Lead exposure only part of the story for Port Pirie kids

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(Medical Xpress)—New research from the University of Adelaide shows that while childhood lead exposure in the South Australian city of Port Pirie has been a significant factor in their cognitive and mental health development, the family environment also has played a critical role.

Port Pirie, a city in the Mid North of South Australia, is home to one of the biggest lead smelting facilities in the world.

New research by the University of Adelaide's Centre for Traumatic Stress Studies has reviewed 30 years of work conducted for the Port Pirie Cohort Study. The cohort study is one of the few of its kind in the world, and one of the longest, following the progress of children born in the Port Pirie region into adulthood.

The results have now been published online ahead of print in the journal NeuroToxicology.

"By looking back over the data from three decades of research, we can see that there are consistent links between lead exposure in childhood and poorer cognitive and mental health development during childhood and adulthood," says Dr Amelia Searle from the University's School of Population Health, lead author of the paper.

"These included lower cognitive skills, seen in the results of IQ tests, and emotional or behavioural symptoms. However, while these links with lead levels exist, the effects are only small, and only noticeable at a

population level rather than in individual children," Dr Searle says.

"The data showed a number of other factors in childhood that may also contribute to poorer development. These factors include the family's socio-economic status, the parents' employment status, the mother's IQ, smoking in the household, and level of stimulation in the home environment. Other factors we looked at included breastfeeding, the mother's age at her child's birth, and child birth weight."

Dr Searle says all of these factors could contribute to poorer IQ scores and emotional or behavioural symptoms among children, reinforcing that the home environment is critical to a child's healthy development.

"The lead exposure in Port Pirie is an important issue to focus on, but it's only one small part of the bigger picture," Dr Searle says. "To separate each of these factors and focus on one alone would be artificial, considering what we know of the development through to adulthood of many of the children originally studied."

Dr Searle says she hopes the Port Pirie Cohort Study will have lasting benefits for the Port Pirie community. "It's really thanks to the quality of three decades of research that we've been able to review the long-term legacy of childhood lead exposure. This strong interest in the lead levels in Port Pirie has helped us to identify a range of other issues that are important for any community to address," she says.

More information: Amelia K. Searle, Peter A. Baghurst, Miranda van Hooff, Michael G. Sawyer, Malcolm R. Sim, Cherrie Galletly, Levina S. Clark, Alexander C. McFarlane, "Tracing the long-term legacy of childhood lead exposure: A review of three decades of the Port Pirie Cohort study," *NeuroToxicology*, Available online 28 April 2014, ISSN 0161-813X, dx.doi.org/10.1016/j.neuro.2014.04.004.

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