Maternal and Neonatal outcomes in GDM requiring treatment with insulin or metformin

**Background**
An estimated 7% of all pregnancies were complicated by diabetes, of which 86% were GDM. These women are noted to have an increased rate of maternal weight gain, fetal macrosomia, perinatal death, shoulder dystocia, and pre-eclampsia. ACOG and SMFM released “guidelines on management of GDM [in 2018].” The two organizations agree on insulin as a preferred treatment because of the acceptability of insulin agents as alternatives. Recent studies have demonstrated possible benefit to oral agents in addition to their being “less expensive and generally better tolerated.”

**Purpose and Rationale**
At HHC, as a FQHC, we practice amongst a largely underserved, Latina and African American population at increased risk for developing GDM. We sought to determine the differences in outcomes for patients with GDM treated with insulin or metformin.

- Increase general knowledge of outcomes in GDM treated with insulin or metformin by providing descriptive summaries of the difference in maternal weight gain, fetal birth weight, and gestational age at delivery.
- Determine relative risk associated with insulin versus metformin in the development of neonatal hypoglycemia, LGA neonates, and pre-eclampsia.

**Methodology**
- Retrospective study w/ Convenience sample.
- Discrete data search using EMR for admission and discharge diagnosis of GDM; Rx of insulin and or metformin; mode of delivery; GA at birth; birth weight; and neonatal hypoglycemia.
- Chart review to validate patient information and collect non-discrete data.

**Results and Discussion**
- Retrospective study, consistent with larger meta-analysis demonstrating favorable short-term outcomes for Metformin versus Insulin as illustrated.
- There was a small shift in the RR toward Neonatal outcomes and gestational hypertensive disease.
- Pre-eclampsia (not calculatable as no pre-eclampsia observed in the Metformin population)
- LGA RR = 1.128
- Neonatal hypoglycemia RR = 1.067
- Decrease in GA for Metformin (36+4) v Insulin (38+4).

**Study Design**
- Inclusion Criteria:
  2. Development of gestational diabetes mellitus; requiring pharmacotherapy with insulin and / or metformin during gestation.
  3. Neonates aged 0 – 1 years delivered to the above women.
- Exclusion Criteria:
  1. Prior history of diabetes

**References:**
1. ACOG Practice Bulletin #109 Gestational diabetes mellitus ACOG Volume 131 No 2, February 2018
3. Powe, Carol, MD; Bryant, Allison MD. Oral Alternatives to Insulin for Gestational Diabetes? NEJM Journal Watch https://www.jwatch.org/doi/10.2337/dc18-0013
4. American Diabetes Association Diabetes Care 2016 Jan; 41(Supplement 1); S137