Zika virus and hyperglycaemia in pregnancy

The spread of Zika virus has drawn the attention of the global public health arena. Reports from Brazil suggest a potential link with microcephaly,[1] prompting WHO to declare Zika virus a Public Health Emergency of International Concern[2] and *The Lancet* to term it "a new global threat for 2016".[3]

While pregnant women and their offspring in general might be vulnerable to Zika virus infection, offspring of pregnant women with hyperglycaemia might be exceptionally vulnerable. Hyperglycaemia during the first trimester has been associated with an elevated risk of congenital malformations, including microcephaly.[4,5] Moreover, the hyperglycaemic environment might increase the frequency, seriousness, or both of infectious diseases in people with diabetes, including pregnant women.[6] At present, it is unknown whether pregnant women with hyperglycaemia are at an increased risk of Zika virus infections or serious complications due to Zika virus. However, data from Brazil suggest that up to 18% of pregnant women have hyperglycaemia in pregnancy.[7] We therefore urge investigation into the cause of the reported increase in microcephaly in Zika-affected areas to include the role of hyperglycaemia as a potential effect modifier in the causal pathway. Moreover, the present situation highlights the need for the integration of communicable and non-communicable services in maternal and child care. Because diseases and complications are not compartmentalised entities, but inextricably connected biologically and socially, so must the responses be.

We declare no competing interests.

*Karoline Kragelund Nielsen, Ib Christian Bygbjerg
kani@sund.ku.dk

Global Health Section, Department of Public Health, University of Copenhagen, DK-1014 Copenhagen, Denmark

1 Soares de Araújo JS, Regis CT, Gomes RGS, et al. Microcephaly in northeastern Brazil: a review of 16 208 births between 2012 and 2015. *Bull World Health Organ* 2016; published online Feb 4. DOI:10.2471/BLT.16.170639.
2 WHO. WHO Director-General summarizes the outcome of the Emergency Committee regarding clusters of microcephaly and Guillain-Barré syndrome. Feb 1, 2016. http://www.who.int/mediacentre/news/statements/2016/emergency-committee-zika-microcephaly/en/ (accessed Feb 5, 2016).
3 The Lancet. Zika virus: a new global threat for 2016. *Lancet* 2016; **387:** 96.
4 Arteaga J, Luna L, Mutchinick OM. Diabetes, pregnancy and birth defects. *Rev Invest Clin* 2008; **60:** 107–14 (in Spanish).
5 Lowy C, Beard RW, Goldschmidt J. Congenital malformations in babies of diabetic mothers. *Diabet Med* 1986; **3:** 458–62.
6 Mertz D, Kim TH, Johnstone J, et al. Populations at risk for severe or complicated influenza illness: systematic review and meta-analysis. *BMJ* 2013; **347:** f5061.
7 Trujillo J, Vigo A, Duncan BB, et al. Impact of the International Association of Diabetes and Pregnancy Study Groups criteria for gestational diabetes. *Diabetes Res Clin Pract* 2015; **108:** 288–95.

Published **Online**
April 18, 2016
http://dx.doi.org/10.1016/S0140-6736(16)30254-9