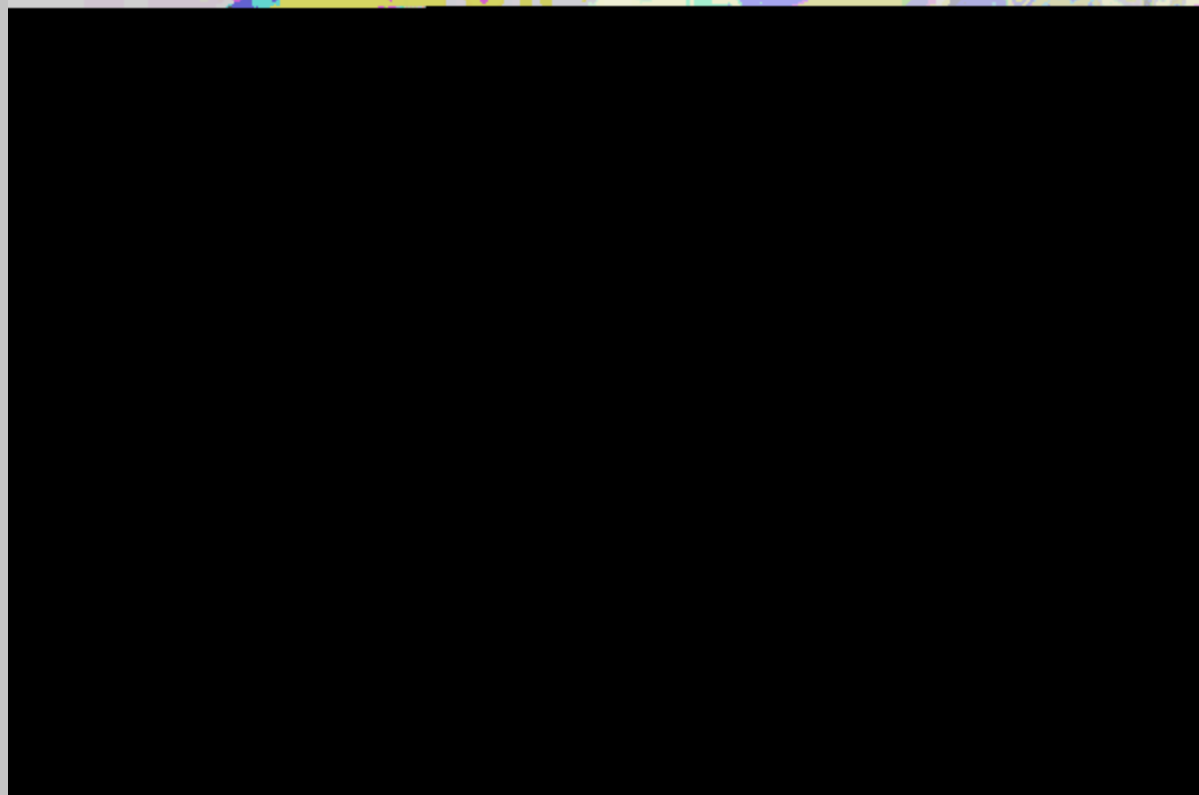


Epidemiologist Bruce Lanphear links lead levels to murder

by [Charlie Smith](#) on Oct 19, 2011 at 12:16 pm



SFU environmental-health expert Bruce Lanphear is no stranger to controversy. He readily admitted in a recent phone interview with the *Georgia Straight* that his investigations into

Lanphear was quick to point out that in industrialized countries such as Canada and the United States in recent years, there has been a 90-percent decline in average lead levels in blood. But that doesn't mean the issue has been resolved, because, according to his research, there is no safe level—and the amount of lead in a modern person's bloodstream vastly exceeds what was there many hundreds of years ago.

"In fact, the levels that you and I and our children experience today are somewhere higher than 100 times those levels experienced by our preindustrial ancestors," he noted.

Health Canada states on its website that level levels of 10 to 15 micrograms per decilitre of blood "have been associated with adverse neurobehavioural and cognitive changes" in fetuses, infants, and children. At levels above 40 micrograms per decilitre, the body starts losing its capacity to produce red blood cells.

However, Lanphear said that even below the 10-microgram level, there are negative impacts on children's cognitive abilities. For example, he said that when levels rise from one to 10 micrograms, there is an average drop in intelligence-quotient scores of six to seven points. Moving from 10 to 20 micrograms, the IQ reduction is about 2.5 points, on average.

"So the overall reduction is about three times greater, proportionately, at the lower levels, which sort of blows everything out of the water," he stated.

That's not all. He cited studies over the past 50 years linking higher lead levels in children to a higher likelihood of increased violence, including murder, in young adulthood. His research team examined this in more detail by looking at the relationship between higher lead levels and the structure and functioning of the brain. Using functional magnetic-resonance imaging, they determined that as children's lead levels increased in their bloodstream, their prefrontal cortex was "diminished in volume".

Dr. Stephen Kiraly, a Bowen Island psychiatrist, described the prefrontal cortex as "the command post and search engine of the brain" in his 2008 book *Your Healthy Brain: A Personal & Family Guide to Staying Healthy & Living Longer*. It is linked to forethought, planning, insight, self-reflection, self-knowledge, and impulse control.

Lanphear noted that antisocial behaviour, including criminal behaviour, and attention deficit hyperactivity disorder are the two major types of behaviour problems linked to a damaged prefrontal cortex. So if lead causes this part of the brain to shrink, this c

