

Exposure to air pollution just before or after conception raises risk of birth defects

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Women exposed to air pollution just prior to conception or during the first month of pregnancy face an increased risk of their children being born with birth defects, such as cleft lip or palate or abnormal hearts.

Although the [increased risk](#) is modest, the potential impact on a population basis is noteworthy because all pregnant women have some amount of exposure.

"The most susceptible time of exposure appears to be the one month before and after conception," says Emily DeFranco, DO, a physician at Cincinnati Children's Hospital Medical Center and the University of Cincinnati College of Medicine, and senior author of the study. "Public health efforts should continue to highlight the importance of minimizing population-level exposure to harmful particulate matter in the air."

Dr. DeFranco and her colleagues examined [fine particulate matter](#), which is a significant health hazard because these tiny particles can deposit deep into the lower airways and air sacs within the lungs and enter the circulatory system. Fine particulate matter is a mixture of extremely small particles and liquid droplets that get into the air and, once inhaled, can negatively affect many aspects of a person's health.

The study is published online in *The Journal of Pediatrics*.

To conduct the study, the researchers used birth certificate data from the Ohio Department of Health and particulate matter data from the US Environmental Protection Agency's 57 monitoring stations throughout Ohio. They linked the geographic coordinates of the mother's residence for each birth with the nearest monitoring station and calculated average exposures. They then estimated the association between abnormalities at [birth](#) and the mother's [exposure](#) to increased levels

of fine particulate matter in the air during pregnancy.

Dr. DeFranco says there are inherent limitations of observational studies such as this but that it provides a good foundation on which future studies can build. Birth defects affect three percent of all births in the United States.

Provided by Cincinnati Children's Hospital Medical Center

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