

Dengue fever infections found to have negative impacts on infant health for three years

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Dengue infections in pregnant women may have a negative impact on the first years of children's lives, new research has found.

Dengue fever is the most prevalent mosquito-borne disease globally and poses a threat to half of the world's population. There has been a dramatic rise in cases over recent years, with cases in the Americas reaching more than three million cases in 2023. Since January 2024, Brazil has reported more than 3.5 million cases, marking the largest dengue outbreak on record.

The paper, co-authored by Dr. Livia Menezes from the University of Birmingham and Dr. Martin Foureaux Koppensteiner from the University of Surrey, has been published in the [*American Economic Journal: Applied Economics*](#).

The study looks at a large data set of dengue fever infections in expectant mothers from Minas Gerais, Brazil, and the resulting birth outcomes. It finds that babies born to women who were infected with dengue fever during their pregnancy had lower birth weights, increasing the risk of newborns being classed as having a very and extremely [low birth weight](#) by 67% and 133%, respectively.

Dr. Livia Menezes, Assistant Professor in Economics at the University of Birmingham and co-author of the study, said, "Even though dengue is a very common mosquito-borne disease, there has not been much attention given to the impact it has on birth outcomes and as a result, what can be done to improve them and protect [pregnant women](#) and their children."

"This paper sets out robust research which shows that being infected with dengue fever, even with a mild case, while pregnant can have a significant impact on the health of the child once born. These birth outcomes can even have longer-term impacts, for example, previous research has shown that low birth weight can negatively affect socio-economic outcomes and health in adulthood."

The researchers also found that children whose mothers were infected with dengue fever while pregnant had a 27% increased risk of being hospitalized from birth to age three. The highest risk of hospitalization for these children comes in their second year of life, where there is a 76% increase.

Dr. Martin Foureaux Koppensteiner, Associate Professor in Economics at the University of Surrey, said, "These negative birth outcomes are not only limited to the health of individual children and mothers, but they have a much wider impact for communities where dengue fever is common. Hospitalizations and ongoing health issues resulting from maternal infections all have a cost, and one that could be avoided, or at least minimized with increased awareness and improved policy.

"We strongly suggest that dengue fever should be considered alongside the TORCH infections to manage and avoid when pregnant, which currently include Toxoplasmosis, Rubella, HIV, syphilis, chicken pox, Zika, and influenza among others."

The study also highlights the possible consequences of climate change expanding the reach of dengue fever. While the disease has historically been limited to tropical and subtropical regions, it now has an established presence in over 120 countries. Aedes mosquitoes, which carry and transmit dengue, have found breeding grounds in countries previously unaffected, including Croatia, France, Portugal, and the southern states of the U.S..

Dr. Menezes concludes, "As the planet heats, we can expect to see dengue fever become even more common in countries that have previously not had high infection rates. This is a problem that needs to be taken seriously and quickly.

"Policy changes and things like vector control, updated risk

communication with key groups, and vaccine adoption can all reduce the risk of pregnant women being infected with dengue. Action needs to be taken by governments and health organizations to provide better protection for pregnant women and their children."

More information: Martin Foureaux Koppensteiner et al, Maternal Dengue and Health Outcomes of Children, *American Economic Journal: Applied Economics* (2024). [DOI: 10.1257/app.20210656](https://doi.org/10.1257/app.20210656)

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