



CASE STUDY WOMEN'S HEALTH



# Increasing Postpartum Detection of Type 2 Diabetes

92%

INCREASE in diabetes screening

213%

INCREASE in detection rates for type 2 diabetes

211%

INCREASE in screening among Black women

577%

INCREASE in detection of Type 2 diabetes among Black women

## CLINICAL PRIORITY

Women's Health program leaders at ChristianaCare endeavored to improve postpartum screening rates for type 2 diabetes among women with gestational diabetes.

Poor compliance with the two-hour oral glucose tolerance testing (2hr OGTT) at 6-12 weeks postpartum is attributed to the stress of caring for a new child and challenges with appointment logistics exacerbated by demanding work schedules, wait times, childcare, and transportation. Barriers to screening are higher among women of low income and racial minority communities.

*The text-based messaging program increased screening compliance by 92%, which improved our disease detection rates and alleviated racial disparities in healthcare.*

Helen Gomez, MD  
RESIDENT, CHRISTIANACARE

## APPROACH

ChristianaCare investigated the effectiveness of text-based mobile messaging and in-home fasting blood sugar (FBS) in the detection of type 2 diabetes compared to traditional 2hr OGTT.

ChristianaCare partnered with Twistle to provide smartphone-based patient engagement; patients used glucometers and lancets that they were also using during pregnancy. Preconfigured communication pathways delivered time-based, HIPAA-compliant education and reminders, and captured FBS data using easy-to-complete forms.

Patients received appropriate automated text replies and if warranted, data was escalated to clinical staff for additional intervention. Participants could also engage with clinical staff asynchronously to address questions or issues.

ChristianaCare is a minority investor in Twistle.

*We found many more women who are diabetic with the Twistle platform. Why? Radical convenience!*

**Matthew Hoffman, MD**

MARIE E. PINIZZOTTO, M.D., ENDOWED CHAIR  
OF OBSTETRICS AND GYNECOLOGY AT CHRISTIANACARE

## STUDY DESIGN

ChristianaCare conducted a prospective cohort study<sup>1</sup> of postpartum women with gestational diabetes.

- 239 women received a 2hr OGTT at 6-12 weeks postpartum.
- The dual care group composed of 207 women recorded FBS for 3 consecutive days using the mobile application and completed the standard 2hr OGTT if the results were equivocal.

The study assessed agreement with 2hr OGTT using sensitivity, specificity, positive and negative predictive value with exact binomial 95% confidence intervals.

## RESULTS

- Text-based screening led to a 92% increase in compliance\* rates compared to standard screening (25% vs. 48%), and a 213% increase in the detection of type 2 diabetes (5.4% in the 2hr OGTT group compared to 16.9% in text-based screening).
- Engagement with Twistle's in-home screening resulted in a 211% increase in compliance among Black women (11.1% vs. 34.5%) and narrowed the racial gap in care.
- Improvements in compliance with text-based care resulted in a 180% higher diabetes detection rate among non-Black women (6.2% vs. 17.4%) and a 577% increase among Black women (2.1% vs. 13.8%).

*\*Compliance was measured by the percentage of women who submitted all three fasting values.*



### ABOUT CHRISTIANACARE

Headquartered in Wilmington, Delaware, ChristianaCare is one of the country's most dynamic health care organizations, centered on improving health outcomes, making high-quality care more accessible and lowering health care costs. ChristianaCare includes an extensive network of outpatient services, home health care, urgent care centers, three hospitals (1,299 beds), a free-standing emergency department, a Level I trauma center and a Level III neonatal intensive care unit, a comprehensive stroke center and regional centers of excellence in heart and vascular care, cancer care and women's health. ChristianaCare is a nonprofit teaching health system with more than 260 residents and fellows. With the unique CareVio data-powered care coordination service and a focus on population health and value-based care, ChristianaCare is shaping the future of health care.

### ABOUT TWISTLE

Twistle automates patient-centered, HIPAA-compliant communication between care teams and patients to transform the patient experience, drive better outcomes, and reduce costs. Twistle offers "turn-by-turn" guidance to patients as they navigate care journeys before, during, and after a care episode. Patients are engaged in their own care and follow best practices, communicate as needed with their care teams, and realize measurably better outcomes. Twistle integrates sophisticated automation with multi-channel communication, engaging patients through secure text messaging, interactive voice response, patient portals, or the health system's digital applications.

<sup>1</sup> Presented at the 40th Annual Pregnancy Meeting of the Society of Maternal Fetal Medicine, Grapevine, Texas; February 3-8, 2020. Gomez, H., Shlossman, P., Hoffman, M., Caplan, R., Sciscione, A. A Novel Mobile Phone Application for the Diagnosis of Type 2 Diabetes Among Women with Gestational Diabetes.