

'One size fits all' medication approach doesn't work in pregnancy

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Some prescribed or over-the-counter drugs may put growth restricted babies at risk if the dosage is incorrect. Credit: UniSA

New research led by the University of South Australia shows that a blanket approach to prescribing medication during pregnancy may put low birth weight babies at risk for the rest of their lives.

UniSA and New Zealand fetal physiologists say that smaller fetuses metabolize medication taken by the mother in a less efficient way than normal weight babies, which may lead to long term health consequences.

In a review published in *Placenta*, UniSA Professor Janna Morrison says growth restricted babies may be exposed to higher concentrations of some prescribed or over-the-counter drugs that a woman takes during [pregnancy](#) due to a 'one size fits all' approach when it comes to dosing.

"If the fetus is smaller and a mother takes 20 milligrams of a [drug](#), it may effectively be a higher dose than in a normal sized baby," Prof Morrison says. "The actual drug doesn't make the fetus smaller, but if it is already smaller, the fetus may be less able to metabolize the drug and get rid of it."

"The idea that a complicated pregnancy is different from a normal pregnancy is new in terms of drugs that may be metabolized by the fetus," Prof Morrison adds.

The researchers looked at how enzymes that break drugs down are less effective in growth restricted fetuses.

Globally, one in seven babies are born under 2500 grams due to the placenta failing to deliver adequate nutrients and oxygen to the fetus. This can be linked to pre-eclampsia, poor placental development or smoking.

Intrauterine growth restricted (IUGR) [babies](#) are at increased risk of diabetes, heart diseases, lower immunity and metabolic diseases

throughout their life and may themselves require drug treatments in adulthood. It is not known if they will metabolize these drugs differently.

"We know that most women take prescription or over-the-counter drugs during pregnancy, either to treat a condition they suffer from themselves, or to treat a condition in the [unborn child](#)," according to UniSA Assoc Prof Michael Wiese.

"For example, gestational diabetes affects up to 15 per cent of women, requiring insulin. In Australia, 13 per cent of women take antidepressants during pregnancy, 11 per cent have asthma, 18 per cent have cardiovascular disease and 4.6 per cent have diabetes.

"The use of drugs to treat vomiting is also common, with at least one in five pregnant women taking medications such as Ondansetron," Assoc Prof Wiese says.

The researchers say that neither the [drug companies](#) nor doctors are at fault as there are no existing guidelines for administering dosages based on complicated pregnancies.

"Based on our findings, however, we believe that more work needs to be done to better understand the interaction between pregnancy and fetal growth on how drugs are metabolized. It would then be possible to determine the right dosages for both mother and unborn child," Prof Morrison says.

The dosages could be lower or higher depending on how the fetus metabolizes the drug.

"It doesn't automatically correlate that a lower dose would be better if the [fetus](#) metabolizes it faster. It may mean that with some complicated pregnancies, a higher dosage is needed with some drugs. It's about

making sure that the right dose is given to help the mother, without harming the baby."

More information: Grace M. McBride et al, The impact of intrauterine growth restriction on cytochrome P450 enzyme expression and activity, *Placenta* (2020). [DOI: 10.1016/j.placenta.2020.07.012](https://doi.org/10.1016/j.placenta.2020.07.012)

Provided by University of South Australia

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