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## **Revision of the Australian guidelines for lead in blood and lead in ambient air**

(extract from the 115<sup>th</sup> Session of Council, June 1993)

Council re-iterated its 1987 position that there are no benefits of human exposure to lead and that all demonstrated effects of such exposure were adverse.

Council adopted the following resolution by majority:

That there be a specific goal:

**To achieve for all Australians a blood lead level of below 10 micrograms per decilitre (0.48 micromoles per litre). There is particular urgency in reaching this level in children aged one to four years because of the adverse effects of lead exposure on intellectual development.**

Council acknowledged that achievement of this goal would be facilitated through the establishment of target dates. The target dates would be set by Council at its 116<sup>th</sup> session (November 1993, see extract below), after the Public Health Committee had considered relevant information including the RMIT report *Revising Australian guidelines for lead an assessment of impacts* (Final report).

Council also recommended that to achieve this goal, there be developed an immediate national education and environmental management strategy which specifically addressed the accelerated reduction of lead in petrol and increased use of unleaded petrol. It should also provide information on safe removal of lead-based paint and risks from home renovations.

### **Graduated responses to blood lead levels**

That there should be a range of graduated responses to blood level measurements, as the concept adopted in 1987 of setting a 'level of concern' is no longer an appropriate way of dealing with this complex issue:

- in the case of communities where representative surveys show more than five percent of one to four year old children in the community having blood lead levels above fifteen micrograms per decilitre (0.72 micromoles per litre)
  - public health action should be taken through a program of graduated responses as detailed in the table of action guidelines;
- in relation to individual children (all ages)
  - there should be a range of graduated responses depending on blood level concentrations, commencing at fifteen micrograms per decilitre (0.72 micromoles per litre), as detailed in the table of action guidelines.

### **Table**

Action guidelines for managing the health risks of environmental lead recommended public health and individual management responses at various blood lead levels.

Note: Representative surveys for lead are only called for in communities at high risk as noted at 1 below.

***Recommended responses in relation to communities where representative surveys<sup>1&2</sup> of blood lead concentrations in children aged 1-4 years show:***

**>95% below 25 µg/dL (1.20 µmol/L)  
but >5% above 15 µg/dL (0.72 µmol/L)**

- investigate lead sources in the affected community;
- develop environmental management plans with effective strategies for community involvement in design and implementation;
- plan to
  - particularly target sub-populations in the community showing blood lead levels above 15 µg/dL (0.72 µmol/L);
  - include specifically prepared community education programs;
  - set a time-frame for on-going re-assessment of community blood levels.

**> 5% above 25 µg/dL (1.20 µmol/L)**

- investigate and make plans as above, but on a more intensive and broader community basis;
- consider earlier re-assessment of community blood lead levels.

***Recommended responses in relation to individual children (all ages) with a blood lead concentration of:***

**15-24 µg/dL (0.72 - 1.16 µmol/L)**

- undertake personal exposure evaluation and source remediation/abatement;
- provide personal education and counselling on exposure control for guardian(s) and child, as indicated;
- repeat test, as appropriate in individual circumstances to assess effectiveness of actions taken.

**≥ 25 µg/dL (1.20 µmol/L)**

- obtain a detailed medical history and examination with particular focus on possible adverse effects based on exposure history and blood lead level;
- undertake personal exposure evaluation including environmental sampling as indicated;
- arrange remediation/abatement of exposure source;
- provide personal education and counselling on exposure control for guardian(s) and child, as indicated. If exposure control not possible, consider relocation;
- re-test in about 3 months to assess the effectiveness of actions taken.

**≥ 55 µg/dL (2.65 µmol/L)**

- respond as detailed above for > 25 µg/dL (1.20 µmol/L);
- Undertake urgent clinical assessment regarding immediate medical management.

<sup>1</sup> The need for and extent (eg. age range, geographic area) of community surveys should be assessed by health authorities on the basis of known risks factors for lead exposure.

<sup>2</sup> In community based surveys, protocols for the follow-up of children identified as requiring individual management should be established.

## **Surveys**

That the responses be supported by a survey of sample populations to:

- determine the extent and intensity of environmental management required to achieve the goal in the general population;
- identify the severity of the problem among communities at heightened risk of harmful lead exposure; and
- assess progress in achieving the goal.

## **Government Action**

That these recommendations be brought to the immediate attention of Commonwealth, State and Territory Departments of Health, Environment, Energy and Education for the development of appropriate programs, to ensure ongoing reduction in environmental sources of lead so that human blood levels in Australia will be as low as is reasonably achievable.

## **Considerations of Council**

In making the above recommendations Council considered the conclusions from recent national and international scientific health evaluations of exposure to lead. Of particular relevance was the accruing evidence from studies conducted both in Australia and overseas indicating a dose related decrement in intellectual development in young children aged up to four years. These studies, while noting that some uncertainty persists, indicate that adverse health effects are associated with blood lead levels greater than 10 to 15 micrograms per decilitre (0.48 to 0.72 micromoles per litre).

Council noted that while children older than four years can lose up to 5 points in IQ (on scale with a standard deviation of 15) if they have a blood lead level averaging 10 micrograms per decilitre (0.48 micromoles per litre) over a sustained period, the most likely effect on them is a loss of between one and three IQ points.

## **Lead in blood - timeframe for attaining goal**

(extract from the 116<sup>th</sup> Session of Council, November 1993)

Council recalled that at its 115<sup>th</sup> session it had set a national goal for all Australians to have blood lead concentrations below 10 micrograms per decilitre.

Council recommended that the first target for achieving the goal set at the 115<sup>th</sup> session should be a reduction of lead in all Australians to less than 15 micrograms per decilitre by the end of 1998, with the exception of occupational exposures. Strategies in place to achieve this first target should be such as to result in blood lead levels in 90 per cent of children between 1 and 4 years of age being below 10 micrograms per decilitre by the end of 1998.

Council noted that the timetable for achieving the goal of 10 micrograms per decilitre of less in all Australians would vary with location, lead sources, processes and uses. Specific data might be needed in areas of higher lead exposures.

Council resolved to review in 1995 the targets for achieving the goal set at the 115<sup>th</sup> session in light of data then available.

Council directed that this recommendation be brought to the attention of the relevant national bodies, peak industry bodies and State and Territory and environmental authorities. Council noted that the majority of OECD countries had introduced a price differential between leaded and unleaded petrol in an effort to encourage a decrease in the use of leaded petrol. Council also noted that this strategy had been successful.

Council further noted concerns of potential inequity created by this price differential and recommended that a range of options be considered by governments for some of the increased revenue to redress the inequity.

RECOMMENDED