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TASK 1 – Blogs 2 entries

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Blog 1- Evaluating the Impact of Continuous Glucose Monitoring Systems in Promoting Type 2 Diabetes Self-Management

Public Health Problem: Type 2 Diabetes

Diabetes mellitus type 2 (T2D) is one of the most important and emerging public health issues (Galicia-Garcia et al., 2020). There were 830 million people with diabetes in the world in 2022, up from 200 million in 1990 (Clinic, 2025). There has been an increase in the percentage of Diabetes mellitus type 2 (T2D) adults from 7% to 14% over this time (WHO, 2024). Over 95% of people with diabetes suffer from Type-2 diabetes and diabetes can increase the risk of heart disease, kidney failure, blindness, nerve damage and lower-limbed amputation, which occur only under poor control of diabetes (Młynarska et al., 2025).

CGM contribution to health promotion

There is continuous glucose monitoring (CGM) technology like FreeStyle Libre and Dexcom G7, which can be worn for the whole day and records glucose levels (Dungan and Verma, 2023). Rather than just getting a single reading using a finger-prick test, users can see and interpret the patterns of glucose levels, and how food, exercise and other activities impact blood sugar Mathew, Tadi and Zubair (2023). The instant feedback can encourage healthier foods, more exercise and treatment compliance.

Evidence of Health Promotion Impact

CGM is effective and the evidence backs this up. An analysis of CGM compared with self-monitoring of blood glucose in 12 RCTs with 1,248 adults with T2D, showed that CGM led to a 0.31% lower HbA1C (Milena Jancev et al., 2024). A study of actual FreeStyle Libre 2 use conducted in 132 T2D patients showed that HbA1c levels were lowered by 0.4 per cent after three months and by 0.6 per cent after six months (Abbott, 2019).

Critical Impact: Pros and Cons

CGM is an empowering tool because it provides real-time feedback, which can boost motivation, health literacy, and self-management. It also can be used to detect unknown fluctuations in glucose levels. The price of sensors and the demand for smartphone requirements could however contribute to widening the digital health divide (Sridhar et al., 2024). Other issues include the fear or alarm of the glucose readings, overloading information, and skin irritation. Importantly, better glucose indicators do not necessarily lead to better outcomes in terms of long-term complications and available evidence of outcomes on cardiovascular and microvascular outcomes is limited (Darouei et al., 2025).

Addressing the Shortfalls

Healthcare systems could help increase the availability of free CGM for an improved affordable benefit for people and increase access to interpretation of glucose data through digital-literacy training of health professionals (Sabben et al., 2024). CGM should thus serve as a complement and not a replacement for individual clinical care support.

Blog 2- Designing an AI-Powered Diabetes Prevention Platform

Community Risk Factor: Type 2 Diabetes Prevention

Type 2 diabetes is a critical time to launch preventive digital health interventions because risk factors such as unhealthy dietary habits, lack of physical activity and excess body weight are modifiable risk factors (Mayo Clinic, 2023). Diabetes was estimated to impact 830 million individuals world-wide in 2022 and 59% of all adults with diabetes not taking medication (World Health Organization, 2024). ICAC-2 diabetes prevention and delay is key: WHO recommends healthy diets, weight management and physical activity of at least 150 minutes' of moderate activity each week (World Health Organization, 2023).

Designed Digital Technology

The paper suggests the use of an AI-Powered Diabetes Prevention Platform (AIDPP), which combines wearable technology, nutrition tracking, and personalised behavioural coaching for the prevention of diabetes (Mathioudakis et al., 2025). Wearables would measure activity and relevant health data, and users could record their dietary intake. AI would analyze these data and provide personalized meal, exercise and lifestyle suggestions (Zheng et al., 2023).

How will it advance health?

AIDPP would focus on prevention and early behavioural intervention, instead of waiting for glucose control to decline. Identifying risk-prediction algorithms may help and stimulate the user to either start exercising more or change their dietary habits (Huang et al., 2025). Family dashboards could help to provide social support, and the monitoring of the healthcare provider could facilitate professional intervention when risk indicators are exacerbated.

Critical Impact: Benefits and Limitations

The platform has the potential to deliver 24/7 customised help, enhance health consciousness and pivot complex health-related information into useful activities (Al-Jaroodi, Mohamed and Abukhousa, 2020). There is also potential for integration with health care providers to enable the continuity that self-management and health care providers provide.

Yet, there are great challenges posed by AI. Algorithmic bias can yield less accurate predictions for populations that are under-represented. The potential privacy exposures and the lack of adequate leverage for clinical input can also be issues (Mathioudakis et al., 2025).

Lower income, or less tech-savvy, populations are also likely to be excluded by the need for smartphones and wearables.

Addressing the Shortfalls

The platform should be based on a variety of data sets, regular algorithmic bias audits, robust encryption, and clear consent frameworks. AI suggestions need to be clinically tested and major choices scrutinized by health experts (Khosravi et al., 2024). Accessibility can be enhanced with the use of inexpensive devices, multilingual interfaces, and digital-literacy support (Charalambous, 2026). Eventually, AIDPP should work as an assistive instrument for prevention, not as a substitute for professional health care.

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