

Thomas Jefferson University  
Jefferson Digital Commons

---

Phase 1

Class of 2022

---

1-2020

## Prediction of Neonatal Birthweight associated with Maternal Obesity and Diabetes


Laura Gleason

Thomas Jefferson University, [laura.gleason@jefferson.edu](mailto:laura.gleason@jefferson.edu)

Rebekah McCurdy, MD, MPH

Thomas Jefferson University, [rebekah.mccurdy@jefferson.edu](mailto:rebekah.mccurdy@jefferson.edu)

Follow this and additional works at: [https://jdc.jefferson.edu/si\\_ctr\\_2022\\_phase1](https://jdc.jefferson.edu/si_ctr_2022_phase1)

 Part of the [Endocrinology, Diabetes, and Metabolism Commons](#), [Obstetrics and Gynecology Commons](#), and the [Translational Medical Research Commons](#)

[Let us know how access to this document benefits you](#)

---

### Recommended Citation

Gleason, Laura and McCurdy, MD, MPH, Rebekah, "Prediction of Neonatal Birthweight associated with Maternal Obesity and Diabetes" (2020). *Phase 1*. Paper 63.

[https://jdc.jefferson.edu/si\\_ctr\\_2022\\_phase1/63](https://jdc.jefferson.edu/si_ctr_2022_phase1/63)

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's [Center for Teaching and Learning \(CTL\)](#). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in Phase 1 by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: [JeffersonDigitalCommons@jefferson.edu](mailto:JeffersonDigitalCommons@jefferson.edu).

## **SI/CTR Abstract**

**Word count: 250 words**

### **Prediction of Neonatal Birthweight associated with Maternal Obesity and Diabetes**

**Laura Gleason, Dr. Rebekah McCurdy MD, MPH\***

(\*) indicates primary project advisor

#### **Introduction**

To design a model that will predict neonatal birth weight within obese mothers by diabetic status.

#### **Methods**

A secondary data analysis of an RCT (NCT 02909582) was utilized to create a neonatal birth weight prediction model. Women (n=325) with a BMI > 35 kg/m<sup>2</sup> from a tertiary academic institution, 2016 – 2019, were included to estimate the risk of large for gestational age (LGA) infants and neonatal birth weight based on maternal pre-pregnancy BMI and diabetic status. LGA was defined as an infant birth weight > 90th percentile. Analysis included Chi-square, t-test, multivariate logistic and linear regression.

#### **Results**

Mean birthweight did not differ in obese mothers based on diabetic status. The frequency of large for gestational age infants was significantly greater for diabetic mothers (17% vs 7% without diabetes, p=0.024). Total pregnancy weight gain (continuous, lbs) (OR 1.03; 95% CI 1.01, 1.05; p=0.016) and pre-pregnancy BMI (continuous, OR 1.08; 95% CI 1.01, 1.15; p=0.018) were associated with the risk of LGA

infants when accounting for demographics (model  $R^2 = 0.074$ ). The presence of diabetes (RR 146; 95% CI 24, 268;  $p=0.019$ ), total weight gain (lbs) (RR 4; 95% CI 1, 7;  $p=0.015$ ), and gestational age (RR 197; 95% CI 175, 220;  $p<0.001$ ) were associated with neonatal birth weight when accounting for demographics (model  $R^2 = 0.550$ ).

## **Discussion**

These models incorporate the joint effects of maternal obesity and diabetic status in predicting neonatal birthweight, thereby enabling clinicians to counsel their high-risk patients on risk for large for gestational age infants.