ECHO
Environmental influences on Child Health Outcomes
A program supported by the NIH

Study Summary

ECHO Study Finds No Strong Overall Link Between Exposure to Gas Stoves, Mold, or Water Damage During Pregnancy and Birth Outcomes

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Who sponsored this study?

The Environmental influences on Child Health Outcomes (ECHO) Program, Office of the Director, National Institutes of Health supported this research.

Why was this study needed?

Environmental exposures during pregnancy can affect fetal growth and length of pregnancy. While outdoor air pollution has been linked to adverse birth outcomes such as preterm birth and low birth weight, less is known about the effects of common indoor household exposures during pregnancy such as gas stoves, mold or mildew, and water damage. These exposures can contribute to indoor air pollution or damp conditions that may affect maternal and fetal health. ECHO researchers wanted to better understand whether these common household conditions during pregnancy are associated with the duration of pregnancy or fetal growth in a large, diverse U.S. population.

What were the study results?

Overall, having a gas stove, visible mold or mildew (outside of showers or bathtubs), or water damage in the home during pregnancy was not associated with shorter pregnancy duration or lower birth weight. Some differences appeared in subgroup analyses, particularly by home age, but these findings were secondary and should be interpreted with caution. Mold or mildew and water damage were associated with a higher likelihood of early term birth (37–38 weeks) in homes built after 1980, a pattern not seen in older homes. Use of kitchen ventilation (such as a hood or fan) did not appear to change the relationship between gas stove use and birth outcomes.

What was the study's impact?

These findings suggest that indoor air quality during pregnancy may not have a strong association on birth outcomes overall. Because housing conditions and other life circumstances can shape how environmental exposures affect pregnancy, these results underscore the importance of looking at the bigger picture when studying possible health risks.

Who was involved?

The study included 11,483 mother–infant pairs from 31 ECHO Cohort Study Sites across the United States. Births occurred between 2000 and 2023, with most occurring after 2016. The study brings together data from people living in many parts of the U.S. and from a wide range of backgrounds.

What happened during the study?

Mothers reported whether they had a gas stove, visible mold or mildew, or water damage in the home where they lived for most of their pregnancy. Researchers used medical records and reports to measure pregnancy length and infant birth weight. Statistical models were used to examine whether these household exposures were associated with length of pregnancy or fetal growth, while accounting for factors such as maternal age, education, race and ethnicity, smoking during pregnancy, and pregnancy-related health conditions.

Footnote: Results reported here are for a single study. Other or future studies may provide new information or different results. You should not make changes to your health without first consulting your healthcare professional.

What happens next?

Future studies could build on these findings by collecting more detailed information about indoor environmental conditions, such as how often gas stoves are used, ventilation effectiveness, and the location and severity of mold or water damage. Additional research may also help clarify why certain groups or housing types appear to show a stronger association.

Where can I learn more?

Access the full journal article, titled “Prenatal Exposure to Gas Stoves, Mold, and Water Damage: Associations With Gestational Duration and Fetal Growth in the ECHO Cohort,” in *Environmental Pollution*.