

Waruna Weerasekera (PhD) Faculty of Health & Environmental Sciences

Latest continuous-glucose-monitoring (CGM) devices provide blood glucose data through a topical sensor to the wearer's phone app in real-time (rtCGM). This information is presented numerically/visually to the wearer, with the option of alert alarms. While CGM is known to benefit type 1 diabetes patients who are generally insulin-dependent (Aronson et al., 2022), its impact on prediabetes patients, and type 2 diabetes (T2D) patients on non-insulin therapies (T2D-nIT), have yet to be established (Wright & Subramanian, 2021). This scoping review investigates CGM use and its association with lifestyle-related behavioural, clinical, and psychosocial outcomes in these two populations. Secondary aims include reviewing methodologies of CGM studies and the integration of diabetes-self-management-education (DSME) within them. Primary and grey literature, published in English, identified from online databases and organisational websites will be screened based on the predetermined inclusion/exclusion criteria. Data extraction tables will capture changes in lifestyle-related behaviours (e.g., dietary habits, physical activity levels), clinical/metabolic biomarkers, psychosocial outcomes and CGM and DSME implementation methodologies. The expected outcome is that CGM use will elicit lifestyle-related behavioural improvements, resulting in positive clinical and psychosocial outcomes in prediabetes and T2D-nIT patients. Insights regarding effective adoption strategies of CGM and DSME within the treatment plans of the aforementioned population groups are also expected. Given the global diabetic pandemic – with one death every five seconds, and 5% of New Zealanders being diabetic (costing \$ 2.1 billion) and 20% prediabetic - it is vital to mitigate the progression of prediabetes to T2D and reduce T2D severity. CGM is a promising interventional tool that can significantly ease the health and financial burdens on individuals, families (whānau), the healthcare sector, and the country. In this presentation, I shall demonstrate the process of conducting the scoping review to realise the aforementioned aims and also the preliminary results of the scoping review.

Keywords

CGM; glucose monitoring; prediabetes; type 2 diabetes; lifestyle; health behaviour

References

- Aronson, R., Brown, R. E., Chu, L., Bajaj, H. S., Khandwala, H., Abitbol, A., Malakieh, N., & Goldenberg, R. (2022). *Impact of flash glucose Monitoring in pEople with type 2 Diabetes Inadequately controlled with non-insulin Antihyperglycaemic ThErapy (IMMEDIATE): A randomized controlled trial. Diabetes Obes Metab.* <https://doi.org/10.1111/dom.14949>
- Wright, E. E., & Subramanian, S. (2021). Evolving Use of Continuous Glucose Monitoring Beyond Intensive Insulin Treatment. *Diabetes Technol Ther*, 23(S3), S12-s18. <https://doi.org/10.1089/dia.2021.0191>