

Study of pregnant women finds increasing exposure to chemicals from plastics and pesticides

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A national study that enrolled a highly diverse group of pregnant women over 12 years found rising exposure to chemicals from plastics and

pesticides that may be harmful to development.

Many of the chemicals that the women had been exposed to were replacement chemicals: new forms of chemicals that have been banned or phased out that may be just as harmful as the ones they replaced. The study also found many women had been exposed to [neonicotinoids](#), a kind of pesticide that is toxic to bees.

Researchers measured 103 chemicals, mostly from [pesticides](#), [plastics](#), and replacement chemicals for BPA and phthalates, using a new method that captured dozens of chemicals or [chemical](#) traces from a single urine sample.

More than 80 percent of the chemicals were found in at least one of the women in the study, and more than a third of the chemicals were found in a majority of the participants. The study also found that some of these chemicals were present in higher amounts than seen in earlier studies.

"This is the first time we've been able to measure the amounts of chemicals in such a large and diverse group of [pregnant women](#)—not just identify chemicals," said Tracey J. Woodruff, Ph.D., professor and director of the University of California, San Francisco (UCSF) Program on Reproductive Health and the Environment and co-director of the UCSF EaRTH Center, and the senior author of the study, appearing online May 10, 2022, in *Environmental Science & Technology*. "Our findings make clear that the number and scope of chemicals in pregnant women are increasing during a very vulnerable time of development for both the pregnant person and the fetus."

Prenatal exposure to industrial chemicals can come from air, food, water, plastics, and other industrial and consumer products. Although these chemicals could be harmful to pregnancy and child development, few of these chemicals are routinely monitored in people.

The study included 171 women from California, Georgia, Illinois, New Hampshire, New York, and Puerto Rico who are part of the National Institutes of Health Environmental influences on Child Health Outcomes program. About one-third (34%) were white, 40% were Latina, 20% were Black, and the remaining 6% were from other or multiple groups.

The study found higher [exposures](#) for non-white women, those with lower educational attainment, or who were single or had been exposed to tobacco. But Latinas had especially high levels of parabens, which are used as preservatives, as well as phthalates and bisphenols, which are used in plastics.

"While pesticides and replacement chemicals were prevalent in all women, we were surprised to find that Latinas had substantially higher levels of parabens, [phthalates](#) and bisphenols," said Jessie Buckley, Ph.D., associate professor of environmental health and engineering, as well as of epidemiology, at Johns Hopkins Bloomberg School of Public Health and first author of the study. "This could be the result of higher exposures to products with chemicals, such as processed foods or personal care products," Buckley said.

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