

Eliminating Childhood Lead Toxicity in Australia – A Little is Still Too Much

A consensus for a way forward to eliminate lead toxicity in Australian children

A one-day public forum was convened at Macquarie University on June 5th 2012 to examine the evidence for low levels of lead toxicity and its implications for Australian children and communities. More than 60 national and international medical, public health, environmental and toxicology experts from universities, industry, government and health departments attended the public forum.

The forum was called following recent international reductions to reference blood lead values in children along with new research that reinforced the view that there is no safe level of lead.

In 2009 the German Human Biomonitoring Commission lowered the reference value for blood lead levels for children aged 3-14 years to 3.5 micrograms per deciliter ($\mu\text{g}/\text{dL}$). In 2012, the United States (US) Centers for Disease Control and Prevention (CDC) decided to eliminate the 1991 level of concern of 10 $\mu\text{g}/\text{dL}$. The CDC also established a reference value based on the 97.5th percentile of the blood lead distribution among children 1–5 years old in the US (currently 5 $\mu\text{g}/\text{dL}$) as a trigger level to identify sources of exposure and intervene for individual children.

There was consensus at the Macquarie University lead forum that the current NHMRC position, which is currently set at 10 $\mu\text{g}/\text{dL}$ was too high and that this ‘goal’ should be lowered.

In accepting the conference proposal: ‘*A little is still too much*’ the attendees examined the issues that need to be addressed to achieve the objective of ‘*Eliminating Childhood Lead Toxicity in Australia*’. To reach this goal, it was considered necessary to improve the means of identifying sources of lead exposure, assess lead risks and eliminate or control lead hazards. Thus, all relevant legislation and standards that relate to health and environmental measures of lead exposure should be revised downward to achieve blood lead values below 1 $\mu\text{g}/\text{dL}$.

The approach required to achieve this new goal is summarised below:

1. Identification and assessment

- The usefulness of a level of concern is obsolete because there is no safe level of lead in blood; it should be eliminated.
- A need still exists for a reference level or blood lead value for intervention.
- Government public health agencies should:
 - Review new evidence and revise existing standards, recognising that there is no apparent threshold for lead-associated health problems amongst children.
 - Examine the findings from two major recent human health and lead exposure reviews conducted in the US: the National Toxicology Program’s Draft Monograph on *Health Effects of Low-Level Lead* and the CDC’s report from the Advisory Committee on Childhood Lead Poisoning Prevention entitled *Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention*.
 - Support targeted research into the critical issue of low-level lead toxicity, including how other exposures like low SES, tobacco, illegal drug use or exposure to other toxicants may modify the effect of lead in children.
 - Consider conducting a national, representative survey of lead exposure in children to provide estimates of the blood lead distribution in Australia.
 - Use the results of a national survey to identify children and communities who are at risk of having an elevated blood lead concentration and develop a new reference level or blood lead value for intervention.
 - Develop a national database for all Australian blood lead assays to provide an ongoing picture of population-wide exposures.

- Review new data that shows adverse health problems in adults occurring at blood lead levels lower than previously considered safe.
- Develop evidence-based Australian models for lead reduction, coupled to economic evaluations to determine the cost-benefit of interventions. In the absence of such models the forum considered improvements to environmental standards would be difficult to implement successfully.

2. Elimination and Control

- All non-essential industrial and commercial uses of lead should be eliminated.
- Where elimination is not possible, uses must be controlled to a level as low as reasonably practicable.
- Where existing sources of lead pollution exist:
 - The usefulness of interventions, such as information dissemination, education programs on lead abatement, nutrition and so forth, should be evaluated.
 - Government support for communities and industry may be required in the event that industry needs to be relocated or closed to attain blood lead values < 1 µg/dL in children.
- Where existing mines or industries using lead exist:
 - Standards for control of lead exposure along with lead emissions should be reviewed and revised downward to protect children.
 - A review of the effectiveness of existing lead processing technologies is required to ensure the world's best practice is being employed. In particular, there should be a focus on the replacement or upgrade of facilities that are deemed ineffective with respect to a new goal of eliminating blood lead exposures in children.
- Where new potential sources of lead pollution are proposed:
 - There needs to be sufficient geographic separation, unlike the co-location of many existing mining and smelting industries and communities. Tightly controlled clean-in clean-out procedures must be promulgated at industrial sites to ensure lead is not transferred to the outside community.

3. Implementation

- Where environmental standards are reviewed and revised, these should be consistent and harmonized so that efforts to eliminate exposure correspond to new blood lead values.
- Communities must be involved and consulted as part of the implementation process, so that they own change and future directions in their locality. Without such involvement, it is unlikely that changes will be implemented successfully.
- Medical practitioners and allied health professionals (such as occupational therapists, nutritionists, psychologists, speech pathologists) should receive up to date information and training about the effects of low-level lead exposure in children. These could be delivered as part of professional training and accredited by the NHMRC.
- Wherever possible, all initiatives focusing on eliminating childhood lead exposure should be part of an international coordinated effort that fosters information exchange, the development of consistent and effective policies and programs.

Signatories to this consensus:

- Professor Mark P. Taylor, Environmental Scientist, Macquarie University.
- Professor Chris Winder, Professor of Occupational Health, Safety and Environmental Management, Faculty of Business, Australian Catholic University.
- Professor Bruce P. Lanphear, Professor of Children's Environmental Health, Simon Fraser University, Canada.