
Marc A. Vengrove DO, FACP
Lehigh Valley Health Network, Marc.Vengrove@lvhn.org

Emma Qureshey MD
Lehigh Valley Health Network, Emma.Qureshey@lvhn.org

Helai Hesham MD

Meredith Rochon MD
Lehigh Valley Health Network, Meredith_L.Rochon@lvhn.org

Joshua Cohen BS
Lehigh Valley Health Network, Joshua.Cohen@lvhn.org

See next page for additional authors

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Web-Based Glucose Monitoring Using the Telcare® Wireless System for Management of Pregnant Women With Pregestational Diabetes

M. Vengrove, DO, FACP, E. Qureshey, MD, E. Hesham, MD, M. Rochon, MD, J. Cohen, BS, J. Smulian, MD, MPH

Dept. of Endocrinology, Lehigh Valley Health Network, Dept. of OB/GYN, Lehigh Valley Health Network, Dept. of Urogynecology, Massachusetts General Hospital, Dept. of Maternal Fetal Medicine, Lehigh Valley Health Network, Morsani College of Medicine

INTRODUCTION
Optimal glycemic control during pregnancy is an important component of decreasing the risk of congenital birth defects and perinatal complications in women with pre-existing Type 1 and Type 2 diabetes. Current guidelines regarding pregnancy management suggest blood glucose (BG) monitoring at least before and after meals in addition to before bed and 2–3 am, with frequent (weekly) review of monitoring by the healthcare team, placed against significant benchmarks on patients and providers. This is most often done by recording BG values on paper logs and reviewing them in a weekly basis. This system is inconvenient and may affect compliance. Studies have also demonstrated a poor correlation between patient reported results and actual meter results. We postulated that a web-based monitoring system would improve BG monitoring compliance and patient satisfaction.

OBJECTIVE
To determine the effect of a web-based wireless blood glucose monitoring system (Telcare®) on patient compliance and satisfaction in pregnant women with pregestational diabetes (PGDM).

METHODS
• Prospective pilot cohort study of women with PGDM followed in our Diabetes and Pregnancy Program.
• Women were eligible if they had recorded blood glucose (BG) on paper logs for at least 4 weeks, were less than 28 weeks gestation and were not using an insulin pump.
• Qualified women were switched to Telcare® glucose monitor for 2 months, which uploads glucose readings in real time to a secure website without the need for Internet or computer access, eliminating the need to separately record or send in their readings.
• Subjects also completed a satisfaction survey before and after the study.
• The primary outcome was the median number of glucose readings before and after Telcare®. Secondary outcomes included patient satisfaction and HbA1c.

RESULTS
• Thirty patients enrolled at a mean gestational age 17.9 wks (IQR 14.6-20.8), 22 (73.3%) had T2DM, 17 (56.7%) had Type 1 diabetes. Current guidelines regarding pregnancy management suggest blood glucose (BG) monitoring at least before and after meals in addition to before bed and 2–3 am, with frequent (weekly) review of monitoring by the healthcare team, placed against significant benchmarks on patients and providers. This is most often done by recording BG values on paper logs and reviewing them in a weekly basis. This system is inconvenient and may affect compliance. Studies have also demonstrated a poor correlation between patient reported results and actual meter results. We postulated that a web-based monitoring system would improve BG monitoring compliance and patient satisfaction.

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