

MEDIA RELEASE

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NEW STUDY TO EXAMINE IMPACT OF LOWER LEVELS OF LEAD EXPOSURE ON BRAIN DEVELOPMENT

A group of University of Adelaide researchers will this term start new research in Port Pirie and Broken Hill to investigate whether children's brain development is affected by lead exposure at lower levels than previously thought.

At the University of Adelaide, Associate Professor Peter Baghurst of the Disciplines of Public Health and Paediatrics and Professor Michael Sawyer (Paediatrics), together with the School of Psychology's Professor Ted Nettelbeck and Dr Nick Burns, have secured a National Health and Mental Research Council grant of \$392,750 over two years to conduct the research.

The study is designed to:

- Determine whether lead exposure at levels below those previously considered inconsequential have a measurable impact on children's development, specifically in terms of IQ and behaviour
- Identify the nature and "size" of any such effects, separated from the influence on development that may come from parental and lifestyle factors
- Examine any effects of exposure to lead on contemporary concepts of intelligence

By the end of 2008, 300 children aged seven or eight and their parents will be tested and interviewed, and levels of lead in the children's blood measured.

Dr Baghurst, who was involved in one of the most influential studies of the impact of lead on child development in Port Pirie in the 1980s and 1990s, said governments internationally had been convinced of the negative effects of high exposure to lead, and had acted responsibly in the late 20th century to reduce the maximum acceptable level to 10 ug lead per dl blood.

The phased withdrawal of leaded petrol was the most significant action taken to reduce the exposure of populations to non-lethal amounts of lead.

"However, the 10 ug/dl level had been chosen more as a potentially achievable target than because any evidence suggested this was a "safe" benchmark," Dr Baghurst said. "There are now controversial claims in the research literature that there may be larger effects occurring between 1 and 10 ug lead/dl blood than previously thought."

The availability of children in the Port Pirie and Broken Hill areas with levels ranging between 0 and 10 ug lead/dl blood makes a study of the link between lead and the IQ of those children possible. Seven- and eight-year-olds will be chosen for study because of the potential failure of younger children to satisfactorily complete required testing and questionnaires.

Dr Burns, whose research interest is in measurements of cognitive ability, said the concept of “intelligence” had moved on in the years since previous studies had been conducted. There are now considered to be 10 aspects of intelligence, including short-term memory, visual and auditory abilities, and the ability to and speed in retrieving stored information, and contemporary tests would provide clearer indications of which aspects of cognitive function were affected more, or less, by lead exposure, Dr Burns said. Professor Nettelbeck said a bank of tests and questionnaires would permit the influence of other factors known to influence IQ – such as parental IQ, and other measures of lifestyle – to be separated from the impact of lead exposure.

“There is mounting evidence that the IQ of a child at 11 is the most powerful predictor of life success. It is therefore important that parents of children living in close proximity to the lead industry are reassured that current exposure levels are safe.”

Further information is available from Associate Professor Peter Baghurst (08 8161 6935), Professor Ted Nettelbeck (08 8303 5738) or Dr Nick Burns (08 303 3965), all at the University of Adelaide in South Australia.

This information is released on behalf of the Psychology Foundation of Australia, a non-profit organisation consisting of 12 psychology departments in universities across the country. It aims to promote public awareness of scientific psychology, its relevance and usefulness in many areas of human performance and in solving human problems.