

# Risk of childhood wheeze from antibiotic use in third trimester of pregnancy

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Antibiotic use during the third trimester of pregnancy leads to an increased risk of childhood wheeze, according to new findings.

Antibiotic use in pregnancy and the risk of [wheeze](#) is a widely debated topic and a new study has evaluated whether confounding factors could explain this suggested association.

The findings, published online today (3 December, 2015) in the *European Respiratory Journal*, suggest that although prenatal antibiotic exposure and infant wheezing can largely be explained by confounding factors, when these factors were accounted for, the risk associated with taking antibiotics in the third trimester of pregnancy remained.

Researchers studied more than 3,500 women and their children from the NINFEA birth cohort study and assessed maternal antibiotic use during the first and third trimester of pregnancy via self-reported information and assessed any incidence of wheeze in their child up to the age of 18 months of age using questionnaires.

They focused on several confounding factors that could explain the risk of wheeze found after antibiotic use during pregnancy. These included the mother's age and educational level, the number of siblings the child had, the mother's smoking history, paracetamol use during pregnancy, any history of asthma, and any respiratory or other infections during pregnancy.

The authors completed a statistical analysis of the data to assess whether the risk of wheeze existed when all factors were considered.

The results found no evidence of an association between antibiotic exposure in the first trimester of pregnancy and wheezing in childhood as any association identified was explained by the confounding factors. In particular, respiratory and

urinary infections were largely seen to explain the increased risk of wheeze, with genitourinary infections being associated with an increased risk of infant wheeze, even when mothers were not treated with antibiotics.

However, the excess risk of recurrent wheeze persisted after antibiotic use in the third trimester of pregnancy and could not be explained by any of the confounding factors.

Dr Maja Popovic, lead author from the University of Turin, Italy, said: "Our results show that an [increased risk](#) of infant wheeze is linked with antibiotic use during pregnancy but it can largely be explained by confounding factors, in particular maternal infections during pregnancy. However, even the large number of confounding factors considered in our study could not explain the risk of recurrent wheezing when mothers took antibiotics during their third trimester. This is important as recurrent wheezing is a more severe condition that often predicts later unfavourable respiratory outcomes."

"There is some evidence to suggest that taking [antibiotics](#) at this stage alters the composition of the mother's bacteria, which when transmitted to the newborn may modify the immune system development and explain the increased susceptibility to infections and wheeze. As we identified that this risk still exists at this late stage of pregnancy, we would suggest that more research is needed to understand this association and clarify the underlying mechanism so that practical public health interventions could be developed in order to minimise unnecessary antibiotic exposures during [pregnancy](#)."

**More information:** Prenatal exposure to antibiotics and wheezing in infancy: a birth cohort study, [dx.doi.org/10.1183/13993003.00315-2015](https://doi.org/10.1183/13993003.00315-2015)

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