPSG (they would need all the 3 values of the OGTT). Then, they can make recommendations and the paper would be of value to convince the authorities to join the current world mainstream of GDM screening and diagnosis.

Minor comments and essential revisions:

The authors misinterpret the GDM literature, often their impressions are wrong or out of date. In may be helpful to incorporate some local expert who has worked with GDM for a long time.

1. Background; para 1: The current definition of gestational diabetes since 2011 (author’s reference 1) is diabetes diagnosed during pregnancy that is not clearly overt diabetes. So, they have misquoted the definition from their own reference.

2. Background; para 2: The incidence of GDM varies from 1% -28% using the authors’ reference 11. This reference is a survey with a response rate of just 27%; moreover, the results are somewhat subjective. The prevalence is influenced by the criteria used. In Southeast Asia it is much higher than 7% as stated by the authors.

3. Background; para 3: The authors have forgotten the most important statement about IADPSG criteria—any one value over the threshold is needed of the three— not two of three. That is why the GDM prevalence with IADPSG rises dramatically. Also, the statement that GDM is increased by 1.1 to 2.8 needs to be elaborated. The degree of increase is dependent on the original criteria used. In general, it would go up 3 fold if ADA (old) criteria was used and less if compared to the now obsolete WHO-1999.

4. Background; para 5: The data was collected in 2011 and 2012. Please rephrase the first line as it is unclear. Moreover, one does not investigate outcome of the OGTT (investigation 4) rather the GDM outcome based on the OGTT definition.

5. Methods; para 2: similarities were ‘compared’ not ‘compelled.’
6. Methods; para 3: The definition and thresholds are a major limitation of this paper. In Sweden, capillary glucose is very popular instead of plasma glucose. Plasma glucose is 11% higher than capillary glucose (Fadl H et al. Fasting capillary glucose as a screening test for gestational diabetes mellitus. BJOG. 2006:1067-71.) Are these values capillary glucose? All the 2-hr thresholds are TOO high compared to the current diagnostic criteria. Thus, the prevalence is TOO low. These diagnostic criteria are invalid and have NO meaning in today’s work-up of GDM. If they are all capillary, this study has major issues. Also, the definition of GDM ignores the F and 1-hr value which are important.

7. Results: Selective screening is not explained. Does it mean screening with clinical history (age, family history of DM, etc.) and physical findings (BMI); or screening with the 50-g GCT. As it currently stands, all 4 methods appear similar with different 2-hr thresholds. Is it for convenience that only the 2-hr values are used in different MHCAs? Also, the four methods are not just screening—they are screening and diagnostic methods. This is a major oversight.

8. Discussion; para 1. The highest prevalence has to be with the lowest 2-h OGTT value, and that is the case as it picks up more women with impaired glucose tolerance. So, these findings were expected.

9. Discussion; para 2: Please rephrase first sentence: women were not exposed but underwent.

10. Discussion; para 4: This entire paragraph needs to be redone. The statement about lack of scientific evidence is naïve. Many new studies (Landon, Corwther, etc.) are now available which confirm the value of GDM diagnosis with lower glucose intolerance. Reference 28 is 5 years old and obsolete. The new data from two randomized trials support that screening should be done.

11. Discussion; para 4: The reference (author’s 27) of Buckley et al. is a plea for uniform approach to GDM in Europe and why it should be done; this review elaborates the reasons for the disparity of screening in Europe, but the authors have missed the main message. Instead, the authors have picked up an insignificant statement from this paper about “the resistance to label a pregnant woman as ill” which in my view is not traditionally accepted.

12. Discussion; para 4,5: The authors stress too much on ONLY the 2-hr OGTT value. Conceptually, using just the 2-hr of the OGTT for the diagnosis in convenience oriented and not recommended by any of the major world criteria, old or new. The IADPSG needs all 3 values; old ADA criteria needed 2/3 OGTT values; the WHO-1999 needs the FPG and the 2-hr value. Also, the prevalence of GDM is dependent on the diagnostic criteria used and not “the 2-hour cut-off value.”

13. Discussion; para 6: This is superfluous and should be omitted.

14. The references are too many. And many are too old.

15. The tables are too many. They have to be joined and shortened.

In conclusion, this paper tells us what we already know well: Screening and diagnosis of GDM in Sweden is very varied and disparate; crucially, a national
approach is desperately needed. Comparing the outcome data of the current practices (as the authors have done), since they are all antique, becomes meaningless. Not one of them is valid in 2013. The authors must somehow reconcile the disparity present in Sweden, and recommend the next step.

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**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests