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## Indigenous cultures in countries with similar colonisation histories share the challenge of intergenerational diabetes



In this issue of *The Lancet Global Health*, Britt Voaklander and colleagues<sup>1</sup> report a systematic review and meta-analysis of the prevalence of pre-existing diabetes and gestational diabetes among Indigenous and non-Indigenous pregnant women in four countries with similar histories of colonisation: Australia, Canada, New Zealand, and the USA. The authors present the pooled unadjusted prevalence odds ratios (PORs) by country and by type of diabetes. Pre-existing diabetes was 1.8–3.6 times more prevalent in Indigenous compared with non-Indigenous pregnant women across each of the four countries, with the highest POR reported in Australia (3.63, 95% CI 2.35–5.62) and the lowest POR reported in the USA (1.81, 1.53–2.13). The POR of pre-existing diabetes in Indigenous compared with non-Indigenous pregnant women in New Zealand was not reported because the authors could not identify any studies that included these data.<sup>1</sup> In the analyses, pre-existing diabetes consisted of both type 1 diabetes and type 2 diabetes, as further differentiation was not feasible with the available data.<sup>1</sup> However, the authors appropriately noted that the disproportionately higher prevalence of diabetes among Indigenous women than non-Indigenous women was likely to be largely attributable to the high prevalence of type 2 diabetes in Indigenous populations worldwide, as reported by previous studies.<sup>2</sup> Voaklander and colleagues<sup>1</sup> report that the prevalence of gestational diabetes was 1.42–2.04 times higher in Indigenous women than in non-Indigenous women across each of the four countries. Despite identifying high heterogeneity between studies, the individual study PORs indicated a clear and consistent direction of a greater risk of diabetes in Indigenous pregnant women than in non-Indigenous pregnant women, and that this association was stronger and more consistent for pre-existing diabetes than it was for gestational diabetes. The degree of heterogeneity between studies could have been because of variation in the prevalence of type 2 diabetes in Indigenous peoples in the same country (as was previously reported in Australia<sup>3</sup>), and because of methodological differences between studies (ie, different diabetes risk profiles within non-Indigenous

groups, and changes in gestational diabetes diagnostic criteria over time and in different countries).

The important new contribution of this study<sup>1</sup> is the separate reporting of the prevalence of pre-existing diabetes and gestational diabetes in Indigenous pregnant women compared with non-Indigenous pregnant women; previous systematic reviews<sup>4</sup> of the prevalence of diabetes in these populations have combined all types together. The results of the study<sup>1</sup> highlight the importance of health-care system changes and ongoing education for health practitioners regarding the prioritisation of screening for hyperglycaemia in Indigenous women early on in their pregnancies. The results also have implications for prenatal care services and birth outcomes in Indigenous women globally, and for the health of future generations. Children born to women with pre-pregnancy diabetes and gestational diabetes have an increased risk of youth-onset (ie, aged <25 years) obesity, type 2 diabetes, and premature cardiovascular disease<sup>5</sup>.

The disproportionately high prevalence of hyperglycaemia in Indigenous versus non-Indigenous pregnant women worldwide is contributing to an escalating epidemic of intergenerational type 2 diabetes in this population. The age of onset of type 2 diabetes continues to decrease with each generation, with Australian Aboriginal children as young as 5 years being diagnosed with the condition.<sup>6</sup> Of great concern is the strikingly high mortality and number of complications associated with youth-onset diabetes in Indigenous peoples in these same countries.<sup>7</sup>

Further research is needed to understand the reasons for this intergenerational epidemic, with epigenetics likely playing a role.<sup>8</sup> Although not assessed by Voaklander and colleagues,<sup>1</sup> recognising the important contribution of the social determinants of health and the effect of colonisation on the increased prevalence of diabetes in Indigenous women compared with non-Indigenous women is key when considering further strategies to improve outcomes in Indigenous populations. With similar histories of colonisation, Indigenous peoples in Australia, Canada, New Zealand,

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and the USA have all experienced a loss of land, culture, and language, and have experienced racism, poverty, and discrimination. Further research to inform the design of appropriate strategies that address the problem of intergenerational diabetes should also include a systematic review of programmes that aim to reduce and prevent intergenerational diabetes, including those that work in partnership with Indigenous populations.

Pregnant Indigenous women with diabetes face many challenges, including prioritising one's own health in the context of other family or carer responsibilities, food insecurity, the high cost of fresh food, limited access to transport to medical appointments, difficulties in the timing of blood glucose profiling, and the absence of appropriate household hardware to store food or medications and prepare food. The burden of this condition in women facing these challenges is amplified by the effect of the social determinants of health. Programmes of care for the management of diabetes must be culturally safe and should be designed and implemented in conjunction with Indigenous women. Cultural safety is determined by Indigenous individuals, families, and communities, and requires health professionals to develop skills to critically reflect on their attitudes, power differentials, and practising behaviours, and to deliver accessible and responsive health care that is free of racism.<sup>9</sup> Community-based care encourages the formation of strong partnering relationships between clinicians and consumers and enables diabetes care to be offered in a culturally safe manner, in which women are empowered to make their own health-care decisions. Outreach programmes are important and should be included in the suite of health-care programmes to support Indigenous women and communities overcome the challenges associated with diabetes. Increasing the number of Indigenous health-care workers and the capacity building of this workforce, together with training non-Indigenous clinicians in how to provide culturally safe care and in understanding the social determinants of health, are key.

Diabetes prevention programmes tailored to all age groups are needed, commencing as early as possible in life, from preconception, to pregnancy, to early childhood. Such programmes should be

designed and led by the community, thus ensuring that Indigenous knowledge, cultures, and practices are at the centre of all diabetes prevention strategies.<sup>10</sup> System-wide action is required urgently to address the intergenerational diabetes epidemic in Indigenous populations worldwide. Collaboration across governmental, non-governmental, and Indigenous-led sectors, both within and beyond health care (including education, housing, and food retail) is critical for achieving improved outcomes. Empowering Indigenous communities to lead changes, such that Indigenous women, people, and communities worldwide are at the centre of their design and implementation, is fundamental.

We declare no competing interests.

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