Gestational Diabetes Mellitus (GDM) care re-imagined

Initiative Type

Model of Care

Redesign

Status

Deliver

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Summary

Traditional management of Gestational Diabetes Mellitus (GDM) is increasingly being augmented by digital technologies, such as smart phone applications (apps), to support self-management and care

delivery. To address identified needs of women and the service, Mater Mothers' Hospital in Brisbane developed, implemented and evaluated a digitally supported model of care. Their new model of care included a smartphone app-to-clinician blood glucose communication platform. The objective of their study was to use an iterative approach to radically alter the GDM model of care at the hospital and adapt to limited resources and increasing prevalence, without compromising clinical outcomes.

Key dates

Jan 2020

Jun 2021

Implementation sites

Mater Mothers' Hospital, Brisbane

Partnerships

The CSIRO were the digital platform provider.

Key Contacts

Dr Josephine Laurie

3703

william.vanheerden.ced

Obstetric Medicine Specialist

Mater Public Hospital

07 3163 8111

Josephine.laurie@mater.org.au

Aim

This study had three aims:

- to assess whether the implementation of a novel, woman-focussed, digitally supported model of care for GDM would improve efficiency without compromising clinical outcomes in a cohort of women
- to undertake a cost-minimisation analysis of the new model of care, compared with traditional care
- to ascertain women’s experiences within this new model of care compared with the traditional model.

Benefits

This woman-focussed, digitally supported radical service redesign demonstrated reassuring clinical outcomes in a culturally diverse GDM cohort. It also demonstrated substantial cost savings without compromising clinical outcomes. This new model of GDM care reduced many time and financial impositions associated with attending hospital appointments. Despite the removal of face-to-face visits, women were able to establish a connection with their treating team and maintained their understanding of their GDM, dietary requirements and next steps to take.

Background

GDM is a type of diabetes that can develop during pregnancy in women who don't already have diabetes. The rapidly rising prevalence of GDM poses major challenges to the efficient, timely and sustainable provision of antenatal care. A GDM pregnancy has a significant impact on pregnancy outcomes, health service resources, and a substantial financial and time impost on women. Our metropolitan maternity facility delivers approximately 12,000 babies per annum, with 6,500 babies in the public-funded sector who were eligible for this model of care.

Solutions Implemented

A digitally supported model of care was developed, implemented and evaluated using a prospective pre and post study design at a centre with a culturally diverse population.
Appointments with many members of the treating team were reduced and appointments were supplemented with the introduction of six culturally and linguistically tailored, co-created educational videos, home delivery of equipment and prescriptions, and a smartphone app-to-clinician portal for glycaemic review and management.

Evaluation and Results

- Clinical outcomes confirmed that the novel model of care was clinically equivalent to traditional care (n 598 vs 337).
- Health service costs showed a modest saving of A$17,442 in the intervention group over a 12-month period.
- Cost savings for the woman were estimated at $567 per patient after accounting for lost wages, childcare expenses, and travel expenses avoided.
- This reduction led to an overall saving of $679,872 for the cohort of 1,200 women, primarily due to the reduction in face-to-face visits.
- Evaluation of women’s understanding of GDM, initial dietary changes and glucometer use received similar or slightly lower ratings, pre to post implementation.
- Many women in the app-experience survey showed high levels of satisfaction with care received (91.5%) and with the app for managing GDM (87.1%). Two experience themes that emerged were 'enhanced GDM management' and 'usability issues'.
- Despite the removal of face-to-face visits in the new model of care, women still established a connection with their treating team and maintained their understanding of their GDM management.

Lessons Learnt

Despite the overwhelmingly positive feedback, this study highlighted that there is more work that could be done to support women when using a digitally-supported approach to care and there are obvious limitations. Evaluation only included a sub-section of larger cohort of women who received care. The absence of demographic and pregnancy history data about the women who responded, precluded wider generalisability of the results. However, the findings still provide an overview of considerations that would be useful for any service wanting to adapt a similar model of care. As digitally supported models of care continue to be adopted, more consideration will need to be given to the nexus of technology and clinical decision making. Also, to further enhance women’s experiences, research should examine specific perspectives of women from more diverse backgrounds. More broadly, app developers should continue to follow person-centred design principles as well as adopt proven behaviour change techniques for effective, broad reach public health benefits.

References

Laurie J, Wilkinson S, Griffin A, McIntyre H. GDM care re-imagined: Maternal and neonatal outcomes following a major model of care change for gestational diabetes mellitus at a large metropolitan hospital. ANZJOG. 2023;https://doi.org/10.1111/ajo.13691.
Laurie J, Wilkinson S, McIntyre H, Snoswell C. Gestational diabetes mellitus care re-imagined – A cost-minimisation analysis: Cost savings from a tertiary hospital, using a novel, digital-based gestational diabetes management model. ANZJOG. 2023; https://doi.org/10.1111/ajo.13695.

Further Reading

Wilkinson S, Willcox J. Is ‘technology before the end-user’ the new ‘cart before the horse’? When digital delivery is only part of the solution. JBI Evidence Implementation. 2022;20(3):163-5.

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