Reviewer comments with responses

In this review article, Dr Nahavandi and colleagues discussed on the existing nutritional guidelines for gestational diabetes in light of the pathophysiological mechanisms of gestational diabetes and LGA offspring. The topic is current, and overall the manuscript is well written and presented. I have the following comments:

- Methods: details about the selection of studies (sources, eligibility criteria etc.) have not been reported;

- The purpose of the paper was to provide a new perspective on GDM nutritional guidelines, by framing the exploration in light of the potential mechanistic links between macronutrients, gestational diabetes and LGA offspring. Publications were obtained from Medline and PubMed database searches as well as from manually searching bibliographies of the collected publications. Selection was based on the study population being affected by gestational diabetes. Carbohydrates and lipids were pre-selected for review as they are the primary macronutrients covered in the nutritional guidelines and much of the existing literature on predictive biomarkers for LGA centre around glycaemic biomarkers and lipid biomarkers. However, as this was not a systematic review we do not feel inclusion of the MeSH search terms in the manuscript is appropriate.

- The authors did not discuss the different forms of gestational diabetes, and their potential implications on outcomes and possible interventions. This topic should be included in the manuscript

- While it would certainly be interesting to review the potential implications of the different forms of diabetes in pregnancy i.e. type 1 diabetes, type 2 diabetes, and gestational diabetes, the scope of this manuscript was limited to gestational diabetes alone, defined as a state of glucose intolerance that develops after the first trimester of pregnancy and resolves post-delivery. This was because nutritional guidelines are most relevant to gestational diabetes as it is the first line management strategy. In addition, there was a risk of reducing the depth of discussion on gestational diabetes if the breadth of the manuscript was broadened to include type 1 and type 2 diabetes (given word limit constraints). The definition of gestational diabetes (GDM) has been clarified in the manuscript to address this concern.

- It could be interesting if the authors could mention recent studies on metabolomics, which highlighted specific metabolic changes and could be helpful to find out biomarkers and new targets of nutritional interventions.

- Thank you for highlighting this area. A section on metabolomics was correspondingly added to the manuscript.

"Finally, although many gaps remain in the current state of knowledge, technological advancements are likely to be a key driver of developments in this space. Indeed, contributions from fields such as metabolomics are already shedding light on the mechanisms underlying GDM. Analytical techniques such as mass spectrometry and nuclear magnetic resonance spectroscopy have been employed to investigate metabolic profiles associated with GDM and hence determine the pathways leading to insulin resistance. Lipid and amino acid molecules have been most consistently identified by these processes thus far. Importantly, such research is enabling identification of potential therapeutic targets, which in turn may involve dietary intervention. However, given the metabolic heterogeneity within pregnancy, personalisation of interventions will be an important consideration."

- The authors mentioned two guidelines available for dietary recommendations in GDM (reffs. 35 and 36). However, a recent systematic review and meta-analysis has been published and should be mentioned (Diabetes Care 2018 Jul; 41(7): 1346-1361): the authors showed that modified dietary interventions favorably influenced outcomes related to maternal glycemia and birth weight, but there is still room for improvement.

- Thank you for bringing this highly relevant paper to our attention. A discussion of the findings of the paper was also added to the manuscript.

"Meanwhile, a systematic review and meta-analysis of RCTs assessing different types of dietary interventions on maternal glycaemic control and birthweight in pregnancies with GDM concluded that on pooled analysis, dietary interventions demonstrated favourable effects compared with control diets. This included improved maternal glycaemic control from baseline (fasting and post-prandial glucose

levels) and lower birthweight and less macrosomia (although similar large for gestational age risk). While the quality of the evidence was graded as low, it does indicate nutritional guidance can play an important role in GDM management and there is potential for improvement in outcomes with firmer evidence to guide recommendations."

Changes requested to title page: including running title, ORCID number, author contributions, conflict of interest statement
- Changes made

Figure – requested to be moved from middle of text and provide editable format
- Figure moved to end of manuscript
- Editable version of figure provided

Changes requested to references
- Changes made as requested