Postpartum Dysglycemia Screening With Continuous Glucose Monitoring
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Postpartum dysglycemia screening with continuous glucose monitoring

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Summary of Changes from Previous Version:

Affected Section(s)	Summary of Revisions Made	Rationale

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STATEMENT OF COMPLIANCE

1. The trial will be carried out in accordance with International Council on Harmonisation Good Clinical Practice (ICH GCP) and the following:

    - United States (US) Code of Federal Regulations (CFR) applicable to clinical studies (45 CFR Part 46, 21 CFR Part 50, 21 CFR Part 56, 21 CFR Part 312, and/or 21 CFR Part 812).

    Investigators and clinical trial site staff who are responsible for the conduct, management, or oversight of NIH-funded clinical trials have completed Human Subjects Protection and ICH GCP Training.

1 PROTOCOL SUMMARY

1.1 SYNOPSIS

Title: Postpartum dysglycemia screening with continuous glucose monitoring

Study Description: Gestational diabetes (GDM) is one of the most common complications of pregnancy, and up to one third of women with GDM will have abnormal blood sugars after their pregnancy. To screen for abnormal blood sugars, standard of care is a 6-12 week postpartum oral glucose tolerance test (OGTT). However only 17-60% of women actually have this test performed. This study is to assess the feasibility of using a continuous glucose monitor placed on discharge from the hospital after delivery as a screening method to detect postpartum abnormal blood sugars.

Objectives:

Primary Objective: To assess the feasibility of continuous glucose monitoring compared to oral glucose tolerance testing for the diagnosis of postpartum diabetes in women with recent gestational diabetes.

Secondary Objectives: To evaluate the specificity, sensitivity, positive predictive value, and negative predictive value of continuous glucose monitoring compared to oral glucose tolerance testing for the diagnosis of postpartum dysglycemia in women with recent gestational diabetes.

To evaluate the influence of predictors of lack of postpartum oral glucose tolerance testing on completion of postpartum continuous glucose monitoring.

Endpoints:

Primary Endpoint: Percentage of participants with at least 72 hours of CGM data downloaded.

Secondary Endpoints: CGM acceptability scoring
Specificity, sensitivity, PPV, and NPV for CGM compared to OGTT will be performed for diagnosis of DM, IGT, and IFG

Study Population: Pregnant or recently pregnant women who were diagnosed with GDM during current/recent pregnancy.
Target enrollment: 50 participants

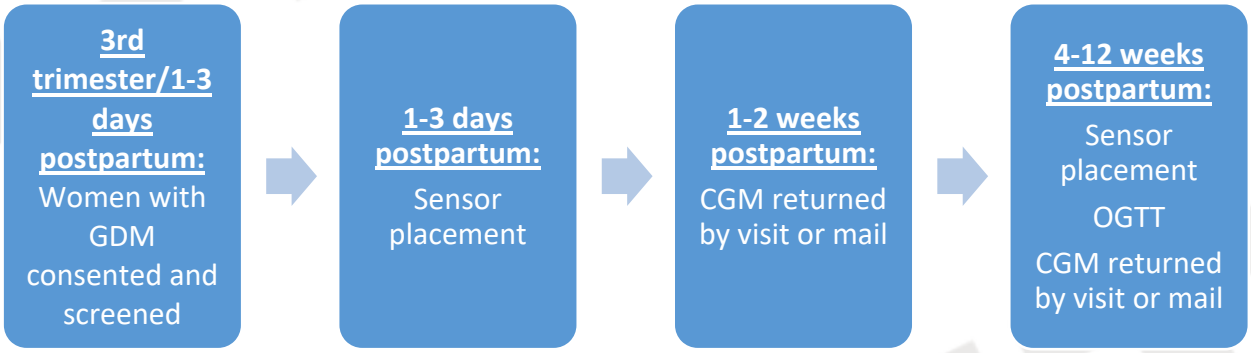
Sites/Facilities Enrolling Participants: Icahn School of Medicine at Mount Sinai

Description of Study Intervention: Women will be consented and screened before or after delivery. They will be asked about medical history, medications, and diabetes risk factors. A Dexcom Professional CGM will be placed on postpartum day 1-3. Participants will wear the sensor for 10 days and return it at their postpartum visit or by mail. They will be given another sensor to place before their standard of care OGTT and will mail the sensor back after that test is performed.

Study Duration: 1 years

Participant Duration: Up to 20 weeks

1.2 SCHEMA



1.3 SCHEDULE OF ACTIVITIES (SOA)

Visit	1	2	3	4	Home	5
Timing	Third trimester or 1-3 days postpartum	1-3 days postpartum	1-4 weeks postpartum	4-12 weeks postpartum	4-12 weeks postpartum 2-5 days before OGTT	4-12 weeks postpartum
Setting	In person or telehealth	Postpartum floor or telehealth	In person or telehealth	Telehealth		Telehealth or in person
Consent	X					
Medical history	X					
Pregnancy/Fetal outcome questions	X	X				
Professional sensor training	X	X		X		

Sensor placement		X			X	
Return of sensor			X			X
Skin assessment			X			X
Questionnaire			X			X
OGTT reminder call				X		

2 INTRODUCTION

2.1 STUDY RATIONALE

Gestational diabetes (GDM) is one of the most common complications of pregnancy. Up to one third of women with GDM will have persistently abnormal blood sugars postpartum, and up to 70% will develop diabetes later in life. In order to diagnose persistent postpartum dysglycemia and future risk of type 2 diabetes, the American Diabetes Association (ADA), American College of Obstetrics and Gynecology (ACOG), and World Health Organization (WHO) recommend that all women with GDM undergo an oral glucose tolerance test (OGTT) at 6-12 weeks postpartum [1-3]. However, this screening occurs in less than half of women diagnosed with GDM. Thus, standard of care for screening for postpartum dysglycemia is not occurring for the majority of women. A more feasible and convenient alternative for screening is needed. This study aims to assess the feasibility of continuous glucose monitoring (CGM) compared to OGTT for the diagnosis of postpartum dysglycemia in women with recent GDM.

2.2 BACKGROUND

Though considered the standard of care, postpartum OGTT screening for women with GDM is not performed in the majority of women. Previous research has tried to address promotion and incentivizing of OGTT testing, but has only achieved screening rates of up to 60% [5]. Alternative testing strategies have failed to achieve the desired feasibility and predictive value needed. The goal of this study is to assess the feasibility of a postpartum 10 day CGM study for detection of postpartum diabetes, impaired glucose tolerance (IGT), and impaired fasting glucose (IFG). CGM will be placed on discharge from the hospital and worn for 10 days. CGM will be returned at approximately 2 weeks postpartum at routine obstetrics or pediatric visits, or by mail. Postpartum CGM has the potential to greatly increase adherence rates to postpartum testing compared to 6-12 week OGTT. The secondary objectives of this study are to assess the sensitivity and specificity of postpartum CGM compared to standard of care OGTT and to assess for predictors of non-completion.

GDM is common and is a risk factor for future dysglycemia. GDM complicates 7% of pregnancies and is one of the most common complications of pregnancy [2]. Though for many women GDM resolves at delivery, up to one third of women with GDM will have diabetes or IGT at postpartum screening, and up to 70% will develop diabetes later in life [2]. Early diagnosis of dysglycemia allows early interventions which have been shown to decrease the risk of progression from IGT to diabetes, including weight loss, physical activity, breastfeeding, and pharmacologic interventions [6]. Postpartum screening can also be an opportunity to optimize health before future pregnancies to decrease the risk of maternal and fetal complications in addition to the long term risks of diabetes. Newly discovered, previously undiagnosed type 2 diabetes is associated with previous history of GDM, and is associated with increased perinatal risks when compared with GDM including perinatal mortality (OR 2.3), preterm birth (OR 2.6), congenital anomalies (OR 2.1), neonatal intensive care unit admission (OR 3.1) and neonatal hypoglycemia (OR 406) [7].

Standard of care for postpartum screening is not met by the majority of women who are at high risk to continue to have dysglycemia. Screening for diabetes and IGT using a 75-g, 2 hour OGTT is recommended by obstetric and endocrinology societies including ADA, ACOG, and WHO at 6-12 weeks postpartum [1-3, 8]. Unfortunately, postpartum screening at this time only occurs in 17-60% of women even during studies designed to promote testing [9-11]. In a randomized control trial, Clark et al found that postal reminders to patients and physicians in led to an increase in screening by one year postpartum with 14.3% tested by one year with no reminder, 51.6% with a reminder to the physician, 55.3% with reminder to patient, and 60.5% with reminder to physician and patient ($p<0.05$) [5]. Implementation of this strategy at two Canadian hospital systems did increase rates of screening, but not as robustly as seen in the original randomized control trial described above [9], with 28% OGTT completion by 6 months with reminders compared with 14% completion with usual care ($p=0.1$) [12]. The DIAMIND study in Australia found that a reminder at six weeks did not increase screening by six months postpartum [13]. Multiple interventions have been studied at Mount Sinai Hospital: after implementation of an advanced order set at the 35-week pregnancy visit, provider education modules, and nutritionist phone calls reminding patients to fast before postpartum testing, OGTT test completion in association with a six week postpartum visit increased from 17% to 36% ($p=0.01$) [10].

Increased interaction with a healthcare system and health literacy are associated with higher likelihood of postpartum testing [9, 11]. The strongest predictor of effective postpartum diabetes screening is attendance at postpartum healthcare visits [9]. The influence of race and ethnicity on postpartum screening rates is not consistent across studies [14], but in general there are strong associations of poor postpartum screening compliance with minority race, ethnicity, younger age, mental health disorders, and lower health literacy [11]. These disparities contribute to higher rates of undiagnosed diabetes in these populations which will have long term consequences on the women and their communities. During the COVID-19 pandemic, screening recommendations and adherence rates have changed further. For example, in the United Kingdom, Canada, and Australia, alternative and less testing have been recommended [15]. In the United States, no change in guidelines has been formally proposed; if it were, it could be expected to lead to further declines in postpartum screening, as women with lower health literacy and less access to healthcare having poorer follow up.

Alternative testing has not been able to replace postpartum OGTT. In theory, simpler screening tests might be considered, but these have proven inferior to the OGTT for postpartum dysglycemia screening. For example, fasting glucose values alone fail to capture some women with IGT and diabetes. A meta-analysis found a fasting glucose had a sensitivity of 16-89% compared to OGTT (the best sensitivity was a study performed 4-8 years after delivery) [16].

Hemoglobin A1C (HbA1C) measurements might seem a reasonable surrogate screening tool, but HbA1C can be lowered by increased red blood cell turnover during recent pregnancy and peripartum blood loss [3, 17]. One year after delivery, HbA1C compared to an OGTT has a reported sensitivity of 22.64% and PPV of 54.55% [17].

Multiple strategies have been explored to address this challenge. The selection of 6-12 weeks postpartum for the standard of care OGTT is mostly historical based on assumptions of changes in hormonal activity. However, markers of insulin sensitivity and production have been found to improve by postpartum days 1-5 (median day tested: postpartum day 2) [18]. The authors of that study concluded that the majority of improvements in metabolism occur in the immediate postpartum period [18]. An analysis of multiple studies looking at the accuracy of immediate postpartum OGTT before hospital discharge found good specificity (95.7%) and negative predictive value (NPV) (98.1%) for diabetes diagnosis, but performed sub-optimally when IFG and IGT were included (specificity 50.5%, NPV 75.3%) [19]. For women who receive steroids before or during labor, the impact on blood glucose levels would still be present on hospital day 2, so postpartum days 3-10 would likely perform better.

CGM for screening for dysglycemia in other populations. Chen et al found a strong correlation between CGM values and venous blood values during OGTT testing in otherwise healthy participants with fasting blood glucoses between 70-200 mg/dL [20]. In other populations where HbA1C cannot be depended on for diabetes diagnosis, such thalassemia, use of CGM for diagnosis has been studied [21]. CGM detected more IGT and diabetes than OGTT in a study of cystic fibrosis patients [22].

CGM metrics in healthy volunteers have been established. Analysis of CGM in participants without diabetes has found very low percentages of time above 180mg/dL (median 0%, IQR 0-0.2%), above 160mg/dL (median 0.3%, IQR 0.1-0.9%), and above 140 mg/dL (median 2.1%, IQR 0.9-3.9%) [23]. Overnight monitoring, defined as midnight to 5:59am, the rates of time above these thresholds were even lower (IQR ranges 0-0%, 0-0%, and 0-1%, respectively), and time spent in the range 70-120mg/dL was 94% (IQR 88-97%) [23].

2.3 RISK/BENEFIT ASSESSMENT

2.3.1 KNOWN POTENTIAL RISKS

Participants using the CGM will be at low risk for developing a local skin infection at the site of the sensor needle placement. If a catheter is left under the skin for more than 24 hours it is possible to get an infection where it goes into the skin, with swelling, redness and pain. There may be bleeding where the catheter is put in and bleeding under the skin causes a bruise (1 in 10 risk). In less than 1 out of 500 participants the CGM might break and leave a small portion of the sensor under the skin that may cause redness, swelling or pain at the insertion site.

Some participants may develop skin irritation or allergic reactions to the adhesives used to secure the CGM. If these reactions occur, different adhesives or "under-taping" (such as with IV 3000, Tegaderm, etc.) will be tried, sites will be rotated frequently, and a mild topical steroid cream or other medication may be required.

Whenever the skin is broken there is the possibility of an infection. The CGM sensors are inserted under the skin. It is possible that any part that is inserted under the skin may cause an infection. These occur very infrequently, but, if an infection was to occur, oral and/or topical antibiotics can be used.

Data downloaded from the CGM will be collected for the study as measures of diabetes self-management behaviors. Some people may be uncomfortable with the researchers' having such detailed information about their daily diabetes habits.

Loss of confidentiality is a potential risk; however, standard operating procedures will be followed as detailed in section 9.1.2 to minimize this risk.

2.3.2 KNOWN POTENTIAL BENEFITS

This study is not designed with the purpose of providing personal direct benefit to the participants. CGM data can be shared with the participant or their providers after their OGTT at the participant's request which could provide benefit to the participant.

It is expected that this protocol will yield increased knowledge about the feasibility of using CGM as a screening tool for DM after GDM. If this is feasible, screening could increase in frequency and ease.

3 OBJECTIVES AND ENDPOINTS

OBJECTIVES	ENDPOINTS	JUSTIFICATION FOR ENDPOINTS
Primary To assess the feasibility of continuous glucose monitoring compared to oral glucose tolerance testing for the diagnosis of postpartum diabetes in women with recent gestational diabetes.	Percentage of participants with at least 72 hours of CGM data downloaded.	72 hours of data has been accepted as sufficient for identifying CGM trends
Secondary To evaluate the specificity, sensitivity, positive predictive value, and negative predictive value of continuous glucose monitoring compared to oral glucose tolerance testing for the diagnosis of postpartum dysglycemia in women with recent gestational diabetes.	CGM acceptability scoring Specificity, sensitivity, PPV, and NPV for CGM compared to OGTT will be performed for diagnosis of DM, IGT, and IFG	Of participants who receive standard of care, the CGM data will be compared to the standard of care to assess specificity, sensitivity, PPV, and NPV
Tertiary/Exploratory Association of risk factors with nonadherence to postpartum OGTT. A secondary analysis will be performed in which we remove any data within 4 half-lives of last know steroid exposure. Sensitivity and specificity of DM, IGT, and IFG for sensor worn at the time of postpartum OGTT will be explored.	Demographics, CGM return, OGTT completion Specificity, sensitivity, PPV, and NPV for CGM compared to OGTT will be performed for diagnosis of DM, IGT, and IFG excluding data within 4 half-lives of last known steroid exposure. CGM data from 4-12 weeks postpartum will be compared to the immediate postpartum CGM data and to the postpartum OGTT.	Demographic data will be analyzed to assess if similar populations complete CGM vs OGTT Steroids affect blood sugar. This exploratory analysis will help to determine if this needs to be considered when using CGM to assess for postpartum dysglycemia. Stability of CGM trends over the postpartum weeks will be assessed, and CGM data from the same time as OGTT will be compared.

4 STUDY DESIGN

4.1 OVERALL DESIGN

The goal of this study is to assess the feasibility of the use of CGM for detection of postpartum diabetes, IGT, and IFG. Women with a diagnosis of GDM in their current or recent pregnancy will be recruited, and a Dexcom Professional CGM will be placed on postpartum day 0-3 and worn for ten days. This period of time would be less influenced by peripartum glucocorticoid use than an OGTT on hospital day 2. The CGM device will be returned at around two weeks at the routine postpartum obstetrics visits, at routine pediatric visits, or by mail. This ease of device return has the potential to greatly increase the adherence rates to postpartum testing, as compared to returning for the standard 6-12 week OGTT. The rates of CGM return, acceptability of system use by participants, sensitivity, specificity, PPV, NPV, and predictors of non-completion will be analyzed.

Visit 1: Women with a diagnosis of GDM in their current or recent pregnancy will be identified from physician referral and labor and delivery floor trackers. Inclusion criteria include diagnosis of gestational diabetes during a current or recent pregnancy and age 18 or older. Exclusion criteria include known pregestational diabetes, known skin adhesive allergy which would prevent subject from wearing a CGM, and chronic glucocorticoid use which is planned to be ongoing after labor and delivery discharge. They will be invited to participate and consented at their obstetrics or endocrinology visits during their third trimester or during admission for delivery. This visit can be performed in person or remotely. Medical history, medications, GDM diagnosis timing and values, age, race and ethnicity, education level, insurance type, parity, estimated pre-pregnancy weight and BMI, history of GDM in prior pregnancies, history of hypertension, other pregnancy complications, and family history will be recorded. If Visit 2 is planned to be performed remotely, Dexcom Pro training and supplies will be provided at this visit.

Visit 2: Visit 2 can be performed in conjunction with Visit 1 if the participant is already postpartum at recruitment or as a separate visit. It can be performed on the postpartum floor or remotely. The participant will be asked about pregnancy and delivery complications, GDM management, number of prenatal obstetric visits, estimated pregnancy weight gain, delivery weight and body mass index, gestational age at delivery, delivery method, steroid administration within the past week, fetal weight and complications, HbA1C values if available, and hemoglobin values. Participants will be asked for permission for access to review and record their future OGTT results. A Dexcom G6 Pro (or Dexcom G7 if FDA approved and available at the time of study) will be placed on an approved body site. The devices will be supplied by Dexcom at no cost to the subject. The participant will be trained on appropriate care of the sensor and removal.

Home use: Participants will wear the sensor for ten days or less if there is a sensor failure or the device is dislodged. After ten days, the participant will remove the sensor.

Visit 3: Visit 3 will occur 1-4 weeks after sensor placement. This visit can coincide with the participant's obstetrics or pediatric visit and can be performed in person or remotely. The participant will return the sensor at this visit, or mail the sensor to the study team within thirty days of placement. Postpartum complications and method of infant feeding obtained as part of normal postpartum care will be recorded. Participants will be asked whether they snack overnight and typical timing of breakfast, and the research team will determine what hour of the day would be considered fasting. If a participant is never fasting for over six hours, she will be considered to have not completed a fasting state. The investigator will assess for skin reaction at the sensor site. Participants will be asked about their experience and acceptability of blinded CGM. Participants will be encouraged to undergo the standard of care 6-12 week postpartum OGTT. Participants will be provided with another sensor to be placed before OGTT, and application will be reviewed.

Visit 4: Visit 4 will be conducted remotely. Participants will be contacted by text or phone call to encourage them to undergo the standard of care OGTT. If a participant is unable to have an OGTT performed through her normal care, she can have an optional in-person visit to have it performed at the study site. All participants will be instructed to place a Dexcom sensor at least 48 hours prior to their planned OGTT.

Home use: Participants will wear the sensor for at least 48 hours before planned OGTT for a total of ten days or less if there is a sensor failure or the device is dislodged. After ten days, the participant will remove the sensor.

Visit 5: Visit 5 will be conducted remotely after the 6-12 week OGTT. Participants will be instructed to mail the sensor back to the study team in pre-addressed, prepaid packaging. The investigator will assess for skin reaction at sensor site. Participants will be asked about their experience and acceptability of OGTT testing. Results of the OGTT will be recorded. If it is performed at an outside facility, the participant will request that the records be shared with the research team. Results of CGM data may be shared with a participant and her providers if requested by the participant after her routine OGTT. Investigators will not provide results before this to decrease risk of participants not completing the standard of care OGTT.

5 STUDY POPULATION

5.1 TARGET ENROLLMENT

50 participants

5.2 INCLUSION CRITERIA

Pregnant or delivered within the past 3 days
Diagnosis of gestational diabetes during current pregnancy
Age 18 or older

5.3 EXCLUSION CRITERIA

Pregestational diabetes
Known skin adhesive allergy
Chronic steroid use which will be ongoing after hospital discharge

5.4 LIFESTYLE CONSIDERATIONS

Trends in use of telehealth have been incorporated into this protocol to accommodate maximum number of participants.

5.5 SCREEN FAILURES

If participant meets an exclusion criteria after enrollment, such using steroids, their data will not be included in analysis.

5.6 STRATEGIES FOR RECRUITMENT AND RETENTION

Since up to 40% of women do not attend any postpartum visits [11], our study recruitment and retention will need to be optimized. Participants will be recruited from their routine obstetrics and endocrinology visits and also from the postpartum labor and delivery floor. Consent will be translated into Spanish, and interpreters will be used to increase potential recruitment and recruit a more diverse and representative study population. We believe the availability of remote visits will decrease burden on participants, will increase retention for women who do not wish attend postpartum visits, and will address potential limitations on research visits at study sites due to COVID-19 concerns. The option for visit 2 to be performed either on the postpartum floor or remotely will allow recruitment of women who are delivering at multiple locations.
Compensation will be provided for time and effort. Participants will receive $25 after Visit 1, $75 after Visit 3 and an additional $125 after completion of their standard OGTT. We estimate that 50% of participants will complete their standard OGTT with reminders and incentives; the enrollment goals have been planned accordingly.

6 STUDY INTERVENTION DISCONTINUATION AND PARTICIPANT DISCONTINUATION/WITHDRAWAL

6.1 DISCONTINUATION OF STUDY INTERVENTION

Participants will be withdrawn from the study without their consent if the participant indicates they are not willing or not able to wear the study device for at least 72 hours. If participant has an adverse skin reaction but have collected 72 hours of data, they can continue in the study and may forego the second CGM placement if they prefer.

6.2 PARTICIPANT DISCONTINUATION/WITHDRAWAL FROM THE STUDY

Participants can withdraw from the study at any time if they so wish. If a participant decides to withdraw their permission and disclosure of their Protected Health information from the study, she will need to do so in writing to the principal investigator Dr. Grenye O'Malley.

6.3 LOST TO FOLLOW-UP

Based on previous literature, we estimate that 50% of participants will complete their standard OGTT with reminders and incentives; the enrollment goals have been planned accordingly.

7 STUDY ASSESSMENTS AND PROCEDURES

7.1 ADVERSE EVENTS AND SERIOUS ADVERSE EVENTS

7.1.1 DEFINITION OF ADVERSE EVENTS (AE)

To ensure consistency of adverse event causality assessments, investigators will apply the following general guideline when determining whether an adverse event is related. An adverse event is considered related if there is a plausible temporal relationship between the onset of the adverse event and the study intervention, and the adverse event cannot be readily explained by the participant's clinical state, intercurrent illness, or concomitant therapies; and/or the adverse event follows a known pattern of response to the study intervention; and/or the adverse event abates or resolves upon discontinuation of the study intervention or dose reduction and, if applicable, reappears upon re-challenge.

An adverse event is considered unrelated if evidence exists that the adverse event has an etiology other than the study intervention (e.g., preexisting medical condition, underlying disease, intercurrent illness, or concomitant medication); and/or the adverse event has no plausible temporal relationship to study intervention.

7.1.2 DEFINITION OF SERIOUS ADVERSE EVENTS (SAE)

The intensity of adverse events will be rated on a three-point scale: (1) mild, (2) moderate, or (3) severe. It is emphasized that the term severe is a measure of intensity: thus, a severe adverse event is not necessarily serious. For example, itching for several days may be rated as severe, but may not be clinically serious.

Adverse events will be coded using the MedDRA dictionary.

All adverse events including adverse events that continue after the study participant's discontinuation or completion of the study will be followed until their medical outcome is determined or until no further change in the condition is expected.

Reporting Serious Adverse Events, Unexpected Adverse Device Effects
Any untoward occurrence that:

- Results in death.
- Results in transmission of a bloodborne pathogen.
- Is life-threatening; (a non-life-threatening event which, had it been more severe, might have become life-threatening, is not necessarily considered a serious adverse event).
- Requires inpatient hospitalization or prolongation of existing hospitalization.
- Results in persistent or significant disability/incapacity or substantial disruption of the ability to conduct normal life functions.
- Is a congenital anomaly or birth defect
- Is considered a significant medical event by the investigator based on medical judgment (e.g., may jeopardize the participant or may require medical/surgical intervention to prevent one of the endpoints listed above).

7.1.3 CLASSIFICATION OF AN ADVERSE EVENT

An Unanticipated Adverse Device Effect is defined as any serious adverse effect on health or safety or any life-threatening problem or death caused by, or associated with, a device, if that effect, problem, or death was not previously identified in nature, severity, or degree of incidence in the investigational plan or application (including a supplementary plan or application), or any other unanticipated serious problem associated with a device that relates to the rights, safety, or welfare of subjects."

7.1.4 ADVERSE EVENT REPORTING

All unanticipated and/or adverse events will be reported to the IRB and sponsor.

8 STATISTICAL CONSIDERATIONS

8.1 SAMPLE SIZE DETERMINATION

This is a pilot study so previous data to inform sample size is limited. Group size is based on previous feasibility studies [19, 24]. The secondary outcomes will be used to develop preliminary data for power calculations for a future study powered to calculate accuracy of CGM testing compared to standard of care postpartum OGTT.

8.2 STATISTICAL ANALYSES

8.2.1 ANALYSIS OF THE PRIMARY EFFICACY ENDPOINT(S)

Percentage of participants with at least 72 hours of CGM data downloaded.

8.2.2 ANALYSIS OF THE SECONDARY ENDPOINT(S)

Specificity, sensitivity, PPV, and NPV for CGM compared to OGTT will be performed for diagnosis of DM, IGT, and IFG. Percentage of participants categorized as CGM-IFG, CGM-IGT and CGM-DM will be reported.

8.2.3 SAFETY ANALYSES

Percentage of participants with skin reactions will be reported.

8.2.4 EXPLORATORY ANALYSES

A secondary analysis will be performed in which we remove any data within 4 half-lives of last know steroid exposure.

CGM data from 4-12 weeks postpartum will be compared to the immediate postpartum CGM data and to the postpartum OGTT.

Sensitivity and specificity of DM, IGT, and IFG for sensor worn at the time of postpartum OGTT will be explored.

9 SUPPORTING DOCUMENTATION AND OPERATIONAL CONSIDERATIONS

9.1 REGULATORY, ETHICAL, AND STUDY OVERSIGHT CONSIDERATIONS

9.1.1 INFORMED CONSENT PROCESS

Consent will be obtained prior to any study assessments/procedures. The investigator will approach eligible potential participants and explain the study in a private area, including the reasons why participants are eligible, risks and benefits and the regimens to be evaluated. The patient will have as much time as needed to review the consent form. All study related questions will be answered prior to the patient signing the consent form. The patient will be provided a contact number for the study nurse practitioner and research coordinator which can be used during business hours as well as contact number to have a member of the study team paged after hours if needed. Participants' privacy interests are always considered from the time participants are identified for recruitment until they have completed the study. If screening visit is conducted via telehealth, standard operating procedures for remote consent will be followed.

9.1.1.1 CONSENT/ASSENT AND OTHER INFORMATIONAL DOCUMENTS PROVIDED TO PARTICIPANTS

Copy of signed consent

User guide for Dexcom Professional CGM

9.1.2 CONFIDENTIALITY AND PRIVACY

Only research personnel involved in the conduct of this research will have access to identifiable information and will be communicating with participants throughout the trial. When trying to get in contact with participants through mail or phone messages etc., the utmost discretion will be utilized.

Participants will on enrollment be given a unique study ID and all of their information recorded will be de-identified. Information provided to the sponsor will only label participants by study ID. The information to link participants to their study ID will only be accessed by the study team. Computers used for research purposes at Mount Sinai that store study data are encrypted through Academic Computing. Data management will be performed on approved research tools such as RedCap. All study participant binders are double locked in the research coordinators office which is only accessible to members of the study team.

9.1.3 STUDY RECORDS RETENTION

Shredded after 10 years of study completion

9.2 ABBREVIATIONS

AE	Adverse Events
ACOG	American College of Obstetrics and Gynecology
ADA	American Diabetes Association
CFR	Code of Federal Regulations
CGM	Continuous glucose monitoring

GGM-IFG	CGM-based impaired fasting glucose
CGM-IGT	CGM-based impaired glucose tolerance
CGM-Diabetes	CGM-based diabetes
CGM-normal	Normal CGM profile
GDM	Gestational diabetes
ICH GCP	International Council on Harmonisation Good Clinical Practice
IFG	impaired fasting glucose
IGT	impaired glucose tolerance
IQR	Interquartile range
NPV	Negative predictive value
OGTT	Oral glucose tolerance test
OR	Odds ratio
PPV	Positive predictive value
SoA	Schedule of Activities
SAE	Serious Adverse Events
US	United States
WHO	World Health Organization

9.3 PROTOCOL AMENDMENT HISTORY

Version	Date	Description of Change	Brief Rationale

11 REFERENCES

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