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NHMRC Administrative Report

NHMRC Information Paper: Evidence on the Effects of Lead on Human Health

May 2015

Publication Details

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| Publication title: | NHMRC Administrative Report NHMRC Information Paper: Evidence on the Effects of Lead on Human Health |
| Published: | May 2015 |
| Publisher: | National Health and Medical Research Council |
| NHMRC Publication reference: | EH58E |
| Online version: | www.nhmrc.gov.au/guidelines/publications/eh58 |
| ISBN Online: | 978-1-925129-40-3 |
| Suggested citation: | National Health and Medical Research Council. 2015 <i>NHMRC Administrative Report NHMRC Information Paper: Evidence on the Effects of Lead on Human Health</i> . Canberra: National Health and Medical Research Council; 2015 |

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This administrative report refers to the development of the following documents:

- *NHMRC Information Paper: Evidence on the Effects of Lead on Human Health;*
- *NHMRC Statement: Evidence on the Effects of lead on Human Health; and*
- background documents relating to the assessment of the evidence on the health effects of lead.

Background

Lead and human health aligns with Priority Area 8 in the NHMRC Strategic Plan 2013-15: *New and emerging health threats – infectious diseases, environmental hazards, changes in the human environment.*

NHMRC is aware that since publishing its 2009 Information Paper and Public Statement on blood lead levels, there has been increasing evidence suggesting that low level lead exposure (blood lead levels less than 10 micrograms per decilitre) is associated with health effects in some population groups.

In 2013, NHMRC commissioned an independent evaluation of the evidence on lead. The evaluation had a particular focus on low level lead exposure and included a review of management strategies to reduce lead exposure. The Evidence Review has been used by NHMRC to update its 2009 Information Paper and Public Statement on lead.

The revised documents have been developed to provide the Australian community, healthcare professionals and governments with a plain language summary of evidence on the health effects of lead, particularly at low levels of exposure, and information on how these health risks can be minimised.

Contributors

Lead Working Committee

The Lead Working Committee was established from 1 December 2012 until 30 November 2015.

Terms of Reference

The roles of the 2012–2015 Lead Working Committee included the following:

- to advise on whether NHMRC's 2009 Information Paper and Public Statement on lead needed to be updated because of new evidence
- to advise on the development of information on managing individual exposure to lead in Australia (for GPs, paediatricians and public health/environmental health practitioners)
- to consider international reports on strategies to reduce blood lead levels
- to identify gaps in evidence-based public policy relating to management of high blood lead levels
- to advise on how to put into practice the findings from research on the best ways to manage high blood lead levels
- to advise on how NHMRC can best work with state and territory health departments, GPs and paediatricians.

Membership

The Lead Working Committee comprised experts in public and environmental health, health risk management, toxicology, paediatric medicine, rural medicine, research methodology, and consumer issues. The members included:

- Adjunct Associate Professor Sophie Dwyer PSM (Chair), Executive Director, Health Protection, Chief Health Officer Branch, Queensland Health
- Associate Professor Peter Baghurst, Discipline of Paediatrics and Reproductive Health, Faculty of Health Sciences, University of Adelaide, former Head, Public Health Research Unit, Women's and Children's Hospital, South Australia
- Professor Brian Gulson, Emeritus Professor, Graduate School of the Environment, Macquarie University, NSW and Honorary Research Fellow, Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Ms Rosalind Harrison, Toxicologist, Public and Environmental Health Service, Department of Health and Human Services, Tasmania
- Ms Vikki Lynch, Advisor, Health Risk Management, Environmental Health, Department of Health and Human Services, Victoria
- Dr Martin Matisons, Principal Toxicologist, Environmental Health Directorate, Department of Health, Western Australia
- Ms Stephanie Newell, Consumer Representative
- Dr David Simon, Director, Scientific Services, Public Health Services, SA Health, Government of South Australia
- Dr Simon Slota Kan, Senior Public Health Officer, Regulation, Health Protection & Emergency Management, Department of Health and Human Services, Victoria, General Practitioner, Swinburne University Health Service
- Professor Wayne Smith, Director, Environmental Health Branch, NSW Health
- Dr Neil Wigg PSM, retired former Associate Professor, Paediatrics and Child Health, University of Queensland, and former Senior Director, Community Child and Youth Health, Children's Health Queensland

Former Member

Professor Michael Moore was a member of the Lead Working Committee from 1 December 2012 until his death in August 2014. Professor Moore was an Emeritus Professor of Toxicology at the University of Queensland and provided expert advice to NHMRC in the development of NHMRC's Evidence Review and a consultation draft of the Information Paper.

Declaration of conflict of interest process

Members of the Lead Working Committee were required to declare their interests in writing prior to appointment, in accordance with NHMRC's Declaration of Interest policy. Following review by the Chair and Office of NHMRC, no interests were identified that required a formal management plan.

Throughout the project, members were reminded of their obligation to consider any interest that may have arisen since the last meeting or with any particular agenda items. A record of interests was managed by the Office of NHMRC and updates were made to the NHMRC website as required.

Meetings

The Lead Working Committee met four times in 2013 and six times in 2014 to consider the evidence, develop the draft Information Paper, consider public consultation submissions and expert review comments, and finalise the Information Paper and related documents.

NHMRC Project Team

The project was undertaken by a small team within the Environmental Health Section of Evidence, Advice and Governance Branch.

Evidence Review

In 2013, NHMRC commissioned the Cochrane Public Health Group from the Melbourne School of Population and Global Health within the University of Melbourne to conduct an independent review of the scientific evidence on lead and related topics. The Evidence Review involved three components:

- **A background literature review** – finding and summarising the evidence on the health effects of lead (high or low exposure) in individuals, available methods for testing for lead in individuals, and how lead exposure is managed. This broad background literature review provided context for the two systematic reviews.
- **A review of recent evidence on health effects of low exposure to lead** (systematic review of systematic reviews) – finding, analysing and summarising the evidence on the health effects associated with blood lead levels (i) less than 5 micrograms per decilitre and (ii) 5 to 10 micrograms per decilitre, in children and adults.
- **A review of recent evidence on managing exposure to lead** (systematic review) – finding, analysing and summarising the evidence for whether strategies for reducing blood lead levels in children and adults are effective.

The Evidence Review focused on recent (2004–2013) evidence from countries that belong to the Organisation for Economic Co-operation and Development (OECD), because their lead exposure patterns and policy are generally more comparable to those of Australia.

Full details are provided in the *Evaluation of evidence related to exposure to lead undertaken by the Cochrane Public Health Group*.

Independent methodological review

The NHMRC Evidence Review was reviewed by independent reviewers from the National Collaborating Centre for Environmental Health (NCCEH) in Canada. The NCCEH focuses on the health risks associated with the physical environment, and identifies evidence-based interventions to reduce those risks. The NCCEH examined the methodological quality of the systematic review report to ensure that the review followed the systematic and rigorous approach documented in the review protocol. Feedback provided by NCCEH was considered by the Cochrane Public Health Group and the Lead Working Committee prior to the finalisation of the Evidence Review.

The methodological review team completed a declaration of interest process before being appointed by NHMRC and no conflicts of interest were identified.

Development of the Information Paper

The 2015 NHMRC *Information Paper: Evidence on the Effects of Lead on Human Health* provides Australians with a summary of the evidence on the health effects of lead and management strategies to reduce lead exposure. It updates NHMRC's 2009 Information Paper on lead, and is based on the findings of the Evidence Review on the health effects of lead.

Technical writing of the Information Paper was contracted by the Office of NHMRC to Meducation Australia Pty Limited.

Public consultation

A draft of the NHMRC *Information Paper: Evidence on the Effects of Lead on Human Health* was released for public consultation, as required under the *National Health and Medical Research Council Act 1992* (*NHMRC Act 1992*), for a period of 60 days from 16 July 2014 to 15 September 2014.

The independent systematic review of the evidence undertaken by the Cochrane Public Health Group at the University of Melbourne was released at the same time as background information.

Information on the public consultation process was provided on the NHMRC website and invitations were sent to various key stakeholders and those who had previously expressed an interest in NHMRC's lead project.

A total of seven public consultation submissions were received by NHMRC. The document *Public Consultation: Summary of Key Issues* provides further information in relation to how key issues were addressed by the Lead Working Committee in the final Information Paper.

Full submissions from respondents who agreed to publish their comments are available on the NHMRC Public Consultations website.

Independent Expert Review

Three experts in the fields of toxicology, epidemiology and environmental health provided their comments on the draft Information Paper to ensure that the evidence on the health effects of lead had been appropriately interpreted and synthesised in the Information Paper. Expert reviewers were required to declare any interests as per NHMRC standard processes.

The document *Expert Review: Summary of Key Issues* provides further information in relation to how key issues raised by the expert reviewers were addressed by Lead Working Committee in the Information Paper.

Development of NHMRC's Statement on lead

In response to its Terms of Reference, the Lead Working Committee guided the development of the Information Paper to underpin revisions to the 2009 *Public Statement: Blood lead levels - Lead exposure and health effects in Australia*. The updated Statement was developed by the Council of NHMRC in light of the comprehensive review of the evidence on the health effects of lead. The Statement provides advice to the community and to policy makers utilising the evidence in the Information Paper.

While NHMRC is responsible for developing health advice, the monitoring and management of lead contamination and intervention strategies are matters for states and territories.

Governance

Throughout the project, the Lead Working Committee provided advice to the Council of NHMRC and the Chief Executive Officer (CEO) through the Prevention and Community Health Committee (PCHC). The final Information Paper was considered by PCHC on 19 February 2015. The Council of NHMRC considered the final Information Paper and provided advice on the development of a Statement on 5 March 2015. The final Information Paper and Statement were approved by the Council of NHMRC out of session in April 2015.

Council has a broad range of experience and expertise in health and medical research. Council's final approval and recommendation to the CEO ensures that material issued by NHMRC is evidence-based, robust and meets international standards.

The CEO issued the Information Paper and NHMRC Statement under Section 7(1)(a) of the *NHMRC Act 1992*.