

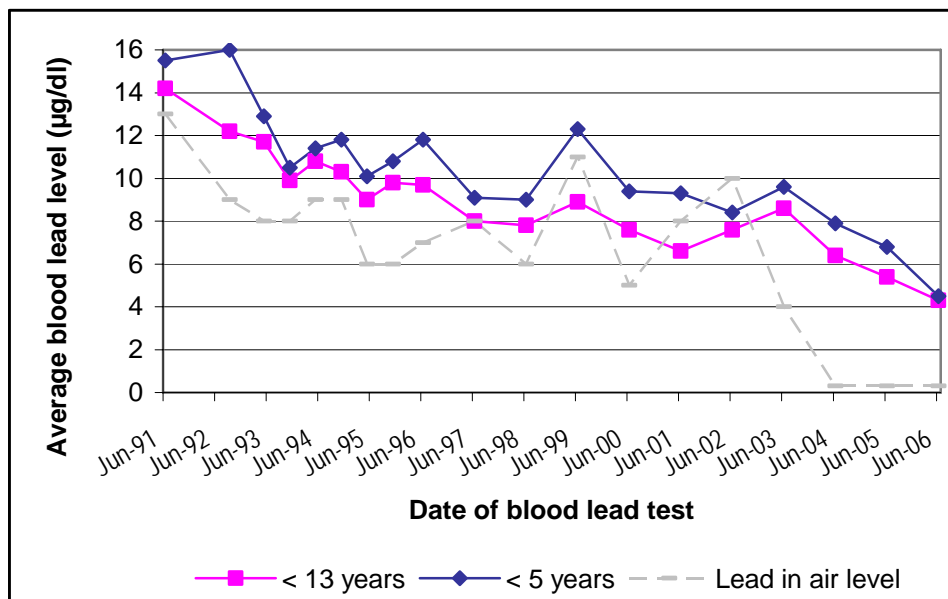
From Hunter New England Population Health

North Lake Macquarie Blood Lead Monitoring Service

Summary of Results (July 2005 - June 2006)

Thank you to all those families who participated in the 2005-2006 blood-testing program. The lead program focused testing on two groups of children, those under the age of 13 years and those less than five years of age. Participation was increased this year with 240 children in North Lake Macquarie being tested in the year to June 30 2006 compared to 171 children tested last year. One hundred and thirty of the 240 children were under five years of age. The average blood lead level for children under the age of 13 years was 4.2 µg/dl (micrograms per decilitre), as compared to 5.3 µg/dl in 2004-2005 and 8.6 µg/dl in 2003-2004. The average blood lead level for children less than 5 years of age was 4.5 µg/dl compared to 6.8 µg/dl in 2004-2005 and 9.6 µg/dl in 2003-2004. Graph 1 illustrates the average blood lead levels for each year since testing was introduced. There is a close association between the decrease in lead-in-air levels and blood lead levels.

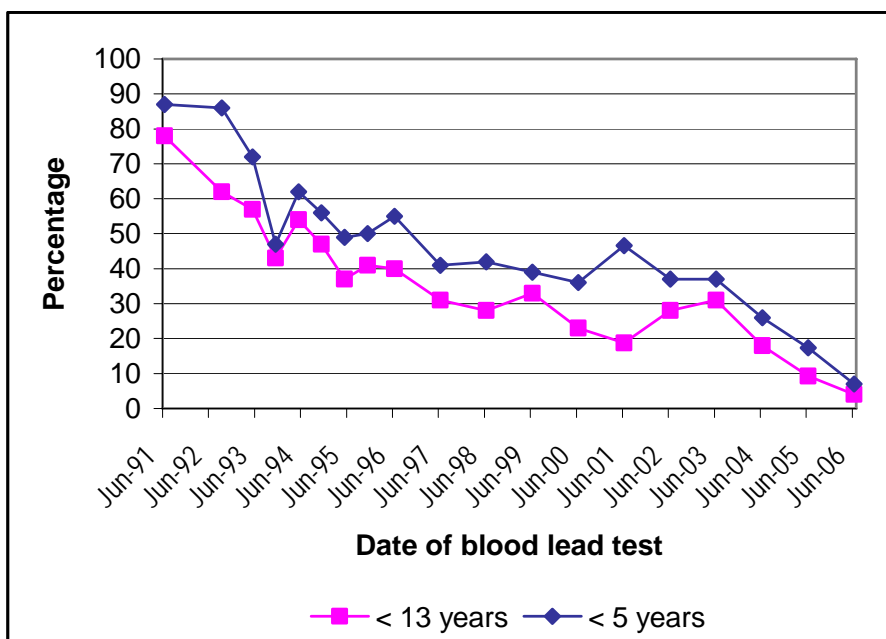
Graph 1. Mean blood lead levels of children < 5 years and < 13 years resident in North Lake Macquarie, New South Wales Australia, June 1991-June 2006



Children under the age of five years are most at risk for lead exposure due to their habit of putting their fingers and other objects in their mouths. When reading the results, it must be noted that blood testing is voluntary; therefore the number of children tested represents a small proportion of children living in North Lake Macquarie ranging from an estimated 28% of 0 to four year old children in Boolaroo, 37% in Speers Point, and 63% in Argenton based on the 2001 census.

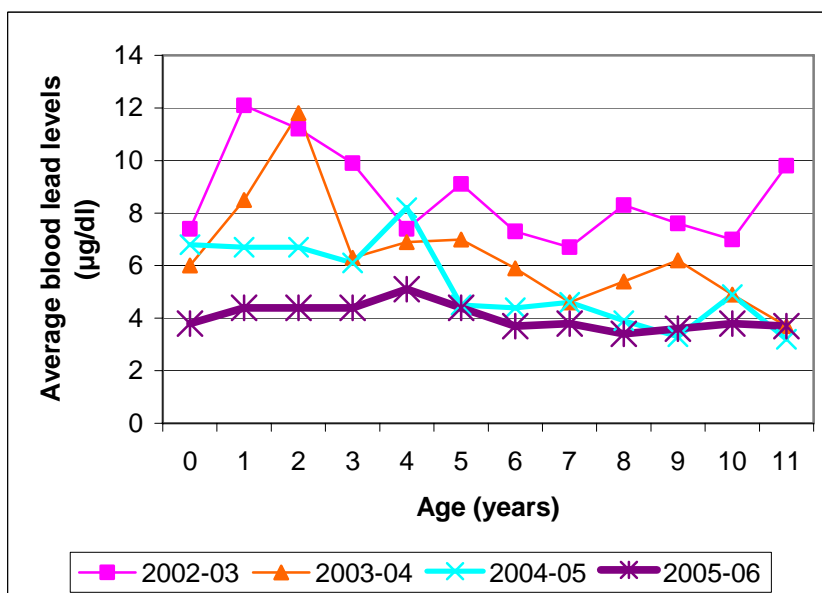
The National Health and Medical Research Council goal is for all Australians to have a blood lead level less than 10 µg/dl. Four per cent of children less than 13 years of age and seven per cent of children less than five years of age had a blood lead level of 10 µg/dl or more (Graph 2).

Graph 2. Percentage of blood lead levels greater than or equal to 10 µg/dl of children < 5 years and < 13 years resident in North Lake Macquarie, New South Wales Australia, June 1991-June 2006.



Graph 3 demonstrates a marked reduction in the average blood lead level in all age groups over time but particularly in children less than three years of age since the 2004-05 monitoring year, the first complete year of blood lead monitoring following closure of the smelter in September 2003, and across all age groups in the 2005-06 monitoring period.

Graph 3. Average blood lead levels by age group of children < 13 years from 2002-03 to 2005-06, resident in North Lake Macquarie, New South Wales Australia, June 1991-June 2005.



The mean blood lead levels by suburb for children less than five years were: Boolaroo 5.6 µg/dl; Speers Point 3.7 µg/dl; and Argenton 5 µg/dl.

What do the results mean?

The most important finding of the 2005-2006 blood lead analysis is the suppression of the typical peak in blood lead levels usually seen at two years of age (Graph 3). While this peak was seen in 2002-03 and 2003-04 (and in prior analyses of data back to the early 90s), it was not seen in 2004-05 or 2005-06. The smelter was still operating in the first three months of the 2003-04 monitoring year, but with the closure of the smelter on 12 September 2003, the 2004-05 monitoring year was the first full year of blood lead monitoring since active smelter emissions stopped.

Graph 1 shows how the average blood lead levels have decreased as lead-in-air levels have decreased. Children's blood lead levels typically peak around two years of age as their hand to mouth behaviour and susceptibility to lead absorption reach a peak. This is the peak age for accumulation of body lead burden that could have a lifelong impact. These results demonstrate that the closure of the smelter has led to a marked reduction in blood lead in all age groups monitored but particularly in children less than three years of age.

These results suggest that while the smelter was in operation, the main source of lead for young children in North Lake Macquarie was fresh or recent, rather than historical, smelter emissions.

Even though the smelter has ceased production and is no longer actively emitting lead into the air, the soil and dust within local communities will still contain some lead from the smelter's past operations, however, lead based paint released from deteriorated household painted surfaces is an increasingly recognised cause of elevated lead levels in the area.

What next?

It is important that the local community, and all communities, practice lead-safe behaviours. A DVD promoting lead safe behaviours for families that addresses both contaminated soils and lead paint removal will be distributed in the North Lake Macquarie during 2006.

The present blood lead screen has confirmed the findings of the 2004-05 lead survey that lead risk to children in the community has remained **low** since the closure of the smelter. It is important to shift the focus of activities from community-wide screening of all children to targeting of individual children at higher risk of elevated lead levels. Local healthcare providers will be engaged and encouraged to identify children at risk of elevated blood lead levels such as children with pica (eating dirt), developmental delay, and exposure to lead based paint chips.

For further information on reducing your child's exposure to lead contact:

- **North Lake Macquarie Environmental Health Centre on (02) 4965 8933**
- **Environmental Health Officers, Hunter New England Population Health on (02) 4924 6499**
- **<http://www.hnehealth.nsw.gov.au/hneph/Lead/LeadHome.cfm>.**

Notes on interpretation of these results:

The data displayed here are summary only. Blood lead testing is voluntary and the children who are tested each year may not be fully representative of the children in the area who are not tested. This may influence year-to-year comparisons because of varying participation rates. Since 2000, monthly blood-taking clinics have been introduced to make it easier for children to have their testing done. For this report, results from the monthly clinics from July 2005 through June 2006 and the mass testing in June 2006 have been combined. Where children have had multiple tests within the year, only one test (the highest result) is included in this annual summary.