# A Comparison of Newborn Birthweights Between Opioid Use Disorders Treated with Methadone vs Buprenorphine

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**Background:**
Prescription opioids and opioid-related deaths have tripled over the last two decades. New York has faced one of the largest increases in opioid-related deaths, especially in Suffolk County. Chronic opioid abuse during pregnancy has been associated with complications, including fetal growth restriction, placental abruption, fetal death, preterm labor, and intrauterine passage of meconium. Additionally, neonates are at risk for narcotic withdrawal, as well as poor social situations and infectious diseases.

**Objective**: To determine effects of in utero exposure to medications for opioid use disorder (MOUD) on birth weight (BW) and birth weight classification comparing methadone to buprenorphine.

**Study Design**:
- Retrospective study (N=362)
- Single institution between Jan 2017 - Dec 2023
- 2 comparison groups: buprenorphine or methadone
- Demographics and clinical outcomes including gestational age of delivery and BW
- BW categorization using Fenton 2013 Growth Charts with small for gestational age (SGA) newborns defined as a BW less than 10%
- Univariate and multivariable statistical analysis with a statistical significance considered at p <0.05

**Table 1. Buprenorphine and Methadone Dosing and its Effect on SGA Infants**

| | Mean | Median | Range | Dosing Mean Rank | Dosing Mean Rank | P |
|---|---|---|---|---|---|---|
| **Dosing at Beginning of Pregnancy** | | | | 161.09 | 160.99 | |
| **Methadone (mg)** | 72 | 70 | 0 - 170 | SGA (n=46) | Non-SGA (n=275) | 0.99 |
| **Buprenorphine (mg)** | 10.8 | 8 | 0 - 24 | | | |
| **Dosing at Delivery** | | | | 165.57 | 178.23 | |
| **Methadone (mg)** | 105.8 | 100 | 0 - 270 | SGA (n=48) | Non-SGA (n=304) | 0.42 |
| **Buprenorphine (mg)** | 11.6 | 11 | 0 - 28 | | | |

**Table 2. Logistic Regression in Prediction of an SGA Newborn**

| Variable | Odds Ratio | 95% CI | P |
|---|---|---|---|
| **AMA (>35y)** | 1.18 | 0.537 to 2.618 | 0.673 |
| **Buprenorphine MOUD** | 1.09 | 0.494 to 2.416 | 0.827 |
| **White Race** | 4.25 | 0.498 to 36.176 | 0.185 |
| **BMI >30** | 0.87 | 0.388 to 1.976 | 0.750 |
| **Chronic Hypertension** | 4.30 | 0.903 to 20.485 | 0.066 |
| **Gestational Diabetes** | 0.36 | 0.045 to 2.861 | 0.335 |
| **Psychiatric Diagnosis** | 0.75 | 0.354 to 1.625 | 0.477 |

**Results:**
- 105 (29%) in the methadone group
- 257 (71%) in the buprenorphine group
- Groups were similar when comparing parity, maternal age, ethnicity, preterm delivery rate, mode of delivery, and concurrent psychiatric diagnosis
- BW was greater in the buprenorphine group (3020±615 g) compared to methadone group (2810±586 g; p=0.003); however, there was a similar incidence of SGA newborns 14.5% for buprenorphine vs 12.5% for methadone (p=0.61)
- Dosing did not affect incidence of SGA infants [Table 1]
- In regression modeling, no independent predictors of SGA, although cHTN approached significance (OR 4.30: 95% CI 0.903 to 20.485; p = 0.066) [Table 2]

**Conclusions:** When using buprenorphine or methadone for MOUD, reassurance can be given to patients that the incidence of SGA newborns is similar, even when accounting for medical comorbidities.

**References:**

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