



A National Publication for Nurses and other Health Professionals

community

P A E D I A T R I C S

Produced by the Centre for Community
Child Health & Ambulatory Paediatrics,
Royal Children's Hospital, Melbourne.

Editors - Professor Frank Oberklaid, FRACP
and Michele Meehan, RN, MCHN.
Production Editor - Hilary Russell

Sponsored by Wyeth -
Partners in Infant Nutrition.

Volume 3, Number 3
Spring 1994

REDUCING THE LEAD LOAD IN CHILDHOOD

In June 1993, the National Health & Medical Research Council (NHMRC) set a goal that all Australians should have a blood lead level below $0.48 \mu\text{mol/L}$ ($10 \mu\text{g/dl}$). The Council stressed the urgency of reaching this level in children aged 1-4 years because of the adverse effects of lead exposure on intellectual development.¹ The adverse effects of even low lead levels ($< 1.2 \mu\text{mol/L}$ [$25 \mu\text{gm/dl}$]) on intellectual development and other health parameters have been well documented and reviewed.²

A comprehensive strategy to eliminate lead poisoning would require a major commitment by government, industry and the medical profession.

There is considerable controversy concerning screening, especially in populations that have predominantly low blood lead levels. Those involved in public health and child health surveillance are moving more towards targeted screening rather than universal screening.

Children who on environmental grounds may be at risk of having elevated lead levels (whether or not they have an obvious clinical cause for concern) and whom one might consider measuring their lead levels include:³

Children aged 9-48 months who live in or are frequent visitors to older dilapidated housing with peeling paint.

Children aged 9-48 months who have been present during "unsafe" renovations of older housing (painted before 1970).

Children with pica living in older housing with peeling paints.

Children aged 9-48 months living near lead smelters, battery breaking yards, lead ore bodies, or on highways with heavy traffic.

Children exposed to the lesser common exposure pathways eg. lead hobbies, folk medicines containing lead, etc.

Clinicians might also consider ruling out elevated lead as a contributing factor in children presenting with intellectual disability or behaviour problems.⁴

The children at greatest risk for high blood lead levels in Australia include those living near major lead industries such as Port Pirie, Broken Hill and Boolaroo (near Newcastle) and children living in older homes previously painted with lead paint that are being renovated.

Management of children with elevated blood lead levels includes:

1. Identification and removal of the source of lead, or removal of the child from the source.
2. Parent education regarding minimising exposure and absorption.
3. Follow up of blood lead levels where appropriate.
4. Chelation therapy where appropriate (generally for levels $\geq 2.65 \mu\text{mol/L}$ [$55 \mu\text{g/dl}$]).

The most cost-effective method of minimising exposure for the majority of children in Australia to lead would be by the elimination of

leaded petrol.⁵ In Australia, the federal government, National Health and Medical Research Council and industry have recently taken steps to speed up the elimination of leaded petrol by reducing the amount of lead used in leaded petrol and encouraging those with pre 1986 vehicles that can run on unleaded petrol to convert to unleaded petrol. However, elimination and control of lead in other sources such as food and water is important, as is education of parents on how lead exposure and absorption can be minimised.

Steps to minimise exposure and absorption

Parents, particularly those living in environments with lead sources, can be given helpful advice on minimising their children's exposure to lead absorption. They can be advised to:

- ☛ Ensure children's hands and faces are washed before they eat or have a nap

- ☛ Discourage children from putting dirty fingers or toys in their mouths

- ☛ Encourage children to play in grassy areas instead of places where dirt sticks to their fingers and toys. Plant grass or ground cover on exposed areas of soil in the yard

- ☛ Wash fruit and vegetables before eating

- ☛ Ensure the child's diet is adequate in calcium and iron, which help to minimise lead absorption. Sources of iron include poultry, red meat, liver, fish, fortified cereal, cooked legumes (eg. beans, peas, lentils), dark green leafy vegetables. Vegetable sources of iron are better absorbed when taken with Vitamin C containing foods such as fruit and fruit juices. Sources of calcium include milk, cheese, yoghurt. Avoid high fat diets as they encourage lead absorption

- ☛ Ensure young children have regular, frequent meals and snacks - up to six per day because more lead is absorbed on an empty stomach

- ☛ Don't store food/drink in lead crystal glassware or pottery with a lead-based glaze. Beware of imported foods in cans with lead soldering

- ☛ Seal cracks in the ceilings of older homes, especially if near a point source of lead, as they may allow dust to fall into the house

- ☛ Wet dust floors, ledges, window sills and other flat surfaces at least weekly, or more often if the house is near a point source of lead. A phosphate containing cleaning solution is most effective

- ☛ Vacuum carpets and rugs regularly using a vacuum cleaner with an effective filter and agitator

- ☛ Ensure that the child does not have access to peeling paint or chewable surfaces painted with lead-based paint. Particular attention should be paid to cots, window sills and windows

- ☛ Wash children's toys (especially those used outside) and dummies frequently

- ☛ Wash family pets frequently - particularly if furry. Discourage pets from sleeping on children's beds.

Special care needs to be taken with home renovations. Seek advice about controlling leaded paint flakes and dust if renovating older houses (built before 1970). Pregnant women and children under five should not be present in a house while renovation involving lead-based paint is taking place.

References:

¹ Lead in Australians. Revision of the 1987 Guidelines. National Health & Medical Research Council. 111th Session Canberra. June 1993.

² Needleman H, Bellinger D. The Health Effects of Low Level Exposure to Lead. Annual Review Public Health 1991, 12:111-140.

³ U.S. Department of Health and Human Services, Public Health Services, Centres for Disease Control. Preventing Lead Poisoning in Young Children. October 1991, 39-50.

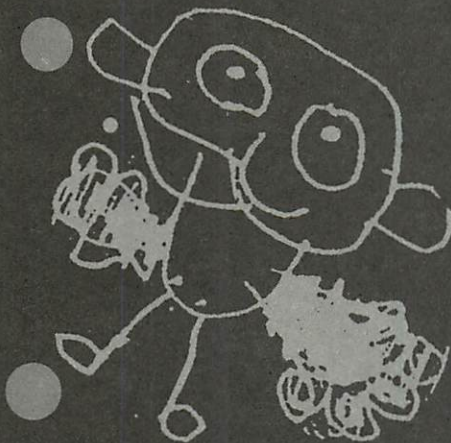
⁴ Thomson GOB, Raab GM, Hepburn WS, et al. Blood-lead Levels and Children's Behaviour - Results from the Edinburgh Lead Study. Journal of Child Psychology, Psychiatry and Allied Disciplines 1989, 30:515-528.

⁵ Costs and Benefits of Reducing Lead in Gasoline. Final regulatory impact analysis. United States EPA. February, 1985 EPA-230-05-85-006.

Author : Dr Garth Alperstein, Area Community Paediatrician, Central Sydney Community Health Services and Royal Alexandra Hospital for Children, Sydney



MEASLES IMMUNISATION IN CHILDREN WITH ALLERGY TO EGGS



Dr A. S. Kemp, FRACP, Ph.D.
Director, Clinical Immunology
Royal Children's Hospital, Melbourne

Parents are often given incorrect advice that measles immunisation is contraindicated in infants with allergic reactions to egg. All children should have measles immunisation performed.

The risk of a significant reaction to measles vaccine in a child with proven egg allergy is extremely low. Children with egg allergy should be referred to a person who can deal with the egg allergy and have measles vaccine performed in a setting where any adverse reaction can be treated if required. The commonly proffered advice, that children should be able to eat egg before they have their measles vaccine, is wrong. Instructing parents to feed the child egg to determine whether measles vaccine can be given is quite illogical. If the child is egg-sensitive, there is a far greater risk of a significant reaction to the ingestion of egg than there ever would be to the measles vaccine. There is no child who cannot be immunised with measles vaccine. It is therefore inappropriate to defer the time of immunisation.

A recent study examined over 400 children with varying allergic reactions to egg. All reacted to a skin test of egg and five to a test of vaccine. Of 96 children given a test of vaccine under the skin, 46 reacted positively. However, after immunisation with a full dose of measles vaccine only four children had any reaction and in all it was mild and required no treatment. None of the children who had an allergic reaction to the small skin test of vaccine and only one of the 46 with a positive reaction to test vaccine under the skin reacted to immunisation. The study concluded that testing with vaccine and desensitisation are unnecessary and that children with egg allergy should be immunised against measles, though provision should be made for coping with any severe reaction.

Reference:

Aickin R, Hill D, Kemp A, "Measles Immunisation in Children with Egg Allergy",
BMJ 1994; 309:223-225.

from
the
literature...

Jan Shield,
Child Safety Centre,
Royal Children's Hospital,
Melbourne, Australia



SMALL DOSES, BIG PROBLEMS: A SELECTED REVIEW OF HIGHLY TOXIC COMMON MEDICATIONS

EL Liebelt & MW Shannon. *Pediatric emergency care* 9 (5) Oct 1993 pp 292-297.

Most childhood poisonings involve large doses of medications prescribed for adults which are harmful when taken by children. Some medications are highly toxic when taken in only small doses and this review concentrates on five: methyl salicylate, camphor, topical imidazolines, benzocaine and diphenoxylate-atropine. Most are available over-the-counter and, in the United States at least, lack safety closures.

Methyl salicylate is found in liniments, lotions and oil of wintergreen. It is toxic because of its high concentration, usually in liquid form, wintergreen is equivalent to about 21 adult aspirin tablets. Immediate treatment is required.

Camphor is available on its own or as an ingredient in products such as liniments ("Vaporub" is probably the best known) which contain up to 20% camphor.

Camphor is a neurotoxin which has both excitatory and depressant actions. Camphor poisoning can produce sudden seizures, followed by respiratory depression. Treatment with ipecac is not recommended.

Imidazolines are found in many nose and eye drops. Ingestion by children

can decrease heart rate and blood pressure; a dose of as little as 2.5ml can be harmful, although no deaths have been reported.

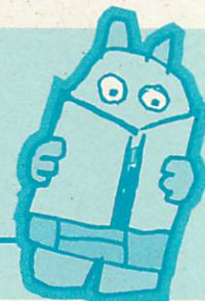
Benzocaine is used as a topical anaesthetic in teething gels, throat lozenges, mouth rinses, first aid creams and haemorrhoid preparations. Ingestion of as little as half a teaspoonful can cause serious consequences. The toxic effect is caused by methemoglobinemia which can occur after ingestion or after topical application in the case of nappy rash ointments.

Ingestion of diphenoxylate-atropine in the form of Lomotil is serious and can be fatal in children. The prescription drug is used to relieve the symptoms of diarrhoea. The major symptoms of toxicity are coma with respiratory depression which may not appear for some hours after ingestion because of the delayed motility of the GI tract. Syrup of ipecac is contraindicated.

The authors point out the toxic effects of some common preparations which are found in most homes because they treat common ailments and which are available over-the-counter, often without adequate closures.

ON THE SHELF NEW BOOKS

HELEN ROWAN, MANAGER
CHILD HEALTH INFORMATION CENTRE
ROYAL CHILDREN'S HOSPITAL, MELBOURNE



Taming the Dragon in Your Child

Solutions for breaking the cycle of family anger from toddler to teen. By Meg Eastman Ph D, with Sydney Craft Rozen. 1994, pp227. Price \$19.95 (plus \$3.50 postage and handling).

This easy to read and highly recommended book helps the reader consider sources of rage, anger, aggression, violence and impulsive behaviour. The reader is guided to anticipate and defuse these out of control situations. The reader is also made to look at their

response to their own anger by gaining a deeper understanding of anger that lies within each of us.

The author, Meg Eastman, is a mother, child psychologist and family conflict specialist. Her consistently positive approach to family anger does not produce feelings of guilt about one's own behaviour. Not only does the reader gain a better understanding of anger and tantrums, but battle tested strategies to calm children and realistic solutions for stress and anxiety are also offered which are full of sensitivity and practical common sense.

Many parents and health professionals have been searching for a book like this which offers strategies for discipline and an optimistic outcome for those out of control moments that present from toddlers to teens.

Available from **The Child Health Information Centre**, a specialist bookshop, information and referral centre for health professionals, parents, teachers, adolescents, and students.

A complete booklist is available for mail orders: Phone (03) 345 6429, 9.30 - 4.00 weekdays.