

Research suggests transmission of respiratory viruses in utero

18 April 2013

The most common cause of lower respiratory tract infections in infants and young children, respiratory syncytial virus (RSV), can be transferred during pregnancy to an unborn baby, according to Cleveland Clinic Children's Hospital research published online this week in the journal *PLOS ONE*. Provided by Cleveland Clinic

In animal models, the study shows that RSV is able to spread across the placenta from the respiratory tract of the mother to the fetus, and is present in the lungs after birth, throughout development and into adulthood. RSV is considered the primary cause of infant pneumonia and has been implicated in the development of asthma.

"Epidemiologic evidence suggests that early-life RSV infection predisposes children to recurrent wheezing and asthma," said Giovanni Piedimonte, M.D., the study's lead author and Chairman of Cleveland Clinic Children's Hospital and the Pediatric Institute. "This study challenges the current paradigm that RSV infection is acquired only after birth and shifts attention to prenatal effects of the virus, which may result in more severe and lasting consequences by interfering with an unborn baby's critical developmental processes."

Research was completed in an animal model, in which rats were inoculated with RSV during midterm pregnancy. Of those infected, RSV was found in 30 percent of fetuses, as well as in the lungs of 40 percent of newborns and 25 percent of those that reached adulthood.

Dr. Piedimonte has been the principal investigator or co-investigator of more than 30 research projects, and has authored and co-authored more than 250 journal articles, book chapters, monographs, editorials and abstracts. He holds 17 [international patents](#) and is frequently invited to speak nationally and internationally.

APA citation: Research suggests transmission of respiratory viruses in utero (2013, April 18) retrieved 15 June 2019 from <https://medicalxpress.com/news/2013-04-transmission-respiratory-viruses-utero.html>

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