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“Impact of Chemical Exposure on Preterm Pregnancies and Low Birth Weight Outcomes”

Environmental conditions can negatively impact one's health. This can include exposure to lead, industrial emissions, and water quality. Repeated exposure to these conditions are risk factors for cancer, respiratory illness, and other diseases. In Louisiana, studies have shown that 19% of the people live in parishes that don't meet the standard for air quality. According to the Environmental Protection Agency, in Louisiana there are 560 facilities that expose residents of chemicals. In 2018, these facilities exposed residents of 150,758,424 pounds of chemicals. Of those facilities, 29 emitted 13,394,777 pounds of chemicals that affects reproductive health. Chemicals such as zinc, hydrogen cyanide, acrylamide, atrazine, and lead are the top 5 chemicals these facilities produce that negatively impacts reproductive health.

Maternal health outcomes, specifically in Louisiana, consistently have not reached the national standards. Factors such as race, gender, and age influence pregnancy outcomes. Low birth weight, weighing less than 2,500 grams, and premature pregnancy, delivering at 37 weeks, are two reproductive outcomes that this study will focus on. According to America's Health Rankings, in 2019, on average 10.7% of babies in Louisiana were low birthweight while the national average was 8.3%. In 2019, on average 12.7% of babies in Louisiana were premature while the national average was 9.9%.

This study examined the relationship between chemical plant locations and fetal health outcomes in Louisiana. Low birth weight and premature pregnancy are the two health outcomes that this study will focus on. We also examined the relationship between fetal health outcomes and demographics such as Black, White, and Hispanic in Louisiana. For each parish, the amount of chemical emissions that negatively impact maternal health was calculated per year. The percent of fetal health outcomes was also calculated per year for each parish and then broken down into separate demographics. Once the percentages were found, the significance regarding fetal health outcomes and chemical plant locations was found per parish and demographics. The association between fetal health outcomes and demographics was also found per parish.