

Smoking during pregnancy doubles the risk of sudden unexpected infant death, study warns

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The first findings to result from a collaboration between Seattle Children's Research Institute and Microsoft data scientists provides expecting mothers new information about how smoking before and during pregnancy contributes to the risk of an infant dying suddenly and unexpectedly before their first birthday.

According to the study published in *Pediatrics*, any amount of [smoking](#) during [pregnancy](#)—even just one cigarette a day—doubles the risk of an infant dying from sudden unexpected infant death (SUID). For [women](#) who smoked an average of 1-20 cigarettes a day, the odds of SUID increased by 0.07 with each additional cigarette smoked.

"With this information, doctors can better counsel [pregnant women](#) about their smoking habits, knowing that the number of cigarettes smoked daily during pregnancy significantly impacts the risk for SUID," said Dr. Tatiana Anderson, a researcher in Seattle Children's Center for Integrative Brain Research and lead author on the

study. "Similar to [public health campaigns](#) that educated parents about the importance of infant sleep position, leading to a 50% decrease in [sudden infant death syndrome](#) (SIDS) rates, we hope advising women about this risk will result in less babies dying from these tragic causes."

If no women smoked during pregnancy, Anderson and her co-authors estimate that 800 of the approximately 3,700 deaths from SUID every year in the U.S. could be prevented, lowering current SUID rates by 22%.

Data deep dive provides detailed view of smoking's impact on SUID risk

To better understand how smoking contributed to SUID risk, the researchers used computational modeling techniques to analyze maternal cigarette smoking habits for all U.S. [live births](#) from 2007 to 2011.

Of the about 20 million live births included in their analysis, over 19,000 deaths were attributed to SUID with the specific cause of death occurring from SIDS, an ill-defined and unknown cause, or accidental suffocation and strangulation in bed.

Beyond overall cigarette consumption, the researchers also looked at how smoking before pregnancy, and cutting back or quitting smoking during pregnancy, affected SUID risk.

Compared to the over half of pregnant smokers who did not reduce their smoking during pregnancy, women who reduced cigarette consumption by the third trimester saw a 12% decrease in SUID risk. Successfully quitting smoking was associated with a 23% reduction in risk.

Their analysis also showed that mothers who smoked three months before pregnancy and quit in the first trimester still incurred a higher risk of SUID compared to non-smokers.

Need for smoking cessation before pregnancy

Anderson says the data from this study supports public health efforts aimed at encouraging women to quit smoking well before pregnancy.

"The most important takeaway is for women to understand that quitting smoking before and during pregnancy by far results in the greatest reduction in SUID risk," she said. "For pregnant women unable to quit entirely, every cigarette they can eliminate will reduce the odds of their child dying suddenly and unexpectedly from SUID."

One of the study's co-authors, Juan Lavista, Senior Director of Data Science, AI For Good Research Lab at Microsoft, explains how the research team applied Microsoft Artificial Intelligence (A.I.) technology to better understand SUID and potentially save lives.

"Using A.I., we built machine learning models that analyzed millions of pieces of data on child births and deaths, including mothers' smoking histories, allowing us to do something that was not done before: assess the impact that each additional cigarette has on SUID at this level of granularity," he said. "Through our [AI for Humanitarian Action initiative](#), Microsoft data scientists will continue studying other causes of SUID alongside Seattle Children's and SUID experts around the world."

More information: *Pediatrics* (2019). [DOI: 10.1542/peds.2018-3325](#)

Provided by Seattle Children's Research Institute

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