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COVID-19, place-based vulnerabilities, and maternal and infant health in Michigan

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Between March 1, 2020 and December 31, 2021 there were 1.7 million confirmed cases and 27,989 deaths due to COVID-19 among Michigan residents. Of all cases, 31.6% were among women of reproductive age (10-49 years). During the same time period there were 209,171 births in Michigan. In 2020 and 2021, preterm (< 37 weeks gestation) birth rates were 102.3 and 105.9 per 1,000 live births and rates of low-birth weight (<2,500 grams) were 89.8 and 92.5 respectively. A growing body of research suggests that COVID-19 infection during pregnancy is associated with increased maternal morbidity, including severe illness and increased risk for hospitalization, thereby increasing the risk of preterm birth, low-birth weight or stillbirth. Indirect pathways such as isolation and stress may also impact pregnancy outcomes. Place-based vulnerabilities and inequitable distribution of healthcare services may intensify adverse pregnancy outcomes for certain groups. This presentation will demonstrate the relationships between COVID-19 hospitalization (a proxy for COVID-19 transmission intensity), place-based vulnerability and preterm birth and low-birth weight outcomes in a cohort of mothers who were pregnant and gave birth during the first 19-months (pre-vaccine availability) of the COVID-19 pandemic in Michigan. To evaluate associations between community-level variations in hospitalization for COVID-19 and pregnancy outcomes, individual birth records from Michigan Vital Statistics using mother's zip code of residence were linked to zip code level rates of COVID-19 hospitalization calculated from the Michigan State Inpatient Data. The findings from this research will inform the incidence of adverse birth outcome trends in other states and regions.

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