CDCES Driven Innovation to Improve Care of Patients with Gestational Diabetes

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Background

8% of pregnancies in the U.S are affected by gestational diabetes (GDM), a rate that has increased by 30% over the last 5 years. The incidence of GDM is particularly high in communities of color, as high as 14% of all pregnancies. Access to specialized care is challenging; there are workforce shortages of endocrinologists and maternal fetal medicine specialists. Women with gestational diabetes are more likely to have pre-term births and pregnancy complications such as pre-eclampsia and shoulder dystocia.
Neonates born to women with gestational diabetes are also more likely to have macrosomia and other complications requiring higher levels of newborn care. Preventing these complications requires that women who develop GDM check and manage glucose within very tight ranges and are engaged in medical care that provides intervention when self-management is insufficient to control glucose levels.

Stability Health is an innovative tech-enabled care model for patients with any type of diabetes combining human-centered coaching with evidence-based care built into a technology platform. The platform contains a proprietary rules engine which has embedded standards of care from ADA, ACDES, and American College of Obstetrics and Gynecology (ACOG) and is linked to a registry of patients that provides decision support for clinical care teams and virtual human coaching for patients to set and meet goals of care.

Obstetric Practice and Population

Stability Health partnered with a general obstetrics practice located in a multi-specialty group serving an urban, underserved population. Sixty percent of patients had Medicaid and 16% were non-English speaking. Maternal Fetal Medicine specialists were contracted from a local academic hospital to provide consultative services only and did not assume pregnancy management for GDM. Access to Endocrinology and DM education was often limited; and typical for an urban, underserved population, patients often missed appointments resulting in delays in care. The practice partnered with Stability Health at a time when they lost access to Endocrinology specialists. Patients received usual obstetrics care and were screened for GDM between 24-26 weeks with OGTT; diagnosis of GDM was made according to ACOG standards of care.

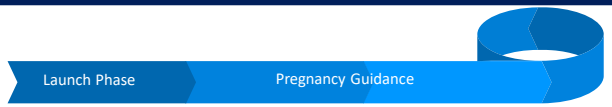
Newly diagnosed patients with GDM were contacted within 48 hours to be introduced to the Stability Health program. All patients were matched with a human CDCES coach who met them virtually using whatever means the patient desired: telephone call or video call. All coaches were CDCESs. Stability Health accommodates diverse cultural and language preferences using virtual translation and bilingual staff where available.

93 women with GDM were cared for by Stability Health between September 2021 and December 2022

Race	
African American	40%
Caucasian	38%
Asian	11%
Latino	3%
Multiple/Unknown	8%

Preferred Language	
English	84%
Other Languages	Cape Verdean Creole Arabic Portuguese Spanish Haitian Creole Vietnamese Gujarati

CDCES Intervention



- Enrollment
- Establish patient-coach relationship
- Connect with physiologic devices
- Holistic assessment including prior knowledge of GDM, readiness for change, health related social needs.
- Generation of personal care plan
- Individualized education and self-advocacy
- Weekly touch points and analysis of glucose data
- Connection to multiple care teams: Endocrinologist, Obstetricians, Maternal Fetal Medicine
- Ensure patients receive recommended post partum testing and medication adjustments to avoid hypoglycemia

Data from the assessment was processed and analyzed by the Rules Engine to create an individualized care plan which was shared with the patient and the patient's clinical team. Each patient-coach dyad began working on lifestyle modification which also included education about GDM; coaches were also available to teach patients glucose monitoring techniques and insulin injection techniques when needed. All patients were monitored via connected portals from devices, CGMs, or manually using standardized templates. Alerts from the Stability Health platform indicated when patients glucose were not at target and recommendations were sent proactively to the clinical care teams when insulin needed to be initiated. Standardized order sets and insulin titration protocols were established with the obstetrics practice at initial engagement; patients were coached to these protocols once obstetrician acted on recommendation to initiate insulin.

Patients were followed into the post-partum period where there can be rapid changes in clinical status and encouraged to adhere to recommendations for post-partum oral glucose tolerance testing.
Patients also received education on their risk for future diabetes and the need for lifelong periodic screening.

Results

We compared our outcomes with historical practice outcomes when women with GDM were referred to Endocrinology. When the obstetricians worked with Stability Health they achieved similar pregnancy and neonatal outcomes. The largest difference was in the use of insulin. Fifteen percent of the Stability Health GDM cohort needed to initiate insulin, similar to national average. In comparison, historically referring to Endocrinology resulted in almost three times the number of GDM patients needing insulin.

	Stability Health GDM (n=93)	Usual Care GDM (n=129)
Pre-Term Birth (<37 wks)	7%	7%
Pre-Eclampsia	3%	7%
Shoulder Dystocia	1%	2%
Neonates > 4500g	2%	2%
Insulin Use	**15%**	**40%**

Case Example

C is a 27 y.o. African American woman who was diagnosed with GDM based on an OGTT performed when she was 24 weeks gestation. Her generalist OB doctor referred her to Stability Health. At Stability Health, she met with coach Jen virtually either by phone call or video session. This worked out well for her as she felt that she didn't have time for additional office visits. C appreciated the flexible hours so she didn't need to leave work early. Her first visit was a comprehensive assessment which the Stability Health platform used to generate a personalized care plan that coach Jen used to provide focused education. Coach Jen helped C obtain a glucometer and connect it to a portal for Stability Health to ingest blood glucose (BG) readings; and based on the readings the CDCES is proactively alerted to out-of-range readings. Initially, her BG logs indicated that only 64% of her blood glucose readings were in target range. Weekly updates were sent to C's OB provider. C was able to send messages via a HIPAA-compliant messaging site between the scheduled check-in sessions. Coach Jen served as a liaison between C and her OB team; her OB team was comfortable to have C continue with intensive lifestyle changes before a recommendation to start insulin. After the initial session, C had follow-up check-in sessions every 1-2 weeks until delivery and then a 4-week postpartum check-in.

C had been to the ED several times for hyperemesis and that she was limited in what she could eat. She found she could tolerate egg and cheese croissants from a local fast-food chain and ate two for breakfast most days. Coach Jen focused on helping C understand carbs and the importance of keeping carbs lower in each meal. She helped C realize that when she ate 2 egg and cheese croissants, her post-meal BG was over 120. C agreed to cut down to one of these for breakfast. The next challenge was around her evening snacks. Coach Jen helped her change her evening snacks from apple and peanut butter to 6 crackers with cheese, or hummus and celery sticks, or Greek Yogurt. This brought her fasting BG below 95. C delivered a healthy baby boy without complications. Coach Jen checked in with her postpartum and reminded her of the importance of getting her follow-up OGTT.

Patient Feedback

Patient satisfaction was measured through a survey e-mailed to participants.
We asked participants to rate their overall satisfaction with the program on a 5 point Likert scale. A common measure of satisfaction is the CSAT which is expressed as a percentage of people who rated their satisfaction a 4 or 5. Stability Health's CSAT scare was 88%.

Conclusions

The incidence of GDM is rising, coincident with rising incidences of obesity and maternal age in the general population. CDCESs play a critical role in the care of women with GDM; yet in many healthcare organizations, CDCESs are not readily available for this population. Stability Health's innovative blend of human CDCES coaches and technology platform provides the education, care, and support that all women with GDM should have access to. Our virtual program provided patients with the flexibility to meet with us on their schedule. CDCES coaches were able to connect, educate, and support patients and encourage them to follow through with all post-partum care. Patients who needed insulin could receive insulin instruction via real time video session along with continued support during pregnancy. The model is agnostic to how and who a CDCES is paired with; in the population described, CDCESs were paired with generalist Ob/gyn practioners but could easily be partnered with Endocrinology or Maternal Fetal Medicine specialists. Our program results with an urban, underserved population showed that patients readily accepted working with a CDCES and had lower rates of needing insulin.