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## Second-hand smoke will raise a child's blood pressure

By Carly Weeks  
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*Study's findings add to growing evidence that cigarette smoke can cause serious health issues for young*

Children as young as 4 experience elevated blood pressure when exposed to second-hand smoke, putting them at risk for a lifetime of cardiovascular problems, a study has found.

The findings add to a growing collection of evidence that suggests early exposure to cigarette smoke can cause serious, potentially lasting, health issues.

In the new study, released on Monday in the journal *Circulation*, researchers examined more than 4,000 children in Germany in 2007 and 2008 and found that those whose parents smoked had the highest blood-pressure readings.

German children undergo compulsory physical and cognitive exams around the age they enter school, which is how the researchers were able to obtain medical information for such a high number. Parents of children involved in the study also completed questionnaires detailing information about their age, education, income level and medical history.

The researchers found that children of parents who smoked were 21 per cent more likely to have blood-pressure readings in the top 15 per cent of the entire group. Those findings remained true even after researchers adjusted for other risk factors for high blood pressure, or hypertension, such as being obese or having parents with high blood pressure.

While few children involved in the study actually had high blood pressure, those with "elevated levels" measured at the higher end of what is considered the normal blood pressure range.

That is significant, because elevated blood pressure in youth can increase an individual's chance of developing serious cardiovascular problems at early ages, said Giacomo Simonetti, lead author of the study and assistant professor of pediatrics at the University of Bern in Switzerland.

"The increase [in blood pressure] is small, but the results are very significant and are important because ... passive smoking remains a risk factor independent [of] the other risk factors," said Dr. Simonetti, who conducted the research while working at Heidelberg University in Germany.

However, one wrinkle in the findings may be that there are no hard and fast rules identifying ideal blood-pressure levels in children.

For instance, while a reading of 120 over 80 is considered normal in adults, children have developing systems, grow at different rates and typically have lower blood pressure than adults, all factors that make it difficult to assign a perfect number.

There have been growing calls in the medical community in recent years to undertake research to gain a better grasp of childhood blood-pressure levels, in part to understand which children may face increased health risks.

Despite the lack of clarity, medical experts say it's clear that several factors, particularly rising obesity rates, as well as high-sodium diets and poor nutrition in general, are driving blood-pressure rates up among children.

A study released by Statistics Canada last May found that about 1 per cent of Canadians aged 6 to 19 have high blood pressure, while about 2 per cent are on the borderline of developing the condition.

While few previous studies have examined the link between second-hand smoke and blood pressure in children, more work is being done to understand the role smoke plays on the health of children.

For instance, a study published last December in *Archives of Pediatrics and Adolescent Medicine* found that children exposed to second-hand smoke were more likely to have behavioural or mental-health problems than those who weren't.

Despite the concerns, a recent survey released by the Canadian Lung Association found that 20 per cent of parents still smoke indoors when children are present.

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