

# LEAD Action NEWS

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The newsletter of The LEAD (Lead Education and Abatement Design) Group Inc.

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## Lead Safe World Project Launch

Inaugural International Lead Poisoning Prevention  
Week of Action: 20-26 October 2013



[www.lead safeworld.com](http://www.lead safeworld.com)

### Lead Safe World Project

\* Championing lead-free products, lead-safe services and lead removal.

\* Supporting suppliers to source products and provide services that can detect, monitor and manage lead in the body, in the home, & at work..

\* Giving you the means to identify lead-free products and lead-safe services, and treatments which assist in removing lead from the body.

\* Sustaining lead-awareness organisations to help create a lead-safe world.



[Our children heading for a lead-free society.](#)  
Artist: Philippa Bolton, a Winner, 2013 [Volcano Art Prize \(VAP\).](#)

<b>Founding Partners:</b>				 logos
				

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## Editorial

The LEAD Group is pleased to announce the launch this weekend of a new web site, 'Lead Safe World' ([www.lead safeworld.com](http://www.lead safeworld.com)), in partnership with Evo Building Products, the National Painting & Decorating Institute of Australia (NPDI), Home Painters Info and Aussie Painters Network. That's the logo at the top of this page.

The new site is part of The LEAD Group's Lead Safe World Project – and its major contribution to the World Health Organization's Inaugural International Lead Poisoning Prevention Week of Action, 20-26 Oct 2013. We list in this LAN some of the brilliant media coverage of the WHO Lead Week of Action in 17 countries, including the USA, generated by our colleagues in the Global Alliance to Eliminate Lead in Paint.

The Lead Safe World (LSW) Project will assist in the promotion of products and services which are lead-free or lead-safe, or which remove lead from the body, or from a lead-polluted site.

The new site will concentrate on action: avoiding lead poisoning or contamination and removing lead contamination or lead from organisms, all in one convenient, concentrated 'package' of information, companies, and products.

*We invite sponsors, partnerships, and companies with proven solutions to lead problems, lead-free products and lead-safe services, to join us.*

Companies and products which help manage lead poisoning and lead contamination will be easily-identified by Logos: 'Lead free', 'Lead safe' and 'Lead away.'

This issue of LEAD Action News also announces the launch of a 2014 Lead-Safe World Calendar, for sale at <http://volcanoartprize.com/purchase-calendar/> - each month of the year is illustrated by a winning art entry on the subject of lead safety. A further 13 finalists in the art competition, who receive a Pictureproducts mug as their prize, are listed below. All the entries are awaiting your review and voting for the People's Choice Award, on three pages, at <http://volcanoartprize.com/peoples-choice/>

The LEAD Group is experiencing – and has been for some time – what we like to think of as a 'glitch'. We are operating without funding for our long-time, free-info-service-to-the-world (Global Lead Advice and Support Service, GLASS), and for our advocacy to rid the world of leaded petrol.

On the subject of funding: see our letters to Australia's new federal Environment Minister, The Hon. Greg Hunt.

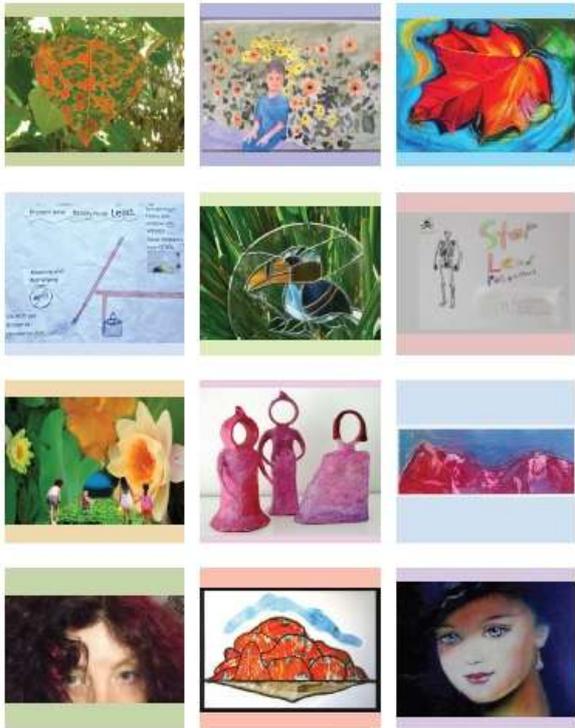
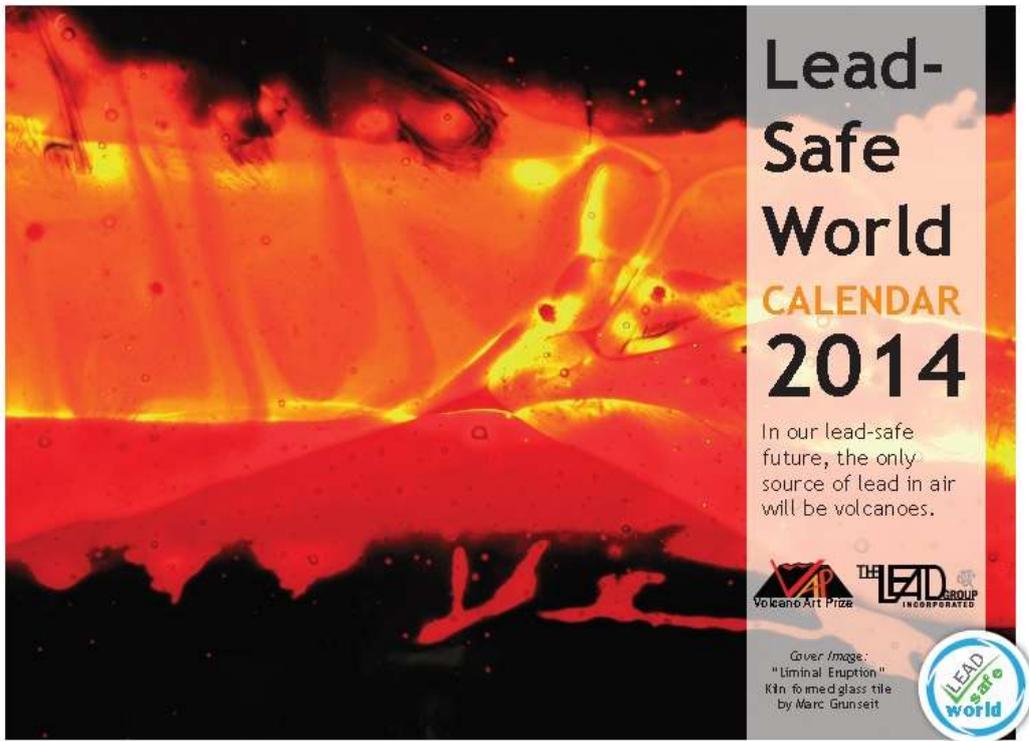
As for our advocacy to rid the world of leaded petrol: we have nominated Innospec Inc – which proudly claims to be the world's only manufacturer of tetraethyl lead (TEL is what refineries add to petrol to make it into leaded petrol) - for the Public Eye Awards (PEA) for the Most Despicable Corporation in the World. Support from our network has flowed in.

The Lead Safe World website promotes lead safety actions everyone can take, anywhere in the world, rather than being a broad-ranging archive of information about every aspect of lead, which the existing site [www.lead.org.au](http://www.lead.org.au) is, and will continue to be.

We've published *LEAD Action News* on [www.lead.org.au/lanv14n1/LANv14n1\\_LSWP\\_Launch\\_in\\_ILPP\\_Week\\_of\\_Action.pdf](http://www.lead.org.au/lanv14n1/LANv14n1_LSWP_Launch_in_ILPP_Week_of_Action.pdf) since the first edition in February 1993. But this edition rivals that edition in the level of excitement at what we are presenting. We really hope our work helps you to be lead-safe!!

# 2014 Lead-Safe World Calendar

The front and back covers of the Calendar are shown below, and these beautiful Calendars can be purchased online at <http://volcanoartprize.com/purchase-calendar/>



## Lead-Safe World 2014 Calendar

The Volcano Art Prize - <http://volcanoartprize.com/> - is designed to raise awareness and generate striking images and positive messages about lead-safety, and is an initiative of the Lead Safe World Project of The Lead Education and Abatement Design (LEAD) Group Incorporated.

The LEAD Group Inc is an Australian-based not-for-profit community organisation / environmental health charity which is working to eliminate lead poisoning globally, and to protect the environment from lead in all its uses.

The front cover was the People's Choice winner (voted by Facebook Likes) from the inaugural Volcano Art Prize (VAP) 2012.

The LEAD Group Inc would like to thank our Honorary Art Judge, Tony Rogers for his expert selection from the images entered in Volcano Art Prize 2013, for which this Lead-Safe World 2014 Calendar is the Catalogue showing the 13 winners (each month and the planner page). Tony is a mainly self-taught Illustrator, Cartoonist, Caricaturist, Hand-letterer and Calligrapher. He was a Graphic Designer for 22 years, in the design, magazine and marketing industries, and recently completed a Bachelor of Arts.

Thanks to our sponsor Pictureproducts, who donated 30 mugs printed with the best images chosen by Tony Rogers, as prizes for 30 artists. Thanks also to Kerry O'Donnell who has designed all the excellent logos on this Calendar, and to Mosh Pit Publishing for their expert design and printing of the Calendar.

Please be inspired to submit your own entry or tell your artistic friends and children to submit an entry for next year's Volcano Art Prize 2014 at <http://volcanoartprize.com/submitentry/> and please vote for the People's Choice to go on the following year's Calendar front cover, at <http://volcanoartprize.com/peoples-choice/>

You can purchase copies of this Calendar and order next year's Calendar, at <http://volcanoartprize.com/purchase-calendar/> and see all past entries in VAP at <http://volcanoartprize.com/vap-archives/> and some of the VAP images at work - at [www.lead-safe-world.com](http://www.lead-safe-world.com) - helping to create a Lead Safe World.



**m** Graphic design, layout and printing by [www.moshpitpublishing.com.au](http://www.moshpitpublishing.com.au) Printed on 100% recycled paper using only lead-free inks.

This calendar was financed by The LEAD Group's Lead Education and Abatement Fund (LEAF) - which receives irreducible donations at <http://www.lead-safe-world.com/leaf> - and you're welcome to specify that your donation be used for VAP. Many thanks to Ben Smith for specifying the calendar be printed with his LEAF donation this year.

Pictureproducts ([www.pictureproducts.com.au](http://www.pictureproducts.com.au)) have kindly donated a mug printed with their own entry, as a prize for each artist.

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# About the Volcano Art Prize (VAP)

*By Hitesh Lohani, LEAD Group Volunteer, and  
Pristabhumi e-Magazine Publisher*



Following the success of the inaugural environmental Volcano Art Prize (VAP) competition in 2012, all those entries are in the VAP Archives at <http://volcanoartprize.com/vap-archive/> and the Judge's decision for the 2013 Volcano Art Prize Competition are out now (see below). We received many interesting artworks from all the participants and would like to thank all for your support and participation. However, if any of you missed out from this year's competition, you can now submit your artwork for the 2014 Volcano Art Prize competition. We would love to receive an entry from you. Be part of a worthy environmental art competition and take a step forward to help create a lead-safe world.

It's only \$10 for adults in OECD countries to enter, and other adults and all earthlings under the age of 18 enter for free!

Simply create a landscape-orientation image on the theme of lead-safety, by photographing or scanning anything – an artwork or real-life - related to lead (it's in people/animals/plants/old paint/soil/food/water/products etc) or lead-safety (while renovating/shooting/working with lead) or lead poisoning prevention (testing for lead/detoxing).

Browse our websites – [www.lead.org.au](http://www.lead.org.au) and as of today, [www.lead safeworld.com](http://www.lead safeworld.com) – to develop your own ideas. You can also see the 2012 and 2013 Volcano Art Prize finalists' entries, for inspiration, at <http://volcanoartprize.com/vap-archive/> and <http://volcanoartprize.com/peoples-choice/> respectively.

Please read the Conditions of Entry at the bottom of the home page at <http://volcanoartprize.com/> especially noting:

The single digital image must be between 1 MB and 3 MB and in landscape orientation, not portrait orientation. That is, winning entries will be printed in colour on a landscape A4 page.

Submit entries online at <http://volcanoartprize.com/submitentry/> before midnight on Monday 25<sup>th</sup> August 2014.



Graphic: by our youngest entrant, and Finalist in the Volcano Art Prize 2013 and winner of a Pictureproducts mug. Artist Liam Hutchinson, Home School, aged 10. Title: Environment's Pollution. Lead-Safety Message: Let the public know about pollution



## Lead-Safe World **CALENDAR** 2014

In our lead-safe future, the only source of lead in air will be volcanoes.

These are the 13 winning entries, 2 of them by children. It was terrific that 7 children entered the competition this year, and all 7 won their image printed on a Pictureproducts mug.



# The Decision of the Volcano Art Prize 2013 Judge

Email Sent: Saturday, October 05, 2013 9:38 PM

Dear Elizabeth,

There are some lovely, vibrant and exciting artworks in this competition.

To answer your question about my background:

-- I'm a mainly self-taught\* Illustrator, Cartoonist, Caricaturist, Hand-letterer and Calligrapher (\*with assistance and inspiration from my parents, sister [all artists] and influences from other people).

-- I was a Graphic Designer for about 22 years, apprenticeship through my Dad for about 2½ years from 1986, then work in the design-, magazine-, and marketing industries.  
-- I recently completed a Bachelor of Arts degree, with majors in 'Education Studies' and 'English, Text & Writing'; and sub-major in 'Art History & Cinema Studies'.  
-- Here are some artistic-relevant hobbies: most things art; singing; watching movies, ABC, SBS, comedies; theatre; live music; enjoying most music.



Here is my list of choices for the competition...

-- The 13 Entries/17 Artists awarded a month or planner page position in the 2014 Lead Safe World Calendar and the option to have their image (or another entrant's image) printed on a PictureProducts mug are...

1. Lead-safety message: Stay smart – live longer – protect your offspring – work lead-safe - Artist: Alice Ju

2. Lead-Safety Message: As we age, the lead we took in earlier in life, leaves our bones, raises our blood pressure and brings on dementia. Ask your doctor to test your blood lead level – there may be ways to remove your lead before it takes its toll - Artist: Sue Gee

3. Lead-safety message: My grandson Alex grew sunflowers which removed some lead from the garden soil – but we didn't let him eat the seeds or compost the plants! - Artist: Noela Whitton

4. Lead-Safety Message: The most important lead test at any age, is a blood lead test – ask your doctor - Artist: Philippa Bolton

5. Lead-Safety Message: Leadlighting can be made lead-safely in a properly equipped workshop - Artist: Stuart Hill

6. Lead-Safety Message: Etchings can be lead free. Today you can buy artists paints that do not contain heavy metals like lead, but if you are using leaded artists paints, make sure you never hold the paintbrushes in your mouth or get the paint in or on you - Artist: Eli Gallwey

Calendar page 7. and Mug 7., 8. and 9. Lead-Safety Message: Sponge down floors and windows weekly, clean children's toys often, Mop and wet wipe, Do not use a broom or vacuum to dust - Artists: Jaron Phillips, Brandon Rice, Occidarius Coleman, all aged 12.

Calendar page (CP) 8. and Mug (M) 10. Lead-Safety Message: Leaded, fused glass panel safely made with lead calme - Artist: Marc Grunseit

CP 9. and M 11. Lead-safety message: Lets not allow our long history of lead poisoning from skin whiteners, black eye makeup, and red rouge and lipstick, to continue - Artist: Ketevan Title: Portrait.

CP 10. and M 12. Lead-Safety Message: Create without lead - Artist: Jane Lennon

CP 11. and M 13. Lead-Safety Message: Lead raises mortality from all causes, Vitamin D has the opposite effect. Good health involves tracking these metrics - Artist: Kari McKern

CP 12. and M 14. 15. and 16. Lead-Safety Message: Lead can cause serious injuries such as seizures, comas, maybe deaths. - Artists: Kee'monee Laurence, Ke'shaun Mack, Brandon Thomas-Barkley, aged 12, 12 and 13.

CP 13. and M 17. Lead-Safety Message: As the lead stored in your bones leaches into your blood as you age, so you get closer to the grave. Artist: Tony Lennon

-- The 13 artists awarded the option to have their image (or another entrant's image) printed on a PictureProducts mug are...

M 18. Lead-Safety Message: Unleaded cats live calmer, healthier and longer lives. Good grass cover protects pets from lead contaminated soil. - Artist: Meredith Knight

M 19. Lead-Safety Message: Keeping yards safe from lead - Artist: Sabina Eastman

M 20. Lead-Safety Message: Let the public know about pollution. - Artist: Liam Hutchinson, 10 yrs old.

M 21. Lead-Safety Message: Yoghurt, garlic, onions, bananas and fruits such as apples and pears which contain pectin (especially the pips) help to reduce absorption, as well as detoxifying lead from the body. - Artist: Dot Dawson

M 22. Lead-safety message: How long are we going to let them have their way? Even now, these poisonous plagues remain unresolved problems... and chances are, someone you know is already affected by it. Just because it's not in your face like doesn't mean it's not there. This is everybody's problem. - Artist: Daniel Kim

M 23. Lead-Safety Message: Years of mining in Broken Hill has caused widespread lead contamination. Despite the blatant reminders throughout the town of the strong mining history, such as this slag the town is centred around, residents are ignorant of issues associated with the high levels of lead present. Action is greatly needed for a lead free future in Broken Hill - Artist: Katie Mortimer

M 24. Lead-Safety Message: Whether you're painting watercolours or going fishing, buy lead free products - Artist: Yvonne Preston

M 25. Lead-safety message: Many species unwillingly ingest lead objects, which, if left untreated, will kill them. Respect them and reconsider your fishing gear choices - Artist: Jennifer Lee Harackiewicz

M 26. Lead-Safety Message: Lead Paint deteriorating off old homes poses great health risks to families and the general community. - Artist: Nigel Gorman

M 27. Lead-Safety Message: Lead in home-grown eggs from urban areas tends to be higher than in commercial eggs; as soil lead increases, the concentration of lead in eggs tends to increase. Test your soil for lead with a LEAD Group DIY-sampling lab analysis kit. - Artist: Emily Grace

M 28. Lead-safety message: Leaving lead untreated is like sitting on a volcano waiting to erupt - Artist: Gary Lancaster

M 29. Lead-safety message: Make sure your black eye make-up like Kajal / Kohl / Surma is lead-free. You can test it with a LEAD Group test kit and ask your doctor for a blood lead test - Artist: Swetha Lingala

M 30. Lead-Safety Message: These backyard vegies are organic and lead-free. Are yours? - Artist: Gabriel Anderson

Best wishes to all entrants, and congratulations to all who've won.

Cheers for now, and kind regards, from Tony Rogers.

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## **“We cannot wait another century to eliminate lead, especially in paint and toys” – UN expert on toxic waste**

<http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=13878&LangID=E>

GENEVA (21 October 2013) – The United Nations Special Rapporteur on toxic waste, Marc Pallemerts, today urged States to increase efforts to eliminate the use of lead especially in paint and toys. Even though lead poisoning is entirely preventable, lead exposure causes 143,000 deaths and 600,000 new cases of children with intellectual disabilities every year, according to the World Health Organization (WHO).

“We simply cannot wait another century to eliminate the use of lead especially in paint and in toys, as there is no known level of lead exposure that is considered safe,” Mr. Pallemerts stressed, while joining governments and communities worldwide to mark the International Lead Poisoning Prevention Week of Action, 20-26 October 2013.

The world recognized the impact of lead on human rights as early as 1919, when the International Labour Organization (ILO) recommended the exclusion, with exception, of women and persons below 18 from employment in activities that involved lead in order to protect the function of maternity and the physical development of children.

“Almost a hundred years later, it is unacceptable that lead should continue to be a challenge,” the UN expert said. “A commitment from States to phase out the manufacture and sale of paints containing lead is imperative and should meet little resistance as there are viable alternatives which exist for both manufacturers and consumers.”

Lead is a cumulative toxic substance that affects multiple body systems either through ingestion or inhalation. Young children are particularly vulnerable to the toxic effects of lead because they absorb 4–5 times as much ingested lead as adults from a given source. Moreover, children’s innate curiosity and their age-appropriate hand-to-mouth behaviour result in their mouthing and swallowing lead-containing or lead-coated objects, especially toys coated with the toxic substance.

Lead also causes long-term harm in adults, including increased risk of high blood pressure and kidney damage. Exposure of pregnant women to high levels of lead can cause miscarriage, stillbirth, premature birth and low birth weight, as well as deformity of infants.

Even though there is wide recognition of this problem and many countries have taken action, exposure to lead, particularly in childhood, remains of key concern to health care providers and public health officials around the world.

Paints containing high levels of lead are still widely available and used in many countries for decorative purposes, although there are good substitutes. In some countries, there is continued use of leaded gasoline and more than three quarters of global lead consumption is for the manufacture of lead-acid batteries for motor vehicles.

Lead is also used in many other products, for example pigments, solder, stained glass, crystal vessels, ceramic glazes, jewellery and in some cosmetics and traditional medicines. Drinking water delivered through lead pipes or pipes joined with lead solder may contain lead.

“I wish to remind States of their undertaking in 1919 to use substitutes and introduce strict regulation in industries where such substitutes exist and urge them to enact legislation and implement regulations necessary to protect our children from lead in paint,” the UN Special Rapporteur said, “however with only 63 ratifications by States, the critical mass required for meaningful results will be absent and I call on world leaders to ratify ILO Convention 13.”

During this week, the Global Alliance to Eliminate Lead Paint led by WHO and the United Nations Environment Programme (UNEP) aims to raise awareness about lead poisoning, highlight countries and partners’ efforts to prevent childhood lead poisoning and to urge further action to eliminate lead paint.

Marc Pallemmaerts (Belgium) was appointed Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes by the UN Human Rights Council in 2012. As Special Rapporteur, he is independent from any government or organization and serves in his individual capacity. He is Professor of European and international environmental law at the Université Libre de Bruxelles. Learn more, log on to:  
<http://www.ohchr.org/EN/Issues/Environment/ToxicWastes/Pages/SRToxicWastesIndex.aspx>

For inquiries and media requests, please contact Rebaone Ferguson (+41 22 917 9333 / [rferguson@ohchr.org](mailto:rferguson@ohchr.org)) or write [tosrtoxicwaste@ohchr.org](mailto:tosrtoxicwaste@ohchr.org)

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YouTube: <http://www.youtube.com/UNOHCHR>  
<<http://www.youtube.com/UNOHCHR>>  
Storify: <http://storify.com/UNrightswire>

Watch “20 years of human rights - the road ahead”: <http://youtu.be/yW7s-Q8S14E>

Note that the special rapporteur will also be interviewed live on the issue by World Radio Switzerland today at 1715 (Gva time)



# Innospec Nomination by The LEAD Group for Public Eye Awards 2014

- By Elizabeth O'Brien, BSc (Sydney), Graduate Diploma of Health Education

<b>Name of the nominated company</b>	Innospec Inc
<b>Short description of the company</b>	<p>a) „Crime scene“ (region, country where damage was done): <b>global 1953-2013</b></p> <p>b) Chairman of the Board: (President) Patrick Williams</p> <p>c) CEO/director: Patrick Williams</p> <p><b>d) Owner/major shareholder: Gendell, Jeffrey L (2011)</b></p> <p>e) Industry/type of business activity: <b>chemicals manufacture</b></p> <p>f) Company headquarters: Address of principal executive offices: <b>8375 South Willow Street, Littleton, Colorado, USA</b></p> <p><b>g) Net sales/net income (for the last documented year): Net sales \$776,400,000; Net income: \$68,300,000 (2012 Calendar year)</b></p> <p>h) Number of employees: <b>“Our global team of over 900 employees spans 20 countries”</b> [<a href="http://www.innospecinc.com/">http://www.innospecinc.com/</a> Accessed 31 August 2013]</p>
<b>Information relating to the conduct of the company</b>	<p>a) Human rights violations</p> <p>b) Environmental destruction</p> <p>c) Labor law violations</p> <p>d) Breaches of tax laws/corruption</p> <p>e) Other: Profits before people: contamination of the entire planet with lead via leaded gasoline, lead poisoning of billions of people – everyone alive since 1953.</p>
<b>Cause of nomination</b>	Offence committed / facts of the case in detail (max 8,000 keystrokes): Innospec Inc (and its precursors Octel Starreon, Octel and Associated Octel) has been directly responsible for the last 60

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years, for the totally preventable lead poisoning via the use of leaded gasoline, of my children, my entire family and every other organism on the planet, via manufacturing, fraudulently marketing and bribing officials in order to sell the lead additive for petrol/gasoline. The company continues to manufacture tetraethyl lead (the essential ingredient to turn unleaded petrol/gasoline into leaded gasoline/motor fuel) up to the present day, and to fraudulently market the product by not revealing:

- the hazardous nature of it or
- that it was totally replaceable with non-lead additives or
- that use of the product would stop or delay millions of car buyers from updating to a car with a catalytic converter, by which action drivers can reduce their vehicle emissions by 50 - 90% ([www.unep.org/transport/pcf/PDF/pcf\\_leadflyer.pdf](http://www.unep.org/transport/pcf/PDF/pcf_leadflyer.pdf)).



Graphic: Entry in Volcano Art Prize 2013. Artist: Zac Gethin-Damon. Title: Lead kills catalytic converters. Lead-Safety Message: Catalytic converters reduce auto-emissions by 50-90% and when leaded petrol is no longer sold in a country, catalytic converters can be made mandatory in new vehicles.

In defiance of the truth, Innospec claims: „Our fuel additives... reduce harmful emissions“ ([http://innospec.ir.edgar-online.com/EFX\\_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=n-kl6Q15KiV7fiv&ID=8422270](http://innospec.ir.edgar-online.com/EFX_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=n-kl6Q15KiV7fiv&ID=8422270) ). The lost opportunity for cars and whole countries to switch to using unleaded petrol and thus catalytic converters to reduce emissions, has not been costed.

In 1968, British CLEAR Campaign for Lead Free Air campaign leader, Des Wilson, described the UK producer of lead additives, Associated Octel [now Innospec] – at the time owned by Shell, BP, Chevron, Mobil and Texaco – as “the biggest mass child poisoners in the world today”. “Decreases in blood lead concentrations in the United States closely followed the downward trend of leaded fuel sales [once unleaded fuel (enabling use of catalytic converters) was introduced in the early 1970s]. Between 1976 and 1994, the mean blood lead concentration in children dropped by 75%, in direct

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proportion to the amount of TEL [used]. As late as 1980, Octel's company medical director, claimed at lead conferences that a causal relation between lead from car exhausts and adverse effects had not yet been proven. The facility earned UK Friends of the Earth's 1996 award as Britain's filthiest factory as it continued to produce toxic lead compounds. (Ref BOOK "Only One Chance: How Environmental Pollution Impairs Brain Development -- and How to Protect the Brains of the Next Generation" by Prof Philippe Grandjean, published by Oxford University Press 2013 - not web-published)

In April 2011, the estimated global **annual** impacts of human lead poisoning from the lead in vehicle fuels were found (by Hatfield and Tsai in a United Nations-commissioned report published in 2011) to be significant:

- Close to **1.1 million deaths**;
- A loss of **322 million** IQ points;
- Close to **60 million crime** cases;
- Economic loss of **USD 2.4 trillion** per year

([http://www.unep.org/Transport/PCFV/PDF/leadEvaluation\\_summaryreport.pdf](http://www.unep.org/Transport/PCFV/PDF/leadEvaluation_summaryreport.pdf) )

At the beginning of 2013, Kevin Drum wrote: "Gasoline lead may explain as much as 90 percent of the rise and fall of violent crime over the past half century" and the cost benefit of lead abatement? Invest US\$20bn annually in lead abatement and the return is US\$210bn annually [in the USA].

(<http://www.motherjones.com/environment/2013/01/lead-crime-link-gasoline> )

Even after every chemicals policy forum on earth has declared lead from petrol to be the greatest cause of universal lead poisoning of children and adults, Innospec continues to make (in the United Kingdom) and fraudulently market (via its website) tetraethyl lead (TEL) for motor gasoline (MOGAS). For example, the OECD wrote in 1990:

*OECD's work on lead began shortly after Member governments [including UK and USA] approved a Decision-Recommendation on the Co-operative Investigation and Risk Reduction of Existing Chemicals in 1990... From the beginning, the work on lead has focused on priority products/uses of concern (e.g., lead in gasoline,...) .... Member countries, industry and NGOs were active partners in every step in the process* (<http://www.oecd.org/env/ehs/risk-management/1944727.pdf> )

1998 – The World Bank reports: "the exposure of adults to atmospheric lead has been connected to elevated blood pressure causing hypertension, heart attacks and premature death. *No lower threshold of exposure exists under which the adverse effects of lead on children and adults cannot be detected*"... "the magnitude of benefits estimated in the United States suggests that phasing out lead from gasoline is likely to produce substantial benefits in all countries." (<http://www->

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[wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1998/01/01/000009265\\_3980312111309/Rendered/PDF/multi\\_page.pdf](http://wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1998/01/01/000009265_3980312111309/Rendered/PDF/multi_page.pdf) )

2000 - European Union bans leaded gasoline at the pump (<http://www.thenation.com/article/timeline> ) yet Innospec continues to export TEL for MOGAS from UK.

2002 – World Summit on Sustainable Development (WSSD) results in the United Nations Environment Programme (UNEP) setting up the Partnership for Clean Fuels and Vehicles (PCFV) with the primary goal of global elimination of leaded petrol. Canada also produced TEL for MOGAS up until 2002, but Innospec went on producing it after the UNEP PCFV resolved to eliminate leaded petrol globally by 2008. Today, Innospec still claims to be the world’s only manufacturer of TEL. ([http://www.lead.org.au/Chronology-Making\\_Leaded\\_Petrol\\_History.pdf](http://www.lead.org.au/Chronology-Making_Leaded_Petrol_History.pdf) )

In 2010, Innospec was found guilty but only fined \$40.2 million, for bribing Indonesian and Iraqi officials to purchase TEL for MOGAS, despite the bribery netting Innospec \$60 million – thus proving that even after being caught bribing, they can turn a profit from TEL for MOGAS. Innospec is an inspiration to its own staff and other corporations, to bribe foreign officials to buy their toxic products, no matter what the public health and crime increase consequences.

According to the US Securities and Exchange Commission (March 18, 2010):

“From 2000 to 2007, Innospec routinely paid bribes to sell Tetra Ethyl Lead (“TEL”), a fuel additive that boosts the octane value of gasoline, to state owned refineries and oil companies in Iraq and Indonesia. TEL was a significant source of revenue for Innospec; however, TEL sales were declining due to the passage of clean air legislation in the U.S. and abroad. Innospec also paid kickbacks to Iraq to obtain contracts under the United Nations Oil for Food Program (the “Program”). Innospec’s former management did nothing to stop the bribery, and in fact authorized and encouraged it. In addition, Innospec’s internal controls failed to detect the illicit conduct, which continued for nearly a decade. In all, Innospec made illicit payments of approximately \$6,347,588 and promised an additional \$2,870,377 in illicit payments to Iraqi ministries, Iraqi government officials, and Indonesian government officials in exchange for contracts worth approximately \$176,717,341 in revenues and profits of \$60,071,613.” (<http://www.sec.gov/litigation/litreleases/2010/lr21454.htm> )

In Innospec’s *Sustainable Development Report 2011* – (their most recent and only online Sustainability report as at 23 September 2013), “Sustainable Development” apparently means only Innospec’s financial sustainable development:

“Octane Additive sales in 2011

**Increased 5 percent to \$76m**

With our extensive market knowledge, built up over many years, we

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are in a great position to help developing countries make the transition to unleaded fuel smoothly. We ensure the continuity of tetra ethyl lead (TEL) supply during their phase-out period and provide comprehensive advice and guidance on how best to manage the changeover.”

([http://www.innospecinc.com/pdfs/sustainable\\_development\\_report.pdf](http://www.innospecinc.com/pdfs/sustainable_development_report.pdf) )

Their profit motive is clear – it’s in the heading – and they are very careful to state they are in a “position to help developing countries make the transition to unleaded fuel” without providing any evidence that they actually **are** helping developing countries make the transition to unleaded fuel, eg by telling their purchasers that other companies make non-lead octane additives which could, within a matter of weeks, enable the phase-out of leaded fuel in their country, thus enabling the introduction of regulations requiring all new cars to be fitted with catalytic converters, to further reduce auto emissions.

While Innospec’s website makes claims that they are assisting countries with their plans to switch to unleaded petrol, the focus of their annual and quarterly reports is always on postponing that switch, in order to maximise Innospec’s profits, by continuing to supply as much TEL as possible, for as long as possible.

Innospec's record of putting profits before people and proudly claiming to be the world’s only manufacturer of TEL, shows flagrant disregard for the UNEP Partnership for Clean Fuels and Vehicles (PCFV) to achieve the UNEP Partnership’s major goal of global elimination of leaded gasoline, which the PCFV had planned to achieve in 2008!

(<http://www.unep.org/transport/pcfV/PDF/LeadReport-Brochure.pdf> )

2008 Feb 25 – Innospec state in their annual report for 2007: “We intend to manage the decrease in the sales of TEL for use in automotive gasoline to maximize the cash flow through the decline” and “The Company expects that it will cease all sales of TEL for use in automotive gasoline at some time in the next several years.”

([http://innospec.ir.edgar-online.com/EFX\\_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=-O626VVTD\\_UVHhS&ID=5753365](http://innospec.ir.edgar-online.com/EFX_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=-O626VVTD_UVHhS&ID=5753365) )

2009 Feb 20 – Innospec reports on Market Watch Website: “We expect that we will cease all sales of TEL for use in automotive gasoline in 2012.” (10-K: INNOSPEC INC. - Management's Discussion and Analysis of Financial Condition and Results of Operations: "legal expenses incurred relating to Oil for Food Program" - previously at

[http://www.marketwatch.com:80/news/story/10-k-innospecinc/story.aspx?guid=%7B8AD18556-0246-4C00-B42A-2ACD1C2947B0%7D&dist=msr\\_1](http://www.marketwatch.com:80/news/story/10-k-innospecinc/story.aspx?guid=%7B8AD18556-0246-4C00-B42A-2ACD1C2947B0%7D&dist=msr_1) )

Innospec Inc. stated in its 2009 "FORM 10-K ANNUAL REPORT" -

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"We intend to manage the decrease in the sales of TEL for use in automotive gasoline to maximize the cash flow through the decline." ([http://innospec.ir.edgar-online.com/EFX\\_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=5zIP6dZ2NimQqqS&ID=7066578](http://innospec.ir.edgar-online.com/EFX_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=5zIP6dZ2NimQqqS&ID=7066578) )

Innospec Inc. stated in its 2010 "FORM 10-K ANNUAL REPORT" - "The Company expects that it will cease all sales of TEL for use in automotive gasoline in 2012." ([http://innospec.ir.edgar-online.com/EFX\\_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=5zIP6dZ2NimQqqS&ID=7738609](http://innospec.ir.edgar-online.com/EFX_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=5zIP6dZ2NimQqqS&ID=7738609) )

Innospec Inc. stated in its 2011 "FORM 10-K ANNUAL REPORT" - "The Company expects that it will cease all sales of TEL for use in automotive gasoline in 2013." ([http://innospec.ir.edgar-online.com/EFX\\_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=n-kl6Q15KiV7f1v&ID=8422270](http://innospec.ir.edgar-online.com/EFX_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=n-kl6Q15KiV7f1v&ID=8422270) )

Further back-peddling is evident in the 2012 "FORM 10-K ANNUAL REPORT" - "We expect to cease sales of TEL for use in automotive gasoline in **2013**, however this is dependent upon the phase out plans of the remaining countries as they transition to unleaded gasoline."

„...Sales of TEL for use in automotive gasoline are made principally to state-owned refineries located in the Middle East and Northern Africa.“

„We believe our Octane Additives segment is the world’s only producer of TEL and accordingly is the only supplier of TEL for use in automotive gasoline.“

„We are continuing to responsibly manage the decrease in the sales of TEL for use in automotive gasoline in line with the remaining countries’ transition plans to unleaded gasoline“

([http://innospec.ir.edgar-online.com/EFX\\_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=n-kl6Q15KiV7f1v&ID=8422270](http://innospec.ir.edgar-online.com/EFX_dll/EDGARpro.dll?FetchFilingCONVPDF1?SessionID=n-kl6Q15KiV7f1v&ID=8422270) )

On 14 January 2013, after Friends of the Earth and Greenpeace called on the UK Government to ban Innospec Ltd, from further exports of TEL; Innospec told *The Independent*: "We have no comment to make [on UNEP’s findings of TEL linked to death and crime]" and confirmed that it continues to provide the TEL used in motor fuel in Yemen, Algeria and Iraq.

(<http://www.independent.co.uk/news/uk/home-news/made-in-britain-the-toxic-tetraethyl-lead-used-in-fuel-sold-to-worlds-poorest-8449967.html> )

Unabated, Innospec’s most recent web-published report to investors states:

“Innospec – Summary of 2nd Quarter Performance...  
- **Octane Additives gross margin improves to 53.1%**”  
(<http://www.innospecinc.com/investor-relations/press-releases/2013/q2-2013-conf-call-presentation.pdf> )

By 2014, six years will have passed since the UN target for the global

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elimination of leaded petrol. In the three countries Innospec admits to still supplying TEL for MOGAS, 88 million people continue to be totally unnecessarily exposed to lead from petrol every day.  
([http://www.lead.org.au/fs/Leaded Petrol Possibly Still Sold for Road Use 20110617.pdf](http://www.lead.org.au/fs/Leaded_Petrol_Possibly_Still_Sold_for_Road_Use_20110617.pdf))

How many more millions have to die so that Innospec can keep raking in the profits?

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**Soft-law-  
commitments**

Is the company a member of

- Global Compact (check: [www.unglobalcompact.org/participants/search](http://www.unglobalcompact.org/participants/search)): No
- Fair Labour Association (check: [www.fairlabor.org/affiliates/participating-companies](http://www.fairlabor.org/affiliates/participating-companies)): No
- Has the company promised to abide by other agreements, conventions, or guidelines? If yes, what are they? Answer: No. Innospec Inc's Code of Ethics (August 2009) at <http://www.innospecinc.com/corporate-governance/code-of-ethics---english.pdf> only requires Innospec operatives to comply with the letter and spirit of the law, and confidentiality and other agreements they sign with the company.

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**Concerning the  
nomination**

- Why nominate (your own motivation)? What do you hope to achieve with a nomination? Answer: if Innospec is correct in its claim that it is the only manufacturer of TEL in the world, then by focusing attention on Innospec, they may actually stop manufacturing TEL for MOGAS, which would inexorably lead to the end of leaded petrol, thus bringing about the world's first global elimination of a toxic chemical.
- Has the company been confronted with the accusations raised against it? If so, what was the result? If not, why not? Answer: Yes The LEAD Group contacted them directly via dozens of emails and an online Petition. Innospec did not reply or take any action in response.
- What steps were taken to stop the accused company's actions (state of your own campaign)? Answer: [The following is supplied in confidence – apparently the UK Serious Fraud Office does not tell companies WHO has alleged fraud by the company – please do not web-publish the remainder of this answer.] After they were reported to the UK Serious Fraud Office, some of Innospec's fraudulent online statements were removed from the web, but only to be replaced by other fraudulent claims.
- What further steps are planned? Answer: request to the European Chemicals Agency to speed up a complete restriction on manufacturing TEL for MOGAS in Europe.
- Are other organizations working on the same case or watching this company? Were they invited to support the nomination? List organizations that do support the nomination. [This nomination would very likely be supported by Toxics Link, India, the National Toxics Network, Australia, the Lead Safe America Foundation and the Trust for Lead Poisoning Prevention, USA, and possibly OK International and IPEN.]
- What steps are you planning to implement in order to generate a maximum number of votes (mobilization) if your nominee were to be shortlisted for the people's award? I belong to some 14

	egroups with an interest in lead poisoning prevention and/or international chemicals phase-outs, so would generate votes through my network.
<b>Nominating Organization</b>	<p>a) Contact person and his/her coordinates: Elizabeth O'Brien, Sydney, Australia</p> <p>b) Name and headquarters of the organization: The Lead Education and Abatement Design (LEAD) Group Incorporated (environment organization and health promotion charity), PO Box 161 Summer Hill NSW 2130 Australia</p> <p>c) Year of founding: 1990 Website: <a href="http://www.lead.org.au">www.lead.org.au</a></p>
<b>Supporting documents/evidence/references</b>	Folder containing pieces of (hard) evidence, research findings, proposals for improvement, sources, links, etc. Folder name: Innospec PEA

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# Letters of Support for the Nomination of Innospec for Public Eye Awards

## Letter of Support from IPEN



Public Eye Awards  
c/o Greenpeace  
Postfach  
CH-8031 Zürich  
Schweiz

*September 27, 2013*

### **Letter of support for the nomination of Innospec as the Most Despicable Corporation of the Year for 2014**

The toxic properties of lead have been known to man for centuries. It is known to cause damage to virtually all systems in the human body, irrespective of lead is ingested, inhaled or transferred from mother to child through the placenta. Children are especially sensitive to lead exposure, and while lead exposure is also harmful to adults, lead exposure harms children at much lower doses. The health effects are generally irreversible and can have a lifelong impact.

Exposure to low levels of lead during early years is known to cause numerous detrimental effects such as loss of cognition, shortening of attention span, alteration of behavior, dyslexia, attention deficit disorder, hypertension, renal impairment, immunotoxicity and toxicity to the reproductive organs. Evidence of reduced intelligence caused by childhood exposure to lead has led the World Health Organization (WHO) to list "lead caused mental

retardation” as a recognized disease. WHO also lists it as one of the top ten diseases whose health burden among children is due to modifiable environmental factors.

The phase-out and ban of leaded gasoline in most countries of the world reduced lead childhood poisoning, and improved billions of lives.

To continue to produce, market and sell Tetraethyl lead despite knowing the harmful effects shows not only an incredible callousness and heartlessness, but is completely intolerable and must stop. IPEN therefore wholeheartedly supports the nomination of Innospec as the most Despicable Corporation of the Year.

On behalf of IPEN,  
Sara Brosché, PhD  
Project Manager,  
IPEN’s Global Lead Paint Elimination Campaign

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## Letter of Support from Philippe Grandjean, Harvard

Public Eye Awards  
c/o Greenpeace  
Postfach  
CH-8031 Zürich  
Schweiz



Institute of Public Health  
Department of Environmental Medicine  
J.B. Winsloews Vej 17A, 2. floor  
DK-5000 Odense C  
Tel. +45 6550 3768  
Fax +45 6591 1458 (institute fax)  
<http://www.sdu.dk/ist/environ>

September 24, 2013  
PG/kce

### **Nomination of Innospec for Public Eye Award 2014**

The poison that has undoubtedly ruined the largest number of lives – by causing chemical brain drain – is lead. In the form of tetraalkyllead compounds for octane-boosting of petrol, it has been successfully marketed for 60 years by a UK company, in most recent decades despite its being banned in most countries. When completing my book on “Only one chance” (Oxford University Press, 2013), I came across shocking evidence of the company’s merciless and callous performance.

I therefore find the nomination from the LEAD Group compelling. The fact that Innospec continued marketing their poisonous product long after its use was uniformly considered a public health hazard is astonishing and deplorable. At the company web site, the following statement was provided: “Tetraethyl lead waste leaves the exhaust system as tetraethyl lead salts which dissolve harmlessly in the rain.”

Adverse effects caused by lead on brain development are not at all harmless, although the mostly become apparent only in the long term. Thus, tracing neurological deficits and behavioural abnormalities back to a specific product may be difficult. However, decades of research has documented that lead is the primary chemical brain drainer, and petrol additives have constituted a major, if not the most important, source of lead exposure in most parts of the world. Worldwide loss in lifetime income due to lead toxicity to brain development has been calculated at hundreds of billions of dollars per year. Thus, as The Guardian wrote in 2010 when the company was fined a small amount for bribing officials to allow continued use of their toxic product, “the only individuals to have suffered penalties have been the nameless children who... may have inhaled lead dust.”

I consider Innospec a worthy recipient of the Public Eye award. In fact I cannot imagine a better candidate.

Philippe Grandjean, MD, DMSc  
Professor of Environmental Medicine  
Adjunct Professor, Harvard School of Public Health

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# Letter of Support from Occupational Knowledge International



**OCCUPATIONAL KNOWLEDGE INTERNATIONAL**

4444 Geary Boulevard, Suite 300 • San Francisco, CA 94118 • tel 415-221-8900 • fax 415-221-8903

September 26, 2013

Public Eye Awards  
c/o Greenpeace  
Postfach  
CH-8031 Zürich  
Schweiz

## **Re: Nomination of Innospec for Public Eye Award 2014**

Countries around the globe are still suffering from the aftermath of the use of a lead compound as a gasoline additive. Despite this legacy, the market for this product is still dominated by Innospec, the manufacture of tetraethyl lead.

I consider Innospec a worthy recipient of the Public Eye award and support the nomination from the LEAD Group.

Sincerely,  
Perry Gottesfeld  
Executive Director

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# Letter of Support from Dr Howard Mielke, Tulane



September 26, 2013

Department of Pharmacology  
1430 Tulane Avenue SL-83  
New Orleans, Louisiana 70112

## **Re: Innospec Nomination by The LEAD Group for the Public Eye Awards 2014**

I am writing this letter in support of The Lead Group nomination for the Innospec Public Eye Awards 2014 Nomination.

As a researcher, I began study of soil lead in the mid 1970's, when I noticed a curious anomaly in the chemistry of urban vegetable garden soils of Baltimore, MD. I observed that the concentration of soil lead was highest toward the inner city of Baltimore, where brick, unpainted buildings existed and the lowest in gardens located in outlying areas of the city where painted houses were common. The dogma at the time was that paint was the major source of soil lead contamination. Surely there was lead in paint but to explain the anomaly there had to be another source of massive source of lead contaminating the inner city of Baltimore.

Lead additives in automotive fuels turned out to be the lead source that best explained the high concentration of lead in areas of the city with the largest traffic congestion. We now know that the lead burden of the population was from the invisible lead particles that were exhausted as aerosols from vehicles using fuel with lead additives. The amounts of lead in fuel are difficult to comprehend. It requires thinking about the meaning of a gram of lead and how many children can be exposed by each gram. Then it requires one to understand how much fuel is being consumed by each driver and the collective actions of all drivers.

In the 1960's and early 1970's virtually all vehicle fuel contained lead. In the U.S. there were 2 g of lead per U.S. gallon of fuel. Each vehicle carried at least 20 gallons of fuel which held 40 grams of lead. A gram of lead is equivalent to 1,000,000 micrograms; thus each car carried at least 40,000,000 micrograms of lead. The traffic congestion was very severe on roads feeding into the inner city and thousands of cars were driven into and out of the city each day.

Integrating these facts with the medical understanding based on excretion rates, that the total daily tolerable intake of lead for a child under 6 years old is 6 micrograms per day. That means that just one vehicle with a full tank of fuel could potentially reach the total tolerable intake for over 6 million children. At the time the blood lead of the average U.S. child exceeded 15 micrograms per deciliter. If the intake of lead is more the 6 micrograms

from all lead sources, then the body burden increases. We now know the cascade of medical consequences related to childhood exposure to lead includes some of the most costly health issues of society include, behavior and learning issues, violence, kidney disease, high blood pressure, heart disease, etc.—the list is long. Millions of citizens suffer from the consequences of the use of lead additives in vehicle fuels, and the symptoms are extremely subtle in childhood but become pernicious throughout life. The idea that Innospec sells a product that causes lifelong health and societal harm makes the company an excellent candidate for the Public Eye 2014 Award.

Sincerely,  
Howard W. Mielke, Ph.D.

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## Letter of Support from the National Toxics Network (NTN)



PO Box 173 Bangalow  
NSW 2479 Australia  
info@ntn.org.au

[www.ntn.org.au](http://www.ntn.org.au)

*Working globally for a toxic free future*

28 September 2013

To: Public Eye Awards  
c/o Greenpeace, and The Berne Declaration, Switzerland

The National Toxics Network (NTN) is extremely concerned about people's ongoing exposure to lead. Lead exposure reduces IQs in children, increases crime rates and causes the premature death of millions of adults worldwide.

We fully support The LEAD Group's nomination of Innospec Inc – maker of tetraethyl lead (TEL) for motor fuel - as the Most Despicable Corporation in the World, in the Public Eye Awards 2014.

It is more than enough that Innospec has contributed to mass lead poisoning of every species on earth for 60 years. Together we can make them stop, so that the world has a chance of achieving the first complete global elimination of a toxic chemical.

Yours sincerely

**JOANNA IMMIG**  
NTN Coordinator

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# Letter of Support from UNETMAC, Uganda

## Uganda Network on Toxic Free Malaria Control (UNETMAC)

Plot 398 Kalerwe- Gayaza Road, Ark Building,  
Block 5 (Next to Total Fuel Station),  
P.O Box 34407 Kampala, Uganda

Tel: +256 414 599 860, Mob: +256 712 213 888, Fax: +256 414 343 848  
Email: info@unetmac.org, [elladmuyambi@yahoo.com](mailto:elladmuyambi@yahoo.com),  
unetmac@yahoo.com  
Website: [www.unetmac.org](http://www.unetmac.org)



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Our Ref: 01/UNETMAC-LEAD GRP/9/13

Date: 27<sup>th</sup> September, 2013

The Officer in Charge, Public Eye Awards,  
C/O Green Peace, Postfach,  
CH 8031 Zurich, Schweiz.

Dear Sir/Madam;

**Re: Letter of Support for the Nomination of Innospec by the LEAD Group**

Hope this note finds you well. I am named Ellady Muyambi, the Secretary General for Uganda Network on Toxic Free Malaria Control (UNETMAC), a non- for profit, non-governmental organization fully registered with the Government of Uganda in 2008. UNETMAC is an umbrella organization which, coordinates, supports and builds capacity for its partner organizations/members to engage in sustainable malaria control initiatives, sound chemicals management approaches as well as sustainable community development interventions. Generally, UNETMAC strives to achieve a malaria free world as well as a toxic free future.

As part of its effort to compliment other partners in the promotion of sound management of chemicals (SMC) globally and realizing the benefits that can be realized from the global elimination of lead petrol and putting into consideration the fact that Innospec Inc (and its precursors Octel Starreon, Octel and Associated Octel) has been manufacturing, fraudulently marketing and bribing officials in order to sell the lead additive for petrol/gasoline which has negatively affected the human health and environment the world over, I do hereby support the nomination of “**Innospec**” by the LEAD Group for the Public Eye Awards, 2014.

The Lead Education and Abatement Design (LEAD) Group has been doing a wonderful job in raising public awareness about the dangers posed by lead poisoning and we in the developing world has benefited from their knowledge. I therefore have no doubt in commending Elizabeth O'Brien of The LEAD Group for her Public Eye Awards nomination, 2014.

Best regards  
**ELLADY MUYAMBI**

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# Letter of Support from the Trust for Lead Poisoning Prevention

Tlpp

October 4, 2013

Public Eye Awards  
c/o Greenpeace  
Postfach  
CH-8031 Zurich  
Switzerland

## **IN RE: Nomination of Innospec for the Public Eye Award 2014**

Dear Public Eye Awards:

I am writing on behalf of the TLPP (Trust for Lead Poisoning Prevention) to support the nomination of Innospec for the 2014 Public Eye Award.

Leaded gasoline is among the most destructive and inutile of human inventions, To start with, because of its chemical formulation, its use in vehicles results in the environmental dispersion of methyl bromide (the second most common greenhouse gas). Despite persisting myths to the contrary, leaded gasoline is actually harmful to, not protective of, vehicular performance: it damages engines and interferes with on-board pollution control (e. g., catalytic converters) and computer-based diagnostic systems (see TLPP, *Myths and Realities of Phasing Out Leaded Gasoline*, <http://globalleadnet.com/51>),

But the most destructive effects of leaded gasoline are related to its essential and characteristic additive, tetraethyl lead (TEL). Fundamentally, vehicular use and emissions of leaded gasoline is the most efficient delivery system for dispersing lead into the environment. Consequently leaded gasoline has been the main contributor to lead poisoning worldwide. The devastating individual and societal effects of lead poisoning and pollution – especially its adverse impacts on children’s development – have been documented for decades. Even when leaded gasoline is at long last eliminated globally, it will leave a legacy of environmental lead deposition that will have to be addressed for generations to come. (For a definitive history of leaded gasoline, see Jamie Lincoln Kitman, *The Secret History of Lead*, [www.thenation.com/article/secret-history-lead](http://www.thenation.com/article/secret-history-lead)).

There is no excuse for the continued use and production of this toxic product. Alternative technologies and substitute products are readily available and both developed and developing countries have demonstrated their feasibility and cost-effectiveness. International support for eliminating leaded gasoline and expediting the necessitous transition to cleaner fuels, yet Innospec continues to produce TEL and opportunistically promote leaded gasoline use.

Innospec and its previous incarnations – most notoriously, Octel – belong to a dark chapter in the history of public health. Innospec now functions as a “pusher” of a toxic

product, dedicated to squeezing out the last ounce of profit from its sale before international opprobrium leads to its

complete elimination. For this, Innospec richly deserves a Public Eye Award.

TLPP: The Trust for Lead Poisoning Prevention promotes environmental health in the developing world through integrated approaches to prevention that highlight lead poisoning and toxics pollution as key case studies. The Trust's overarching goal is to help catalyze and replicate internationalized solutions to sustainable development: solutions that engage all elements of the international system in reinforcing action – from the community to the international.

Very truly yours,

K. W. James Rochow  
President  
Trust for Lead Poisoning Prevention  
33 Alexandria Drive  
Oxon Hill, MD 20745, U.S.A  
Tel: +1-301-567-4700  
Fax: +1-301-567-7885  
E-mail: [jrochow@globalleadnet.org](mailto:jrochow@globalleadnet.org)

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## Review of Public Eye Award Nomination: Innospec

*[Editor-in-Chief's note: the following excellent appraisal overlooked one of the references supplied with The LEAD Group's nomination. If it had been noticed, they would have been able to write something like: "According to the nomination the company in question has been fined by the US Securities and Exchange Commission (SEC), for bribing officials in Indonesia and Iraq to purchase their product" instead of saying "The nomination does not reveal the authority responsible..."]*

Institute for Business Ethics



University of St.Gallen

*By The Institute for Business Ethics (IWE), University of St Gallen, Switzerland*



*Disclaimer:* The Institute for Business Ethics (IWE) is mandated by the organizers of the Public Eye Awards to provide an independent assessment of the nominations for the Public Eye Awards from the perspective of business ethics and corporate responsibility, taking in account international treaties and different industry bound soft law agreements. The subsequent report is based exclusively on the nomination documents provided by the organizers of the Public Eye Awards – no additional information regarding the described incident(s) or the nominated

company has been included by the IWE. The report has been written on an anonymous basis, information revealing the identity of the nominee has been generally eliminated from the respective documents. The report presumes the validity of the information contained in the nomination documents. IWE does neither shortlist potential candidates nor participate in selecting the winner of the awards.

## Context

Leaded gasoline has long been recognized as very harmful to people and the environment and as a consequence it has been phased out in the US in 1995 and banned in the EU since the year 2000. Among others, lead is connected to ailments such as hypertension, heart attacks and premature death. It is even claimed that the damaging effect of leaded gasoline on human brains is responsible for as many as 60 million crime cases per year.

(<http://www.forbes.com/sites/alexknapp/2013/01/03/how-lead-caused-americas-violent-crime-epidemic/> )

As a consequence, in 2010, the TIME magazine has named leaded gasoline one of the 50 worst inventions of all time.

([http://content.time.com/time/specials/packages/article/0,28804,1991915\\_1991909\\_1991817,00.html](http://content.time.com/time/specials/packages/article/0,28804,1991915_1991909_1991817,00.html) )

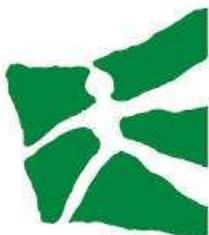
Yet, there is apparently still one active manufacturer of so-called tetraethyl lead (TEL) which is used for turning unleaded gasoline into leaded gasoline. This manufacturer is accused of contributing to environmental destruction by producing and selling TEL without being transparent about its damaging effects on people and on the environment. The nomination states that despite its ban in many countries leaded gasoline still accounts for close to 1.1 million deaths per year. Beyond the moral problems directly associated with their product, the nominated company has also been found guilty of bribery.

## Relevant Agreements, Conventions, and Treaties

Manufacturing a product that severely damages human health violates the right to an adequate standard of living and to the enjoyment of the highest attainable standard of physical and mental health stipulated in Art. 25 of the *Universal Declaration of Human Rights* and Art.12 of the *International Covenant on Economic, Social and Cultural Rights*, respectively. Additionally, the right to health is recognized also in the *International Convention on the Elimination of All Forms of Racial Discrimination*, in the *Convention on the Elimination of All Forms of Discrimination against Women* and in the *Convention on the Rights of the Child*.

The engagement in such hazardous practices also violates Art. 11 and 13 of the *UN Guiding Principles on Business and Human Rights*.

According to the *OECD Guidelines for Multinational Enterprises* companies are required to prevent or minimize damage to the environment in a manner that is consistent with the scientific and technical understanding of the respective risks (Chapter VI, Art. 4). By insisting on producing such a harmful product the nominee fails to contribute to economic, environmental and social progress with a view to achieving sustainable development as required in Chapter II, Art. 1 of the Guidelines.



On another note, the company in question is claimed to have engaged in fraudulent marketing by misinforming authorities and the public about the evidence-based hazards related to its product. This can be seen as a violation of the provisions on disclosure as contained in Chapter III of the *OECD Guidelines for Multinational Enterprises*. According to

Commentary 33 on this Chapter, the Guidelines explicitly encourage disclosure on environmental risks and on product emissions.

In any case its behaviour violates the provisions of Chapter VII of the *OECD Guidelines for Multinational Enterprises* which relate to combating bribery, bribe solicitation and extortion. For example, Art. 1 of this chapter states that enterprises should “(n)ot offer, promise or give undue pecuniary or other advantage to public officials or the employees of business partners”. The nominated company’s involvement in acts of bribing weighs heavy particularly in light of the fact that competitors such as Shell and Rio Tinto are active members of The Business Principles for Countering Bribery which offer a good practice model in the fight against bribery. Yet, it must be noted that the nominee has already been sentenced for such violation and there is no evidence for renewed incidences in this context.

Finally, participating in the violation of human rights, be it in a direct or indirect manner, is also prohibited by Art. 11 and 13 of the *UN Guiding Principles on Business and Human Rights*. While the *UN Guiding Principles* are not binding for companies, they are not voluntary either; they are considered relevant for all companies irrespective of whether or not they pledge to uphold them. The nominee also seems to fail in conducting due diligence in order to “identify, prevent, mitigate and account for how they address their impacts on human rights” (Art.15). Due diligence is moreover also part of the OECD Guidelines (Chapter II, para A.10).

The alleged violation of labor laws is not substantiated in the nomination through factual evidence and can therefore not be assessed here.

## **Voluntary Standards and Commitments**

According to the nominating documents, the nominee has not signed any relevant voluntary standards or commitments.

## **Overall Ethical Assessment: Compounding and Mitigating Factors**

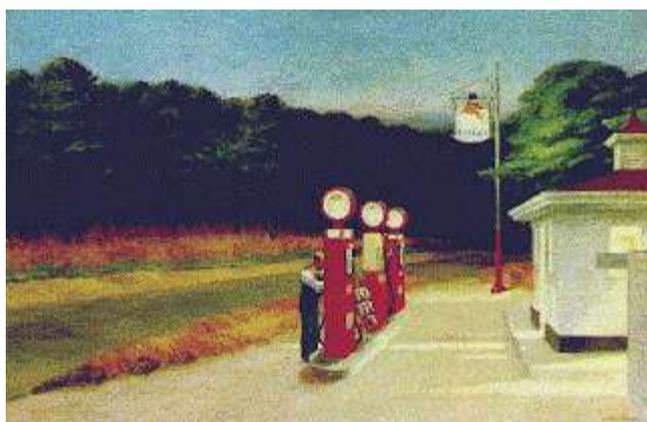
It is beyond doubt that leaded gasoline is very harmful both for the people and the environment and that it should be banned on a global scale. The nominated company as a manufacturer of a product that allows turning unleaded gasoline into leaded gasoline is responsible for upholding a market for leaded gasoline and as a supplier of a product containing lead it bears responsibility for the damages caused by TEL. The fact that according to the nomination the company is the world’s only manufacturer of TEL can be seen as an aggravating factor because this means that there is no competitive pressure or no ‘common practice’, which might be cited as a mitigating factor under different circumstances. Instead the company in question bears the sole responsibility for the damages caused by its products. Insisting on producing a product whose ingredients have been declared as harmful by the scientific community, national authorities and international organizations alike, and holding back information on the hazards of its product, conveys the impression of a very single-minded actor whose decisions lack any concern for the people and the environment. The fact that the company has not signed any soft law agreements and that it does not react to petitions and e-mails further supports this impression. Finally, even though there is no evidence for a continuation of any kind of involvement in corrupt practices, the fact that the nominee has been fined for bribery in different countries in recent years adds to the picture of an actor with a lack of respect for the law and a very limited sense of responsibility in general.

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# Lead in Literature: *The Great Gatsby*

- Quote from *The Great Gatsby* by F Scott Fitzgerald (1925)

*Already it was deep summer on roadhouse roofs and in front of wayside garages, where new red gas-pumps sat out in pools of light, and when I reached my estate at West Egg I ran the car under its shed and sat for a while on an abandoned grass roller in the yard.*



<http://bridgetdrones.blogspot.com.au/2010/12/where-new-red-gas-pumps-sat-out-in.html>



This 76 cm high gas petrol pump cabinet is made from wood and available to purchase from <http://www.popartdecoration.com/store/themes-motifs/vehicles-formula-1/gas-pump-cabinet-red-2281/>

Ethyl is the original manufacturer of Tetraethyl Lead (TEL) – the lead additive in petrol.

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## *The Immortal Life of Henrietta Lacks*

*By Rebecca Skloot, Published by Picador, 1st published 2010 by Crown Publishers, US.  
Extracts about lead chosen by Elizabeth O'Brien, and typed by Gordon Lai, Volunteers at  
The LEAD Group Inc*

The word *HeLa*, used to refer to the cells grown from Henrietta Lack's cervix, occurs throughout the book. It is pronounced *hee-lah*.

### **Back Cover Blurb:**

Her name was Henrietta Lacks, but scientists knew her as HeLa. She was a poor Southern tobacco farmer whose cancer cells – taken without her knowledge – became one of the most important tools in medicine. The first ‘immortal’ human tissue grown in culture, HeLa cells were vital for developing the polio vaccine; uncovered secrets of cancer, viruses, and the effects of the atom bomb; helped lead to important advances like *in vitro* fertilization, cloning and gene mapping; and have been bought and sold by the billions.

Yet Henrietta Lacks herself remains virtually unknown, buried in an unmarked grave.

### **Page 46, 47 and 48 PART ONE: LIFE; Chapter 5: “Blackness be Spreadin all Inside”**

The tumor had completely vanished from the radium treatments. The radiation treatments were just to make sure there were no cancer cells left anywhere inside her... each morning at Hopkins for her radiation treatments. She'd change into a surgical gown, lie on an exam table with an enormous machine mounted on the wall above her, and a doctor would put strips of lead inside her vagina to protect her colon and lower spine from the radiation. On the first day he tattooed two black dots with temporary ink on either side of her abdomen, just over her uterus. They were targets, so he could aim the radiation into the same area each day, but rotate between spots to avoid burning her skin too much in one place... Toward the end of her treatments, Henrietta asked her doctor when she'd be better so she could have another child. Until that moment, Henrietta didn't know that the treatment had left her infertile.

In Henrietta's medical record one of her doctors wrote, “Told she could not have any more children. Says if she had been told so before, she would not have gone through with treatment.” But by the time she found out, it was too late.

### **Page 127 PART TWO: DEATH; Chapter 17: Illegal, Immoral, and Deplorable**

As HeLa grew like crabgrass in laboratories around the world, a virologist named Chester Southam had a frightening thought. What if Henrietta's cancer cells could infect the scientists working on them?

...Researchers were breathing in the air around HeLa cells, touching them and transferring them from vial to vial, even eating lunch at lab tables beside them. One had used them to grow a vaccine for a common-cold-like virus, which he'd injected – along with bits of HeLa – into more than four hundred people. [Southam went on to experiment with injecting HeLa cells into cancer patients, prisoner volunteers and gynecologic surgery patients to see whether the cells were as malignant in other people as they were in Henrietta. Southam “didn't tell patients the cells were cancerous because he didn't want to cause any unnecessary fear.”]

### **Page 167 and 168 PART TWO: DEATH; Chapter 21: Night Doctors**

...But the history of Hopkins Hospital certainly isn't pristine when it comes to black patients. In 1969, a Hopkins researcher used blood samples from more than 7,000 neighborhood children most of them from poor black families – to look for a genetic predisposition to criminal behavior. The researcher didn't get consent. The American Civil

Liberties Union filed suit claiming the study violated the boys' civil rights and breached confidentiality of doctor-patient relationships by releasing results to state and juvenile courts. The study was halted, then resumed a few months later using consent forms.

And in the late nineties, two women sued Hopkins claiming that its researchers had knowingly exposed their children to lead, and hadn't promptly informed them when blood tests revealed that their children had elevated lead levels – even when one developed lead poisoning. The research was part of a study examining lead abatement methods, and all families involved were black. The researchers had treated several homes to varying degrees, then encouraged landlords to rent those homes to families with children so they could then monitor the children's lead levels. Initially, the case was dismissed. On appeal, one judge compared the study to Southam's HeLa injections, the Tuskegee [syphilis] study, and Nazi research, and the case eventually settled out of court. The Department of Health and Human Services launched an investigation and concluded that the study's consent forms "failed to provide an adequate description" of the different levels of lead abatement in the homes. But today when people talk about the history of Hopkins's relationship with the black community, the story many of them hold up as the worst offense is that of Henrietta Lacks – a black woman whose body, they say, was exploited by white scientists.

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## Lead Research/News

# Media coverage so far, of the WHO Inaugural International Lead Poisoning Prevention Week of Action, 20-26th October 2013

The following list of media coverage for the World Health Organization's Lead Week of Action was collated on Thursday 24th October 2013.

*Collated by Valerie Denney, Valerie Denney Communications, 5 E. 14th Place, Suite 1408, Chicago, IL 60605, USA. <http://valeriedenney.com/> – Valerie provides a comprehensive range of communications services to non-profit organizations, government agencies, philanthropic institutions and businesses that seek to shape policy, promote social consciousness and enrich the culture.*

### **Africa**

AllAfrica

Children and Pregnant Mothers Face Widespread  
Exposure to Toxic Lead

<http://m.allafrica.com/stories/201310220729.html/>

### **Bangladesh**

News Today

Children demand lead free paint



[http://www.newstoday.com.bd/index.php?option=details&news\\_id=2359763&date=2013-10-24](http://www.newstoday.com.bd/index.php?option=details&news_id=2359763&date=2013-10-24)

## Canada

VancouverDesi (South Asian news site for Canadians)

### **Lead in paint compromises health of pregnant mothers: study**

<http://www.vancouverdesi.com/lifestyle/lead-in-paint-compromises-health-of-pregnant-mothers-study/650965/>



## China

www.people.com.cn

Children and pregnant women in developing countries face the threat of lead paint exposure

<http://energy.people.com.cn/n/2013/1023/c71890-23303406.html>

Spanish.China.org.cn

Children and pregnant women in developing countries face the threat of lead paint exposure

[http://spanish.china.org.cn/international/txt/2013-10/23/content\\_30373147.htm](http://spanish.china.org.cn/international/txt/2013-10/23/content_30373147.htm)

## Ghana

Vibe Ghana

### **Save children from lead poisoning**

<http://vibeghana.com/2013/10/23/save-children-from-lead-poisoning/>

Ghana Broadcasting Corporation: Children and pregnant mothers face widespread exposure to toxic lead in paint

<http://gbcghana.com/index.php?id=1.1578618>

## India

Business Standard

### **Lead in paint compromises health of pregnant mothers: study**

[http://www.business-standard.com/article/news-ians/lead-in-paint-compromises-health-of-pregnant-mothers-study-113102200983\\_1.html](http://www.business-standard.com/article/news-ians/lead-in-paint-compromises-health-of-pregnant-mothers-study-113102200983_1.html)

India, Mizoram

Mizo News

### **Lead in paint compromises health of pregnant mothers: study**

<http://www.mizonews.net/sciencetech/lead-paint-compromises-health-pregnant-mothers-study/>

Health: Lead in paint compromises health of pregnant mothers: Study

<http://health.india.com/news/lead-in-paint-compromises-health-of-pregnant-mothers-study/>

India Blooms: UN urges end to potentially deadly lead paint use

<http://www.indiablooms.com/EnvironmentDetailsPage/2013/environmentDetails231013b.php>

News Track India: Lead in paint compromises health of pregnant mothers: study

<http://newstrackindia.com/newsdetails/2013/10/22/368--Lead-in-paint-compromises-health-of-pregnant-mothers-study-.html>

Deccan Herald: The National Referral Centre for Lead Projects [National Referral Centre for Lead Poisoning in India (NRCLPI)] is celebrating the world's first International Lead Awareness Week (24 Oct 2013)

## **Kenya**

Capital

Report warns of continued lead use in Kenyan Paints

<http://www.capitalfm.co.ke/news/2013/10/report-warns-of-continued-lead-use-in-kenyan-paints/>

## **Mexico**

PNUMA alerta del peligro para mujeres y niños del plomo de la pintura (UNEP warns of the danger to women and children of lead paint)

<http://www.mimorelia.com/noticias/126397>



## **Nepal**

The Himalayan

Report on paints presents alarming picture

<http://www.thehimalayantimes.com/fullNews.php?headline=Report+on+paints+presents+an+alarming+picture&NewsID=394667>

eKantipur.com:

Lead level in paints past global limit: study

<http://www.ekantipur.com/2013/10/23/capital/lead-level-in-paints-past-global-limit-study/379672.html>

## **Oman**

Oman Daily Observer

Lead in paint compromises health of pregnant mother

<http://main.omanobserver.om/?p=23722>

## **Panama**

PanamaOn.com

Pintura con plomo peligro para mujeres y niños, alerta la ONU (Lead paint danger to women and children)

<http://panamaon.com/noticias/reportajes/1133987-pintura-con-plomo-peligro-para-mujeres-y-ninos-alerta-la-onu.html>

## **Philippines**

Demotix

**EU-Funded Study Finds Dangerous Levels of Lead in Household Paints**

<http://www.demotix.com/photo/3035967/eu-funded-study-finds-dangerous-levels-lead-household-paints>

The Nation

**High Level of lead found in many paints**

<http://www.nationmultimedia.com/national/High-level-of-lead-found-in-many-paints-30217664.html>

Journal Online

**House paints pose hazard**

<http://www.journal.com.ph/index.php/news/metro/60522-house-paints-pose-hazard>

UNTV

WHO, nanawagan sa iba't ibang bansa na i-phase out ang paggamit ng lead paint

<http://www.untvweb.com/news/who-nanawagan-sa-ibat-ibang-bansa-na-i-phase-out-ang-paggamit-ng-lead-paint/>

Philstar

Leading kids away from lead poisoning

<http://www.philstar.com/health-and-family/2013/10/22/1247800/leading-kids-away-lead-poisoning>

EcoWaste warns of lead in household paints

<http://www.philstar.com/nation/2013/10/24/1248580/ecowaste-warns-lead-household-paints>

## **Russia**

Russian Daily Newspaper

Most sold in Russia were poisoned by lead paint

(Google translation)

[The first ever media article on lead in paint produced in Russia!]

<http://www.newizv.ru/society/2013-10-24/191247-bolshinstvo-prodavaemyh-v-rossii-krasok-okazalis-otravleny-svincom.html>



## **Sri Lanka**

Ceylon Today

Excessive lead levels in paints

<http://www.ceylontoday.lk/51-45593-news-detail-excessive-lead-levels-in-paints.html>

## **South Africa**

Daily Times

Lead Poisoning Lowers Intelligence Scores

<http://www.dailytimes.com.ng/article/lead-poisoning-lowers-intelligence-scores-experts>

## **Spain**

ElEconomista.es

La onu alerta del peligro del plomo en la pintura para niños y mujeres embarazadas de países pobres (The UN warns of the danger of lead in paint for children and pregnant women in poor countries)

<http://ecodiario.eleconomista.es/sociedad/noticias/5246970/10/13/la-onu-alerta-del-peligro-del-plomo-en-la-pintura-para-ninos-y-mujeres-embarazadas-de-paises-pobres.html>

SKNVibes (St. Kitts and Nevis)

**Save children from lead poisoning**

<http://www.sknvibes.com/news/newsdetails.cfm/80584>

## **Thailand**

Bangkok Post

**Dangerous in lead paint**

<http://www.bangkokpost.com/breakingnews/375683/79-of-thai-paints-contain-too-much-lead>

## **U.S.**

Sacramento Bee

New UNEP Study Finds High Lead Levels in Paints Around the World

(A PR Newswire pickup)

<http://www.sacbee.com/2013/10/22/5841005/new-unep-study-finds-high-lead.html#storylink=cpy>

## **General**

Media for Freedom

**UN AGENCIES URGE END TO POTENTIALLY DEADLY – BUT PREVENTABLE – LEAD PAINT USE**

““This report seeks to catalyze action by raising awareness among Governments, manufacturers and consumers not just that the problem exists, but that there are cheap and safe alternatives to lead already in use that can lift this health burden in a very short time,” Mr. Nuttall said.”

<http://mediaforfreedom.com/readarticle.php?AID=18018>

Environmental News Service: Children in Developing Countries Exposed to Toxic Lead Paint

<http://ens-newswire.com/2013/10/23/children-in-developing-countries-exposed-to-toxic-lead-paint/>

Woman News Network: Imported toys and decorative items from developing nations show toxic levels of lead

<http://womennewsnetwork.net/2013/10/23/developing-nations-toxic-lead/>

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# WHO website: Planned NGO Lead Week of Action 2013 Events

Compiled by the World Health Organization, downloaded 18 October 2013, from  
[http://www.who.int/ipcs/assessment/public\\_health/events/en/index.html](http://www.who.int/ipcs/assessment/public_health/events/en/index.html)



Lead is still present in excess in paints sold in  
many countries in Africa

**“Ask your health department or the manufacturer  
before you buy paints, so you know which brands have  
no added lead”**

Graphic: Volcano Art Prize 2012 Entry. Artist: Samuel Tetsopgang, Research and Education Centre for Development (CREPD), (Centre de Recherche et d'Education pour le Développement), Yaounde, Cameroon. Lead-Safety Message: Ask your health department or the manufacturer before you buy paints, so you know which brands have no added lead.  
<http://volcanoartprize.com/portfolio-item/lead-in-paints-africa/>

Say No to Lead Paint (সীসা যুক্ত রং-ক না বলুন)

Organization: Environment and Social Development Organization-ESDO

City/Area: Dhaka, Chittagong, Rajshahi

Country: Bangladesh

Brief description of event: We are planning to organize public awareness, policy advocacy through medial campaign and children participation. The following activities being planned: Rally, children art competition, Mobile poster and photograph exhibition (highlight the impact of leaded paint to human health & environment), Release video clips

through Youtube and other social media, Report launching through press briefing on Laboratory test and country situation.

Start date: 20/10/2013

End date: 22/10/2013

Related web site: <http://www.esdo.org>

Name: Siddika Sultana

2013 Volcano Art Prize Awards, Lead Safe World Project Launch

Organization: The Lead Education and Abatement Design (LEAD) Group Inc.

City/Area: Sydney

Country: Australia

Brief description of event: At the event, The LEAD Group is going to hold the Award Ceremony for the 2013 Volcano Art Prize (a global lead-safety art/graphics/photography competition) and the launch 2014 Lead-Safe World CALENDAR and launch the Lead Safe World Project (a web-based nexus of simple useful information and referrals on how to make your home, workplace and yourself and family lead-safe).

Start date: 26/10/2013

End date: 26/10/2013

Related web site: [www.leadsafeworld.com](http://www.leadsafeworld.com)

<http://volcanoartprize.com>

Name: Elizabeth O'Brien

Building a Toxic Free Community - Enough Of Lead Poisoning! Organization: Young Volunteers for the Environment, Nigeria

City/Area: Lagos and Ibadan

Country: Nigeria

Brief description of event: Lead Poisoning has become a silent threat to the lives of many people in Nigeria. As a result of rapid industrial development, millions of people are drinking polluted water, eating polluted food and using everyday objects that contain hazardous chemicals. In Nigeria today, recent investigation shows that there are increasing numbers of death associated with hazardous chemicals and persistent organic pollutants. Many deaths have recorded due to chemical pollution in water and food. The most vulnerable groups are children and young people.

The event would serve as an avenue to create community awareness on lead poisoning.

Start date: 24/10/2013

End date: 25/10/2013

Name: Prince.Olawuyi Oluwaseyi

Advocacy Program on Lead in air, dust, soil, paint and blood Organization: LEADERS Nepal

City/Area: Kathmandu

Country: Nepal

Brief description of event: LEADERS Nepal is working in this area with the support of QSP Trust fund and air, dust, paint samples have been collected and blood sampling is going on. Report of these research will be published and organize other advocacy programs with

other I/NOGs to the general people.

Start date: 23/10/2013

End date: 26/10/2013

Related web site: <http://www.leadersnepal.org.np>

Name: Dhiraj Pokhrel

Public awareness campaign on lead free paint/material and child health

Centre for Environmental Justice/ Friends of the Earth Sri Lanka

City/Area: Colombo

Country: Sri Lanka

Brief description of event: CEJ will hold several activities together with the relevant government authorities to educate public on the importance of using lead free paint, and other lead free material for saving children life.

Start date: 20/10/2013

End date: 26/10/2013

Related web site: <http://www.ejustice.lk>

Name: Hemantha Withanage and Chalani Rubasinghe

Strategic Advocacy and Awareness Raising: BEWARE! Poisonous lead around.

Sustainable Research and Action for Environmental Development (SRADev Nigeria)

City/Area: Lagos

Country: Nigeria

Brief description of event: Following the success achieved from the global lead in paint study, an advocacy seminar/meeting will be held with Paint Manufacturers Association of Nigeria (PMAN) to urge for collaborative action to eliminate lead in Nigerian paints (for alternatives) known now to be among the highest in the world. This will be followed by an NGO sensitisation workshop highlighting the experiences of the Zamfara lead poisoning incident and NGO collective action. The week will round up with a meet-media-event in form of a press conference highlighting childhood lead poisoning and releasing a petition to the Federal government on absence of a comprehensive legislation on lead control despite the Zamfara lessons.

Start date: 20/10/2013

End date: 25/10/2013

Related web site: <http://www.sradev.org>

Name: Leslie Adogame

National Lead Poisoning Prevention Week of Action

Our Own Public Health Institute (OOPHI)

City/Area: Karachi

Country: Pakistan

Brief description of event: Events may include public information campaigns, technical webinars and learning sessions, conferences and meetings to engage key decision-makers, and much more.

Start date: 20/10/2013

End date: 26/10/2013

Related web site: n/a

Name: Dr Farhan Abdul Rauf

International Lead Poisoning Prevention Week of Action - 20-26 October 2013

The Just Environment Charitable Trust (Toxics Link)

City/Area: New Delhi

Country: India

Brief description of event: The Just Environment Charitable Trust (Toxics Link) will carry out public awareness activities during the International Lead Poisoning Prevention Week of Action from 20-26 October 2013. These activities are as follows: 1. A Workshop in collaboration with WHO with stakeholders

2. Radio Talk Shows

3. School Program

4. Signature campaign

Start date: 20/10/2013

End date: 26/10/2013

Related web site: <http://www.toxicslink.org>

Name: Shivani Bhakhry

"Color pencils with and without lead: what is difference" ENVIRONMENTAL AMBASSADORS FOR SUSTAINABLE DEVELOPMENT

City/Area: Beograd

Country: Republic of Serbia

Brief description of event: We plan to have "open hour" with Eco-Schools in Serbia on subject "Color pencils with and without lead: what is difference". Knowledgeable lecturers will be assured through IPA EU ENV.net project, and central venue will be granted from one of the schools. Media coverage will be through partnership with Press Center (granted).

Start date: 21/10/2013

End date: 23/10/2013

Related web site: <http://ambassadors-env.com/en>

Name: Filip Jovanovic

Exposition prévention du saturnisme Mairie de Montreuil - Mission saturnisme

City/Area: Montreuil

Country: France

Brief description of event: Exhibition on lead poisoning in a social center (settlement) for the whole week, screening of the prevention movie in 14 languages, article in the local newspaper

Start date: 21/10/2013

End date: 26/09/2013

Related web site: <http://www.montreuil.fr/sante/hygiene-sante-habitat/lutte-contre-le->

saturnisme

Name: BUISSON Yves

Regional Lead Awareness Conference Toxics Link, Maulana Azad Medical College, Lata Medical Research Foundation and WHO Regional Office for South East Asia

City/Area: New Delhi

Country: India

Brief description of event: The objectives of the Regional Conference are to: 1) Raise awareness of the issue of lead poisoning from paints containing lead.

2) provide an update on the status of lead poisoning in the South-East Asia Region including the scientific evidence for health impacts.

3) Review the status of actions in WHO South-East Asia Region aimed at eliminating lead from paint.

4) Discuss and identify cooperative actions that could be taken in the WHO South-East Asia Region with appropriate milestones for 2014-2015.

Participants will include interested Government Ministries, academic institutions, medical associations, analytical laboratories, industry, non-governmental organizations working for a better environment, media and consumer organizations from India and other countries in the region.

Start date: 24/10/2013

End date: 25/10/2013

Related web site: n/a

Name: Toxics Link (Shivani Bhakhry)

Présentation des informations et des données sur les peintures décoratives vendues sur le marché ivoirien Jeunes Volontaires pour l'Environnement (JVE) Côte d'Ivoire

City/Area: Abidjan

Country: Cote d'Ivoire

Brief description of event: As part of the Global Week of lead in decorative paints elimination, JVE Ivory Coast is organizing a series of activities. It will start with a press conference to present the results of the determination of lead content in decorative paints sold on the domestic market, October 21 at 16:00 GMT.

October 23, 2013 at 15:00 GMT, a panel discussion will be held with all stakeholders to discuss the question of the future of lead paints sold in Côte d'Ivoire.

On October 25, 2013 at 15:00 GMT, a film projection about the environmental effects of lead in paints as well as those inherent in other heavy metals will be held. The film projection will be followed by a consumer education on paints choice.

Start date: 21/10/2013

End date: 25/10/2013

Related web site: n/a

Name: Dominique Bally

Media advocacy on the elimination of lead paint in Uganda Uganda Network on Toxic Free Malaria Control (UNETMAC)

City/Area: Kampala

Country: Uganda

Brief description of event: We will conduct a media advocacy on the elimination of lead paint in Uganda. This will include conducting two radio talk shows, one TV talk show and one article in one of the national news papers. If resources allow, we will also conduct a press conference that will include both the print and electronic media.

Start date: 21/10/2013

End date: 27/10/2013

Related web site: <http://www.unetmac.org>

Name: Mr. Muyambi Ellady

- (1). Releasing of Study of Lead in Paint in Nepal 2013.
- (2) Radio Talk Program and Media campaign on Lead in Paints and its impact.
- (3). School Awareness Programs
- (4). Discussion on Lead Paint Elimination with SMEs Paint Manufacturers Center for Public Health and Environmental Development (CEPHED)

City/Area: Kathmandu,

Country: Nepal

Brief description of event: CEPHED along with the concerned stakeholders and government agencies will be organising a series of programs.

As there is National Festivals in October and November 2013 just before and after planned Lead Poison prevention week, we have planned these activities from 1st of October itself. People use to paint their houses for this festival in Nepal.

Based on our study and ongoing campaign on LEAD PAINT ELIMINATION, we are going to release our 3rd batch of study reports on Lead in Paint, organising a radio talk program and media campaign, school program and meeting with SMEs of paint manufacturing companies.

Start date: 01/10/2013

End date: 26/10/2013

Related web site: n/a

Name: Ram Charitra Sah, Executive Director, CEPHED, Nayabasti, Imadol-5, Lalitpur, Kathmandu, Nepal

No Lead in enamel paints "Khazer" Ecological and Cultural NGO

City/Area: Yerevan

Country: Armenia

Brief description of event: Within the period of the project we provide publishing booklets and posters and organizing meetings in Yerevan and Hrazdan Public Environmental Information /Aarhus/ Centers involving civil society, Ministry of Economy and Ministry of Health, business sector which produces or imports those paints, as well as the consumers community. We also will organize press-conferences with media for the dissemination of this information, especially among vulnerable groups of children and young people.

Start date: 20/10/2013

End date: 26/10/2013

Related web site: <http://www.khazer.org>

Name: Amalia Hambartsumyan

Grow Healthy Without Lead Paint (Tumbuh Sehat Tanpa Cat Bertimbal) BALIFOKUS

City/Area: Bali

Country: Indonesia

Brief description of event: The event is themed as "Fun Day" at Early Childhood Education Center. This "Fun Day" is aimed for early childhood educators, parents, and students. The event will be organized at early childhood facilities in Denpasar, Bali. In addition, radio talk sessions will also be held to promote the danger of lead in paint, during the International Week of Action on Prevention of Lead Poisoning.

Start date: 20/10/2013

End date: 26/10/2013

Related web site: <http://balifokus.asia>

Name: Armyn Gita

Thailand Lead Poisoning Prevention Day วันป้องกันภัยจากพิษตะกั่ว Ecological Alert and Recovery - Thailand (EARTH); Ramathibodi Hospital's Research Center for Child Safety Promotion and Injury Prevention; Foundation for Consumers; Bureau of Occupational and Environmental Diseases, Department of Disease Control, Ministry of Public Health; Office of Consumer Protection Board; and the Engineering Institute of Thailand

City/Area: Bangkok

Country: Thailand

Brief description of event: A day of action to raise awareness among parents and consumers about the danger of lead to children's health, jointly organized by Thai NGOs, health professionals and government agencies.

Events include free IQ testing and blood lead testing for children, free XRF screening of lead in consumer products, as well as seminars and exhibitions to showcase the latest research findings on leaded paint sold in the Thai market, past experiences by the government in removing lead from other consumer products, and the prevalent danger of lead in many occupational environments.

Free admission at Ramathibodi Hospital.

Start date: 23/10/2013

End date: 23/10/2013

Related web site: <https://www.facebook.com/Burananives.EARTHailand> and <http://thaiecoalert.org>

Name: Nicha Rakpanichmanee

Lobbying and information campaign Greenwomen, Analytical Environmental Agency

City/Area: Almaty

Country: Kazakhstan

Brief description of event: Campaign to raise awareness includes preparing a press release and information for distribution through the Greenwomen's listserv to local and national mass media, NGOs and government agencies. The information will be distributed a few times per week; the Greenwomen's web-site and the Greenwomen's Facebook Toxic Free Future page also will be updated.

Lobbying campaign includes preparation of a statement to the government of Kazakhstan

urging it to stop the manufacture and sale of lead paint, and to minimize the risk of exposure public to such paint. Greenwomen also will prepare the recommendations aimed at improving the legislation related to chemical safety.

Start date: 20/10/2013

End date: 26/10/2013

Related web site: <http://www.greenwomen.kz>

Name: Lydia Astanina

Commemoration of International Lead Poisoning Prevention Week of Action in Nepal  
Ministry of Science Technology and Environment, Ministry of Health and Population,  
World health

City/Area: Kathmandu

Country: Nepal

Brief description of event: The following activities are planned under the aegies of a task force formed to commemorate the week, chaired by Ministry of Science, Technology and environment and secretariated by WHO, Country Office for Nepal: Press briefing for public awareness, 20 October, MoSTE, MoHP, WHO

Interaction with labour unions and trade unions to create awareness among occupational painters, 21 October, LEADERS

High level meeting on prevention of lead toxicity, 23 October, MoSTE, MoHP and WHO

Interviews in FM radios, Dr Shyam Lohani, NDPIC, September and October

Dissemination of lead awareness materials, 20-26 October, CEPHED (supported by WHO)

Dust sampling in residential areas for assessment of lead concentration 22-26 October  
LEADERS

Press release 26 October MoSTE

Start date: 20/10/2013

End date: 26/10/2013

Related web site: n/a

Name: Ashok Bhurtyal

Lobbying and target Lead Poisoning awareness raising for the completion of nation legislation/standard to limit the lead concentration in paints marketed in Cameroon the Centre de Recherche et d'Education pour le Développement (CREPD)

City/Area: Yaoundé

Country: Cameroon

Brief description of event: The event will comprise of one workshop regrouping officials from key government ministries, consumer associations and pediatricians to advance in the process of transforming the recommandation made by the stakeholders during the two national workshops carried out within the QSP Lead Paint project in Cameroon. It is a follow up action aiming to convent critical mass that will serve as leverage for policy change, and industry responsibility; And of Lead poisoning outreach to vulnerable population groups .

Start date: 21/10/2013

End date: 26/10/2013

Related web site: [www.crepdcameroon.org](http://www.crepdcameroon.org)

Name: Gilbert KUEPOUO, Coordinator/Executive Director

Press Conference on the Results of the 2013 Paint Analysis EcoWaste Coalition

City/Area: Quezon City

Country: Philippines

Brief description of event: The EcoWaste Coalition will hold a Press Conference to publicize the results of the 2013 Paint Sampling and Analysis and release a report on this study that will present new data on the lead content of household enamel paints that are offered for sale in the Philippine market. This is the third time that the EcoWaste Coalition had paints analyzed in the country for lead. Previous studies were conducted in 2008 and 2010. The studies were conducted to determine the extent of lead paints in local commerce, and generate evidence to support policy initiatives to eliminate lead paint.

Start date: 23/10/2013

End date: 23/10/2013

Related web site: <http://ecowastecoalition.blogspot.com>

Name: Jeiel Guarino

Together NGO "Terra-1530"

City/Area: Vorniceni village, Straseni district, Republic of Moldova

Country: Republic of Moldova

Brief description of event: Anti- Lead Paint Caravan: Vorniceni-Lozova-Micleuseni, Dolna, Galesti-Zubresti-Recea-Ghelauza.

Start date: 20/10/2013

End date: 26/10/2013

Related web site: <http://terra1530.md>

Name: Petru Botnaru

The information campaign for the public "Lead in household paint"  
NGO "Independent Ecological Expertise"

City/Area: Bishkek

Country: Kyrgyzstan

Brief description of event: During the week October 20-26, 2013 our organization will conduct the information campaign for the public. We will prepare and disseminate to the news a summary of results of the study (the global report) in 9 countries "Lead in household paints", supported by IPEN (October 2012-March 2013). In the different media (newspapers, websites) to be published information about results of study in Kyrgyzstan and the harmful effects of lead paint. There will also be distributed our booklet (in Russian and Kyrgyz) among decision makers, educational institutions and retail outlets who sell paint.

Start date: 20/10/2013

End date: 26/10/2013

Related web site: [www.eco-expertise.org](http://www.eco-expertise.org)

Name: Zulfizar Mirdzhalalova

Lead-Free Kids for a Healthy Future (Public School Assembly/Media Event:) EcoWaste

## Coalition

City/Area: Kamuning Elementary School, Sct. Torillo St., Bgy. Sacred Heart, Quezon City

Country: Philippines

Brief description of event: The EcoWaste Coalition, together with key government and civil society stakeholders, and in partnership with Kamuning Elementary School will hold a public assembly with a theme "Lead Free Kids for a Healthy Future" to jump-start the celebration of the 1st International Lead Poisoning Prevention Week of Action. This event will be covered by various TV, radio, print and alternative media. (This event was originally scheduled on 20 October 2013, but the school venue will be unavailable at that time, hence the rescheduling to 18 October, 2013.)

Start date: 18/10/2013

End date: 18/10/2013

Related web site: <http://ecowastecoalition.blogspot.com>

Name: Jeiel Guarino

L'élimination du plomb de la peinture Association de l'Education Environnementale pour les Futures Générations

City/Area: Tunis

Country: Tunisia

Brief description of event: Sensibilisation des collégiens et étudiants sur les effets nocifs du plomb sur la santé et les impacts sur l'environnement.

Start date: 20/10/2013

End date: 26/10/2013

Name: Semia Gharbi

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# For the Layperson: Blood Lead Levels in Early Childhood Predict Adulthood Psychopathy

*Based on the article Blood Lead Levels in Early Childhood Predict Adulthood Psychopathy, by John Paul Wright, Danielle Boisvert and Jamie Vaske of the University of Cincinnati; edited for the layperson, with additions, by Anne Roberts, Editorial Team of LEAD Action News, with some definitions located by Robert Taylor, Researcher, LEAD Action News. The on-line version of the scholarly article was published in Youth Violence and Juvenile Justice July 2009 vol. 7 no. 3 208-222, and can be found at <http://yuj.sagepub.com/content/7/3/208>*

## How this article was put together

The framework of Wright et al has been followed, with headings added.

The bulk of this article consists of direct quotes from Wright et al. Quotes from Wright et al are not indicated by quotation marks. Some paragraphing has been introduced.

Statistical tables have been omitted.

Headings have been inserted.

Definitions have been inserted, and one diagram.

Where extracts from sources other than Wright et al have been used (for example, to define terms), these are in quotes.

Changes to Wright et al are mainly those of omission: e.g., citations are not included unless they form part of a sentence (e.g., “Studies by so-and-so have indicated that...), and references are not included. English spelling has been substituted, e.g., ‘behaviour’.

## **Blood Lead Levels in Early Childhood Predict Adulthood Psychopathy**

Using data from the Cincinnati Lead Study, this study examines the effects of postnatal blood lead concentrations in early childhood (78 months) on adult psychopathy and six subscales [see explanation below] of the Psychopathic Personality Inventory (PPI)

### **What are the Cincinnati Lead Study and the Psychopathic Personality Inventory?**

The Cincinnati Lead Study (CLS) is a birth cohort recruited from late 1979 to early 1984.

“A cohort is a group of people who share a common characteristic or experience within a defined period...Thus a group of people who were born on a day or in a particular period, say 1948, form a birth cohort.” (Wikipedia Cohort Study [http://en.wikipedia.org/wiki/Cohort\\_study](http://en.wikipedia.org/wiki/Cohort_study) Accessed July 10, 2011)

The CLS enrolled women in their first or early second trimester of pregnancy who attended four prenatal clinics within impoverished Cincinnati neighborhoods with a high concentration of older, lead-contaminated housing...376 newborns ...were recruited ... Of these newborns, 305 were developmentally examined at the CLS follow-up clinic when they were 3 and 6 months of age. They were followed up quarterly through age 5 yrs and semiannually from age 5 to 6.5 yrs.

A total of 250 CLS participants who were between 19 and 24 y of age and had been followed at least through the first 6 y of life participated in the current study. Thus, individuals in the current analysis had serial blood lead concentrations spanning the entire preschool and early school-age period of development...

**The Psychopathic Personality Inventory (PPI)** is a self-reporting inventory. The ‘subscales’ referred to above can be thought of as relating to a cluster of behaviours or attitudes. Participants rate themselves in relation to a series of statements descriptive of these behaviours or attitudes. [Ed] For example:

- I enjoy watching violent scenes in movies
- In school or at work, I sometimes try to “stretch” the rules a little bit just to see how much I can get away with
- I’m good at flattering important people when it’s useful to do so
- When someone tells me what to do, I often feel like doing exactly just to spite them
- I usually enjoy seeing someone I don’t like

get into trouble • I like to (or would like to) wear expensive, “showy” clothing • I don’t take advantage of other people even when it’s clearly to my benefit\* • To be perfectly honest, I usually try not to help people unless I think there’s some way that they can help me later • I sometimes lie just to see if I can get someone to believe me • I have to admit that I’m a bit of a materialist • I often tell people only the part of the truth they want to hear • I often lose my patience with people to whom I have to keep explaining things • To be honest, how much I like someone depends a lot on how useful that person is to me • I sometimes try to get others to “bend the rules” for me if I can’t change them any other way ...

## Results

The results of the study [by Wright et al] reveal that higher blood lead concentrations in early childhood are associated with higher levels of psychopathic symptoms in adulthood, controlling for the effects of gender, race, mother’s IQ, child’s intellectual achievement, and the quality of the home environment. Childhood lead levels predicted variation in [the following ‘subscales’ of the Psychopathic Personality Inventory] Machiavellian Egocentricity, Social Potency, Impulsive Nonconformity, and Blame Externalization. Overall, these results implicate lead exposure in the etiology [cause] of psychopathy.

## Psychopathy and what causes it

Much debate exists on the origins of psychopathy. Some researchers argue that psychopathy is the result of environmental or social factors. For example, McCord and McCord’s (1964) literature review led them to conclude that psychopathy is a function of parental conflict, parental neglect, and erratic parental punishment. Other scholars have noted that individuals who score higher on psychopathy inventories also report that they have worse family backgrounds and more interpersonal problems than individuals who score lower on psychopathy inventories. Marshall and Cooke’s (1999) case control study of 105 adult inmates found that psychopaths scored higher on parental antipathy, parental neglect, poor parental supervision, psychological abuse, negative school experience, negative social experience, and child antipathy to parents.

Other scholars, however, have argued forcefully that the origins of psychopathy do not lie within the social environment but within a person’s genetic and biological composition. This is expected to be true especially for individuals who score higher on inventories of callous unemotional traits. [Ed’s italics] Hare and others, for example, have asserted that psychopathy results from dysfunctions within the frontal cortex, the amygdala, and the parietal lobes in the brain. [For a description of the functions these parts of the brain, see below.]

## Further discussion on what is a ‘Psychopath’ and what is a ‘Sociopath’

“The difference between a psychopath and a sociopath is somewhat blurred, at least according to the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*. The DSM-IV lists both definitions together under the heading of *Antisocial Personalities* because they share some common traits. Many use the terms sociopathy, psychopathy and antisocial personality disorder (APD) interchangeably. Professionals not only dispute whether there is a difference between a sociopath and a psychopath, but among those that believe there is a difference, there is dispute over what those differences are.

“Even those professionals that identify a difference note that the traits of the psychopath and sociopath are largely similar. Both psychopaths and sociopaths have a complete disregard for the feelings and rights of others. This often surfaces by age 15 and may be

accompanied by cruelty to animals. These traits are distinct and repetitive, creating a pattern of misbehaviour that goes beyond normal adolescent mischief.

“Both the psychopath and sociopath fail to feel remorse or guilt. They appear to lack a conscience and are completely self-serving. They routinely disregard rules, social mores and laws, unmindful of putting themselves or others at risk.

“Of the more distinguishing traits, *some* argue the sociopath to be less organized in his or her demeanour, nervous and easily agitated – someone likely living on the fringes of society, without solid or consistent economic support. A sociopath is more likely to spontaneously act out in inappropriate ways without thinking through the consequences.

“Conversely, *some* argue that the psychopath tends to be extremely organized, secretive and manipulative. The outer personality is often charismatic and charming, hiding the real person beneath. Though psychopaths do not feel for others, they can mimic behaviours that make them appear normal. Upon meeting, one would have more of a tendency to trust a psychopath than a sociopath.

“Because of the organized personality of the psychopath, he or she might have a tendency to be better educated than the average sociopath, who probably lacks the attentive skills to excel in school. While psychopaths can fly under the radar of society, many maintaining families and steady work, a sociopath more often lacks the skills and drive for mimicking normal behaviour, making “seemingly healthy” relationships and a stable home less likely. From a criminal standpoint, a sociopath’s crimes are typically disorganized and spontaneous, while the psychopath’s crimes are well planned out. For this reason, psychopaths are harder to catch than sociopaths, as the sociopath is more apt to leave ample evidence in his or her explosions of violence. [Ed’s italics]

“Hence, while similar psychological traits might fall under the antisocial personality heading, from a social and criminalist point of view, the differences between a psychopath and a sociopath may be significant. According to experts, persons with a non-criminal history can also display lesser or varying degrees of either personality type.” (wiseGEEK accessed July 10, 2011 <http://www.wisegeek.com/what-is-the-difference-between-a-psychopath-and-a-sociopath.htm>)

## **Definitions of parts of the brain involved in psychopathy/sociopathy**

### **Pre-frontal cortex**

“The prefrontal cortex (PFC) is the very front of the brain, located right beneath the forehead. It is in the anterior (front) region of the frontal lobes. Besides being the front of the brain physically, it is responsible for the executive functions, which include mediating conflicting thoughts, making choices between right and wrong or good and bad, predicting future events, and governing social control – such as suppressing emotional or sexual urges. The prefrontal cortex is the brain centre most strongly implicated in qualities like sentience, human general intelligence, and personality.

“When the pathways between the prefrontal cortex and the rest of the brain are damaged due to head injury, massive personality changes can result. Weak interconnections between the prefrontal cortex and the rest of the brain have... been observed in criminals, sociopaths, drug addicts, and schizophrenics...

“The prefrontal cortex is fed information from all the senses, and combines this information to form useful judgments. It constantly contains active representations in working memory, as well as representations of goals and contexts. Unfortunately, the prefrontal cortex, one of the most

important areas in the brain, is also one of the most susceptible to injury....” (WisegEEK  
<http://www.wisegEEK.com/what-is-the-prefrontal-cortex.htm> )

## **The Limbic System**

“The limbic system, named after the Latin word *limbus* for edge, is the innermost part of the brain, wrapped around the core ventricles. It is filled with cerebrospinal fluid and various clumps of white matter, which does not play much of a role in cognition.

“The limbic system is called the "old mammalian system" or the "mammalian brain" in the popular triune brain model, which splits the brain into three parts depending on their location and functions. The other parts are the reptilian brain or the brain stem, and the cerebral cortex or the neocortex. These are responsible for "lower" and "higher" behaviour respectively.

“The limbic system's components [include the] amygdala ...

“The limbic system is the home of emotions, motivation, the regulation of memories, the interface between emotional states and memories of physical stimuli, physiological autonomic regulators, hormones, "fight or flight" responses, sexual arousal, circadian rhythms, and some decision systems. The limbic system is what gets "duped" when people get addicted to hard drugs. Because the addiction happens in the "lower," "preconscious" portion of the brain, we cannot rationally consider its effects, and therefore recovery and relapse avoidance can be difficult.” (Facebook. Accessed July 10, 2011 [http://www.facebook.com/note.php?note\\_id=119412651407350](http://www.facebook.com/note.php?note_id=119412651407350) )

## **Amygdala**

The amygdala is a core structure in the limbic system and is responsible for emotional processing, including emotional reactions and the formation of emotional memories related to specific events. Results from brain imaging studies have converged to show that the volume of the amygdala is significantly lower among individuals who score higher on psychopathy inventories compared to non-psychopathic individuals. Much research also shows that psychopaths typically lack empathy and have a hypoactive [reduced] response to negative or fear-inducing stimuli. Individuals who score high on psychopathy inventories often have trouble recognizing facial expressions of distress, often have decreased emotional and physiological sensitivity to aversive stimuli and often demonstrate less emotional responsiveness to others' expressions of sadness or fear.

## **Parietal lobes**

The orbital-frontal cortex and the parietal lobes are responsible for working memory, the ability to plan and organize behaviour, and behavioural inhibition. These structures also aid in the capacity to learn from experience—a hallmark deficit characteristic of psychopathy— and are deeply intertwined with the limbic system... it is now generally accepted that dysfunctions within the frontal lobe and limbic systems are related to psychopathy.

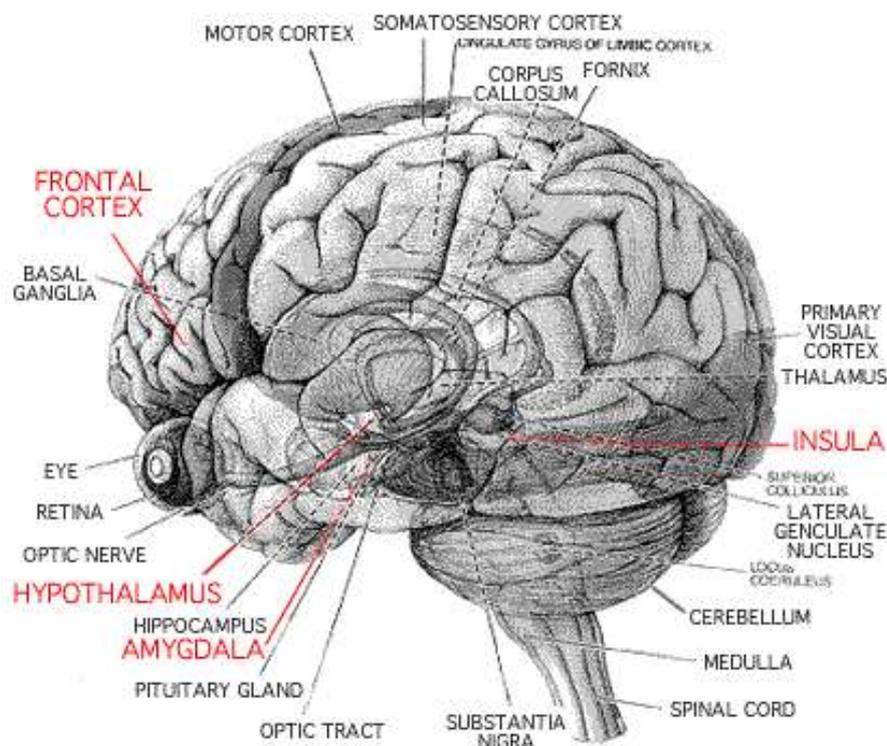


Diagram from <http://www.osovo.com/diagram/braindiagram2.htm> Savio D Silva Network

## The possible role of lead in brain dysfunction

If psychopathy results from brain dysfunctions, then it follows that factors which influence brain formation and development should be implicated in psychopathy. One such factor may be lead (Pb). Lead exposure has been found to be associated with deficits in frontal lobe functioning. For instance, Trope, Lopez-Villegas, Cecil, and Lenkinski's (2000) analysis of magnetic resonance spectroscopy results revealed that lead-exposed youths had a higher level of neuronal loss and damage within the frontal cortex than healthy control participants. [

“The neuron (nerve cell) is the fundamental unit of the nervous system. The basic purpose of a neuron is to receive incoming information and, based upon that information, send a signal to other neurons, muscles, or glands.” (Biology Encyclopedia, accessed 10 July 2011 <http://www.biologyreference.com/Mo-Nu/Neuron.html> )

Meng et al.'s case control study also found that lead exposure was associated with a lower density of neurons in the frontal lobe and hippocampus (the hippocampus is part of the limbic system). Lead-exposed youths also score significantly lower on total and verbal IQ measures than healthy controls. Cecil et al.'s (2008) analysis of magnetic resonance imaging data from the Cincinnati Lead Study (CLS) revealed that childhood lead exposure corresponded to significantly lower levels of adult gray matter, especially within the frontal lobe. [Gray matter (as opposed to 'White matter.)

**“Gray matter represents information processing centers in the brain, whereas white matter represents the networking of – or connections between – these processing centers.”** Intelligence In Men And Women Is A Gray And White Matter <http://www.sciencedaily.com/releases/2005/01/050121100142.htm> Jan. 22, 2005 – Irvine, University of Calif. (January 20, 2005)

Thus, results from both brain imaging studies and neuropsychological tests converge to show that lead exposure is related to deficits in brain structure and functioning, especially within the frontal lobe.

Lead exposure has also been linked to behaviours that are similar to psychopathy, such as attention deficit hyperactivity disorder and delinquency. Mendelsohn et al. (1998) found that toddlers who were exposed to lead scored significantly lower on an emotional regulation index, and they were also rated as significantly more withdrawn than healthy controls. Needleman, McFarland, Ness, Fienberg, and Tobin's (2002) case control study of Pittsburgh youth showed that delinquents had significantly higher levels of lead in their tibia [shin bone] than non-delinquents. A prospective longitudinal study of Cincinnati youths revealed that prenatal and postnatal blood lead levels were related to both parent-reported and child-reported delinquent behaviours.

A **prospective study** is a study in which the groups of individuals (cohorts) are selected on the bases of factors that are to be examined for possible effects on some outcome.

A **longitudinal study** is a study over time. (The Free Dictionary by Farlex)

A follow-up investigation of these youths also showed that prenatal and postnatal blood lead levels were associated with the number of criminal arrests in adulthood. These results show that a positive relationship between lead levels and antisocial behaviour has been found in studies that vary in population, age, type of measure of lead, and outcome measure. [Put most simply, a positive relationship exists between two 'things' ('variables') if, when one increases, the other increases; and when one decreases, the other decreases.]

The current study investigates whether childhood blood lead concentrations are related to psychopathy in adulthood, controlling for a range of confounders. [Confounding is an error in interpretation; for example, interpreting the carrying of matches as a cause of lung cancer, when it's the smoking, not the carrying of matches that is the cause. (This example from 'Defining Clinical Research 2009: Confounding and Causal inference, by Warren Browner, rds.epi-ucsf.org ) We also investigate whether childhood blood lead levels are related to the various dimensions of psychopathy, since scholars have emphasized that psychopathy is a composite of both affective and regulatory processes. Previous research has primarily focused on the relationship between lead levels and the behaviour, such as delinquent involvement and criminal conduct. Thus, it is open to empirical investigation whether lead levels are related to psychopathy overall and its affective and regulatory components.

## **Method used by Wright et al**

The data used for this article come from the Cincinnati Lead Study [see page 1 of this article].

305 infants were assessed at 3 and 6 months. Further assessments continued at quarterly intervals through the age of 5 years. Subjects were then reassessed every six months until the child reached 6.5 years old. Three additional follow-up periods occurred at the ages of 10, 15 to 17, and most recently between 19 and 24 years. Two hundred and fifty CLS participants who had been followed from childhood to adulthood form the current study sample. There were an approximately equal number of men (49%) and women (51%) with a disproportionate number of non-White participants (90%) compared to White participants (10%). Prior analyses have found no systematic biases in sample attrition .

## **Measures**

### **Blood lead level**

Wright et al focussed on participants' blood lead level at the age of 78 months for three reasons. First, prior studies show that blood lead levels in early childhood are highly volatile, reflecting environmental exposure and bioavailability. [Bioavailability is the amount of lead that is actually absorbed from exposure to given amount.]

Second, measures of blood lead in later childhood appear to stabilize and thus to reflect the accumulation of lead in the body.

Third, previous studies have used latter childhood blood lead levels, specifically at 6.5 years of age.

## **Psychopathy**

Adult participants completed the self-reported Psychopathic Personality Inventory (PPI) through the use of audio-assisted computer interviewing. The PPI was created to assess core psychopathic personality features originally developed by Cleckley (1941). The PPI has repeatedly been found to be a highly reliable and valid measure of psychopathy. The PPI consists of 187 questions on a 4-point Likert-type scale (0 = false, 1 = mostly false, 2 = mostly true, 3 = true). The total PPI score serves as an index of overall psychopathy. The internal consistency of the total PPI score for this sample was 0.91.

The PPI contains six subscales (see appendix of the scholarly article <http://yvj.sagepub.com/content/7/3/208> , which lists the questions):

(a) Machiavellian Egocentricity, which assesses the degree to which an individual uses others for their own personal gain (e.g., I could make an effective "con artist" if the situation required it);

(b) Social Potency, which assesses the degree to which the individual feels power over others (e.g., even when others are upset with me, I can usually win them over with my charm);

(c) Fearlessness, which assesses the degree to which the individual identifies himself as a risk-taker (e.g., many people think of me as a daredevil);

(d) Impulsive Nonconformity, which assesses the individual's degree of social nonconformity (e.g., I get restless and dissatisfied if my life becomes too routine);

(e) Blame Externalization, which assesses the degree to which the individual externalizes responsibility onto others (e.g., people are frequently out to get me); and

(f) Carefree Non-Planfulness, which assesses the degree to which the individual fails to learn from past events (e.g., I often make the same errors in judgment over and over again). The internal consistencies of the PPI subscales for this sample ranged from 0.66 to 0.86.2

Five control variables were included in the analyses. The control variables included race, mother's IQ, participant's intellectual performance, and a measure of the HOME environment. Gender (0 = male, 1 = female) and race (0 = African American, 1 = White) were measured as dichotomous variables.

**Control variables** "In scientific experimentation, a control variable is the one that must not be changed throughout an experiment because it affects the dependent variables and thus affects the outcome of the experiment... Essentially, a controlled variable is what is kept the same throughout the experiment. An example of a controlled variable would be if you have experimented on plants

and tested a product on two plants, the soil and the pot would be two controlled variables”.(Wikipedia)

## Results

...greater concentrations of lead in participants’ blood corresponded to significant increases in the total PPI scale...This finding implicates early blood lead levels in the development of psychopathy and provides evidence that psychopathic tendencies are linked to the toxicokinetics associated with childhood lead exposure. [Ed’s italics]

**Toxicokinetics** is “A subfield of toxicology that studies how toxins are absorbed by, metabolised by, and eliminated from the bodies of living things.” (Mondofacto on-line Medical dictionary [www.mondofacto.com/facts/dictionary?toxicokinetics](http://www.mondofacto.com/facts/dictionary?toxicokinetics) )

Childhood blood lead levels were also predictive of four of the PPI subscales. [Ed’s italics]

Children with elevated blood lead levels were more likely to score significantly higher on measures of Machiavellian Egocentricity, Social Potency, Impulsive Nonconformity, and Blame Externalization. These coefficients remained significant even after controlling for the effects of gender, race, mother’s IQ, child’s intellectual achievement, and the HOME score. Overall, these results implicate higher blood lead concentrations in psychopathic symptoms in adulthood. [Ed’s italics]

## Discussion

Frick and White (2008) note that psychopathy is closely connected to brain-based functions, such as reduced amygdala activation and hypoactive [underactive] metabolism in the prefrontal cortex. The connection between lead levels in childhood and adult psychopathy highlights the toxicokinetic [the passage through the body of a toxic agent] effect of lead on brain form and structure. Lead mimics calcium ions and is therefore stored in bone where it becomes bioavailable.[ Bio-availability is the presence within a living organism “of a substance in a form that allows it to be metabolized, serve as a substrate, bind a specific molecule, or participate in biochemical reactions.” (The Free Dictionary by Farlex)]

This is particularly troubling for lead-exposed pregnant women. During pregnancy, bone is mineralized and lead stores are evacuated from the mother and transported to the developing embryo. Lead passes through the blood/brain barrier where it then enters the central nervous system of the developing foetus.

[The next paragraph contains a mass of scientific vocabulary. Attempted definitions of the italicized words follow the paragraph.]

During central nervous system development, lead has the potential to damage glial cells, to activate protein kinase C, to activate the dopaminergic and serotonergic neurotransmission systems, to prevent apoptosis, to interfere with calcium binding in the hippocampus, and to influence the number of cortical neurons and their migration. Deleterious postnatal effects include damage to M-Methyl-DAspartate binding sites, which aids in learning, demyelination and axonal degeneration, neurotransmitter metabolism and activity, and postnatal neurogenesis.

## Definitions of scientific vocabulary used in the preceding paragraph

**Glial cells** – the other brain cells (not neurons):“They surround neurons, providing them with oxygen, nutrients, and even remove dead neurons. Another thing they do is to help promote the

successful transmission of neurotransmitters. There are four types of glial cells... They are also known as the neuroglia. It should be noted that they do not conduct nerve impulses as neurons do.” (<http://myroadtomedicalschool.blogspot.com/2010/09/glial-cells.html>)

## **Protein kinase C**

There is this from Wikipedia: “Protein kinase C, activated by tumour promoter phorbol ester, may phosphorylate potent activators of transcription, and thereby lead to increased expression of oncogenes, promoting cancer progression, or interfere with other phenomena.”

## **Glutamatergic neurotransmission**

“Glutamatergic neurotransmission has been demonstrated to be involved in a variety of normal Central Nervous System functions...There are many aspects of brain development and function of excitatory amino acids that have been linked to the pathology of schizophrenia.”(‘ Neurochemical Abnormalities in Schizophrenia,’ by Sutisa Nudmamud-Thanoia, Department of Anatomy, Center for Central Facility and Research Development, Faculty of Medical Science, Naresuan University, Phitsanulok 65000, Thailand. Naresuan University Journal 2005; 13(1): 61-72 61)

**Apoptosis** “is the process of programmed cell death (PCD) that may occur in multicellular organisms... Unlike necrosis, apoptosis produces cell fragments called apoptotic bodies that phagocytic cells are able to engulf and quickly remove before the contents of the cell can spill out onto surrounding cells and cause damage.

In contrast to necrosis, which is a form of traumatic cell death that results from acute cellular injury, apoptosis, in general, confers advantages during an organism's life cycle. For example, the differentiation of fingers and toes in a developing human embryo occurs because cells between the fingers apoptose; the result is that the digits are separate. Between 50 and 70 billion cells die each day due to apoptosis in the average human adult. For an average child between the ages of 8 and 14, approximately 20 billion to 30 billion cells die a day...

In addition to its importance as a biological phenomenon, defective apoptotic processes have been implicated in an extensive variety of diseases. Excessive apoptosis causes atrophy, whereas an insufficient amount results in uncontrolled cell proliferation, such as cancer.” [Ed’s italics](Wikipedia, accessed 12 July 2011)

**Hippocampus** “Region of the brain that is associated primarily with memory. The name *hippocampus* is derived from the Greek *hippokampus* (*hippos*, meaning “horse,” and *kampos*, meaning “sea monster”), since the structure’s shape resembles that of a sea horse. The hippocampus, which is located in the inner (medial) region of the temporal lobe, forms part of the limbic system, which is particularly important in producing emotion.

The hippocampus functions in establishing long-term memory and is influenced by stress. Small changes in the blood flow or oxygenation levels of this region of the brain can serve as quantifiable markers for the emotional recognition of and response to stress. In addition, some neurons in the hippocampus are continually being formed. Therefore the hippocampus is one of only a few regions of the brain that serve as a source for neural stem cells.

Individuals who suffer damage to the hippocampus experience significant memory loss, or amnesia. This condition is marked by an inability to create new long-term memories.” (Britannica on Line eb.com)

## **Demyelination [Note different spelling in this reference]**

“Demyelination is the loss of the myelin sheath insulating the nerves, and is the hallmark of some neurodegenerative autoimmune diseases, including multiple sclerosis, acute disseminated encephalomyelitis, transverse myelitis, chronic inflammatory demyelinating polyneuropathy, Guillain-Barré Syndrome, central pontine myelinosis, inherited demyelinating diseases such as Leukodystrophy, and Charcot Marie Tooth. Sufferers of pernicious anaemia can also suffer nerve

damage if the condition is not diagnosed quickly. Sub-acute combined degeneration of the spinal cord secondary to pernicious anaemia can lead to anything from slight peripheral nerve damage to severe damage to the central nervous system affecting speech, balance and cognitive awareness. When myelin degrades, conduction of signals along the nerve can be impaired or lost and the nerve eventually withers.” (Wikipedia)

## **Axonal degeneration**

“An axon is a long, slender projection of a nerve cell, or neuron, that conducts electrical impulses away from the neuron's cell body or soma...Axons make contact with other cells—usually other neurons but sometimes muscle or gland cells—at junctions called synapses. At a synapse, the membrane of the axon closely adjoins the membrane of the target cell, and special molecular structures serve to transmit electrical or electrochemical signals across the gap. Some synaptic junctions appear partway along an axon as it extends—these are called en passant ("in passing") synapses. Other synapses appear as terminals at the ends of axonal branches. A single axon, with all its branches taken together, can innervate multiple parts of the brain and generate thousands of synaptic terminals.” (Wikipedia)

## **Resumption of Wright et al**

Our study, conducted on a prospective sample with ample variation in blood lead exposure, documents an association between childhood blood lead levels and adult psychopathy. Childhood blood lead levels, measured between the ages of 6 and 6.5 years, modestly predicted variation in the PPI measured 13 to 18 years later. The results remained significant despite controls for sex, race, maternal IQ, a global measure of home environment, and academic achievement.

Lead's effect on the brain and central nervous system may be pervasive. If so, childhood blood lead levels should also predict variation in other dimensions of psychopathy, such as grandiosity, being emotionally cold, being highly manipulative, and being emotionally callous.

In 4 of the 6 subscales that compose the PPI, childhood lead levels was a significant predictor. Blood lead levels significantly predicted variation in Machiavellian Egocentrism, in Social Potency, in Impulsive Nonconformity, and in Blame Externalization.

These 4 dimensions portray an individual that is callous and unemotional, that is highly egocentric, that deflects blame for his or her behaviour onto others, and that consciously manipulates others for his own gain. These are the hallmark indicators of the classic conception of the psychopath.

The ability of childhood lead levels to predict variation in these dimensions provides additional evidence that childhood lead levels are implicated in the etiology [cause] of psychopathy. This is important for three reasons.

First, childhood lead exposure remains a pernicious problem. Even though blood lead and air lead levels have decreased substantially since 1970, the reductions have not been geographically uniform. Contemporary epidemiological estimates, for example, indicate that 25% of children in the United States live in substandard housing where lead is prevalent in the paint, in the dust, and in the soil that surrounds the home. A majority of these children, however, are minority, usually African American, and experience elevated blood lead levels (above the 10 µg/dl [micrograms per decilitre] threshold established by the US Centers for Disease Control in 1991 – later a reference or action level of 5 µg/dl was set, in 2012) throughout their childhood. Exposure to this neurotoxicant is thus strongly correlated with social class. Participants in the CLS sample were overwhelmingly African American and scored in the two lowest categories on the Hollingshead measure of socioeconomic standing. Lead exposure may thus account, at least partially, for the

connection between race and over-involvement in a range of criminal and deleterious behaviours.

Second, the linkage between lead exposure and social class highlights the interconnections between environmental sources of variance in psychopathy and biological agents that can interfere with healthy brain development. Psychopathy may have strong genetic roots but may still be affected by biological toxins that subtly, and sometimes not so subtly, damage the brain and central nervous system of the individual. In this way, the origins of psychopathy can be environmental and biological.

## **Genome v. Phenome**

“The distinction between phenotype and genotype is fundamental to the understanding of heredity and development of organisms. The genotype of an organism is the class to which that organism belongs as determined by the description of the actual physical material made up of DNA that was passed to the organism by its parents at the organism's conception.... The phenotype of an organism is the class to which that organism belongs as determined by the description of the physical and behavioral characteristics of the organism, for example its size and shape, its metabolic activities and its pattern of movement.

It is essential to distinguish the descriptors of the organism, its genotype and phenotype, from the material objects that are being described. The genotype is the descriptor of the genome which is the set of physical DNA molecules inherited from the organism's parents. The phenotype is the descriptor of the phenome, the manifest physical properties of the organism, its physiology, morphology and behavior.” (Stanford Encyclopedia of Philosophy, as revised April 26, 2011 <http://plato.stanford.edu/entries/genotype-phenotype/> )

Finally, and more important, phenotypic behaviours [see above for a definition of phenotype] and beliefs that appear highly manipulative and callous and that advance the individual's self-interest may be partially the result of damage to the central nervous system. This point may be critical to understanding the lead effect on psychopathy: Behavioural inhibition mechanisms may or may not be compromised, but the emotional subsystem of the brain may be, which is why the psychopath is egocentric and manipulative. Under this perspective, beliefs and internal working models emanate from the neural substrates of the compromised limbic system. The origin of conscious thoughts, which clearly define much of the personality of the psychopath, may be influenced by exposure to neurotoxins in general, and to lead specifically. This may help to explain why psychopaths show reduced amygdala responsivity to pain and fear stimuli and reduced amygdala activation in affective memory tasks. Lead ingestion in childhood appears to place at-risk individuals for a host of behavioural, intellectual, and emotional problems.

Our study, conducted on a prospective cohort of lead exposed individuals brings to light another important deleterious problem—that is, the characterological facets that form the underpinning of psychopathic thinking. Evidence has consistently shown that “criminal thinking errors” correlate strongly with criminal conduct. High-rate criminals, for instance, are significantly more likely to attribute hostile intent to others, to infer aggression from others where none may exist, and to externalize responsibility for their conduct. Explanations for these cognitive frames typically come from social learning theory.

From a learning perspective, persistent criminals have likely “learned” how to rationalize their behaviour, have learned attitudes and values conducive to offending, and have learned to constantly assess perceived threat. We offer another possibility: deficits in the limbic system of the brain, potentially caused by biological insult, produce thought patterns that are antisocial and self- and other-destructive. [Ed's italics] Further research

will have to examine this possibility, but our results and the literature on psychopathy, in general, strongly suggest this possibility.

#### Notes

1. We used the value from the 72-month lead measure if the 78-month lead measure had any missing values. 2. We used mean replacement for any missing values on the total PPI score and all eight

John Paul Wright, PhD, is associate professor of criminal justice in the Division of Criminal Justice at the University of Cincinnati. His work focuses on genetic and biological influences on human violent behaviour, life-course development of serious antisocial behaviour, and the interplay between biological processes and environmental stimuli. He has published more than 80 articles and 4 books.

Danielle Boisvert, ABD, is a doctoral candidate in the Division of Criminal Justice at the University of Cincinnati. Her areas of interests include biosocial criminology, life course criminology, behavioural genetics, and early intervention. Much of her research focuses on the effects of genetic and environmental factors on antisocial behaviours. She has published widely in criminology and genetics journals.

Jamie Vaske, ABD, is a doctoral candidate at the University of Cincinnati. Her research interests include biosocial criminology, quantitative research, and gender differences and similarities in criminal behaviour. She has published widely in criminology, genetics, and addiction journals.

#### Earlier Related Article:

**Association of Prenatal and Childhood Blood Lead Concentrations with Criminal Arrests in Early Adulthood**, by John Paul Wright, Kim N. Dietrich, M. Douglas Ris, Richard W. Hornung, Stephanie D. Wessel, Bruce P. Lanphear, Mona Ho, Mary N. Rae, May 2008 issue of *PLoS (Public Library of Science) Medicine*,  
<http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.0050101>

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## Letters:

# Funding for GLASS for FY 2014 from the Australian federal government

*Editor's note: Elizabeth O'Brien was advised by telephone on Friday 25<sup>th</sup> October, that a response to her emails (below), should be forthcoming from the Minister's office sometime next week.*

3<sup>rd</sup> October 2013  
The Hon. Greg Hunt  
Minister for the Environment

Dear Mr Hunt,



Congratulations on your election and appointment as Minister for the Environment.

I am writing to request an urgent decision to fund the Global Lead Advice and Support Service (GLASS) for the financial year 2013-2014.

When he took his position on 1st July 2013 as Environment Minister in the then Labor Government, the Hon. Mark Butler put off making the decision about the grant for GLASS for FY 2014.

On contacting Mr Butler's office, we were told that the decision was being made and we would shortly hear from the department, though we haven't. As a result of this unexplained lack of continuation of funding, there is literally only \$24 left in our bank account, and energy and insurance bills are overdue, yet the department and its major publication on lead ("Lead Alert: [The Six Step Guide To Painting Your Home](#)") continue to refer callers to our freecall service. We're paying bills with kit income – our kits are listed in the Guide.

As a newly appointed Minister, there are of course many issues that need addressing, but I would argue that global management of Australian lead is a critical one to your portfolio. Australia exports more lead than any other country and owes a responsibility to the world that the heavy metal be used and managed responsibly and safely. The most effective stewardship role the Australian government has played to date in managing that lead both at home and abroad, has been the provision of annual grants to GLASS.

You have stated that you count your contribution to the development of an international initiative for the removal of land mines as your most important work. I count mine as my contribution to the global elimination of lead poisoning, and the global elimination of leaded petrol is my top priority. I founded GLASS in 1991 as a community service. It started local and went global to satisfy a wider need.

When the Hon. Malcolm Turnbull was Environment Minister, he approved a grant for GLASS in 2007 which allowed us to continue to provide lead information to Australians and the world. Following Mr Turnbull's example, grants to GLASS have been as follows:

- \$104,500 FOR PERIOD 11/6/08 UP TO 30/6/09
- \$117,648.30 FOR 22/6/09 TO 30/6/10
- \$110,000 FOR 18/6/10 TO 30/6/11
- \$115,500 FOR 17/6/11 TO 30/6/12
- \$115,500 FOR 14/6/12 TO 30/6/13.

Please see the attached information sheet, supporting the case for continued funding of GLASS, and possibly, an increase in funding.

Yours Sincerely  
Elizabeth O'Brien

**Information sheet to accompany letter to The Hon Greg Hunt from The LEAD Group Inc.**

**Why is the management of lead still important, when all but a handful of countries have banned leaded petrol?**

- **The legacy of leaded petrol**

An American study estimates that 1 in 10 adults will die prematurely due to their past lead exposure, mainly from the lead they inhaled during the era of leaded petrol (1921 to the

present). ([http://articles.chicagotribune.com/2002-12-27/news/0212270325\\_1\\_occupational-health-services-institute-ellen-silbergeld-dr-howard-hu](http://articles.chicagotribune.com/2002-12-27/news/0212270325_1_occupational-health-services-institute-ellen-silbergeld-dr-howard-hu) )

Even the more conservative estimate of the global **annual** impacts of human lead poisoning from lead in vehicle fuels was found (by Hatfield and Tsai in a United Nations-commissioned report published in 2011) to be significant:

- Close to **1.1 million deaths**;
  - A loss of **322 million** IQ points;
  - Close to **60 million crime** cases;
  - Economic loss of **USD 2.4 trillion** per year (4% of global GDP)
- ([http://www.unep.org/Transport/PCFV/PDF/leadEvaluation\\_summaryreport.pdf](http://www.unep.org/Transport/PCFV/PDF/leadEvaluation_summaryreport.pdf) )

We are not talking about just past years, the above yearly losses are expected to continue for many years to come: premature deaths for the global ageing population (mainly from lead-induced heart attack and stroke), but also for children; because, until the lead fallout from leaded petrol has been properly managed, that is, vacuumed up from where it settles in building cavities, removed from soils and sediments, and recycled, it is still available to be ingested due to hand-to-mouth activity – the major pathway for childhood lead exposure (eg see <http://www.smh.com.au/nsw/lead-threat-to-children-from-home-veggie-patches-20130906-2tan9.html> ).

- **Other, continuing sources of lead exposure and lead contamination**

Leaded paint and renovation, lead acid batteries and their recycling, ammunition and shooting, etc., and the thousand-and-one products which contain lead are possible sources of contamination.

### **The work of The LEAD Group in striving for a lead-safe world**

The LEAD Group participates in every international forum involved in the elimination of lead hazards, for primary prevention of lead poisoning and lead contamination, but it's not enough to only tell those 2.5 million people who know enough about lead to read our website ([www.lead.org.au](http://www.lead.org.au) ) or the 100,000 callers who have contacted us directly for advice on how to renovate lead-safely or work with lead. We also need to be proactive in convincing companies to make lead-free products to replace previously leaded products (such as jewellery, wheel weights, bullets, fishing sinkers), or to improve lead-safety for their staff, or to undertake training so they can take on lead removal work (such as paint removal or ceiling dust vacuuming).

GLASS is a one-stop shop or nexus for information and referrals about lead.

No single government agency, at any level, supplies all the answers that GLASS supplies to the public, and no organization is in a better position to also provide proactive education and awareness-raising activities.

In the USA, there are lead poisoning prevention sections in a range of government departments (environment / health / OHS / consumer products / housing) in every county, state and at the federal level, which provide lead information and assessment services and enforce lead regulations. In addition to this, certain occupations in America need lead licenses e.g., to undertake lead paint management or inspection services.

For the rest of the world, there is just GLASS to turn to.

GLASS responds to any enquiry about lead from anywhere in the world (to date we've received emails from over 150 countries), and provides passively-available information on our website (people from every country have read our website). We have created numerous egroups so that our enquirers can receive regular updates on their specific interest area, and can have discussions amongst themselves eg more than 500 parents of children with both lead poisoning and autism have joined our PAN (autism-lead) egroup have sent or received 1,566 (very informative and supportive) messages to each other.

By acting as a clearinghouse and regularly publishing and disseminating well-referenced and authoritative articles and fact sheets (in the last grant year alone, we sent out **133,481 copies** of the **17,214** articles in our Library database – the world's largest publically accessible data-based lead library), we are excellent at reacting to needs and problems as they arise but the Lead Safe World Project (LSWP) is the future direction – where we take our solutions out to the world. For this we need paid professional staff. I've sent your Department our LSWP proposal earlier. Would you like a copy?

Without continued funding we cannot survive in order to provide lead information and referral services to the people who look to us for help or advice. We are the only organization to provide this kind of assistance at no charge no matter where the enquirer lives or works.

If the annual grant were to be doubled, we could truly be proactive, and make a name for Australia as the model of world's best practice lead stewardship.

Elizabeth O'Brien

Manager, Global Lead Advice & Support Service (GLASS) run by The LEAD Group Inc. (environmental organization and health promotion charity)

President and Co-Founder, The LEAD Group Inc.

Winner of the United Nations Assoc'n of Australia (UNAA) World Environment Day (WED) Award for Outstanding Service to the Environment,

Partner, Partnership for Clean Fuels and Vehicles, of UNEP (United Nations Environment Programme)

Ally, Global Alliance to Eliminate Lead in Paint, of UNEP and WHO (World Health Organisation)

Member, UNEP Chemicals Lead and Cadmium Working Group

Secretary and Co-Founder, Australian Dust Removalists Association (ADRA) (the only building cavity dust removal contractors' association in the world)

Moderator, Plumbism and Autism Network (PAN) egroup, and a dozen other lead egroups.

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# Second email from The LEAD Group to The Honourable Greg Hunt

**From:** The LEAD Group

**Sent:** Friday, October 18, 2013 5:05 PM

**To:** Minister Hunt

**Subject:** Fw: ATTN: The Honourable Greg Hunt - More reasons to decide yes on GLASS Grant

Dear Minister,

I feel compelled to let you know that you have been wrongly advised if you have been told that the previous Environment Minister decided not to fund The LEAD Group's Global Lead Advice and Support Service (GLASS). Despite numerous attempts to obtain a decision on our funding from the Minister's office prior to the election, we were never advised of such a decision, and we were always advised that the decision was still being made.

So when the ABC published your response to my email below, it was shocking news to me, and I wonder if you were correctly quoted. The article by Sue White, "Lead advice group cut as poison concerns increase" at <http://www.abc.net.au/environment/articles/2013/10/14/3861664.htm> (14 Oct 2013) states that:

Environment Minister Greg Hunt says of GLASS's funding, "This was a decision made by the previous Government. Due to Labor's financial mismanagement, we are not in a position to overturn their decision."

No decision was made by the prevaricating former Minister so I appeal to you to finally make a decision and that it be a positive one.

Every day, people continue to call or email our information service because, they tell me:

- "I got your number from the DSEWPaC Lead Alert 6 Step Guide" or
- "I found you on [www.environment.gov.au](http://www.environment.gov.au)" or
- "I rang the Community Information Unit and they said to call you" or
- "Poisons Info said to call" or
- "Dulux said to call you the moment I asked about lead in paint" or
- "I've called you every time I've had a notified blood lead level to deal with and had to investigate the home environment and I know for a fact that even if I called 5 different government agencies, I wouldn't get all the answers you always give me in one phonecall"
- "my Council said to call my state environment agency who said to call the federal Department of the Environment who said to call you" or
- "the CSIRO told me you were the expert to talk to"...

When it comes to lead, all roads lead to The LEAD Group's information service, and have done for over 20 years.

Don't think of our tiny grant as unaffordable, think of it as an investment in the future – our children's future and the environment's future.

The lead in the paint on 3.7 million homes in Australia hasn't been removed magically once lead was no longer permitted to be added to new paint in 2010 – that's done one lead

poisoning/lead contamination case at a time – just look around your own suburb, at people dry sanding and heatgunning and demolishing (releasing leaded ceiling dust from the era of leaded petrol).

Lead, once it is put in a product and gets out there, must be managed for all time, until its collected and recycled into more easily-managed products like lead acid batteries – which only rarely happens with the lead from old paint and leaded dust.

You can't run one education campaign in the 1990s and expect that people having their first baby in the 2010s will remember the lead-safety messages. Only this week, the umpteenth caller told me he'd never heard of lead in paint.

With people wanting to grow their own vegetables and poultry these days – lead contaminated soil is a real issue – yet there is no guidance whatsoever on the “safe” level of lead in soil to be used for these purposes, other than the recommendations The LEAD Group makes when we supply the results of laboratory testing with our LEAD Group test kits (which are listed as a reliable and accurate method for testing environmental samples in DSEWPac's only current lead publication, the Lead Alert 6 Step Guide).

When people follow the lead abatement recommendations we make, they ensure their family's and pet's lead safety. Every dollar spent on lead abatement returns many dollars worth of benefits. [The hidden villain behind rampant crime, lower IQs, even rising ADHD? Pb\(CH<sub>2</sub>CH<sub>3</sub>\)<sub>4</sub> \[tetra ethyl lead \(TEL\)\]](#) by Kevin Drum states: “Invest US\$20bn annually in lead abatement and the return is US\$210bn annually.”

We're asking you to invest \$115,000 so everyone can receive the advice they need, from one totally reliable source.

I hope you will make a decision about our funding, with this fabulous return on investment in mind.

Yours Sincerely

Elizabeth O'Brien

Manager, Global Lead Advice & Support Service (GLASS) run by The LEAD Group Inc.

PO Box 161 Summer Hill NSW 2130 Australia

Ph +61 2 9716 0132 Freecall 1800 626086

www.lead.org.au

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# Change.org Petition for a NSW Firefighters' Fund and proposal for blood lead testing for firies

From: Geoff Hearn

Sent: Friday, October 25, 2013 4:34 PM

To: The LEAD Group

Subject: Firefighters

Change.org

The LEAD Group - There's a new petition taking off on Change.org, and we think you might be interested in signing it:

Barry O'Farrell [Premier of New South Wales, Australian state with the largest population and currently beset by numerous bushfires which have destroyed over 200 homes]: set up a support fund for our firefighters who've gone without to fight the fires

By Geoffrey Hearn  
Penrith

<https://www.change.org/en-AU/petitions/barry-o-farrell-set-up-a-support-fund-for-our-firefighters-who-ve-gone-without-to-fight-the-fires#share>

WEBFORM WHEN SIGNING THE FUND FOR FIREFIGHTERS PETITION AT  
[https://www.change.org/en-AU/petitions/barry-o-farrell-set-up-a-support-fund-for-our-firefighters-who-ve-gone-without-to-fight-the-fires?alert\\_id=hQBpdFmTNp\\_cKqGHaTUda&utm\\_campaign=38603&utm\\_medium=email&utm\\_source=action\\_alert](https://www.change.org/en-AU/petitions/barry-o-farrell-set-up-a-support-fund-for-our-firefighters-who-ve-gone-without-to-fight-the-fires?alert_id=hQBpdFmTNp_cKqGHaTUda&utm_campaign=38603&utm_medium=email&utm_source=action_alert)

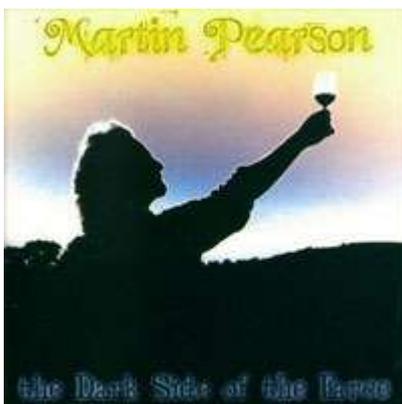
I suggest the fund in part be used to offer fires free blood lead testing. It is a little known fact that the wood of trees can be leaded (depends on soil lead content) but should be obvious that lead paint abounds and wood on buildings burns easily so fires are certainly at risk of breathing lead fumes (which is associated with early death) while they're out saving lives and risking very early death.

Elizabeth O'Brien  
The LEAD Group Inc

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## The Red Corvette / A True Story

*Collated by Elizabeth O'Brien*



*Editor-in-Chief's note:* the way Martin Pearson sings this song on his The Dark Side of the **Farce** album is so excellent I just had to include his lyrics in *LEAD Action News*, with the merest justification that 1985 was the last year in Australia when new cars designed to run on leaded petrol were permitted to be sold. Nineteen eighty-five was also the year that unleaded petrol became available in Australia. I strongly advise all readers to buy a copy of The Dark Side of the **Farce** CD, via [email](mailto:) or at [www.martinpearson.com.au](http://www.martinpearson.com.au)

### Background to “The Red Corvette” / “A True Story”

This song is also sung by Betsy Rose, who got it from John McCutcheon. ©1989 John McCutcheon/Appalsongs (ASCAP). Available on "Water from Another Time" from

[www.folkmusic.com](http://www.folkmusic.com). Used by permission. The lyrics as sung by John McCutcheon in 1989 (plus various claims of the story actually happening, as long ago as 1948), can be found at *Urban Legends Reference Pages*, by Barbara and David P Mikkelsen, at <http://www.snopes.com/love/revenge/porsche.asp>

Below are the lyrics as sung by Martin Pearson (accompanying himself on guitar). According to Mark Cohen, writing in The Mudcat Café - [www.mudcat.org](http://www.mudcat.org) - who first heard it in 1986 [*Ed. note: could this date be in error?*]: Betsy said that John did it as a basic three-chord folksong, but "I can't write a three-chord song to save my life, so I changed it to an Irish a cappella ballad."

**Song lyrics: The Red Corvette**, as sung by Martin Pearson

*Last morning as I read the paper, in search of a new set of wheels  
The classifieds had a most curious ad in their listings of automobiles  
I gazed with suspicious amusement, at what seemed like a wild stroke of luck  
"Corvette Stingray," it said, "low mileage, bright red, '85 model – sixty-five bucks"*

*Well I was used to my newspaper's headlines, I phoned up that number straightway  
"That '85 'Vette -- have you sold that thing yet?" She said, "No, you're my first call today"  
I said, "There's been a mistake in the paper, they've gotten the price wrong somehow"  
"Oh, no," replied she, "they got that price from me." I said, "Don't sell that car, I'm  
leaving now!"*

*She lived in that part of the city, I'd  
ventured just one time or two  
Where lawyers, bank presidents, and  
doctors were residents, and the houses  
were massive and new  
As I turned up her half-a-mile driveway,  
there in the heat of the day  
In the sunlight it gleamed, the car of my  
dreams -- only sixty-five dollars away*

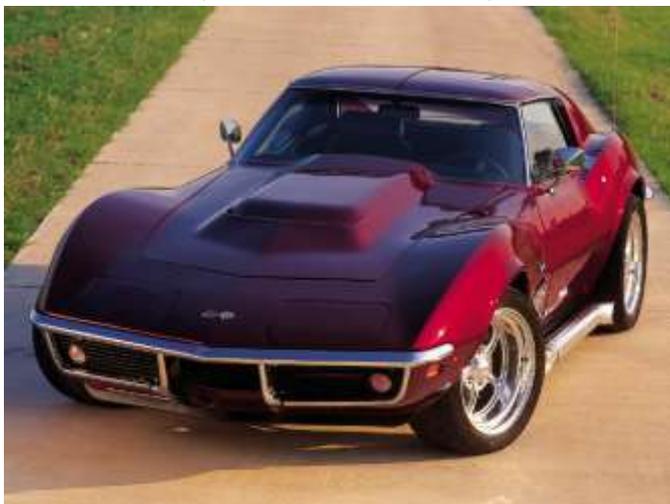


Photo posted by Micael at <http://www.fi-forum.fi/vb/showthread.php?p=1171262>

*Bow wingspan doors, a Hurst four-on-the-floor, and an 8-track 8-deck solid state  
There was chrome on the chrome on the fenders, in an aerodynamic design  
A bar, a TV, and it was boggling to me that for sixty-five bucks it was mine*

*Now I was sure that this lady was crazy, selling that car at this price  
But as she walked down the lane she seemed perfectly sane -- she was charming and  
really quite nice  
But she smiled with such great satisfaction as she handed me title and keys  
I said, "I've just got to know why you let this thing go -- what's wrong with this car, tell  
me, please?"*

*Well she said, "I'll be sixty come Tuesday. I've lived here with my husband Earl  
After forty years wed, and without a word said, he ran off with a silly young girl  
But with his credit cards left here behind him, I knew that he wouldn't get far  
Last night from Florida he, sent a wire to me, it said: 'I need money, dear - sell the car!'"*

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# Exposure Assessment: Lead Neurotoxicity

Is the Center for Disease Control's goal to reduce lead below 10µg/dl blood in all children younger than 72 months by 2010, good enough?

*Thomas F. Schrager, Ph.D.*

[Original Source: <http://www.toxicologysource.com/tox-med/lead/braininjury.html> (2006) - this site no longer exists as of 2013 – reprinted here for historical purposes]

Blood lead threshold levels have been decidedly downward over the past forty years. While it may be possible that the bottom has been reached or that new research might at some point reverse the trend--something that does happen with other chemicals, although rarely--recent evidence suggests that the direction of the trend for lead will continue. In part this is due to better data at lower concentrations of lead, simply showing or confirming what has been suggested for a long time by insufficient data. And in part this is due to an appreciation and ability to test much more subtle effects of lead toxicity.

The results of the jury verdict in Rhode Island that held paint manufacturers responsible for lead paint that remains in homes and the toxic consequences of this situation, come at a time of growing understanding of the more subtle toxic effects of lead in the neurological development of children; that is, that (much) lower blood lead (BPb) than previously shown or considered, can be toxic and over a wider range of adverse affects. The rapid change in which significantly lower lead toxicity and the stakes involved has been recognized is reflected in the speed of change in acceptable threshold levels. The 1990 decision by the U.S. Department of Health and Human Services to eliminate all BPb > 25 µg/dl in children 6 months through 5 years of age by 2000 (Healthy People 2000) was followed in 1991 by a reduction in that 25 µg/dl threshold of concern to 10µg/dl by the Centers for Disease Control (CDC 1991). By the late 1990's a new, Healthy People 2010 goal was set to eliminate all BPb > 10 µg/dl (Myer et al 2003; US Dept HHS 2000).

By implementing these different thresholds and goals, the proportion of children at-risk (BPb > 10µg/dl) has been reduced during the past thirty years from approximately 88 percent to 2.2 percent (NHANES 2000), an obviously very significant accomplishment in public health efforts to eliminate child lead poisoning. Nevertheless, CDC estimates that the 2.2 percent figure translates into more than four hundred thousand children with BPb > 10 µg/dl (NHANES 2000), and is a nationwide average; inner city and/or low socioeconomic areas often have much higher proportions of children with BPb exceeding 10 µg/dl, typically 8-10 percent of children and in some areas as high as twenty percent. Lead poisoning clearly remains a major problem in these areas, the very places that can least afford further compromise of intellectual functioning, due to negative socioeconomic circumstances and lack of early childhood stimulation.

Also, associations between BPb and intellectual functioning are typically based on population averages; neuropsychological testing of individuals, especially those with borderline intellectual functioning, shows widely varying impacts from individual to individual of even a few-point decrement in IQ (Dietrich 1993). And a few point decrement in intellectual functioning, among hundreds of thousands of children with borderline intellectual functioning to start with, can produce enormous economic and social impacts (Fulton et al 1987).

## A 'Safe' Threshold for Lead Toxicity?

Further extending this trend, additional data and new analysis of existing data support a growing scientific consensus that a threshold for lead neurotoxicity in fetuses and young children does not exist (WHO 1995; CDC 2003); CDC stated in a consensus report that ‘a threshold for harmful effects of lead remains unknown’ (Myer et al 2003). And following the release of the comprehensive ‘Third National Report on Exposure to Chemicals in Humans’ (CDC 2005), Jim Pirkle, deputy director of CDC’s Environmental Health Lab, stated unequivocally that a safe blood lead level in children simply does not exist.

The progressive reduction over time in the toxic threshold of lead ( a similar trend seen with most other chemicals) results from accumulation of data, improved understanding of target tissue injury, and more sophisticated tools and methodology to measure adverse toxic effects. The ‘safe’ threshold for lead has been revised downward six-fold during the past thirty years, from 60 µg/dl prior to 1971, 40 µg/dl until 1978, 30 µg/dl until 1985, and 25 µg/dl from 1985 until 1991 when the threshold was changed to the present < 10 µg/dl level (CDC 1975; CDC 1985; CDC 1991). Each reduction in threshold leads to greater focus on BPb toxicity at lower levels and, with that, more accumulated data at those lower levels, allowing verification of a reduced toxicity threshold.

Increasingly, the 10 µg/dl ‘threshold’ for lead is seen to reflect a ‘threshold’ of reliable data rather than a threshold of toxicity; that is, until recently insufficient data existed to verify lower toxicity, rather than sufficient data showing no toxicity at lower levels. This distinction is often the case and just as often is not made clear, leading to misinterpretation of data and toxicity. One resultant problem has been insufficient monitoring of children from infancy through five years of age or more—generally believed the critical window of significant and lasting neurological damage—so it has been difficult to know whether observed neurological effects at sub-10 µg/dl BPb concentrations actually reflected toxicity at those levels or simply reflected missed monitoring of periodic spikes of BPb above 10 µg/dl during the critical exposure period.

Lanphear et al (2005) conducted a pooled analysis of 1333 children from seven studies, which produced sufficient numbers of children whose BPb had been closely monitored during the critical early childhood period and whose BPb had not exceeded certain levels at any time. The Lanphear study found two such groups: those whose BPb did not exceed 10 µg/dl and those that did not exceed 7.5 µg/dl, allowing these two distinct BPb groups to be compared with those with BPb ranging from 10 µg/dl to 30 µg/dl from shortly after birth to five years of age. IQ was also measured during this time period. They found that increases of BPb from 2.4 to 10 µg/dl caused a much greater decrement in IQ score than increases in BPb from 10 to 20 µg/dl, or from 20 to 30 µg/dl. These results confirmed an earlier study by Canfield et al (2003), that tracked BPb from infancy through five years of age, with more than half having BPb that never reached or exceeded 10 µg/dl. Canfield found that BPb increases from 1 µg/dl to 10 µg/dl resulted in a decrement of 7.4 IQ points, compared to decrements of 4.6 IQ points for each additional 10 µg/dl increase in BPb above 10 µg/dl. A steeper dose response curve of BPb below, as opposed to above, 10 µg/dl, was also demonstrated in a study by Schwartz (1994).

A reanalysis of a Boston cohort by Bellinger and Needleman (2003), prompted by the Canfield results, found 48 children whose BPb had been closely monitored in early childhood and had never reached or exceeded 10 µg/dl, and they too found a steeper drop in IQ versus increases in BPb below 10 µg/dl, as compared to increases above that level. The Bellinger and Needleman reanalysis was also important because this cohort included many middle and upper middle income students. One of the questions about the steeper sub 10 µg/dl dose-adverse effect curves was whether the (detrimental) influence of other confounding factors, such as maternal IQ, stimulation of the home environment in early

childhood or absence of other early educational opportunities, simply became more pronounced and apparent as the effects of very low BPb levels were reduced. Assuming such effect was solely due to BPb would create a seemingly disproportionate toxic effect of lead on IQ at those (very low) levels. The Bellinger and Needleman study, as well as other similar sub-10 µg/dl studies, suggests that these confounders were not the cause for the steeper dose response curve.

Rothenberg and Rothenberg (2005) extended these findings by applying a log linear model to these dose response relationships, rather than the usual linear model and found the log linear model fit the data better. The linear model emphasizes an absolute effect of BPb dose on toxicity, whereas a log linear model emphasizes a proportionate effect. For example, a linear model predicts that a 10 µg/dl increase in BPb (from 10 µg/dl to 20 µg/dl) exerts twice the toxicity as would a 5 µg/dl increase (from 5 µg/dl to 10 µg/dl), whereas the log linear model would predict a more proportionate increase in toxicity in each case.

The actual dose response curves fit the latter model much better than the former, and this has a number of implications. Such model not only predicts that a significant portion of low level lead toxicity occurs below 10 µg/dl, as reflected in the above studies, rather than above 10 µg/dl, but that the economic costs associated with intellectual, behavioral and other neurological deficits are more than twice previously calculated (Canfield 2003).

Lead neurotoxicity in young children affects not only intellectual development but other behavioral and social parameters, which can also greatly impact one's success in life and the social costs of managing these problems. Needleman (2002) showed that bone lead (the lead reservoir) in young males was correlated with increased criminal behavior, anti social attitudes and other forms of juvenile delinquency. Dietrich et al (2001) showed similar effects on juvenile delinquency.

A study by Nevin (2000) shows a correlation between use of lead-based paint, as well as leaded gasoline, and both unwed pregnancy and criminality, including murder, as far back as the early 1900's. This study also showed a steeper dose relationship between BPb below 10 µg/dl and IQ deficits, compared to above 10 µg/dl, and showed a correlation between IQ deficits and social/behavioral problems, suggesting a significant effect of lead on social behavior at very low BPb.

Whereas lead toxicity is expressed and observed early, at the time of exposure, in causing apparently irreversible decrements in intellectual and social functioning, experiments by Basha et al (2005) (suggest latent neurotoxic effect from early, transient lead exposure. Rats dosed with lead during the first twenty days of life exhibited elevated BPb, characteristic of lead poisoning, which subsequently returned to normal post dosing. During the dosing period, APP mRNA also showed increased activity during the neonatal period of increased BPb, which also returned to normal. But in old age APP mRNA again became active, accompanied by excessive amounts of APP (B-amyloid precursor protein), the protein from which B-amyloid deposits are derived in the brain. These deposits are characteristics of brains in Alzheimer's patients. In older rats not dosed in early life but dosed for two months in old age, no such increase in APP m-RNA, APP or B-amyloid was found, suggesting that early lead exposure can not only produce permanent tissue damage with significant life long effects, but program alterations in gene expression which can cause significant effects later in life.

Beyond these neurotoxic effects lead is also implicated in cardiovascular disease, renal damage and dental caries. Taken together, these early, life long adverse effects of lead exposure, at likely very low levels, underlines the importance and implications of the Rhode Island jury verdict and repercussions it may have on communities throughout the

country. Although the latest data remains to be verified, the trend is clearly in one direction and the consequences, both on the individual and on society are so great, that erring on the side of prevention seems the prudent course.

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# The full story: The only safe level of lead exposure is zero

**Authors:**

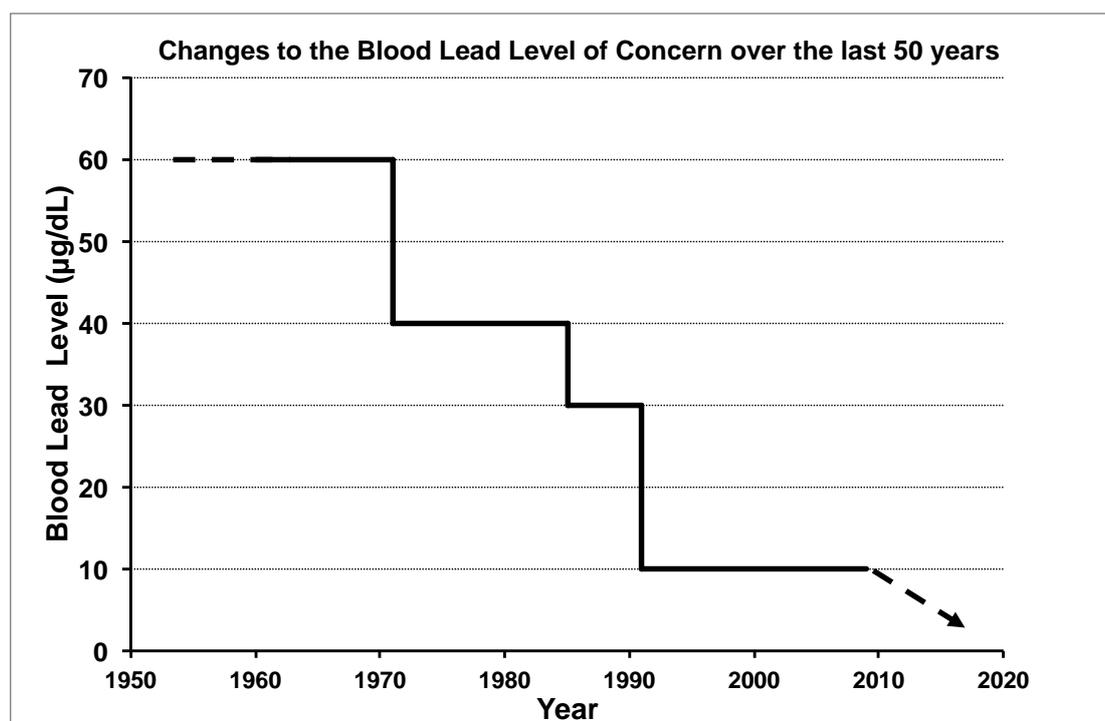
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[*Editors' note:* A shorter version of this article was published as a Lead Opinion Piece, titled "There is no safe level of lead exposure", ABC Online Environment, at

In about 1960, health agencies in Europe and the USA set, and then lowered (as more evidence became available) a blood lead “level of concern” from 60 µg/dL, to 40 µg/dL (in 1971), to 30 µg/dL in 1985, and lastly, to 10 µg/dL in 1991. This was the level that pediatricians and other health professionals could use for establishing priorities and interventions for a lead poisoned child (see Figure 1). In 2009, Germany lowered the reference value for child (aged 3-14 years) blood lead levels to 3.5 µg/dL [<http://www.sciencedirect.com/science/article/pii/S1438463911000794>] and in 2012, the US CDC eliminated the “level of concern” set at 10 µg/dL and established 5 µg/dL as the intervention (reference) level for individual children [[http://www.cdc.gov/nceh/lead/ACCLPP/CDC\\_Response\\_Lead\\_Exposure\\_Recs.pdf](http://www.cdc.gov/nceh/lead/ACCLPP/CDC_Response_Lead_Exposure_Recs.pdf)].



**Figure 1:** Changes to the blood lead level of ‘concern’ over the last 50 years.

In 1993, Australia’s current blood lead goal of 10 µg/dL was revised downwards from the 1983 level of 25 µg/dL, which mirrored the blood lead level established by the US Centers for Disease Control (CDC) in 1991. The figure of 10 µg/dL was reaffirmed by the National Health and Medical Research Council (NHMRC) after a review in 2009 [[http://www.nhmrc.gov.au/\\_files\\_nhmrc/publications/attachments/gp2-lead-info-paper.pdf](http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/gp2-lead-info-paper.pdf)]. This review concluded that “*The nature of the ‘dose-response’ relationship between lead exposure and children’s intellectual abilities and behaviour is also contentious.*” Importantly however, the NHMRC also noted in their Information paper that “*No threshold of lead exposure below which any exposure might be considered ‘safe’ in respect of cognitive abilities has ever been identified.*”

To date, the majority of research on the neurocognitive and behavioural effects of lead exposure has been conducted in the US, with very few studies examining the impacts and long-term outcomes in Australian populations in terms of school performances or criminality. The majority of Australian published research was conducted in the 1990s and was based on Port Pirie children, who had higher lead levels from smelter emissions than are typically found today either there or elsewhere. However, Rachel Earl’s 2011 PhD study [<http://digital.library.adelaide.edu.au/dspace/bitstream/2440/71322/1/o2whole.pdf>] investigated the effects of low-level lead exposure on 106 children (whose mean blood lead concentration was 4.97 µg/dL) from Port Pirie and Broken Hill. Her study drew the same

conclusions as previous international studies:

[<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1257652/>] that there was no safe, lower threshold for lead exposure

[<http://digital.library.adelaide.edu.au/dspace/handle/2440/71322>]. Importantly, the study's findings confirmed that low and initial lead exposures may indeed cause proportionately greater impact on children's cognition than higher levels.



Graphic: Entry in the Volcano Art Prize 2013. Photographer: Hugh O'Brien. Title: Playground In Shadow Of Lead Smelter, Mt Isa, Queensland. Lead-safety message: Check the wind direction before playing in this park.

<http://volcanoartprize.com/portfolio-item/obrien-hugh-playground-in-shadow-of-lead-smelter-mt-isa-queensland/>

In short, this means that prevention of any lead exposure must be a key goal of any public policy or approach to lead exposure risks and that the *de facto* goal of only aiming to keep children's blood lead below 10 µg/dL (Port Pirie - <http://thumbsupforlowlevels.com/about-us/aims>; Mount Isa - <http://www.livingwithlead.com.au/about-lead/>; Broken Hill - <http://www.fwlhn.health.nsw.gov.au/UserFiles/files/FAR%20WEST%20Lead%20Health%20Data%20Report%202011.pdf>) is outdated and will inevitably result in detrimental exposures. We have already argued for the effective elimination of exposures [<http://www.mq.edu.au/pubstatic/public/download.jsp?id=71937>] because as the NHMRC and others have argued, there is no safe lower level.

The evidence against the argument that the nature of the dose-response effect is "contentious" is now so overwhelming that it is no longer contentious, except to the most biased, and it is self-evident that Australia needs to respond quickly, especially to protect children. We have argued in recent articles in the *Medical Journal of Australia* [[https://www.mja.com.au/journal/2012/197/9/eliminating-childhood-lead-toxicity-australia-call-lower-intervention-level?o=ip\\_login\\_no\\_cache%3Dcfca1c55fe4ab5b3b391d9591bec525a](https://www.mja.com.au/journal/2012/197/9/eliminating-childhood-lead-toxicity-australia-call-lower-intervention-level?o=ip_login_no_cache%3Dcfca1c55fe4ab5b3b391d9591bec525a)] and elsewhere [<http://theconversation.com/time-to-rethink-blood-lead-goals-to-reduce-risk-to-childrens-health-10493>], that the current goal is too high and that effective elimination of blood lead exposures is an urgent goal that health and environmental authorities must seek to attain. Effective elimination means that we should aim for children to have blood lead levels below 1 µg/dL. Natural levels of lead in blood were calculated two decades ago at 625 times less than the current Australian "maximum" (the NHMRC goal to be below, of 10 µg/dL) [<http://www.nejm.org/doi/full/10.1056/NEJM199205073261916>].

### **The effects and absorption of lead exposure are non-trivial and are lifelong**

The United States Environmental Protection Agency (US EPA) 2013 Integrated Science Assessment for Lead [<http://www.epa.gov/ncea/isa/lead.htm>] concluded that the weight of evidence shows adverse cognitive function effects of lead exposure on populations of children down to 2 µg/dL, the effects of which may be irreversible and persist into adulthood.

Lead exposure is associated with delayed pubertal onset and adverse reproductive and development effects in young adults who have mean blood levels less than or equal to 5 µg/dL. Adults are not protected from exposures either, causal relationships having been shown to exist between low-lead exposures (< 10 µg/dL) and adverse cardiovascular effects

(e.g. increased blood pressure, hypertension, coronary disease). In addition the US EPA concluded that there was a likely causal relationship between lead exposure and reduced kidney function, all which are considered to reduce lifespan and quality. Toxicological evidence also provides strong evidence that lead exposure reduces male semen quality and may affect some aspects of female reproductive function. Finally, the US EPA concluded that the evidence supports a likely causal relationship between high levels of lead exposure and cancer.

All of these (and more) exposure effects may be confounded by a myriad of other social, economic, genetic and environmental factors. However, the US EPA's findings are supported by the conclusions reached in other major international review's of research into the effects of low-level lead exposures (Canada, Germany, USA, WHO) [<http://hc-sc.gc.ca/ewh-semt/pubs/contaminants/dhhsrsl-rpecscepsh/index-eng.php>; <http://www.sciencedirect.com/science/article/pii/S1438463911000794>; <http://ntp.niehs.nih.gov/go/36443>; <http://www.who.int/ceh/publications/leadguidance.pdf>]. As a result, there have been worldwide recommendations to reduce lead exposures.

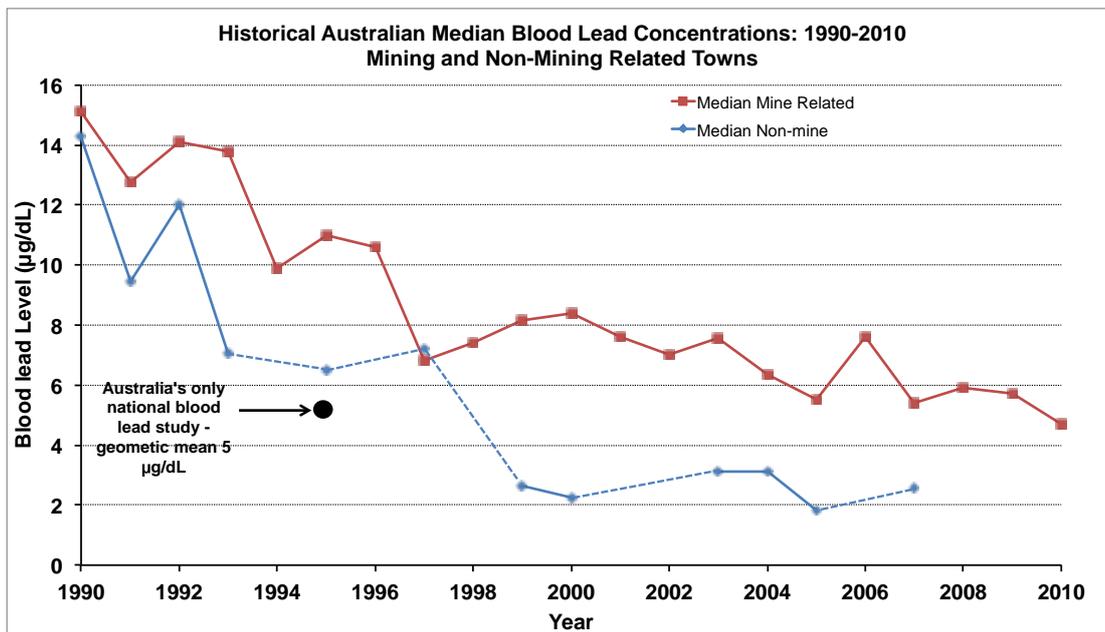
In 2012, the globally respected United States Centers for Disease Control stopped using a blood lead level 10 µg/dL as a "level of concern" and is now using a reference value of 5 µg/dL to identify children who have been exposed to lead and who require case management. Such an approach in Australia is likely to mean more than at least 50 % of the children under 5 years of age in Broken Hill, Mount Isa and Port Pirie would need greater protection and intervention.



Graphic: entry in Volcano Art Prize 2013.  
Photographer: Julia Wyllie. Title: Getting the lead out. Lead-Safety Message: Silent blanket of lead dust falls over Broken Hill.

Although national blood lead values are falling in major cities and mining towns (Figure 2), the quiet concern about lead exposure is very clearly evident in Medicare statistics that show 107,810 blood lead tests were conducted on all Australians in the last decade

[[https://www.medicareaustralia.gov.au/cgi-bin/broker.exe?PROGRAM=sas.mbs\\_item\\_standard\\_report.sas&SERVICE=default&DRILL=ag&DEBUG=0&group=66665&VAR=services&STAT=count&RPT\\_FMT=by+state&PTYPE=finyear&START\\_DT=200307&END\\_DT=201308](https://www.medicareaustralia.gov.au/cgi-bin/broker.exe?PROGRAM=sas.mbs_item_standard_report.sas&SERVICE=default&DRILL=ag&DEBUG=0&group=66665&VAR=services&STAT=count&RPT_FMT=by+state&PTYPE=finyear&START_DT=200307&END_DT=201308)]. It is an unfortunate and a significant lost opportunity that the results from these tests are not captured, stored and analyzed by the NHMRC as part of its statutory work - the work to raise the standard of individual and public health throughout Australia. In the absence of collation and analysis of such raw data or a national blood lead survey of all ages (as have been regularly carried out in the USA since 1976), we used USA population lead survey data to estimate that ~ 100,000 Australian children under five years of age may have blood lead levels > 5 µg/dL, which are likely to cause adverse health effects [[https://www.mja.com.au/journal/2012/197/9/eliminating-childhood-lead-toxicity-australia-call-lower-intervention-level?o=ip\\_login\\_no\\_cache%3Dcfca1c55fe4ab5b3b391d9591bec525a](https://www.mja.com.au/journal/2012/197/9/eliminating-childhood-lead-toxicity-australia-call-lower-intervention-level?o=ip_login_no_cache%3Dcfca1c55fe4ab5b3b391d9591bec525a)].



**Figure 2:** Changes in blood lead levels in Australian Children between 1990-2010. Note, that the data contains arithmetic and geometric mean values (as reported in the studies) and in some cases data was collected over more than one calendar year. Most of the data points relate to children under the age of 5. In the only national blood lead study, only children aged 12-48 months were tested.

Lead exposure from soils and dusts in Australian communities is dominated by three sources: (i) mining and smelting emissions, (ii) lead paint and (iii) leaded petrol. In mining affected areas, the original contaminant load is sourced primarily from smelter fallout, dust from spoil heaps or tailings that have been transported deliberately or inadvertently into and dispersed across human and natural environments. The release of such contaminants can pose a significant potential environmental and human health threat to people living, working and recreating in or near to such environments. Lead levels in paint were up to 50% by weight before the 1950s but thereafter several reductions were mandated bringing the allowable concentration to 0.1% in 1997

[<http://www.environment.gov.au/atmosphere/airquality/publications/housepaint.html>].

Unleaded petrol for road vehicles was introduced in Australia in 1985, with the lead content of petrol declining from 0.84 g/L in 1990 to 0.2 g/L in 1996, until it was finally banned in 2002

[<http://www.environment.gov.au/atmosphere/airquality/publications/qa.html>]. The consequences of the use of lead in petrol on environmental quality have been significant. In two national assessments of petrol lead emissions 3,842 tonnes of lead were emitted in Australian capital cities in 1976 [<http://catalogue.nla.gov.au/Record/2270078>] and 2,388 tonnes of lead were emitted in 1985 [<http://catalogue.nla.gov.au/Record/1973311>], despite mandated reductions of allowable lead in petrol. As a result, many of the older, larger inner city areas of Australia became heavily contaminated with lead [<http://link.springer.com/article/10.1007/s11270-010-0411-3?LI=true>; <http://link.springer.com/article/10.1007/s11270-010-0555-1?LI=true>; <http://www.sciencedirect.com/science/article/pii/S0269749110003738>] and it is these sources that continue to expose children to potentially adverse levels of environmental lead (<http://www.sciencedirect.com/science/article/pii/S0269749113004661>). In contrast, smaller rural towns with significantly lower vehicle use and population densities, and no mining and smelting industries are likely to have a less significant legacy of environmental lead exposure (<http://www.sciencedirect.com/science/article/pii/S0883292713001637>), except in older housing where lead paint was used or where the source of drinking water is rainwater, river water or groundwater which has not been tested for lead.

Although Australia continues to be a world leader in lead metal mining, smelting and processing there has been a significant lack of research funding directed towards understanding exposures and the real risks they play. For example, there has never been any major longitudinal study investigating environmental lead plus other metals exposures in Mount Isa or Broken Hill, despite their importance in the Australian landscape and the current and historic childhood (and occupational) lead exposures. Any negative human health impact arising from lead extraction and refining has been down-played consistently by mining companies, governments, councils, health officials and regulators so as to not challenge the status quo and disrupt economic opportunities for remote rural Australian towns and the wider Australian community

[<http://onlinelibrary.wiley.com/doi/10.1111/j.1440-1754.2010.01777.x/full>;

<http://www.tandfonline.com/doi/abs/10.1080/19338240903338189#.ULPK8ihoqSo>].

Consequently, affected communities have never been able to assess the real risk to their health because of the systematic obfuscation of the facts in regard to the source of any potentially related environmental health problem [ <http://theconversation.com/lead-poisoning-of-port-pirie-children-a-long-history-of-looking-the-other-way-8296>; <http://www.sciencedirect.com/science/article/pii/S0269749113002455>]. As a result, generations of families have been unable to make informed choices about the nature and quality of the environment in which they reside or work. Consequently, as a result of ignorance, misinformation and deliberate down-playing of the evidence, communities residing adjacent to lead mining, smelting and refining centres such as those in Broken Hill, Port Pirie and Mount Isa continue to be exposed to environmental lead, a known neurotoxic contaminant.

Graphic: entry in Volcano Art Prize 2013. Photographer: Katie Mortimer. Title: Irremovable Reminders. Lead-Safety Message: Years of mining in Broken Hill has caused widespread lead contamination. Despite the blatant reminders throughout the town of the strong mining history, such as this slag the town is centred around, residents are ignorant of issues associated with the high levels of lead present. Action is greatly needed for a lead free future in Broken Hill.



Finally, with the overwhelming mountain of evidence that Australia's lead level for children is too high, we ask why would it take the NHMRC so long (2012-2014) to undertake what appears to be a review of reviews [ <http://www.nhmrc.gov.au/guidelines/publications/new36new37> ], in the anticipation that they might conclude something different from other global experts?

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# Info Pack - Lead-safety for shooters and workers at shooting ranges

This Info Pack (collection of articles which form a great reference list for a fact sheet) has resulted from a request for a fact sheet for shooters and their doctors from a NSW public health officer and is presented in the hope that a Public Health Officer will write an appropriate fact sheet and web-publish it for the benefit of everyone shooting in NSW (and beyond) and everyone managing the lead poisoning cases which result.

Some good references can be found in my earlier Info Pack at <http://www.lead.org.au/lanv13n2/lanv13n2-15.html> which states:

- Info Pack - Lead contamination and lead exposure at shooting ranges
- Collated by Elizabeth O'Brien, BSc (Sydney), Grad Dip Health Education
- Our website [www.lead.org.au](http://www.lead.org.au) contains the first three articles in our info pack regarding shooting ranges:
- "[Editorial - Unsafe Work Practices and Lead](#)";
- "[Gun Instructors Exposed To Lead](#)"; and
- "[The Green Machine video](#)"

Other useful articles are:

- "[A Manageable Hazard - Aiming for Lower Lead Exposure: Shooting and Exposure to Lead](#)"
- "[Discovery Bay shot with lead? Resident's complaint lures EPA to site of shooting range](#)" By Evan Cael, Peninsula Daily News. Last modified: September 18, 2007 9:00PM
- "[INDOOR FIRING RANGES INDUSTRIAL HYGIENE TECHNICAL GUIDE: Technical Manual NEHC](#) (US Navy Environmental Health Center) TM6290.99-10 Rev.1 (May 2002)" FROM [This guide has some good ideas eg recommends painting of porous floors in the range for ease of cleaning, but does not sufficiently emphasize the importance of biological monitoring (blood lead testing for lead exposure, urine lead testing for lead styphnate exposure), but wrongly states that lead does not penetrate the skin.]
- "[NIOSH Alert - Preventing Occupational Exposures to Lead and Noise at Indoor Firing Ranges](#)"

When I did a Google search for a fact sheet on the topic, the result was: No results found for "fact sheet for shooters" "lead exposure". However, some of the first 10 results are relevant or partly relevant:

Results for [fact sheet for shooters lead exposure](#) (without quotes):

Search Results

1. [Lead poisoning | Better Health Channel](#) [www.betterhealth.vic.gov.au](http://www.betterhealth.vic.gov.au)  
[Environmental health - Chemical risks](#)
2. Sources of lead exposure in Australia include lead-based jobs and hobbies, paint,...Download the PDF version of this fact sheet Email this fact sheet...for

- fishing; Recreational shooting, including casting bullets and shooting at a pistol range. [Lead: Environmental health - Department of Health, Victoria, Australia](http://www.health.vic.gov.au/Environmental%20health%20hazards)  
www.health.vic.gov.au [Environmental health hazards](http://www.health.vic.gov.au/Environmental%20health%20hazards)
3. Aug 27, 2013 - Further information on how to prevent lead exposure from damaged or...Lead dust and your health - Information for gun shooters - Fact sheet. [Prevention of Exposure to Lead at Work in Indonesia](http://www.lead.org.au/fs/fst61.html)  
www.lead.org.au/fs/fst61.html
  4. Mar 25, 2013 - FACTSHEET. Prevention of Exposure to Lead at Work in Indonesia. Which occupations have more risk of high lead exposure? Shooters and ...
  5. [Info Pack - Lead contamination and lead exposure at shooting ranges](http://www.lead.org.au/lanv13n2/lanv13n2-15.html)  
www.lead.org.au/lanv13n2/lanv13n2-15.html
  6. May 7, 2013 - A Manageable Hazard - Aiming for Lower Lead Exposure: Shooting and Exposure to Lead. ...Library-Fact Sheets · Home Page
  7. [Fact sheet: Recommendations for operators - Auckland Regional ...](http://www.arphs.govt.nz/.../Health%20advice%20and%20recommendations-O...)  
www.arphs.govt.nz/.../Health%20advice%20and%20recommendations-O... Minimising Lead Exposure in Shooting Club Ranges. Public Health....Fact sheets from MidCentral District Health Board in regards to “lead hazards and indoor.
  8. [DRAFT CMP FACT SHEET - VogelUSA www.vogelusa.com/fact1\\_lead.pdf](http://www.vogelusa.com/fact1_lead.pdf) This fact sheet was prepared by Gary Anderson, Director of Civilian Marksmanship. Additional ...completed work on the question of lead exposure for shooters.
  9. [Aiming for Lower Lead Exposure | Cornered Cat](http://www.corneredcat.com/article/firearms.../aiming-for-lower-lead-exposure...)  
[www.corneredcat.com/article/firearms.../aiming-for-lower-lead-exposure...](http://www.corneredcat.com/article/firearms.../aiming-for-lower-lead-exposure...) Lead exposure in the shooting sports is a real hazard that all shooters should be aware of....We're all familiar with the fact that lead is used in making bullets, but not every shooter remembers that lead....Fact sheets and FAQs about lead.
  10. [Rifle Team Lead Safety Fact Sheet.pub - CT.gov](http://www.ct.gov/dph/lib/dph/.../pdf/rifle_team_lead_safety_fact_sheet.pdf)  
[www.ct.gov/dph/lib/dph/.../pdf/rifle\\_team\\_lead\\_safety\\_fact\\_sheet.pdf](http://www.ct.gov/dph/lib/dph/.../pdf/rifle_team_lead_safety_fact_sheet.pdf) years due to lead exposure from target shooting and indoor firing range use....Fact Sheet: Indoor Firing Ranges, Centers for Disease Control and Prevention, ...
  11. [Exposure to Lead in Indoor Shooting Ranges Lead is a well ...](http://www.portal.state.pa.us/.../website_exposure_to_lead_in_indoor_shooting...)  
www.portal.state.pa.us/.../website\_exposure\_to\_lead\_in\_indoor\_shooting... Therefore, managing and controlling lead exposure in this setting....Fact Sheet: Indoor Firing Ranges, Centers for Disease Control and Prevention, National.
  12. [Fact Sheet: Lead - Toxics Action Center](http://www.toxicsaction.org/sites/default/files/tac/.../the-facts-on-lead.pdf)  
[www.toxicsaction.org/sites/default/files/tac/.../the-facts-on-lead.pdf](http://www.toxicsaction.org/sites/default/files/tac/.../the-facts-on-lead.pdf) However, the general public may also be at risk of lead exposure from the pollution caused by the... OSHA Fact Sheet: Protecting Workers from Lead Hazards.

[END OF GOOGLE RESULTS]

I note that two of the above web search results are fact sheets for shooters, but both focus on lead-safety only at indoor firing ranges (and omit to say that lead poisoning prevention is also important for shooters anywhere):

1. Minimising Lead Exposure in Shooting Club Ranges Public Health Advice for Operators The following recommendations are endorsed by the Auckland Regional Public Health Service (ARPHS) as part of best practice design and operation of indoor shooting ranges. [URL: [http://www.arphs.govt.nz/Portals/o/Health%20Information/HealthyEnvironments/HasardousSubstances/Lead%20for%20shooters/Health%20advice%20and%20recommendations-Operators\\_Version%2008%2011%2011.pdf](http://www.arphs.govt.nz/Portals/o/Health%20Information/HealthyEnvironments/HasardousSubstances/Lead%20for%20shooters/Health%20advice%20and%20recommendations-Operators_Version%2008%2011%2011.pdf) ]
2. [http://www.vogelusa.com/fact1\\_lead.pdf](http://www.vogelusa.com/fact1_lead.pdf) which is about protecting shooters from the lead in air rifle pellets, fired at indoor ranges. Some simple guidelines for lead poisoning prevention for shooters and workers at shooting ranges can be found in

the article “Gun range under fire over lead in blood of workers” at [http://seattletimes.com/html/localnews/2020353191\\_gunrangeleadxml.html](http://seattletimes.com/html/localnews/2020353191_gunrangeleadxml.html)

but a Google search for "Guns, ammunition and risk of exposure to lead" provided nearly 8 million results, the first 10 of which are:

Results for [Guns, ammunition and risk of exposure to lead](#) (without quotes):

#### Search Results

1. [EHP – Health Risks from Lead-Based Ammunition in the Environment](#)  
[ehp.niehs.nih.gov/1306945/](http://ehp.niehs.nih.gov/1306945/) Jun 1, 2013 - Health Risks from Lead-Based Ammunition in the Environment ...of lead-based ammunition poses risks of elevated lead exposure to gun users
2. [PDF Version - Environmental Health Perspectives](#) [ehp.niehs.nih.gov/wp-content/uploads/121/6/ehp.1306945.pdf](http://ehp.niehs.nih.gov/wp-content/uploads/121/6/ehp.1306945.pdf) by DC Bellinger - [Related articles](#)  
ammunition poses risks of elevated lead exposure to gun users (National. Research Council 2012). When lead-containing bullets are used to shoot wildlife, they can ...
3. [Human Health Risks from Lead Ammunition - Center for Biological ...](#)  
[www.biologicaldiversity.org/.../Human\\_Health\\_Risks\\_from\\_Lead\\_Amm...](http://www.biologicaldiversity.org/.../Human_Health_Risks_from_Lead_Amm...)  
Human exposure to lead in the United States has dramatically decreased as lead...Hunters who reload rifle and pistol ammunition or cast their own lead bullets ...
4. [NRA Pulled Its Science-Denying Website That Claimed Lead ...](#)  
[mediamatters.org/research/2013/08/08/nra-pulled-its...that.../195299](http://mediamatters.org/research/2013/08/08/nra-pulled-its...that.../195299) Aug 8, 2013 - b) The discharge of lead-based ammunition is known to pose risks of elevated lead exposure to gun users (NRC, 2012). c) Lead-based bullets ...
5. [Lead Bullets' Health Risks May Threaten Gun Range Patrons ...](#)  
[www.huffingtonpost.com/.../lead-bullets-health-gun-ranges\\_n\\_2...](http://www.huffingtonpost.com/.../lead-bullets-health-gun-ranges_n_2...) - [in 189 Google+ circles](#) Dec 19, 2012 - In late November, the city council of South Jordan, Utah, approved construction of a large indoor shooting range despite appeals from local ...
6. [Lead in Discarded Bullets a Hazard for People and Wildlife ...](#)  
[www.livescience.com/39252-lead-in-discarded-bullets-a-hazard-for-peo...](http://www.livescience.com/39252-lead-in-discarded-bullets-a-hazard-for-peo...) Aug 28, 2013 - Lead from bullets is a danger well after shots have been fired, says Wayne ...Foundation — the trade association for gun and ammunition makers, based in...and wildlife-health risks associated with lead from ammunition.
7. [Pathways for exposure to lead while using and handling guns and ...](#)  
[www.lead.org.au/lanv13n4/lanv13n4-8.html](http://www.lead.org.au/lanv13n4/lanv13n4-8.html) Jul 19, 2013 - The most popular ammunition used in rifled air guns is the lead diabolo...The following information is from 'RISKS OF LEAD POISONING IN ...
8. [Lead Bullet Risks for Wildlife & Humans - Pinnacles National Park](#)  
[www.nps.gov/pinn/naturescience/leadinfo.htm](http://www.nps.gov/pinn/naturescience/leadinfo.htm) Information about the risks of using lead bullets to humans who consume the meat,...Most lead-core rifle bullets fragment into hundreds of tiny pieces when they ...
9. [Aiming for Lower Lead Exposure | Cornered Cat](#)  
[www.corneredcat.com/article/firearms.../aiming-for-lower-lead-exposure...](http://www.corneredcat.com/article/firearms.../aiming-for-lower-lead-exposure...) ...new and experienced shooters alike, about the risk of lead overexposure...Lead exposure in the shooting sports is a real hazard that all shooters should be aware of. ...We're all familiar with the fact that lead is used in making bullets, but not...we breathe and to settle on the gun, clothing and skin (think gunshot residue).
10. [Tips to reduce lead exposure from shooting - Detroit Firearms ...](#)  
[www.examiner.com/article/tips-to-reduce-lead-exposure-from-shooting](http://www.examiner.com/article/tips-to-reduce-lead-exposure-from-shooting) Oct 31,

2012 - Even jacketed bullets typically have exposed lead at the base....spend enough time at gun ranges for lead exposure to become a serious risk.

[END OF GOOGLE RESULTS]

Of those top ten Google search results (immediately above), the closest things to a factsheet for lead poisoned shooters / staff at shooting ranges, and their doctors, are:

1. the article I co-authored, called **“Pathways for exposure to lead while using and handling guns and ammunition”**, at <http://www.lead.org.au/lanv13n4/lanv13n4-8.html> ; ALSO PART OF [http://www.lead.org.au/lanv13n4/LANv13n4\\_Lead\\_and\\_steel-old\\_and\\_new\\_ammunition.pdf](http://www.lead.org.au/lanv13n4/LANv13n4_Lead_and_steel-old_and_new_ammunition.pdf)
2. the article at <http://www.corneredcat.com/article/firearms-safety/aiming-for-lower-lead-exposure/> which I referenced in my first Info Pack on this topic, and which begins by recommending blood lead testing, and usefully states: “...the range can institute several controls to lower the amount of lead dust in these facilities.  
The choice of ammunition is one such control. Non-jacketed ammunition produces the most lead dust and fumes, fully jacketed ammunition less and lead-free ammunition, obviously, the least. Shotgun shells produce more airborne lead dust than any handgun round. Currently, many ammunition manufacturers make available lead-free ammunition that does away with lead compounds in both the primer and the bullet. From a personal standpoint using lead-free primer ammunition with fully jacketed bullets or lead-free bullets will have the greatest benefit for individual shooters.”
3. by comparison, the article at <http://www.examiner.com/article/tips-to-reduce-lead-exposure-from-shooting> starts by recommending shooting outdoors (over shooting indoors), and ends by only recommending non-lead ammunition and blood lead testing for shooters or workers at indoor ranges who think they have a high lead exposure risk. My question is: how would they know they might be lead poisoned, without getting a blood lead test first, before they begin shooting or working near shooters? Why not just recommend non-lead ammo for every shooter? The most useful thing on that webpage is a graphic showing the brand name of a lead-free bullet, with the caption: This Federal American Eagle Total Metal Jacket ammo uses a lead free primer and total metal jacket.
4. According to Australian researchers Gulson et al (2002) [“Changes in blood lead of a recreational shooter” - full article available for purchase for US\$41.95 at <http://www.sciencedirect.com/science/article/pii/S0048969702000037> ; abstract at <http://www.ncbi.nlm.nih.gov/pubmed/12109468>:  
“Although more expensive, the use of Cu-jacketed bullets, non-lead primers and well-ventilated indoor firing ranges would lessen the health impacts of recreational shooting.”

I searched for <federal "american eagle" "total metal jacket" australia> and found one Australian supplier on the first page of results, at <http://www.acme-firearms.com.au/Federal%20Ammunition/Federal%20Ammunition%20Index.htm> and although Acme Firearms are located at Langwarrin, Victoria, 3910, Australia, they do online sales.

I searched for “lead free” on the Queensland Gun Exchange website and got quite a few results - [http://www.qldgunexchange.com/QGEWeb/product\\_search.seam?cid=430729](http://www.qldgunexchange.com/QGEWeb/product_search.seam?cid=430729) – although my searches for copper-jacket, Cu-jacket and non-lead primer were fruitless, so I

hope you will phone them on 0733930933 and let me know what they supply that is recommended for reducing lead exposure of the shooter.

I couldn't find lead-free, non-lead primer or copper on Cleaver Firearms site although the photos of some ammunition look like they might be copper-jacketed, so you would have to phone them too, on 0738831733, and please let me know what they say.

Similarly, please contact the following NSW ammunition suppliers from my White Pages search results, (or search their websites) and let me know whether any of them supply lead-free ammo or fully jacketed bullets:

1. [Bettington Ammunition Supplies](#) Lot2/ 1109 Princes Hwy Mogo NSW 2536(02) 4474 5171 [Map Send to](#)
2. [Silvercity Guns & Ammunition](#) 11 Williams La Broken Hill NSW 2880(08) 8087 7202 [Map Send to](#)
3. [Ammo Doors](#) Mobile Service U4/ 229 Brisbane Rdo 417 007 898 0417 007 898 FREE [Send to](#)
4. [Power Ammo More contacts & information for Power Ammo \(1\)](#) [powerammo@bigpond.com](mailto:powerammo@bigpond.com) 21 Copland St Wagga Wagga NSW 2650(02) 6921 3994 [Map Send to](#)
5. [Arms & Ammo NSW](#)
6. [Rylstone Guns & Ammo](#) 84 Louee St Rylstone NSW 2849(02) 6379 0935 [Map Send to](#)
7. [Silver City Guns & Ammo](#) William La Broken Hill NSW 2880(08) 8087 7262 [Map Send to](#)
8. [Gunpro More contacts & information for Gunpro \(1\)](#) [gunpro@bigpond.com](mailto:gunpro@bigpond.com) 129-131 Talbragar St Dubbo NSW 2830(02) 6882 8080 [Send to](#)
9. [Hawkesbury Toolworx](#) Archery & Camping Supplies U 2/ 5 Terrace Rd North Richmond NSW 2754(02) 4571 3890 [Map Send to](#)
10. [Hunting Haven More contacts & information for Hunting Haven \(1\)](#) [www.huntinghaven.com.au](http://www.huntinghaven.com.au) [contact@huntinghaven.com.au](mailto:contact@huntinghaven.com.au) Phone/Fax 84 Bridge St Uralla NSW 2358(02) 6778 4144 [Map Send to](#)
11. [Inverell Firearms More contacts & information for Inverell Firearms \(2\)](#) [www.inverellfirearms.com.au](http://www.inverellfirearms.com.au) 164 Ashford Rd Inverell NSW 2360(02) 6722 1144 [Map Send to](#)
12. [Tamworth Firearms More contacts & information for Tamworth Firearms \(2\)](#) 532 Peel St Tamworth NSW 2340(02) 6761 3308 [Map Send to](#)
13. [Macquarie Arms Co](#) 193b Brisbane St Dubbo NSW 2830(02) 6884 2772 [Map Send to](#)
14. [Shooting Zone The](#) [www.theshootingzone.com.au](http://www.theshootingzone.com.au) [aushane@theshootingzone.com.au](mailto:aushane@theshootingzone.com.au) Firearms and Ammunition 125 High St Mansfield VIC 3724 (03) 5779 1685 [Map Send to](#)
15. [Golden Flash Cartridges More contacts & information for Golden Flash Cartridges \(2\)](#) 66 Nolan St Maryborough VIC 3465(03) 5461 4400 [Map Send to](#)
16. [Sapphire City Firearms NSW](#)
17. [King's 4WD & Radiators](#) Accessories & Ammunition 73 Eighth St Mildura VIC 3500(03) 5021 4826 [Map Send to](#)
18. [Walgett Hunt Camp Fish More contacts & information for Walgett Hunt Camp Fish \(1\)](#) [walnews@bigpond.com](mailto:walnews@bigpond.com) 56c Fox St Walgett NSW 2832(02) 6828 2508 [Map Send to](#)
19. [Muddy Creek Fishing & Outdoors](#) Hunting Apparel, Ammunition Shp 1/ 10 High St Yea VIC 3717(03) 5797 2789 [Map Send to](#)
20. [Total Sports Seymour](#) [seymourtotalsports@bigpond.com](mailto:seymourtotalsports@bigpond.com) New & Used Guns & Ammo 56 Station St Seymour VIC 3660(03) 5792 3699 [Map](#)

[END OF WHITE PAGES RESULTS]

The dust on the floor and horizontal hard surfaces, like window sills, at a firing range can be tested for lead at a lab (whereas the Lead Check kits by 3M available at good hardware stores are only sensitive enough to test for lead in paint - and they're only colour-change kits, so you end up not knowing HOW MUCH lead is in the paint, just a general idea of whether there's SOME lead in the paint).

The LEAD Group charity has set up a DIY-Sampling kit where you collect the samples and post them to a lab for lead analysis - which gives you the exact amount of lead in dust wipes and/or paint and/or soil (or water or bullets etc) PLUS an interpretation report to tell you what the results mean in terms of lead-safety for shooters and staff, as well as recommendations on what to do about the results (to reduce blood lead levels), tailored to your situation.

You can phone to order a kit or fill in the form on our website, accessible from [http://www.lead.org.au/clp/products/Do\\_It\\_Yourself\\_Lead\\_Safe\\_Test\\_Kits\\_Ad.html](http://www.lead.org.au/clp/products/Do_It_Yourself_Lead_Safe_Test_Kits_Ad.html)

Cheers

Yours Sincerely

Elizabeth O'Brien

Winner of the United Nations Assoc'n of Australia (UNAA) World Environment Day (WED) Award for Outstanding Service to the Environment,

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