



## Maternal Health

## Acceptability of Virtual Prenatal Visits for Women with Gestational Diabetes



Teresa N. Harrison, SM<sup>a</sup>, David A. Sacks, MD<sup>a</sup>, Carly Parry, PhD, MSW, MA<sup>b</sup>,  
Mayra Macias, MS<sup>a</sup>, Deborah S. Ling Grant, PhD, MPH, MBA<sup>a</sup>,  
Jean M. Lawrence, ScD, MPH, MSSA<sup>a,\*</sup>

<sup>a</sup> Department of Research & Evaluation, Kaiser Permanente Southern California, Pasadena, California

<sup>b</sup> Patient-Centered Outcomes Research Center, Improving Healthcare Systems Program, Washington, DC

Article history: Received 29 August 2016; Received in revised form 3 December 2016; Accepted 16 December 2016

### A B S T R A C T

**Introduction:** Gestational diabetes mellitus (GDM) is one of the most common complications of pregnancy. Current approaches to GDM management and education are labor intensive and costly. Telemedicine offers a potential solution to reduce the time and cost burden of prenatal care for women with GDM.

**Methods:** We assessed the acceptability of a telemedicine intervention to transmit patients' weight, blood pressure, and blood glucose measurements from wireless devices to health care providers, and to alternate "virtual office visits" with office-based prenatal visits. We administered surveys to 70 Kaiser Permanente Southern California members with GDM to assess preferences for modalities of GDM care delivery and to understand perceptions of telemedicine. We subsequently conducted 10 qualitative interviews among women with GDM to elicit perceptions about confidence and comfort with receiving care telephonically and safety concerns. Data were coded and categorized using analytic induction.

**Results:** Training on these devices would increase participants' confidence in using the equipment. Continuity of care was perceived as an important factor in facilitating confidence with near universal preference for having virtual visits with the same clinician. Most participants were not concerned with the safety of their baby or themselves during the weeks without an office visit. One participant expressed an unwillingness to participate in the intervention because of a perceived association between having a high-risk pregnancy and an increased risk of pregnancy loss.

**Conclusions:** As telemedicine becomes increasingly common in health care, feedback from end users will be essential in tailoring, communicating about, and supporting the uptake and success of such programs.

© 2016 Jacobs Institute of Women's Health. Published by Elsevier Inc.

Gestational diabetes mellitus (GDM) is one of the most common complications of pregnancy constituting more than 80% of diabetes cases during pregnancy (Berg, Mackay, Qin, & Callaghan, 2009; Lawrence, Contreras, Chen, & Sacks, 2008).

**Funding Statement:** This work was supported in part by funding from the Care Improvement Research Team in the Department of Research and Evaluation, Kaiser Permanente Southern California. The authors have no conflicts of interest to disclose.

**Data Access and Responsibility:** Dr. Lawrence had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

\* Correspondence to: Jean M. Lawrence, ScD, MPH, MSSA, Department of Research & Evaluation, Kaiser Permanente Southern California, 100 S. Los Robles, 4th Floor, Pasadena, CA 91101. Phone: 1-626-564-3106; fax: 1-626-564-3403.

E-mail address: [Jean.M.Lawrence@kp.org](mailto:Jean.M.Lawrence@kp.org) (J.M. Lawrence).

The prevalence of GDM is increasing, particularly in minority populations (Dabelea et al., 2005; Ferrara et al., 2012; Hedderson, Darbinian, & Ferrara, 2010; Schneider, Bock, Wetzel, Maul, & Loerbroks, 2012). Pregnancy complicated by GDM is accompanied by risks of adverse maternal and fetal outcomes including preeclampsia, cesarean delivery, excessive fetal growth, and shoulder dystocia (Buchanan, Xiang, & Page, 2012; Feig, Zinman, Wang, & Hux, 2008; Mordwinkin et al., 2013). In addition, GDM increases the risk of subsequent type 2 diabetes for both mother and child (Damm, 2009; Feig et al., 2008; Sivaraman, Vinnamala, & Jenkins, 2013).

The focus of health care during the antenatal period for women with GDM is to achieve and maintain glycemic control. This involves patient education, lifestyle modifications, frequent glucose monitoring, and use of insulin or oral hypoglycemic

agents when indicated, all of which may result in increased frequency of medical office visits or telephone consultations with health care practitioners compared with women without GDM (Landon & Gabbe, 2011). Although nutritional education and intervention, and surveillance of glucose levels represent the best approaches to minimizing maternal and perinatal morbidity (Landon & Gabbe, 2011), current approaches to GDM management and education are labor intensive and costly. The additional medical visits required for women with GDM can be burdensome owing to increased time absent from work and family, finding alternative childcare coverage, travel time to and from health care providers' offices, and other direct and indirect financial costs in excess of those associated with routine prenatal care for an uncomplicated pregnancy.

Telemedicine offers a potential solution to reduce the time and cost burden of prenatal care for women with GDM. Additionally, it may improve health care delivery by decreasing delays in patient care imposed by requiring office visits (Magann et al., 2011). A decreased frequency of scheduled office visits combined with electronic health data transmission and telephone consultation with health care providers could promote greater patient satisfaction and more efficient care management. Few studies have explored the use of telemedicine in prenatal care among women with GDM (Dalfra, Nicolucci, Lapolla, & Tisg, 2009; Given, Bunting, O'Kane, Dunne, & Coates, 2015; Rasekaba et al., 2015). The aim of this pilot study was to assess the acceptability of a telemedicine-augmented GDM management protocol, which combines alternating "virtual office visits" and standard office-based prenatal visits for women with GDM.

## Methods

This pilot study was conducted in 2014 and 2015 within Kaiser Permanente Southern California (KPSC), an integrated health delivery system that provides comprehensive care to more than 4 million members. The objective of the pilot study was to determine if alternating usual office-based clinic visits with virtual office visits plus telemonitoring would be acceptable to women newly diagnosed with GDM and to their health care providers, and to assess the feasibility of implementing the intervention in the clinical setting. The patient acceptability component of our pilot study was designed to gather information that could be used to refine the telemedicine intervention to increase acceptability and reduce barriers for the feasibility

phase of the study. The overall study design included quantitative and qualitative components aimed at understanding the acceptability and feasibility of the proposed intervention design (Table 1). Acceptability was assessed through anonymous surveys to gather preliminary data followed by one-on-one interviews with 10 additional patients who had GDM. Feasibility was assessed by enrolling 10 additional women newly diagnosed with GDM in prenatal care, which incorporated alternating conventional office visits with virtual office visits and involved electronic transmission of weight, blood pressure, and glucose values via smartphone and patient reporting of the range of the fetus's heart rate based on the result screen of a hand-held Doppler during the virtual office visits (NCT02960295). Follow-up interviews were conducted with these patients postpartum and with their providers after all of the patients in the feasibility study had delivered. The results presented herein represent the pilot work on acceptability that further informed the intervention piloted in the feasibility study. The project was reviewed and approved by the KPSC Institutional Review Board.

### Anonymous Surveys with Open-Ended Responses ( $n = 70$ )

In the first phase of the acceptability study, a survey was developed by the research team and then distributed to women with GDM by the staff in one of the obstetrics clinics to inquire about their preferences for modalities of GDM care delivery and specifically to better understand their perceptions and any barriers or facilitators to use of a telemedicine model combining remote visits including technology and in-office visits. The survey included a written description of the proposed virtual visit protocol followed by questions designed to elicit their impression of positive and negative attributes of our proposed model of care. The survey contained questions about the number of previous deliveries and whether they had a smartphone and Wi-Fi access. It also included questions about participants' preference of having all of their prenatal visits in the traditional office setting versus having some visits via telephone (virtually), whether women would participate in these phone visits from home, work, or both, and the best time to schedule virtual visits (morning, afternoon, weekdays, weekends). Each question was followed by space for them to include additional comments and the rationale for their responses.

Among the 70 women who completed the anonymous survey, 36% ( $n = 25$ ) were 18 to 29 years of age, 60% ( $n = 42$ ) were 30

**Table 1**  
Overview of Data Collection Methods for Acceptability and Feasibility\*

| Description and Number in Sample                                      | Phase 1                               | Phase 2                          | Phase 3   |   |
|---|---------------------------------------|----------------------------------|---|---|
|   |                                       | Acceptability: Preimplementation | Feasibility: Virtual Office Visit Protocol  | Acceptability: Postimplementation                             |
| Pregnant women with GDM ( $n = 70$ )                                  | Anonymous patient-administered survey | Qualitative interview only       | Prenatal care including virtual visit and office visits after GDM diagnosis. Data from EHR and devices (glucose, blood pressure, weight). | Postpartum survey with quantitative and open-ended questions. |
| Pregnant women with GDM meeting eligibility criteria ( $n = 10$ )     |                                       |                                  |   |   |
| Pregnant women with GDM meeting eligibility criteria ( $n = 10$ )     |                                       |                                  |   |   |
| Health care providers who conducted virtual office visits ( $n = 5$ ) |                                       |                                  |   | Survey with quantitative and open-ended questions             |

Abbreviations: GDM, gestational diabetes mellitus; EHR, electronic health record.

\* This paper includes data from phases 1 and 2.

Download English Version:

<https://daneshyari.com/en/article/5123430>

Download Persian Version:

<https://daneshyari.com/article/5123430>

[Daneshyari.com](https://daneshyari.com)