

Maternal and child health and nutrition: Week 1 of the PLOS Medicine Special Issue

August 6 2019

This week, we see the publication of the first papers in *PLOS Medicine's* special issue on nutrition in maternal and child health, advised by Guest Editors Dr. Lars Åke Persson of the London School of Hygiene & Tropical Medicine and based at the Ethiopian Public Health Institute, Addis Ababa; Dr. Kathleen M. Rasmussen of the Division of Nutritional Sciences at Cornell University, Ithaca, New York; and Dr. Huixia Yang of Peking University First Hospital and the Chinese Association of Obstetricians and Gynecologists.

In many parts of the world maternal and [child health](#) outcomes are increasingly impacted by indirect causes, many of which are related to nutrition. Women with diabetes, anemia or who are overweight are at a higher risk of childbirth-related complications. Their newborns, in turn, are also at a higher risk of experiencing adverse health outcomes later in life. With nearly one in three persons in the world suffering from at least one form of malnutrition—from undernutrition to obesity via diet-related non-communicable diseases—and infant nutrition being crucial particularly in the first 1,000 days of life, this Special Issue will focus on these topics with impactful research content.

In a Research article, Jane L Tarry-Adkins and colleagues reveal that babies born to mothers with gestational diabetes who are treated with metformin are likely to be of a lower birthweight than babies whose mothers are treated with insulin. Significantly, the children exposed to metformin are heavier than the insulin-exposed children at 18-24 months. Knowing that there is an increased risk of CVD and diabetes for

children who undergo 'catch up' growth, it will be important to understand if these risks apply to children exposed to metformin.

Sophie E Moore and colleagues present the results of their trial to test whether [nutritional supplements](#) for [pregnant women](#) in a rural region of The Gambia improve a child's immune response. 875 women were randomised to receive one of 4 supplements: standard care of iron and folic acid (FeFol); FeFol plus multiple micronutrients; FeFol plus protein-energy; or FeFol plus protein-energy and micronutrients. Infants were vaccinated at 8, 12 and 16 weeks of age with the diphtheria-tetanus-pertussis vaccine and those whose mothers had received the combined FeFol, micronutrient and protein-energy supplement showed improved vaccine responses. This is a striking example of how a mother's [nutritional status](#) can impact a child beyond [pregnancy](#) and any immediate birth outcomes.

With much focus recently on complications occurring from obesity during pregnancy such as [gestational diabetes](#)—and the subsequent increased risk of developing type 2 diabetes—as well as increased risk of adiposity in children, there is increased awareness of the need for a healthy BMI at the start of pregnancy. Zainab Akhter and colleagues, in their systematic review and meta-analysis, reveal the increased risk of having a smaller size for gestational age baby and increased risk of preterm birth for mothers who have bariatric surgery prior to pregnancy. These findings indicate the need for additional nutritional support before conception and during pregnancy, and increased monitoring throughout pregnancy.

The issue will continue over the coming weeks with further research papers.

More information: Tarry-Adkins JL, Aiken CE, Ozanne SE (2019) Neonatal, infant, and childhood growth following metformin versus

insulin treatment for gestational diabetes: A systematic review and meta-analysis. *PLoS Med* 16(8): e1002848.
doi.org/10.1371/journal.pmed.1002848

Provided by Public Library of Science

Citation: Maternal and child health and nutrition: Week 1 of the PLOS Medicine Special Issue (2019, August 6) retrieved 27 April 2024 from
<https://medicalxpress.com/news/2019-08-maternal-child-health-nutrition-week.html>

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