

# Replacing all but essential face to face visits with virtual support for gestational diabetes care during the COVID pandemic maintains outcomes

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## Background

16% of pregnant women develop gestational diabetes (GDM). Numbers are rising secondary to rising prevalence of obesity. GDM is associated with increased risk of complications for the mother and baby. To minimise risk of these complications, patients need close support during their pregnancy to manage blood glucose levels.

In our centre, standard care involved a two-hour education session, follow-up session after one week and monthly face-to-face appointments with the obstetricians, diabetologists and for serial growth scans. Between appointments patients monitored glucose and emailed results to the diabetes team for review and escalation of treatment as required.

During the first UK COVID lockdown (23/03/2020-14/09/2020) limiting face-to-face contact became important. We therefore started using an App-based communication platform (GDM-Health™) for delivery of care to women with gestational diabetes. The App was downloaded to the patient's phone and allowed them to record blood glucose levels, dietary intake and current medication. This information was immediately accessible to the clinical team and was monitored twice weekly. The clinical team could message patients advice through the app and patients could request telephone calls. Face-to-face contact was limited to a shortened 20-minute education session to teach self-glucose monitoring and direct patients towards education videos on the App. Obstetric and Diabetes clinic appointments were conducted virtually meaning the only visit to hospital was for monthly growth scans.

## Methods

Retrospective analysis comparing fasting glucose data at 35 and 36 weeks gestation, treatments and post-natal outcomes. Data from 61 women receiving standard care before App implementation (BA) from 01/06/2019 to 31/12/2019 and 62 women with the app (WA) from 01/06/2020 to 31/12/2020. BA data was collected from the specialist nurses email archive and WA data was obtained from that recorded in the App.

## Conclusions

No significant differences were identified between the fasting glucose levels, birthweights, delivery gestation or number of neonates requiring higher care admission between the BA and WA groups. There were also no significant differences in the treatment women received, although interestingly there is an almost significant reduction in the number of women requiring treatment with insulin in the WA group. This may be due to better recording of dietary intake on the App and tailored advice relating to this. Overall, App-based communication is an effective way to deliver care to women with GDM. It was also popular amongst patients who found it convenient and easy to use. The clinical team also found it to be efficient and meant those women requiring most support could be clearly identified. The stored data within the App also made clinical audit straight forward. Similar technology is likely to be widely transferable to other people receiving diabetes care.

## Results

Baseline characteristics of the BA and WA were similar with no difference between pre-pregnancy weight or age.

Table 1: Fasting Blood Glucose (mmol/L)

	Before App (BA)	With App (WA)	P value
35 weeks	4.95	4.78	0.24
36 weeks	4.98	4.72	0.12

Table 2: Number of patients requiring each treatment regime

	Before App (BA)	With App (WA)	P value
Diet only	22	26	0.4
Diet + Metformin	16	22	0.28
Diet + insulin +/- metformin	24	13	0.06

Table 3: Birthweight and gestation at time of delivery

	Before App (BA)	With App (WA)	P value
Birthweight	3.4 kg	3.3 kg	0.43
Birthweight > 4kg	5	3	0.72
Gestation (weeks)	39.8	38.1	0.16

Table 4: Neonatal admission to high care setting

	Before App (BA)	With App (WA)	P value
Number of Neonates	9	6	0.61