

# **RACIAL AND ETHNIC DISPARITIES IN VERY LOW BIRTHWEIGHT NEONATAL OUTCOMES AT AN ACADEMIC MEDICAL CENTER IN TEXAS**

Williams E Sarah<sup>1</sup>, Joseph Hagan<sup>2</sup>, Monika Patil<sup>3</sup>

<sup>1</sup> Baylor College of Medicine, Department of Pediatrics, Academic General Pediatrics

<sup>2</sup> Baylor , Pediatrics , Newborn Medicine

<sup>3</sup> Baylor, Pediatrics , Newborn Medicine

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**Background:** Racial disparities in infant health outcomes are prevalent in the United States. In 2018, while overall infant mortality rate (IMR, death of an infant before their first birthday) was 5.7 per 1000 live births, the IMR for Non-Hispanic Black (NHB) infants was nearly double this at 10.8 per 1000 live births. In Texas, the single leading cause of death for NHB infants is prematurity/low birth weight, while congenital anomaly is the leading cause for all other racial and ethnic groups. Racial disparities in infant outcomes are multi-factorial and include disparities in the quality of the delivery hospital. Therefore, this study seeks to understand if there are racial differences in morbidity and mortality of very-low birth weight (VLBW, <1500g birthweight) infants taken care of at a large academic medical center in Texas.

**Materials/Methods:** A retrospective, cross-sectional, cohort study was performed to analyze Vermont Oxford Network data from VLBW infants, with self-reported maternal racial and ethnic information, without major congenital anomalies, and admitted to the Texas Children's Hospital (TCH) Neonatal Intensive Care Unit (NICU) from January 1, 2016-December 31, 2020. The primary outcome was mortality prior to hospital discharge compared between racial and ethnic groups. Secondary outcomes included common VLBW morbidities which were categorized into early and late outcomes. Logistic and linear regression analyses were used to compare race categories for binary and quantitative outcomes, respectively, after controlling for maternal and patient characteristics that differed significantly.

**Results:** 1,116 subjects met inclusion criteria. Hispanic (HA) mothers had more extreme pre-term deliveries. NHB mother had higher rates of hypertension. Non-Hispanic Asian (NHA) mothers had higher rates of gestational diabetes while Non-Hispanic white (NHW) mothers had higher rates of multiple gestation. Death before discharge was highest for the Hispanic ethnic group, and second highest in NHB infants ( $p = 0.017$ ). However, after multivariable analysis, there was not a significant difference in mortality between groups ( $p=0.139$ ). Early and late adverse outcomes are detailed in Table 1.

**Conclusions:** When controlling for differences in patient and maternal characteristics, there is no racial or ethnic difference in VLBW infant mortality at a single academic center in Texas. NHW infants had higher rates of BPD and severe ROP.

**Images / Graph / Table**

**Table 1. Early and Late Outcomes**

	Black Non-Hispanic (n=377)	Hispanic All (n=382)	White Non-Hispanic (n=323)	Asian Non-Hispanic (n=79)	P-value	Adjusted p-value <sup>f</sup>
<b>Early Outcomes</b>						
APGARs at 5 minutes <sup>1</sup>	8 (6, 9)	8 (6, 8)	8 (6, 8)	8 (7, 9)	0.026	0.770
Intubation during delivery room resuscitation <sup>1</sup>	158 (41.9)	172 (45.0)	139 (43.0)	27 (34.2)	0.348	0.477
Cardiac Compressions in delivery room <sup>2</sup>	14 (3.7)	13 (3.4)	10 (3.1)	0 (0)	0.391	0.984
Hypothermia <sup>2</sup>	23 (6.1)	31 (8.1)	26 (8.1)	4 (5.1)	0.566	0.579
Early Onset Sepsis <sup>2</sup>	8 (2.1)	8 (2.1)	4 (1.2)	0 (0)	0.476	0.807
Severe IVH <sup>2</sup>	37 (9.8)	37 (9.7)	43 (13.3)	5 (6.3)	0.201	0.076
Died within 12 hours <sup>2</sup>	7 (1.9)	7 (1.8)	2 (0.6)	1 (1.3)	0.497	0.543
Respiratory Distress Syndrome <sup>2</sup>	247 (65.5)	259 (67.8)	228 (70.6)	45 (57.0)	0.113	0.038
Pneumothorax <sup>2</sup>	11 (2.9)	35 (9.2)	21 (6.5)	2 (2.5)	0.002	0.011
Gastrointestinal Perforation <sup>2</sup>	13 (3.5)	22 (5.8)	10 (3.1)	1 (1.3)	0.130	0.343
<b>Late Outcomes</b>						
Death before discharge <sup>2</sup>	46 (12.2)	62 (16.2)	31 (9.6)	5 (6.3)	0.017	0.139
Late Onset Sepsis <sup>2</sup>	40 (10.6)	47 (12.3)	36 (11.2)	7 (8.9)	0.793	0.812
BPD – moderate to severe <sup>2</sup>	141 (37.4)	158 (41.4)	147 (45.5)	22 (27.9)	0.017	0.001
Severe ROP <sup>2</sup>	15 (4.0)	25 (6.5)	26 (8.1)	5 (6.3)	0.153	0.025
Patent Ductus arteriosus <sup>2</sup>	71 (18.8)	94 (24.6)	86 (26.6)	20 (25.3)	0.081	0.007
Necrotizing Enterocolitis <sup>2</sup>	25 (6.6)	29 (7.6)	19 (5.9)	5 (6.3)	0.838	0.927
Cystic Periventricular Leukomalacia <sup>2</sup>	11 (2.9)	3 (0.8)	11 (3.4)	1 (1.3)	0.078	0.063

1. Median (interquartile range), Wilcoxon rank sum test p-value, linear regression adjusted p-value

2. Frequency (N), Fisher's exact test p-value, logistic regression adjusted p-value

<sup>f</sup>Adjusted for birthweight, gestational age, multiple gestation, maternal HTN and maternal diabetes.