

Pesticide exposure linked to stillbirth risk in new study

August 7 2024, by Stacy Pigott



Credit: CC0 Public Domain

Living less than about one-third of a mile from pesticide use prior to conception and during early pregnancy could increase the risk of

stillbirths, according to new research led by researchers at the Mel and Enid Zuckerman College of Public Health and Southwest Environmental Health Sciences Center.

Researchers found that during a 90-day pre-conception window and the first trimester of pregnancy, select pesticides, including organophosphates as a class, were associated with stillbirth.

The paper, "Pre-Conception And First Trimester Exposure To Pesticides And Associations With Stillbirth," was [published](#) in the *American Journal of Epidemiology*.

"In this study, some specific ingredients stood out due to their significant associations with stillbirth risk," said first author Melissa Furlong, Ph.D., who studies the chronic health effects of environmental contaminants as an assistant professor and environmental epidemiologist at the Zuckerman College of Public Health and a member of the Southwest Environmental Health Sciences Center at the R. Ken Coit College of Pharmacy.

"These findings underscore the importance of considering individual pesticides rather than just the overall pesticide class, as specific chemical compounds may pose unique risks. It also highlights the potential for pre-pregnancy exposures to affect reproductive outcomes."

To conduct the study, researchers linked Arizona [pesticide use](#) records for 27 different pesticides with state birth certificate data that included 1,237,750 births and 2,290 stillbirths from 2006 to 2020.

They found that living within .31 miles (500 meters) of specific pyrethroid, organophosphate or carbamate pesticide applications during a 90-day pre-conception window or the first trimester was associated with an increased risk of stillbirth.

Specifically, the pesticides cyfluthrin, zeta-cypermethrin, organophosphates as a class, malathion, carbaryl and propamocarb hydrochloride were linked to increased stillborn births pre-conception. During the first trimester, fenprothrin, permethrin, organophosphates as a class, acephate and formetanate hydrochloride were associated with stillbirths.

"Among organophosphates, acephate showed the strongest effect estimates on stillbirth, so that exposure to acephate in the first trimester was associated with a doubling of risk," said co-author Paloma Beamer, Ph.D., a professor and interim associate dean at the Zuckerman College of Public Health and a member of the Southwest Environmental Health Sciences Center, U of A Health Sciences Asthma and Airway Disease Research Center and BIO5 Institute. "Within the pyrethroid class, cyfluthrin exposure during the 90 days prior to conception almost doubled the risk of stillbirth."

Pesticides are chemical substances used to control pests in various settings. They are commonly categorized into different classes, such as organophosphates, pyrethroids and carbamates. The primary route of exposure for most people is through diet, but household use, agricultural drift and occupational exposure are also significant pathways.

Researchers say while some pesticides may not have been directly implicated in this study, they could still pose risks to maternal and fetal health.

Pregnant women may be particularly vulnerable to the adverse effects of pesticide exposure due to physiological changes during pregnancy, such as increased [metabolic rate](#), altered hormone levels and changes in the immune system. The [developing fetus](#) may be more susceptible to the toxic effects of pesticides during this period of rapid growth and development.

"Further research is essential to fully understand the safety profiles of various pesticides and to understand the underlying mechanisms of pesticide-induced [stillbirth](#)," Furlong said. "This study underscores the need to develop strategies for mitigating exposure to protect maternal and fetal health."

More information: Melissa A Furlong et al, Pre-Conception And First Trimester Exposure To Pesticides And Associations With Stillbirth, *American Journal of Epidemiology* (2024). [DOI: 10.1093/aje/kwae198](https://doi.org/10.1093/aje/kwae198)

Provided by University of Arizona

Citation: Pesticide exposure linked to stillbirth risk in new study (2024, August 7) retrieved 7 August 2024 from <https://medicalxpress.com/news/2024-08-pesticide-exposure-linked-stillbirth.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.