

# Poor maternal and child health linked with premature high blood pressure, kidney disease

June 19 2013, by Raquel Maurier

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(Medical Xpress)—How babies grow and develop in the womb, as newborns and into childhood can put them at increased risk for premature high blood pressure, kidney disease and heart disease, according to a research review led by a University of Alberta medical researcher.

Valerie Luyckx, an associate professor in the Faculty of Medicine & Dentistry, took the lead on the international collaborative review. The study highlighted the increased risk later in life of premature hypertension and chronic [kidney disease](#) among premature and high- or low-birth-weight [babies](#), children who experience rapid weight gain after the first year of life, obese children, and babies born to mothers with poor nutrition, gestational diabetes or pre-eclampsia.

"When babies don't grow well in utero, they are at increased risk of premature kidney and cardiovascular disease for the rest of their lives," says Luyckx.

"The bottom line is if a baby is not growing well during pregnancy—which most of the time is due to mothers being malnourished or not receiving proper care during pregnancy—the baby can be born premature or very small and may have small kidneys. Such small kidneys contain fewer filtering units (nephrons), which makes the person prone to higher [blood pressure](#), and the kidneys are less able to

withstand additional stresses over time. Having [high blood pressure](#) puts a person at much higher risk of kidney disease, and kidney disease is also intricately linked to [heart disease](#). If a mother has diabetes, the baby can be born very large, and this also appears to increase risk of kidney disease in later life."

Worldwide, 15 per cent of babies are born with low birth weight, and 9.6 per cent of [newborns](#) are premature, which means the number of people at future risk for chronic disease in adulthood is high. Low-birth-weight and premature children who gain weight rapidly tend to become overweight, which further increases their risk for premature hypertension and kidney disease as adults. Childhood obesity also triggers the same risk factors, so the importance of early childhood nutrition can't be underestimated, says Luyckx.

"Chronic diseases are becoming a global epidemic. Hypertension is considered a leading risk factor for disease worldwide, causing a bigger burden of disease around the globe than infectious diseases. The maternal and early childhood risk factors noted in the research, which may at least in part be amenable to public health interventions, are extremely important and something we need to be aware of now. If we focus on improving maternal and fetal health and childhood nutrition now, in 40 to 50 years there could be a major positive public health impact by decreasing the number of people who develop kidney disease and cardiovascular disease.

"These diseases are costly to health systems in developed countries, but are death sentences in lower- and middle-income countries around the world."

Luyckx, who works in the Division of Nephrology & Transplant Immunology within the Department of Medicine, says many countries have already rallied support around reducing maternal mortality rates

and improving the quality of care women receive during childbirth and delivery as part of the United Nations Millennium Development Goals. But she adds that many are still falling short of their targets, and that a more focused effort on early childhood health requires learning even more about the importance of healthy diets and exercise in all areas of the world where childhood obesity rates are soaring.

The study was part of a five-paper series published in *The Lancet*, focusing on kidney disease around the world. The publication coincided with the World Congress of Nephrology held in Hong Kong in early June, with the aim of raising global awareness of kidney disease.

**More information:** [www.thelancet.com/journals/lan...](http://www.thelancet.com/journals/lan...)  
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Provided by University of Alberta

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