

RACE, SOCIAL DETERMINANTS OF HEALTH, AND SEVERE MATERNAL MORBIDITIES AMONG BLUE CROSS AND BLUE SHIELD OF LOUISIANA MOTHERS

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BACKGROUND

Blue Cross and Blue Shield of Louisiana (BCBSLA) is deeply invested in understanding the relationships among severe maternal morbidities (SMM), race, and social determinants of health. Recognizing its significance in addressing healthcare disparities among Louisiana mothers, this enhanced knowledge will better inform BCBSLA's outreach for members with high-risk pregnancies. Louisiana historically has struggled with maternal outcomes compared to other U.S. states. This analysis looks at the payer's commercial population, knowing it does not represent Louisiana as a whole. However, understanding who face SMM at the highest rates will assist BCBSLA's ongoing efforts to decrease maternal health disparities in Louisiana.

SEVERE MATERNAL MORBIDITY

SMM is a crucial measure within healthcare. It covers a broad spectrum of severe medical events occurring during delivery and postpartum. The SMM metric, as defined by the Alliance for Innovation on Maternal Health, comprises 21 markers, each noting a possible life-threatening complication.

Delving into the intricacies of the SMM metric, BCBSLA analyzed 37,257 deliveries over a four-year period. This study considered all but one of the 21 indicators—blood transfusion. BCBSLA then narrowed the focus to only those occurring during delivery.

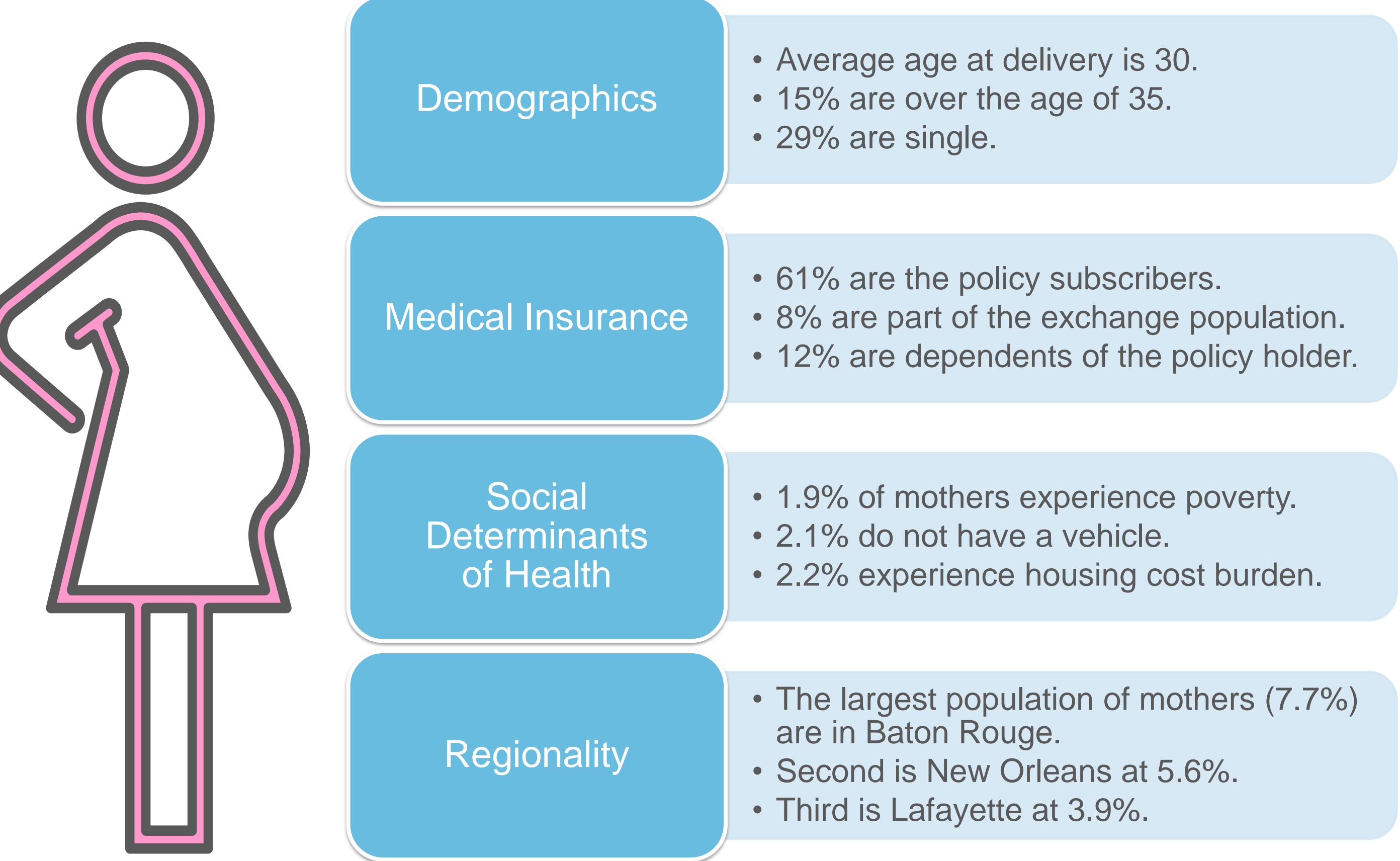
Of the deliveries between 2020 and 2023, 430 (1.15%) resulted in a SMM for mothers with a BCBSLA commercial plan.

The SMM rate for BCBSLA mothers has trended up slightly during the analysis period. Sepsis has been the most common indicator. But it's important to keep in mind that an SMM event can have multiple indicators.

Table 1. SMM Indicators and Rates				
Year	2020	2021	2022	2023
Deliveries	9,090	9,247	9,745	9,175
SMM During Delivery	104	102	116	108
SMM Rate	1.14%	1.10%	1.19%	1.18%
Acute Myocardial Infarction	1	2	8	3
Aneurysm	0	0	0	1
Acute Renal Failure	16	13	17	22
Adult Respiratory Distress Syndrome	23	30	28	19
Amniotic Fluid Embolism	1	1	1	1
Cardiac Arrest/Ventricular Fibrillation	0	3	4	4
Conversion of Cardiac Rhythm	0	2	1	2
Disseminated Intravascular Coagulation	27	27	26	32
Eclampsia	25	33	21	18
Heart Failure/Arrest During Surgery or Procedure	0	1	0	1
Puerperal Cerebrovascular Disorders	8	4	8	7
Pulmonary Edema/Acute Heart Failure	25	17	25	27
Severe Anesthesia Complications	0	1	3	4
Sepsis	30	29	21	38
Shock	10	9	8	8
Sickle Cell Disease with Crisis	0	2	1	1
Air and Thrombotic Embolism	18	7	11	11
Hysterectomy	14	13	25	19
Temporary Tracheostomy	0	0	0	0
Ventilation	3	3	4	5

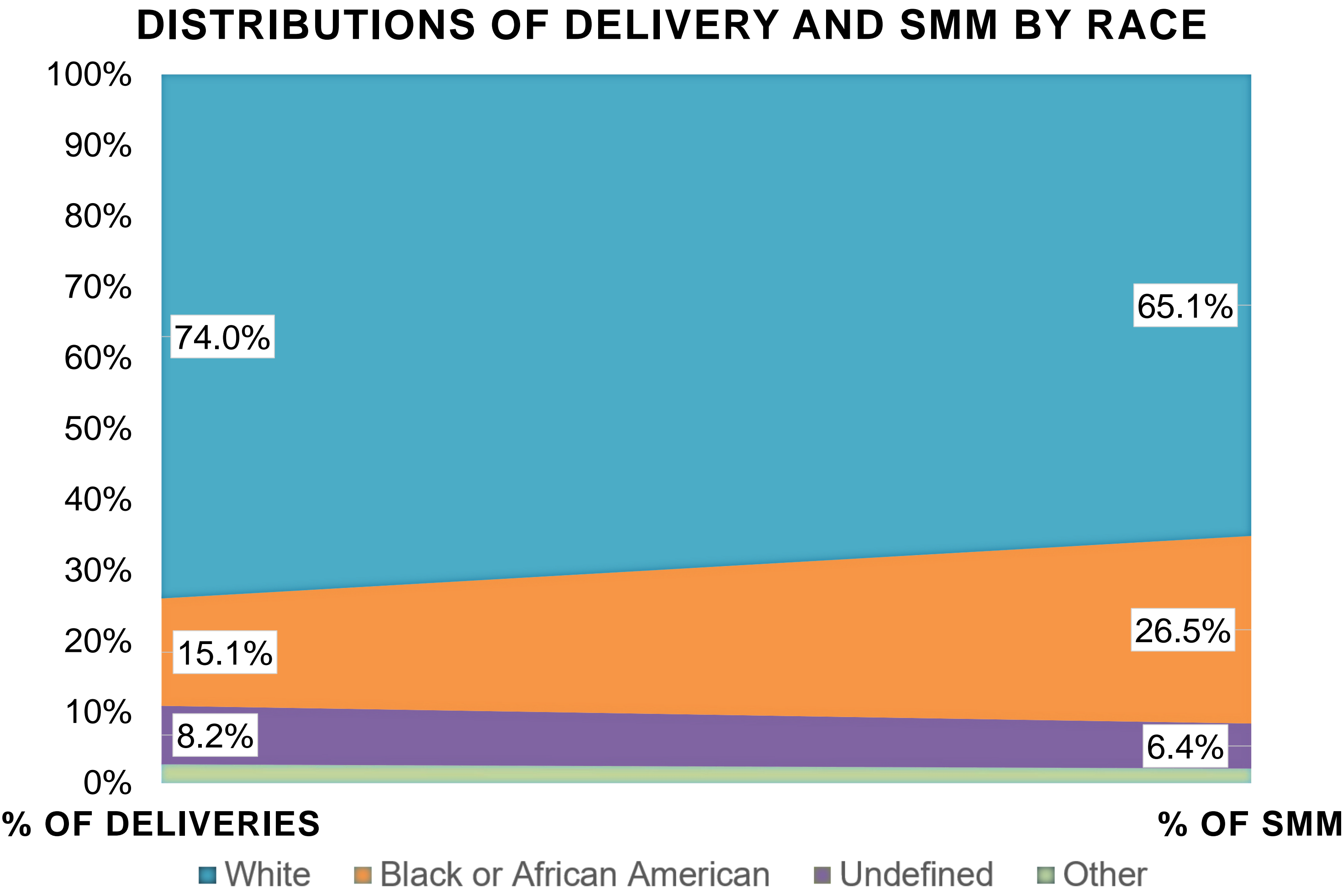
Figure 1. BCBSLA Maternal Population

Eligible SMM Deliveries with Discharge Date Between Jan. 1, 2020, and Dec. 31, 2023.



HOW RACE AND SOCIAL DETERMINANTS INFLUENCE SEVERE MATERNAL MORBIDITY RATES

Figure 2. SMM by Race



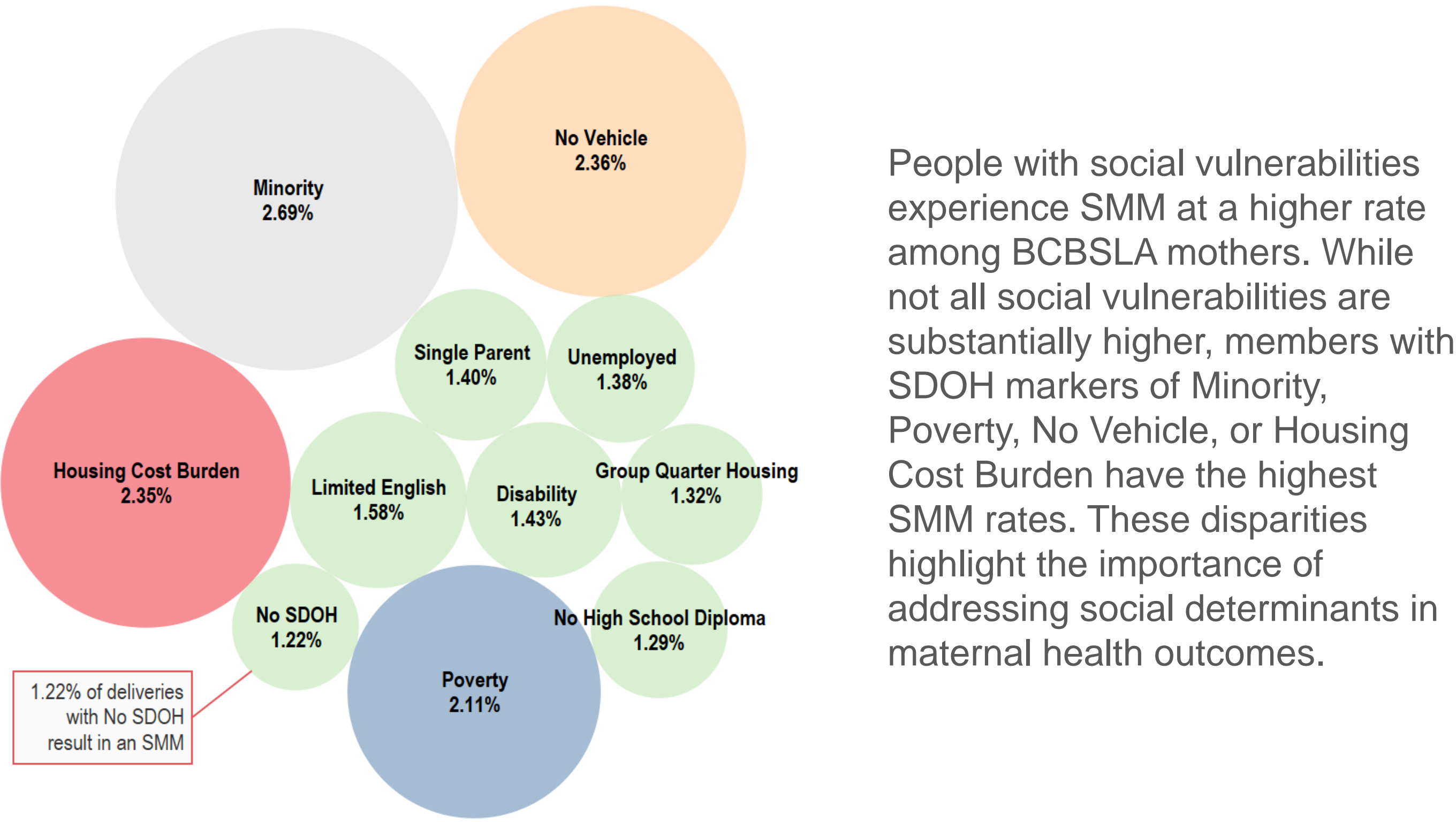
Among the analyzed deliveries, White mothers represented 74.0%, yet they accounted for only 65.1% of SMMs. Black or African American mothers constituted 15.1% of deliveries, but they experienced a disproportionately higher rate of SMMs (26.5%).

BCBSLA Social Determinants of Health

The Social Vulnerability Index comes from the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry. This data assesses social vulnerability using 15 U.S. Census variables, including socioeconomic status, household composition, minority status, housing type, and transportation. Likewise, data from the USDA's Food Access Research Atlas gives added metrics for vehicle, supermarket, and food access. BCBSLA's ingestion of this data involves rigorous exploration and cleaning to produce readily usable information.

The final output, Social Determinants of Health (SDOH), aggregates the cleaned data sources and assigns markers for each census tract. Indicators flag a census tract if that given area is among the top 10% of areas in Louisiana experiencing that social vulnerability.

Figure 3. Social Determinants of Health with the Highest SMM Rates



People with social vulnerabilities experience SMM at a higher rate among BCBSLA mothers. While not all social vulnerabilities are substantially higher, members with SDOH markers of Minority, Poverty, No Vehicle, or Housing Cost Burden have the highest SMM rates. These disparities highlight the importance of addressing social determinants in maternal health outcomes.

Figure 4. SMM Rates Increase with Social Vulnerabilities Intersection

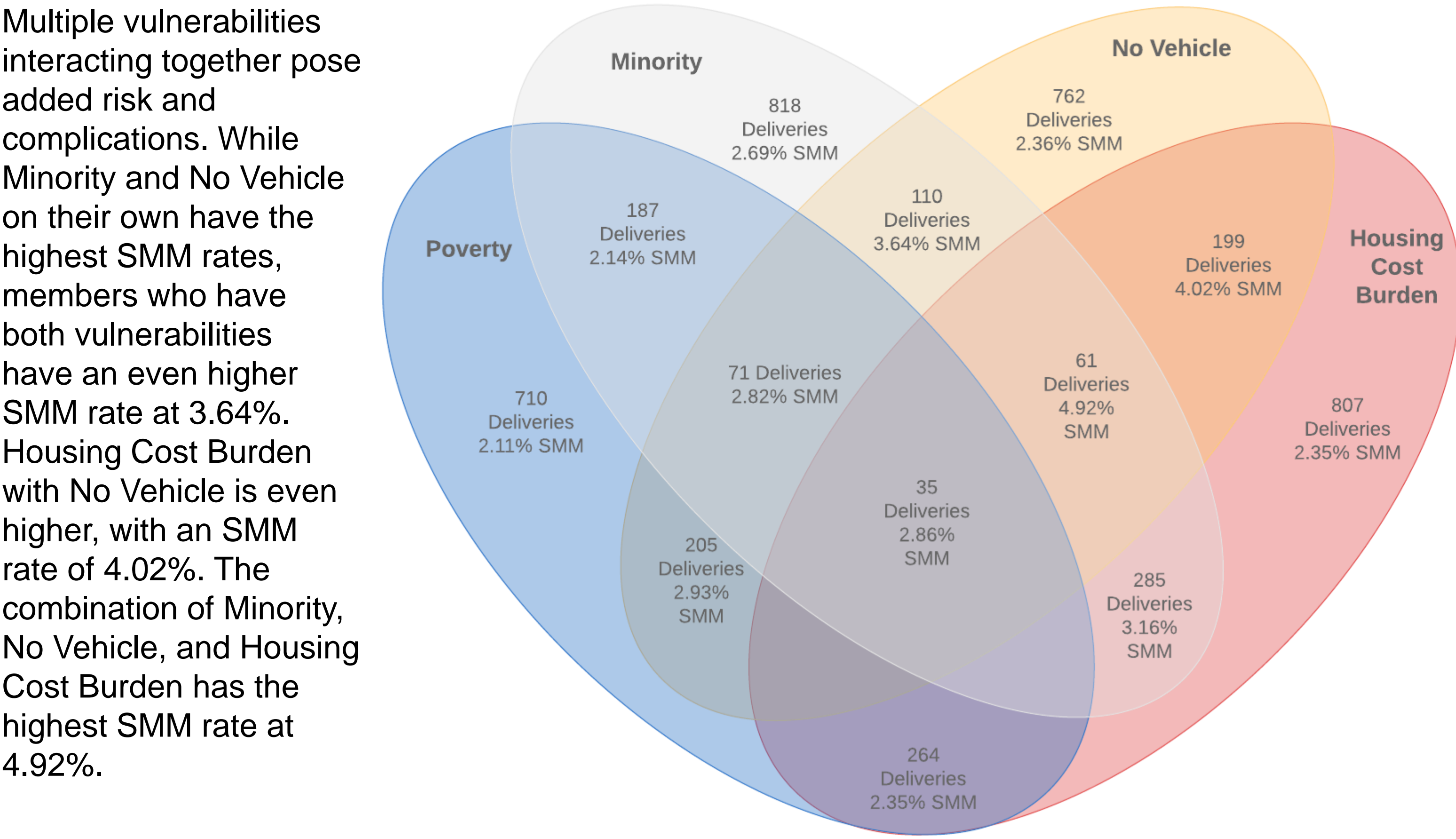
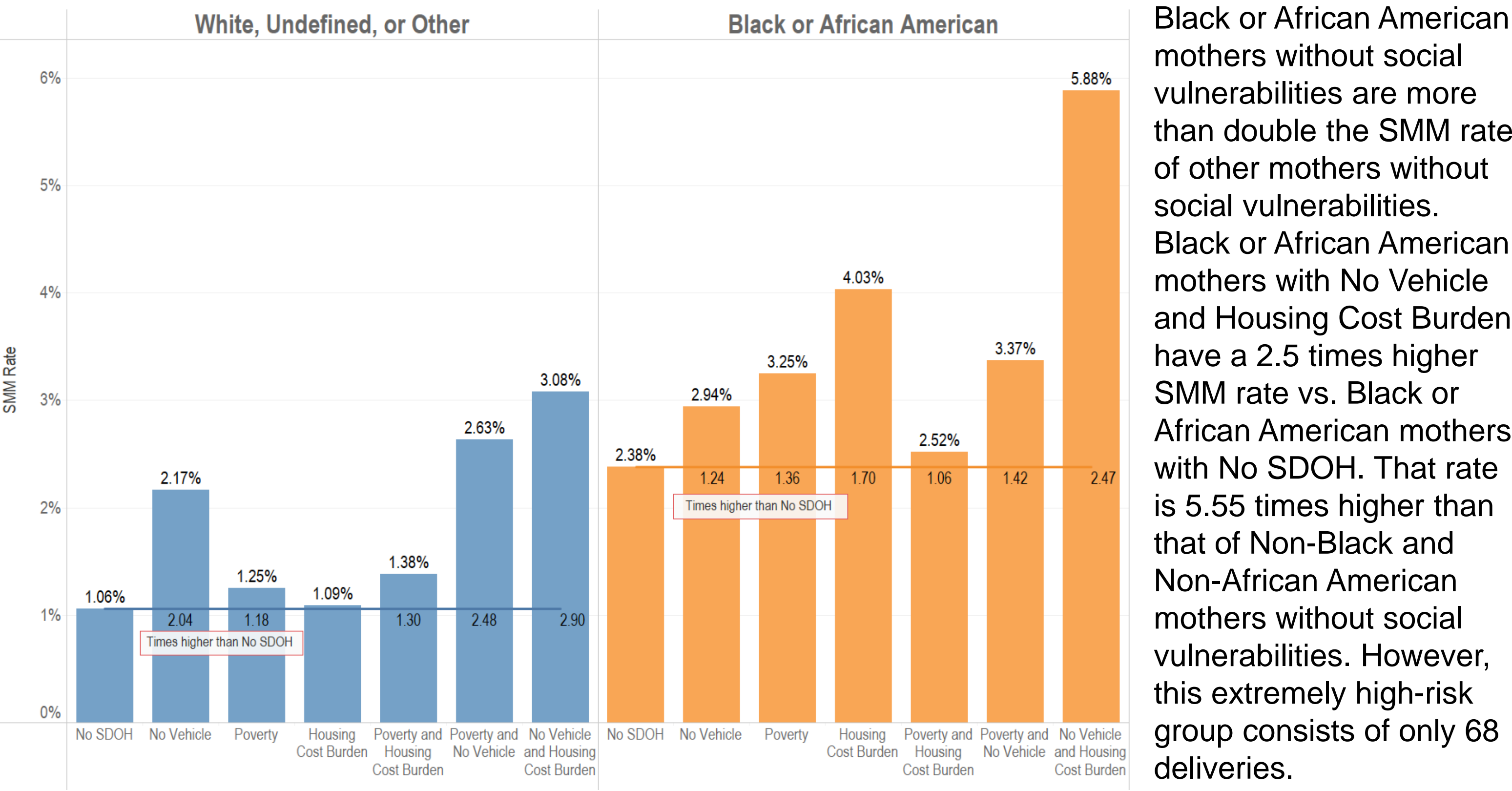


Figure 5. Increased SMM Risk When Race and SDOH are Combined



Black or African American mothers without social vulnerabilities are more than double the SMM rate of other mothers without social vulnerabilities. Black or African American mothers with No Vehicle and Housing Cost Burden have a 2.5 times higher SMM rate vs. Black or African American mothers with No SDOH. That rate is 5.55 times higher than that of Non-Black and Non-African American mothers without social vulnerabilities. However, this extremely high-risk group consists of only 68 deliveries.

CONCLUSIONS

Analysis shows an association between mothers grappling with social vulnerabilities and the risk of experiencing SMM during delivery. This risk is notably pronounced among Black or African American mothers. It's crucial to recognize that these disparities extend beyond racial lines. Those with social vulnerabilities, irrespective of their racial or ethnic background, are at a higher risk of adverse maternal health outcomes compared to those without such vulnerabilities. By acknowledging the interconnectedness of factors such as poverty, housing cost burden, and vehicle access, well-targeted interventions can reach those at the highest risk.

Black or African American mothers with multiple social vulnerabilities are at the highest risk. Keeping in mind the analysis looks at commercially insured mothers and the small size of this group, Black or African American mothers with multiple social vulnerabilities can face more than five times the risk of SMM when compared to those with no social vulnerabilities. These stark disparities emphasize the urgent need for targeted interventions to address the intersecting challenges that vulnerable populations face, particularly within maternal healthcare.

BCBSLA has a dedicated team of nurses who engage mothers with the highest risks, beginning early in their pregnancies. Better understanding of who those mothers are can increase the effectiveness of outreach and play a huge role in improving the health and lives of Louisianians.