

# LEAD Action NEWS

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

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Editor-in-Chief: Elizabeth O'Brien, Editorial Team: Rocky Huang, Mish Calvert.

## Combating the Silent Epidemic

This issue is about providing you with information to combat lead poisoning. From nutritional information to finding out how to stay lead safe by paying attention to the different sources of lead contamination and ways that lead can enter the body of you and your family and taking the appropriate action to combat these threats.

It is up to us, every single one of us, to combat lead in our local environment and together we can work towards a lead-safe future. To do this, The LEAD Group aims to arm you with information as well as provide you with the tools to detect and take further action about the lead in your surroundings. If you haven't already, please visit our shop (<http://www.lead safeworld.com/shop/>) and become a member / partner and join our cause for a lead-safe future.

Additionally, we highly recommend that you check out our newest project 'The Blood Lead Challenge' (<http://www.lead safeworld.com/wp-content/uploads/2014/10/Blood-Lead-Challenge.pdf>)! You can find more information about the articles in this issue of LEAD Action News in the Editorial.



*VAP Entry: Our children heading for a lead-safe world. Artist: Philippa Bolton*



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# Editorial

This edition contains some excellent information and reporting on lead news from around the world. First of all, we highly recommend our new fact sheet which contains a list of foods for reducing lead absorption (<http://www.lead safeworld.com/solutions/foods-for-lead-detox/>) to incorporate into your balanced diet, daily. Rocky and Elizabeth created a report on a Forensic Files episode related to a lead poisoning fatality in the USA, immigrant children and refugees.

Also in this jam-packed edition of LEAD Action News, we have included an article for those of you who are into community gardening as a reminder to stay vigilant when growing your own food; our fascinating correspondence with George Chapman in which we wrote about lead in aluminium cookware; the best fact sheets for Lead Workers and information on a free online Environmental Sensitivities Symposium that starts on 23 March 2015! This symposium is courtesy of our newest Lead Safe World Partner, Eco Health Solutions.

The Lead Safe World website will continue to promote lead safety actions that everyone can use to combat this silent epidemic anywhere in the world, rather than being a broad-ranging archive of information about the history of lead, the health effects of lead, sources of lead contamination etc., as our existing web site is ([www.lead.org.au](http://www.lead.org.au)). Additionally, under **Solutions**, there's a Blood Lead Challenge flyer for a project I encourage all our readers and supporters to participate in. This is a part of our major project in 2015, which involves collating data and creating a searchable database of blood lead information alongside results of lab analysis of environment samples like dust, paint, etc. As this is a mammoth task, we'd like to thank you in advance if you decide to be a part of this project!

We have continued to add to the Partners section (<http://www.lead safeworld.com/partners/>) and this section informs visitors of our Lead Safe World Partners' website which has information about products and services that help manage lead poisoning and lead contamination. These organisations and products will be easily-identified by the Logos: ‘Lead Free’, ‘Lead Safe’ and ‘Lead Away.’

Having said this, we would like to extend our invitation to all partnerships and companies with proven solutions to lead problems, lead-free products and lead-safe services, to join us.



I would like to take this opportunity to remind you to get your entries in for the 2015 Volcano Art Prize (VAP) now at: [www.volcanoartprize.com](http://www.volcanoartprize.com)! Remember, we're accepting short films this year and we already have a short film entry! Entries close Monday 27<sup>th</sup> July 2015.

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## Forensic Files Episode 'Death by Poison: Sunday's Wake'

*Article researched by Elizabeth O'Brien, written by Yiru Rocky Huang, for The LEAD Group. Thanks to Lance Smith of Sydney Analytical Laboratories for alerting us to this TV documentary.*

In the USA and probably in most developed countries, the risk for elevated blood lead levels (BLLs) among children remains high in some neighbourhoods and populations; including children living in older housing with deteriorated leaded paint and refugee children. Lead screening is not mandated for immigrant children in the US (or in Australia), yet there is strong evidence for high BLLs in these groups. The level that is reported below for a refugee child could very easily be applied to immigrant children in Australia as well. This article is about a lead poisoning fatality which occurred in the United States. The episode of the TV show Forensic Files which covered the case is titled 'Death by Poison: Sunday's Wake' and is viewable online at

<https://www.youtube.com/watch?v=h4dZdMGII70> and

<https://www.youtube.com/watch?v=C8wD1qsQq0> in two parts.

On March 29, 2000, a 2 year old Sudanese girl was seen at a community hospital Emergency Room (ER) with a low-grade fever and vomiting. She was discharged from the ER with an antibiotic and antiemetic to treat what was presumed to be strep throat. Her vomiting worsened and she was then re-admitted to the same hospital and then transferred to a tertiary care hospital the next day. She became unresponsive 5 hours after the transfer and was intubated and placed on a ventilator. Computerised tomography showed that she had dilated ventricles and showed diffuse cerebral edema. Later that day, the results of a blood test drawn showed a BLL of 391  $\mu\text{g}/\text{dL}$ . This sparked an investigation by the Manchester Health Department and New Hampshire Department of Health and Human Services. The wall of the apartment the family moved into in March 2000 had multiple holes from which the patient had been seen removing and ingesting plaster and two of the seven samples from the apartment contained lead at levels of 5% and 12%. Peeling paint (35% lead) was present on the balusters and floor (3% lead) of a porch outside the apartment where the girl had played sometimes.

The summary of this Forensic Files episode is that the landlord was jailed for 15 months for "violating the Lead Disclosure Rule, after the patient consumed paint and plaster in a rental property and died of lead poisoning". Under the US regulation all buyers and renters of pre-1978 housing MUST be notified of lead paint hazards. The Lead Disclosure Rule is a federal rule in the USA.

Elizabeth O'Brien suggests that it should be extended beyond paint (for housing built before 1997). It should include ceiling dust for housing built before 2002 (or before today in lead smelting and mining towns); houses with rainwater tanks added later (for housing built anytime up to



today) or houses with rainwater tanks added when the house was being built for housing built up to 2004 or up to today in lead smelting and mining towns.

The CDC's current lead screening recommendation is a part of the US government's strategy to confront lead hazards on both the domestic and international fronts. Brown suggests, "Refugee children living in Manchester were significantly more likely to have an EBLL compared with non-refugee children. And among refugee children, we found a statistically significant difference in the mean days to BLL decline  $<10 \mu\text{g} / \text{dL}$  before and after recommendations to test newly emigrated children."

It's important to note that government regulations must be followed in order for this to be effective and in some cases refugees are placed in lead-contaminated housing either because the resettlement agency isn't aware of the risk or the landlords don't reveal it. Another problem can be when cultural differences create a barrier to conveying the notion that these products are harmful. For example Ayurvedic medications which are often loaded with lead, zinc, arsenic and mercury as it is thought to have medicinal properties. Lead-soldered cookware; Burmese Daw Tay (traditional medicine) and glazing on Mexican pottery are other examples of leaded products found in products imported into the US and Australia. This has received significant media coverage recently but getting people to acknowledge and understand that this is a health risk is the challenge.

Another ongoing initiative is the World Health Organisation and United Nations Environment Programme's Global Alliance to Eliminate Lead in Paints (GAELP) project which aims to phase out the manufacture and sale of lead-based paint worldwide. So it's important that we are all aware of the risks and that we all take the matter of any lead abatement and management issues very seriously and ensure that we understand what landlords and our government are responsible for.

## REFERENCES

1. Schmidt, C. W. Unsafe Harbor? Elevated Blood Lead Levels in Refugee Children. *Environmental Health Perspectives* (1 June 2013); <http://ehp.niehs.nih.gov/121-a190/> [accessed 19 February 2015].
2. Forensic Files episode 'Death by Poison: Sunday's Wake', online at <https://www.youtube.com/watch?v=h4dZdMGII70> and <https://www.youtube.com/watch?v=C8wD1qsQg0>



# Q & A: Lead in Aluminium Cookware

*Original question sent in by George Chapman, USA. Answers prepared by Swetha Lingala (The LEAD Group's Researcher) & Elizabeth O'Brien*

**George:** "Is the lead (Pb) content of the common US aluminium alloy 6061 responsible for the perceived aluminium - Alzheimer's link? Apparently aluminium is readily filtered out of the body where as lead (Pb) is retained in the body.

Lead (Pb) adds some beneficial material property to the 6061 aluminium alloy. Could the small amount of consumed lead (Pb), leached out from the 6061 aluminium alloy commonly used to manufacture soda cans, cooking ware, etc.. , accumulate over decades in the body and cause appreciable health problems? If so why do we not hear more about this lead (Pb) problem?"

**Swetha:** "Hi George,

Thank you for your fascinating email about 6061 Aluminium alloy containing lead(Pb). Even our lead expert, Elizabeth O'Brien was not aware of it.

## **I found the following confirmation that lead can be added to Aluminium Alloys:**

"Lead (Pb) and Bismuth (Bi) – Lead and bismuth are added to aluminium to assist in chip formation and improve machinability. These free machining alloys are often not weldable because the lead and bismuth produce low melting constituents and can produce poor mechanical properties and/or high crack sensitivity on solidification."

[<http://www.esabna.com/us/en/education/blog/how-and-why-alloying-elements-are-added-to-aluminum.cfm>]

## **The following article implies that 6061 Aluminium Alloy contains lead:**

"In 1990, the development efforts at ALCOA's Massena Operations began with the objective to create a free machining alloy that would be comparable to a lead bearing alloy, 6262, in strength, machinability, corrosion resistance, anodizing, brazing, and welding responses while eliminating the health and environmental concerns associated with lead. "

".....Proclaimed as the fastest growing new product in automotive and miscellaneous applications the full cold finished product line in T8, T9 and T651 tempers excel in markets where 6262, 6061, 2011 aluminium alloys and 12L14 steels are used today."

[<http://papers.sae.org/980459/>]

## **The Following article doesn't indicate that 6061 Aluminium Alloy contains lead but shows the presence of lead and bismuth in some Aluminium Alloys:**

**Lead.** Normally present only as a trace element in commercial-purity aluminium, lead is added at about the 0.5% level with the same amount as bismuth in some alloys (2011 and 6262) to improve machinability."



[\[http://www.keytometals.com/Article55.htm\]](http://www.keytometals.com/Article55.htm)

**The following table shows that Lead (and any other element not specified separately) is limited in 6061 Aluminium Alloy to 0.05%, but unfortunately the table is not referenced:**

**Wrought aluminium alloy composition limits (% weight)**

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	V	Ti	Bi	Ga	Pb	Zr	Limits <sup>++</sup>		Al
														Each	Total	
6061	0.40-0.8	0.7	0.15-0.40	0.15	0.8-0.12	0.04-0.35	0.25	0.15						0.05	0.15	remainder

[\[http://en.wikipedia.org/wiki/Aluminium\\_alloy\]](http://en.wikipedia.org/wiki/Aluminium_alloy)

**The Following article shows that 6061 Aluminium Alloy does not contain lead (Pb):**

In 1988, Luxfer switched to a "6061" alloy, which does not contain lead.

[\[http://www.scubadiving.com/gear/accessories/consumers-guide-scuba-tanks\]](http://www.scubadiving.com/gear/accessories/consumers-guide-scuba-tanks)

Could you please provide references which state the actual level of lead found in 6061 Aluminium Alloy?

**George:** "Yes my mistake it's not 6061. Here's the list of Aluminum alloys I found earlier on line ([www.aluminum.org/sites/default/files/Teal\\_Sheets.pdf](http://www.aluminum.org/sites/default/files/Teal_Sheets.pdf)).

In the past what alloy did they make cookware out of? You can see many alloys with Pb as a constituent.

I'm sure things have changed now, perhaps this generation of Alzheimer sufferers were exposed to decades of aluminium alloys containing lead.

Thanks for the response & articles,

George

**Elizabeth:** "You raise some very important questions and sadly my volunteer researcher has been unable to come into work for several weeks due to lack of a baby sitter

And today when she (Swetha) did come in, she only had time to put together the following info, which doesn't go all the way to answering the question as to whether the aluminium/aluminium cookware we all used in decades gone by, and which is likely still being used widely in many countries, contains lead. There's possibly a different answer in every country. Well worth finding out though.

Cheers,

Elizabeth O'Brien"

**Swetha**

<http://is.gd/XYEcMd>

"The conventional aluminium cookware is usually made from a single layer of aluminium alloy which may be anodized on the outside surface and given a non-stick surface on the inside, cooking



surface. Oftentimes such cookware is made from 3003 Aluminium alloy or a like aluminium alloy which offers higher strength than purer aluminium such as 1100 aluminium."

<http://www.azom.com/article.aspx?ArticleID=6618>

"The Aluminium / Aluminium 3003 alloy is used in ductwork, chemical equipment, and general sheet metal work. It is also used in manufacturing the following items:

- Cooking utensils
- Builder's hardware
- Pressure vessels
- Ice cube trays"

**George:** "Hi Swetha,

Thank you so much for looking into this and providing interesting links. I'll have to look into the aluminium hydroxide formation and toxicity. It would be interesting to see if some of the detrimental effects blamed on aluminium can be linked to lead or other known toxic alloy additives. Perhaps we can find a healthy metal for cooking - so far it sounds like surgical stainless steel is the best.

Thanks again for following up on this.

George Chapman"

**Swetha:** "Hi George,

Regarding recommended cookware metals, in the book "Clean, Green and Lean: Get rid of the toxins that make you fat - Drop the weight in 30 days." Author Dr Walter Crinnion, ND, writes:

'Cookware. Get rid of chemical-spewing non-stick pans. Ceramic titanium and porcelain-enamelled cast iron are great alternatives.' (Page 141)

But because iron deficiency is associated with increased lead absorption from the gut, and because enamel glazes on cast iron eliminate the possibility of adding iron to the food during cooking, the following recommendation on the best cookware metal could actually be more lead-safe:

"Cast iron cookware. Cast iron is known for its durability and even heat distribution. Unglazed cast iron can transfer notable amounts of iron into food, but unlike the metals that come off other types of pots and pans, iron is considered a healthy food additive by the U.S. Food and Drug Administration."

<http://www.mnn.com/food/healthy-eating/questions/whats-the-safest-cookware>)

It is also apparent from the following that cast iron cookware (without any coating/glaze) is recommended whenever reducing lead exposure is the aim:

For vegetarians or vegans a good supplementation technique is through cooking acidic vegetables (such as tomatoes or cabbage) in non enamelled cast iron pots which has been consistently shown to significantly increase dietary iron (165,60,166,167); a technique that works equally well for non-



vegetarians and which may be preferable to iron supplementation in pill form. For this purpose it should be noted that materials do not have to be naturally high in iron to improve iron status (168). Should there be difficulty in finding non-enamelled cast iron cookware Lodge Cast Iron Cookware of Tennessee provides a range that is widely distributed. Note that the iron in many vegetables is more bioavailable (capable of being absorbed) when cooked rather than raw (341).

Iron cooking vessels: The following items have their iron content more than doubled when cooked in iron container without a protective surface. Rear Row: red cabbage, tomato, rice, corn meal Front Row: tomatoes, capsicum (bell or banana peppers in USA), pureed vegetables, wild rice, apple sauce, scrambled egg, corn meal, Foreground: scrambled egg Not pictured: milk

([http://www.lead.org.au/lanv9n3/Iron Nutrition and Lead Toxicity Short.pdf](http://www.lead.org.au/lanv9n3/Iron_Nutrition_and_Lead_Toxicity_Short.pdf) - page 6)

So, despite the comment made about the iron of cast iron cooking pots not being absorbed (in the article I previously sent you, at <http://www.happycookingco.com/hidden-dangers.cfm> ) I find the information above on our own website to be better-referenced.

Returning to my search for the answers to the questions your emails raise...

1. Which Aluminium Alloys were used in United States in the past to make cooking pots?

Below URL shows 3000 series and 8000 series Aluminium Alloys ARE used in making cookware:

<http://www.meyer-mab.com/technical-information/>

Specifically, the above URL states:

“3XXX Series - Due to its excellent formability, 3003 has a wide range of uses including cookware. The addition of Magnesium gives it [3004] strengths approaching 5052 along with great corrosion resistance and good formability. These properties make 3004 a good candidate for storage tanks, pressure vessels and cookware.”

“8XXX Series - This series comprises alloys that use less common elements, including Tin, Iron, Nickel and Lithium. The Lithium alloys are attractive for some aerospace applications due to their very light weight, high strength and increased ability to stretch without breaking. Other uses for 8XXX alloys include cookware, conductor material, and some high temperature applications.”

Next time I am in the office I'll search for whether the above-mentioned 3003, 3004 and 8000 series aluminium alloys contain any lead.

Skipping ahead to Q. 5 (Are there any lead containing Aluminium Alloys still used anywhere in the world to make cooking pots?), I have found the following three related articles about scrap metal being used to make aluminium pots in Cameroon, which release hundreds of times the Californian daily lead limit from consumer products, into the food. I am wondering what inspired your original question? Was it any of these articles (or another article about this Cameroon study):

<http://www.voanews.com/content/africa-aluminum-cookware-15aug14/2414509.html>;

<http://www.sciencedaily.com/releases/2014/08/140812122325.htm>;

<http://www.sciencedirect.com/science/article/pii/S0048969714010316>

[please find this last one attached as Weidenhame et al Lead exposure from aluminium cookware in Cameroon 20141015 FULL.pdf]





I hope that aluminium alloys for cookware were never made so carelessly from lead-containing scrap metal in the developed world, as the above articles report is occurring now in Cameroon and probably the rest of Africa as well as in Bangladesh and Thailand and possibly the rest of Asia, but I'll keep researching just in case... until next week....

Kind regards

Swetha Lingala (with help from Elizabeth O'Brien)"

**Swetha:** "Hi George,

2. Do those Aluminium Alloys (3003, 3004, 8000) contain Lead?

As per my research the URL shown below shows there is no presence of Lead (Pb) in the above mentioned Aluminium Alloys.

<http://www.suppliersonline.com/propertypages/3003.asp>

<http://www.suppliersonline.com/propertypages/3004.asp>

Next time I am in the office I'll search for whether the 8000 series aluminium alloys contain any lead.

Thanks

Swetha Lingala"

**Swetha:** "Hi George,

I am still searching the internet to answer the following Questions:

1. Which Aluminium Alloys were used in United States in past to make cooking parts?
2. Do those Aluminium Alloys contain Lead?
3. If so, how much lead?"

**Swetha:** "Hi George,

As there is no presence of Lead in US cookware made of Aluminium Alloys (3003, 3004, 8000 series), it gives answers to the remaining 3rd and 4th Questions.

3) If so, how much lead?

4) Are there any lead containing Aluminium Alloys still used in US to make cooking pots?

Regarding Question 5:

5) Are there any lead containing Aluminium Alloys still used anywhere in the world to make cooking pots?

A) As per my research the African countries and probably other under-developed countries are still using and making aluminium cooking utensils using scrap metal and thus the cookware can contain Lead.



For your ref:

<http://www.voanews.com/content/africa-aluminum-cookware-15aug14/2414509.html>

<http://www.sciencedaily.com/releases/2014/08/140812122325.htm>"

I realise that the following quotes don't answer any of the above Questions, but I think you will find the information very interesting nevertheless.

Very soft metal. Extreme chemical reaction between food and pan. "All Vegetables cooked in Aluminium produce hydroxide poison which neutralizes digestive juices, producing stomach and gastrointestinal trouble, such as stomach ulcers and colitis." Dr. A. McGuigan's Report on Findings for the Federal Trade Comm. In Docet Case No. 540 Washington, D.C. Note: The sale of aluminium cookware is prohibited in Germany, France, Belgium, Gr. Britain, Switzerland, Hungary and Brazil.

### **Glass / Enamel Coated**

Poor heat distribution. Foods stick and burn. Contains lead. Lead can cause reproductive harm and learning disabilities. [<http://www.happycookingco.com/hidden-dangers.cfm>]

Interestingly also, the following website lists stainless steel alloys, some of which contain lead:

[http://www.yamco-yamashin.com/en/products/guide\\_stainless\\_steel.html](http://www.yamco-yamashin.com/en/products/guide_stainless_steel.html)

So that might be more research for another day, to work out if stainless steel cookware contains lead.

In trying to answer the above questions, today I located the following information:-

1. "The 3000 series is made up of alloys of aluminium and **manganese**. These alloys are not as strong as the 2000 series, but they also have good machinability. Alloys in this series are used for cooking utensils; storage tanks; aluminium furniture; highway signs and roofing." [<http://www.chemistryexplained.com/elements/A-C/Aluminum.html> ]

I will be back next week to research some more."

**George:** "Swetha,

Thank you so much for looking into this! I guess lead alloys are not intentionally used in aluminium cookware, nor is lead from cookware responsible for the Alzheimer/aluminium link.

I'll have to look into what it would take to remove lead from scrap metal so it doesn't end up in cookware in Cameroon. I would think something like spark gap spectrometry would be able to identify lead in an aluminium alloy. The real key would be to sort it out before it gets mixed in with aluminium.

I'll have to look into how cookware is made in Cameroon. Are there a few large metal smelting facilities, or do people make their own cookware? If there are only a few smelters the lead would probably be easier to sort out. If individuals are making their own cookware, one would have to go door to door offering to test & replace cookware.

Thanks again,

George Chapman"

**Swetha:** "George,

Your thoughts are so interesting, I am CC'ing this to our colleagues who were responsible for the Research and News articles about Leaded Aluminium pots in Cameroon.



Perhaps Jeffrey, Gilbert or Perry can send us the original copy of the below URL as we have only the abstract of it.

<http://www.sciencedirect.com/science/article/pii/S0048969714010316>

Hopefully all the ideas in the article and maybe George's below can be incorporated into a Health programme for the affected people, with articles in the media and social networks.

Thank you,

Yours Sincerely

Swetha Lingala

Researcher"

**Jeff Weidenhamer, Ph. D.:** "Swetha,

Thanks for your email. Our judgment is that the lead in these aluminium alloys (not large amounts -- maximum 637 ppm by X-ray fluorescence) is picked up from the scrap materials used to make them. Please let me know if there are any other questions.

The paper is available through the OK International website at this address:

<http://www.okinternational.org/docs/Final%20pb%20pots%20STOTEN%202014.pdf>

In case you missed it, along the right side of the sciencedirect posting is a short video presentation about the research project:

<http://www.sciencedirect.com/science/article/pii/S0048969714010316>

Jeff Weidenhamer"

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# Environmental Sensitivities Symposium

*By Lucinda Curran, Eco Health Solutions, Lead Safe World Partner of The LEAD Group*

The 2015 Environmental Sensitivities Symposium (<http://www.ecohealthsolutions.com.au>) is a FREE online event drawing together 23 global thought-leaders that begins on the 25<sup>th</sup> of March 2015.

These **topics** will be covered:

- Multiple Chemical Sensitivities
- Electromagnetic Hypersensitivity
- Lyme Disease and Biotoxin-Related Illnesses
- Learning Disorders
- Food Intolerances
- Environmental Toxins
- New Perspectives
- Strategies

There is a heavy emphasis on what you can do - and the overall feel is very positive.



**Speakers** include: Prof Emeritus Martin Pall, Prof Olle Johansson, Cyril Smith, Dr. Deanna Minich, Dr Ellen Cutler, Dr Christabelle Yeoh, Nicole Bijlsma, Leah Hechtman and I (Lucinda Curran). Find out more at [www.ecohealthsolutions.com.au/ess](http://www.ecohealthsolutions.com.au/ess).

We have our own **private community** for discussions, and if you choose to upgrade, you can ask your questions to our experts in the live **Q&A sessions** as well as have the opportunity to win some great **prizes**.

The other thing I feel is important to mention - there is a **safe option for those with EHS** who cannot use a computer for any duration.

[Please join us](#), it is free and yet so valuable.

Shine and Succeed!

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## Lead Safe Community Gardening

*Research by Sumegha Agarwal, Article by Yiru Rocky Huang*

To those of you who grow vegetables and other goodies in community gardens, please be aware that in many gardens, such as the Hart to Hart Community Garden in Brooklyn, New York, unsafe levels of lead have been found in vegetable samples. In the case of Hart to Hart, it was 1.95 parts per million (please see the news article in Lead Safe World's Blog Update on the 19<sup>th</sup> of November, 2014: <http://www.lead safeworld.com/news/lead-safe-community-gardening/>), which is nearly 20 times the level considered safe by the state's Health Department.

An article at Sustainable Gardening Australia (SGA) (<http://www.sgaonline.org.au/lead-contamination/>) suggests that "planting a vegetable garden where rubbish was once dumped; on previous agricultural land where there are nearby mines or smelters; or where a house once stood, could pose a hazard". It's important to check your soil for lead contamination and a good way to do so would be to purchase a lead testing kit from Lead Safe World (<http://www.lead safeworld.com>) as it includes professional lab testing, analysis and a report of your samples. The SGA article also suggests "washing your vegetables thoroughly and discarding the older leaves which absorb more lead, maintaining a soil pH of 6.5 to 7.0 to reduce lead uptake from the soil and mulching the soil to reduce blowing dust and increase water retention."

It is especially important to test community vegetable gardens near main roads and older houses where lead in the environment may contaminate the soil from leaded paint, traffic fumes and other sources such as dust and soil.

In the past, Professor Mark Taylor from Macquarie University launched a trial program called Veggie Safe on the University's Open Day in 2013 which allowed people to bring in soil from their backyard to be tested. He said that the "public should be aware but not alarmed" as this is about "informing people of the potential risks and educating them on how to act" (<http://www.smh.com.au/nsw/lead-threat-to-children-from-home-veggie-patches-20130906-2tan9.html>). Elizabeth O'Brien, horrified by the trend in inner city areas of Sydney of using verge soil said: "The lead is already in verge soil in particular and people could be eating it unaware..." Hence I would like to stress the importance of getting your soil from a reputable source and get a sample of it tested to ensure that you will be growing vegetables in a worry-free manner. For



reference, the Australian standard indicates soil should contain no more than 300 parts per million of Lead.

Growing your vegetables and other edibles in containers when you know the exact content of the soil minimises the risk of lead contamination and keeps everything isolated, there are many container gardens ideas available on the Internet, some of the best ones can be found at <http://www.gardenista.com/> and <http://www.gardendesign.com> so get active, do your research and be empowered!

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## The Best Fact Sheets for Lead Workers

### Info Pack by Elizabeth O'Brien

To begin, <http://www.lead.org.au/lanv4n4/lanv4n4-20.html> lists 75 lead exposure occupations – there are probably more today!

I recently asked an egroup for lead poisoning prevention professionals, for the most up-to-date and best information for lead workers. What they sent was so far in advance of anything I've seen from Australia, that I decided to make an Info Pack out of it.

In June 2012, the US National Toxicology Program (NTP) U.S. Department of Health and Human Services published a monograph (thousands of pages long) **Health Effects of Low-level Lead Evaluation - NTP Monograph on Health Effects of Low-level Lead (June 2012)** on ALL the health effects of lead, at <http://ntp.niehs.nih.gov/pubhealth/hat/noms/lead/index.html> – so I asked for any publications which have incorporated information from this mother lode of NTP information.

Here's what the Occupational Health & Safety Surveillance Program, Division of Environmental Health, Iowa Department of Public Health sent me:

<http://www.leadsafeworld.com/wp-content/uploads/2015/02/IDPH-ABLES-overview-and-resource-list-20120205.pdf>

<http://www.leadsafeworld.com/wp-content/uploads/2015/02/IDPH-ABLES-Lead-Facts-Update-201205.pdf>

And here's what the Lead Poisoning Prevention Program, Occupational Health Branch, California Department of Public Health sent - it was accessible, under the heading "Recommendations for improving the Cal/OSHA Lead Standards" at

<http://www.cdph.ca.gov/programs/olppp/Pages/LeadStdRecs.aspx> when it was updated on 15 February 2013. The most useful direct links are at:

<http://www.cdph.ca.gov/programs/olppp/Documents/LeadStdRecsSummary.pdf> and

<http://www.cdph.ca.gov/programs/olppp/Documents/LICStdRecsTracked.pdf>

They wrote: "We are working to revise the Cal/OSHA lead standards and this worker education piece reflects both our published literature review work and the NTP report:

<http://www.cdph.ca.gov/programs/olppp/Documents/LeadHazAlert.pdf> " You will also find a good (brief) list of health effects at different blood lead levels, in Table 3, from the following:

<http://www.leadsafeworld.com/wp-content/uploads/2015/02/CDPH-Medical-Guidelines-for-the-Lead-Exposed-Worker-200911.pdf>



Reviewing every lead workers blood lead level history, along with any significant workplace changes, is usually required to pinpoint which of the following key factors are at play for all the co-workers of a lead poisoned worker, and which are at play for only one or some of them. The key factors in elevated blood lead levels at work seem to be:

- concentration of lead in the air
- are workers required to eat a meal before their shift starts and at regular break time/s during the shift? (an empty stomach absorbs more lead)
- nutritional status of the worker (iron, calcium or zinc deficiency will increase lead absorption)
- smoking at work (while in work clothes / before showering, washing hair and changing), will potentially elevate the blood lead twice as much as for a non-smoker in the same work conditions
- smoking outside of work while wearing clean clothes, or passive smoking will elevate the blood lead somewhat
- level of respiratory protection (is it all the time? / are filters changed? / are respirators or masks kept clean and face down when not in use?)
- level of hygiene (is the meal room kept clean? / are facilities available for washing hands and face before breaks? / are work clothes laundered by the company? / do all workers shower including washing their hair before changing into clean clothes to go home?)
- skin absorption of lead (how is this prevented or minimised?)
- is any worker being exposed to lead outside of work, by renovating or shooting or doing some other lead hobby?

Feel free to recommend that any worker with a blood lead level above 5 micrograms per decilitre, could usefully fill in the "Medical Evaluation Questionnaire For Occupational Lead Exposure" at [http://www.lead.org.au/fs/Medical Evaluation For Lead Exposure](http://www.lead.org.au/fs/Medical_Evaluation_For_Lead_Exposure) Modified by The LEAD Group 20101102.pdf and take it to their doctor for follow-up.

Any lead worker/hobbyist is welcome to join our Lead Workers egroup, so that they can discuss their recommendations about doctors or treatments, or ask questions about any aspect of lead exposure at work or hobbies. To join, please go to the Lead Workers link at <http://www.lead.org.au/egroups.html>

A LEAD Group lab analysis kit (including written interpretation and recommendations) is an invaluable tool both in the workplace and in a worker's home, for determining and eradicating the main sources of lead in the blood of a worker and their family [Do It Yourself Lead Safe Test Kits](http://www.lead.org.au/fs/Do_It_Yourself_Lead_Safe_Test_Kits) ([http://www.lead.org.au/fs/Do\\_It\\_Yourself\\_Lead\\_Safe\\_Test\\_Kits](http://www.lead.org.au/fs/Do_It_Yourself_Lead_Safe_Test_Kits)).

Finally, The LEAD Group is working on a Lead Results website project, to automate the outflow of free advice aimed at reducing individual blood lead levels, so is keen to help workers with elevated blood lead levels. In the meantime, you can assist us through our Blood Lead Challenge by submitting your blood lead result (ensure that they test for Lead when you take your blood test). In return, you'll receive individualised advice on how to lower blood lead levels, the least well-known but best-researched predictor of your risks of suffering dementia; osteoporosis; brain ageing and early death. You can report your blood lead level/s by emailing your scanned blood lead result/s with the date of birth (so we can calculate the age in months at the time the blood was taken) at [www.lead.org.au/cu.html](http://www.lead.org.au/cu.html)



# Recent additions to the world's largest lead library

*LEAD Group Library additions selected by Elizabeth O'Brien*

The LEAD Group lays claim to operating the world's largest publically-accessible lead information library. All online library articles are accessible via our searchable deep-web online database. Listing my favourite new additions here means that they are readily findable via Google and other search engines, whereas our online database is only searchable if you **CLICK ON THE YELLOW HIGHLIGHTED LINK AT <http://www.lead.org.au/fs-index.html>** - and note that you can also search the online library using keywords.

Thanks to an army of pro bono library data-entry staff who help me to keep our library growing – we'll soon exceed 18,000 articles. Here's my selection of the most interesting articles added in the past couple of weeks.

Author	Title	URL	Date
Brittany Ruppert, Sydney Morning Herald, [content approved by Adam Winder (son) and with edits by Elizabeth O'Brien, The LEAD Group Inc]	Timelines: Christopher Winder 1951-2014 OHS pioneer fought for workers - won an Australia Museum Eureka Award: Professor Chris Winder [ONLINE 26 Feb 2015 AS Chris Winder obituary: OHS pioneer brought warmth to a dry debate]	<a href="http://www.smh.com.au/comment/obituaries/chris-winder-obituary-ohs-pioneer-brought-warmth-to-a-dry-debate-20150226-1226t3.html">http://www.smh.com.au/comment/obituaries/chris-winder-obituary-ohs-pioneer-brought-warmth-to-a-dry-debate-20150226-1226t3.html</a>	27/02/2015
Newcastle Herald	Newcastle Herald 100 or so photos re Toxic Truth Pasminco Smelter series 22 November 2014 and following weeks: Images from Pasminco and Boolaroo over the years. Eg Circa 1959 Aerial Photograph of Pasminco Smelter	<a href="http://www.theherald.com.au/story/2732119/residents-outraged-remediation-no-longer-legally-required/#slide=1">http://www.theherald.com.au/story/2732119/residents-outraged-remediation-no-longer-legally-required/#slide=1</a> ; <a href="http://www.theherald.com.au/story/2732119/residents-outraged-remediation-no-longer-legally-required/#slide=1">http://www.theherald.com.au/story/2732119/residents-outraged-remediation-no-longer-legally-required/#slide=1</a>	21/11/2014
Newcastle Herald Journalists and outside Contributors	Toxic Truth Archive - The archive of the Newcastle Herald's Toxic Truth investigation [November 22 to December 13, 2014]	<a href="http://www.theherald.com.au/story/2711882/toxic-truth-archive/?cs=4365">http://www.theherald.com.au/story/2711882/toxic-truth-archive/?cs=4365</a>	27/12/2014
Boomerang Alliance (Jeff Angel)	Boomerang Alliance: Who We Are	<a href="http://www.boomerangalliance.org.au/who-we-are.html">http://www.boomerangalliance.org.au/who-we-are.html</a>	7/01/2015
Chief Health Officer. NSW Department of Health	Acting on the public's health: Reducing lead exposure of children in Broken Hill AND Domain 2: Environmental determinants of health - Priority areas: [No 5 of 6] Reduce lead exposure of young	<a href="http://www0.health.nsw.gov.au/pubs/2000/pdf/public2005.pdf">http://www0.health.nsw.gov.au/pubs/2000/pdf/public2005.pdf</a>	1/08/2000



Author	Title	URL	Date
	children in industrial environments FROM Healthy People 2005: New Directions for Public Health - Better Health Good Health Care in New South Wales, published August 2000		
DAVE MIHALOVIC	1 In 2 Children Will Have Autism by 2025, Warns Senior MIT Scientist	<a href="http://preventdisease.com/news/14/122914_1-in-2-Children-Autism-by-2025-Warns-Senior-MIT-Scientist.shtml">http://preventdisease.com/news/14/122914_1-in-2-Children-Autism-by-2025-Warns-Senior-MIT-Scientist.shtml</a>	28/12/2014
Cole Latimer	New species of metal eating plant uncovered: A new species of plant [Rinorea niccolifera] that absorbs heavy metals has been discovered in the Philippines. "only around 450 species of plant [are] known worldwide to be hyperaccumulators of metals"	<a href="http://www.miningaustralia.com.au/news/new-species-of-metal-eating-plant-uncovered">http://www.miningaustralia.com.au/news/new-species-of-metal-eating-plant-uncovered</a>	12/05/2014
Cole Latimer	New nickel accumulating plants uncovered: Researchers have uncovered dozens of new nickel hyperaccumulator plants in a study in Borneo. Dr. Augustine Doronila, from the University of Melbourne said the trees contain up to 3% nickel "so there is the real potential to develop large nickel 'farms' in the Tropics"	<a href="http://www.miningaustralia.com.au/news/new-nickel-accumulating-plants-uncovered">http://www.miningaustralia.com.au/news/new-nickel-accumulating-plants-uncovered</a>	12/05/2014
Professors Mark Taylor and Bruce Lanphear	Tribute to Prof. Christopher Winder	<a href="http://www.sciencedirect.com/science/article/pii/S0160412014002037">http://www.sciencedirect.com/science/article/pii/S0160412014002037</a>	27/06/2014
The Child & Family Centre, Broken Hill Health Service, NSW Health Far West Local Health District	leadnsw.com.au incl: Home page; About - Lead in Broken Hill, Child & Family Health Centre; Lead Health - Blood Lead Testing, Lead & the Body, At-Risk Groups; Lead Education - Nutrition, Environment, Hygiene, Occupation, Renovation, Starting a Family; Resources - Publications, Lead Links, Community Partners; Contact Us.	<a href="http://www.leadnsw.com.au/">http://www.leadnsw.com.au/</a>	1/06/2014
Public Eye Awards: Nominating Organisations: Multi-Watch; Observadores Glencore - Xstrata; ASK 25 Jahre/Anos - Arbeitsgruppe Schweiz-Kolumbien	Nomination of Glencore to win the final Public Eye Lifetime Award for corporate misconduct: human rights violations and environmental abuses	<a href="http://publiceye.ch/case/glencore/">http://publiceye.ch/case/glencore/</a>	16/01/2015
Advisory Committee on Childhood Lead Poisoning Prevention Of the Centers for Disease Control and Prevention	Guidelines for Measuring Lead in Blood Using Point of Care Instruments	<a href="http://cirrus.mail-list.com/leadnet/09072322.html">http://cirrus.mail-list.com/leadnet/09072322.html</a>	24/10/2013





Author	Title	URL	Date
Elizabeth O'Brien and Sadie Grant Butler, The LEAD Group	Opinion: Pushing for people power. Part of the Newcastle Herald Toxic Truth investigation	<a href="http://www.theherald.com.au/story/2729383/opinion-pushing-for-people-power/?cs=4365">http://www.theherald.com.au/story/2729383/opinion-pushing-for-people-power/?cs=4365</a>	28/11/2014
Elizabeth O'Brien, BSc, Grad Dip in Educational Studies (Health Educ'n), Graphics by Elizabeth O'Brien, Kari McKern and Sue Gee	[Info Pack 23] Nutrition to Fight Lead Poisoning - one of the Lead Safe World Solutions by The LEAD Group	<a href="http://www.leadsafeworld.com/nutrition-to-fight-lead-poisoning/">http://www.leadsafeworld.com/nutrition-to-fight-lead-poisoning/</a> ; ACCESSIBLE VIA <a href="http://www.leadsafeworld.com/solutions/">http://www.leadsafeworld.com/solutions/</a>	29/01/2014
Kari McKern	Blood Lead Challenge - Take the blood lead discovery and reporting challenge	<a href="http://www.lead.org.au/fs/fst88.html">http://www.lead.org.au/fs/fst88.html</a> ; <a href="http://www.lead.org.au/fs/Blood_Lead_Challenge_20141022.pdf">http://www.lead.org.au/fs/Blood_Lead_Challenge_20141022.pdf</a>	22/10/2014
Kari McKern, translated into Spanish by Orlando Aguirre-Lopez	El Desafío del Plomo en la Sangre - Descubra el nivel de plomo en la sangre y desafíe las estadísticas [SPANISH]	<a href="http://www.lead.org.au/fs/fst88Spanish.html">http://www.lead.org.au/fs/fst88Spanish.html</a> ; <a href="http://www.lead.org.au/fs/El_Desafío_del_Plomo_en_la_Sangre_20141022.pdf">http://www.lead.org.au/fs/El_Desafío_del_Plomo_en_la_Sangre_20141022.pdf</a>	22/10/2014
Kari McKern, translated into French by Orlando Aguirre-Lopez	Défi de Plomb dans le sang - Partez à la découverte de plomb dans votre sang et informez nous. [FRENCH]	<a href="http://www.lead.org.au/fs/fst88French.html">http://www.lead.org.au/fs/fst88French.html</a> ; <a href="http://www.lead.org.au/fs/Défi_de_Plomb_dans_le_sang_20141022.pdf">http://www.lead.org.au/fs/Défi_de_Plomb_dans_le_sang_20141022.pdf</a>	22/10/2014
Eagle Moss Collections	Star Trek - The Official Starships Collection, Part 22 Magazine - with Star Trek Deep Space Nine figurine & label on box Recommended age 14+. <b>Warning!</b> Collectable figurines. Not designed or intended for play by children. Do not dispose of in domestic waste." [May be lead-free?]		
ABC (Australian Broadcasting Commission)	ABC News Topic - LEAD - Australian Lead Poisoning / Lead Mining etc LINKS TO LEAD News on the ABC website since 11 April 2008	STARTING AT <a href="http://www.abc.net.au/news/topic/lead">http://www.abc.net.au/news/topic/lead</a> ; <a href="http://www.abc.net.au/news/topic/lead?page=1">http://www.abc.net.au/news/topic/lead?page=1</a> ; ETC	11/04/2008
Jacqueline Breen and Cherie von Hörchner / ABC (Australian Broadcasting Commission)	\$13 million to tackle toxic lead levels in Broken Hill children AND NSW Government delivers \$13 million to fight Broken Hill lead levels	<a href="http://www.abc.net.au/news/2015-02-13/high-lead-blood-levels-children-broken-hill/6091812">http://www.abc.net.au/news/2015-02-13/high-lead-blood-levels-children-broken-hill/6091812</a> AND <a href="http://www.abc.net.au/news/2015-02-13/nsw-government-to-announce-boost-in-funding-for-lead-abatement-/6090146">http://www.abc.net.au/news/2015-02-13/nsw-government-to-announce-boost-in-funding-for-lead-abatement-/6090146</a>	13/02/2015



Author	Title	URL	Date
Collated by Elizabeth O'Brien with assistance from Swetha Lingala (14 February 2015) desktop research by Robert Taylor, photos by Catherine Sweeny for The LEAD Group Inc with some information from Dr Walter Crinnion's book: "Clean, Green and Lean".	[Part of Info Pack 23] Foods for Lead Detox - Alphabetical list of foods rich in the nutrients which fight lead poisoning and List of how those Nutrients help fight lead poisoning.	<a href="http://www.lead safeworld.com/solutions/foods-for-lead-detox/">http://www.lead safeworld.com/solutions/foods-for-lead-detox/;</a> <a href="http://www.lead.org.au/fs/fst86.html">http://www.lead.org.au/fs/fst86.html;</a> <a href="http://www.lead.org.au/fs/Foods_for_Lead_Detox_A-Z_20150214.pdf">http://www.lead.org.au/fs/Foods_for_Lead_Detox_A-Z_20150214.pdf</a>	14/02/2015
Charles W. Schmidt	Unsafe Harbor? Elevated Blood Lead Levels in Refugee Children [eg 6 mth old Nigerian boy with cosmetic eyeliner called Tiro applied since 2 wks of age by parents to improve his "visual development". 2 yr old Sudanese girl who died of lead poisoning after eating wall plaster from under leaded paint. "The CDC recommends that all refugees aged 6 months to 16 years be screened for BLL, anemia, and nutritional status upon arrival in the United States, with followup lead testing three to six months after placement in permanent housing."	<a href="http://ehp.niehs.nih.gov/121-a190/">http://ehp.niehs.nih.gov/121-a190/;</a> <a href="http://ehp.niehs.nih.gov/wp-content/uploads/121/6/ehp.121-a190.pdf">http://ehp.niehs.nih.gov/wp-content/uploads/121/6/ehp.121-a190.pdf</a>	1/06/2013
Ask the Landlord including forum posts by Julie, Sean, Clara, TomL, Michael, HennyPenny crafts, OrEGone, Tyler, Minnesota John, Gevans, Sparta, donkeykong and johnjobe	AsktheLandlord.com Forums - General Category => General Landlording Discussion: Forum Posts re: Lead Poisoning Liability [following the broadcast of "Forensic Files" TV episode re a landlord jailed for not notifying the parents of lead hazards in a US rental property before a Sudanese 2 yr old refugee died of lead poisoning from eating paint & plaster there] eg "I would require they have the kid tested for lead poisoning and supply a copy of the results with their application [to rent]."	<a href="http://askthelandlord.com/forums/general-landlording-discussion/lead-poisoning-liability/15/">http://askthelandlord.com/forums/general-landlording-discussion/lead-poisoning-liability/15/;</a> <a href="http://askthelandlord.com/forums/general-landlording-discussion/lead-poisoning-liability/?action=printpage">http://askthelandlord.com/forums/general-landlording-discussion/lead-poisoning-liability/?action=printpage</a>	16/03/2013
Linda Curran	Environmental Sensitivities Symposium online & free starting 23 March 2015	<a href="http://ecohealthsolutions.com.au/blog/environmental-sensitivities-symposium/">http://ecohealthsolutions.com.au/blog/environmental-sensitivities-symposium/</a>	16/02/2015



Author	Title	URL	Date
Liz Colon, LeadSafeKids	Email to Leadnet Listserv from Liz Colon of LeadSafeKids USA re lead-poisoning death of 2-year-old Sudanese refugee in USA on Forensic Files episode Sunday's Wake, prior to its first broadcast in the USA in August 2006		16/08/2006
Forensic Files	Forensic Files Death By Poison Sunday's Wake 1 and Sunday's Wake 2: When a little girl got sick and died, investigators were stumped. Was it an accident, an unexplained illness, or murder? Scientists would travel halfway around the world before finding the answer in two unlikely places: a shredded legal document and her mother's signature.	<a href="https://www.youtube.com/watch?v=h4dZdMGII70">https://www.youtube.com/watch?v=h4dZdMGII70</a> ; <a href="https://www.youtube.com/watch?v=_C8wD1qsQq0">https://www.youtube.com/watch?v=_C8wD1qsQq0</a>	15/08/2006
Kevin Humphries MP, Minister for Natural Resources, Lands and Water, Minister for Western NSW	MEDIA RELEASE Friday 13 February 2015 - NSW GOVERNMENT COMMITS MORE THAN \$13 MILLION TO REDUCE LEAD LEVELS AT BROKEN HILL	<a href="http://www.epa.nsw.gov.au/resources/MinMedia/EPAMin150213.pdf">http://www.epa.nsw.gov.au/resources/MinMedia/EPAMin150213.pdf</a>	13/02/2015
Catalyst, ABC TV	Lead Astray, on Catalyst, ABC TV Australia - first broadcast Tuesday, 10 February 2015. Watch the show online, read the transcript, follow the links to buy a LEAD Group kit to test your home for lead, or make a comment	<a href="http://www.abc.net.au/catalyst/stories/4174798.htm">http://www.abc.net.au/catalyst/stories/4174798.htm</a>	10/02/2015
Damon Cronshaw	TOXIC TRUTH: Residents demand action over contamination. PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2908188/toxic-truth-residents-demand-action/?cs=4365">http://www.theherald.com.au/story/2908188/toxic-truth-residents-demand-action/?cs=4365</a>	25/02/2015
Matthew Kelly	Aftermath of lead has cruel, lasting effects: Violent crime linked to exposure as child; Poisonous legacy casts shadow over residents. [ONLINE 26/11/14 AS Toxic Truth: High correlation between children exposed to lead and violent crimes] PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2725072/revealed-link-between-violent-crime-and-lead/">http://www.theherald.com.au/story/2725072/revealed-link-between-violent-crime-and-lead/</a>	27/11/2014
DAMON CRONSHAW and DONNA PAGE	Blood testing possible stalling tactics [ONLINE 26/11/14 Boolaroo Action Group says children aren't 'canaries', calls for 'real action' over lead contamination] PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation]	<a href="http://www.theherald.com.au/story/2725057/our-children-arent-canaries/">http://www.theherald.com.au/story/2725057/our-children-arent-canaries/</a>	27/11/2014



Author	Title	URL	Date
MATTHEW KELLY	Families lived happily, unaware of hidden danger of town's heavy metals [ONLINE 26/11/14 AS Toxic Truth: Residents lived happily unaware of hidden danger of town's heavy metals] PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2725270/residents-lived-happily-unaware-of-hidden-poison/">http://www.theherald.com.au/story/2725270/residents-lived-happily-unaware-of-hidden-poison/</a>	27/11/2014
OLCA (Observatorio Latino Americano de Conflictos Ambientales / Latin American Observatory for Environmental Conflicts) - Chile, Paraguay, Mexico, Ecuador and Colombia	Pese a las regulaciones, el plomo sigue siendo una amenaza para la vida en Chile [SPANISH] [TRANSLATION OF TITLE: In spite of regulations, lead continues to be a menace to life in Chile]	<a href="http://olca.cl/articulo/nota.php?id=103734">http://olca.cl/articulo/nota.php?id=103734</a>	7/11/2013
DONNA PAGE	Lead clean-up funding sought PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]		27/11/2014
MATTHEW KELLY	Group talking action [ONLINE 28/1/15 AS Toxic Truth: Group talking action] PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2847642/group-talking-action/?cs=4365">http://www.theherald.com.au/story/2847642/group-talking-action/?cs=4365</a>	27/11/2014
MATTHEW KELLY	Raking up a slag heap of memories PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]		27/11/2014
HELEN GREGORY	Lead found unsafe at any level in body [ONLINE 25/11/14 AS Toxic Truth: Lead found unsafe at any level in body PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2726941/lead-found-unsafe-at-any-level-in-body/">http://www.theherald.com.au/story/2726941/lead-found-unsafe-at-any-level-in-body/</a>	27/11/2014
Craig Dalton.	Health risk disappearing without soil remediation [ONLINE 25/11/14 AS Toxic Truth: Health risk disappearing without soil remediation PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2726945/health-risk-disappearing-without-soil-remediation/">http://www.theherald.com.au/story/2726945/health-risk-disappearing-without-soil-remediation/</a>	27/11/2014
Jim Sullivan	[Letter to the Editor of the Newcastle Herald from Jim Sullivan] LETTER: Boolaroo bleeds over lead, REGARDING the article "Blood testing possible stalling tactics" (Herald 27/11/14): PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2729350/letter-boolaroo-bleeds-over-lead/">http://www.theherald.com.au/story/2729350/letter-boolaroo-bleeds-over-lead/</a>	28/11/2014



Author	Title	URL	Date
NEWCASTLE HERALD	We simply left the house empty and walked away[ONLINE 25/11/14 AS Toxic Truth: We simply left the house empty and walked away] PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2726946/we-simply-left-the-house-empty-and-walked-away/">http://www.theherald.com.au/story/2726946/we-simply-left-the-house-empty-and-walked-away/</a>	27/11/2014
Donna Page, Matthew Kelly, Helen Gregory and Damon Cronshaw	EXPOSED - Toxic slag spread across city BLACK BELT. PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]		27/11/2014
Donna Page, Matthew Kelly, Helen Gregory and Damon Cronshaw	Smelter by-product not a high priority says EPA - Slag risks Ignored [ONLINE 25/11/14 AS Toxic Truth: Smelter by-product not a high priority says EPA Slag risks Ignored PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2729584/black-slag-risks-ignored/">http://www.theherald.com.au/story/2729584/black-slag-risks-ignored/</a>	27/11/2014
NEWCASTLE HERALD	Tests show high lead lurks in playgrounds ONLINE 28/11/14 AS Toxic Truth: Tests show high lead lurks in playgrounds PART OF: Toxic Truth: A Newcastle Herald Investigation [re: Boolaroo Smelter remediation follow-up]	<a href="http://www.theherald.com.au/story/2729586/tests-show-high-lead-lurks-in-playgrounds/">http://www.theherald.com.au/story/2729586/tests-show-high-lead-lurks-in-playgrounds/</a>	27/11/2014

## Lead in Literature – Life of Pi

*Author: Yann Martel*

*Published 2002 by Alfred A Knopf, a division of Random House of Canada*

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“The day I came of swimming age, which to Mother's distress, Mamaji claimed was seven, he brought me down to the beach, spread his arms seaward and said, "This is my gift to you.”...

When he felt that I had progressed sufficiently, we turned our backs on the laughing and the shouting, the running and the splashing, the blue-green waves and the bubbly surf, and headed for the proper rectangularity and the formal flatness (and the paying admission) of the ashram swimming pool.

I went with him three times a week throughout my childhood, a Monday, Wednesday, Friday early morning ritual with the clockwork regularity of a good front-crawl stroke....

Swimming instruction, which in time became swimming practice, was gruelling, but there was the deep pleasure of doing a stroke with increasing ease and speed, over and over, till hypnosis practically, the water turning from molten lead to liquid light....



Beyond the activity of swimming, there was the talk of it. It was the talk that Father loved....

Swim lore was his vacation talk from the workday talk of running a zoo. Water without a hippopotamus was so much more manageable than water with one."

## Tweets

- "<http://t.co/BVTjw8u0sT> Link to Very Interesting Video Regarding Lead Exposure and Health that aired last night on ABC TV. [#abctv](#) [#abc](#) [#lead](#)" - Yiru Rocky Huang (11/02/2015)
- "A very happy Lunar Year of the Ram to all of you from The LEAD Group! May it be healthy, successful and lead-safe! [#HappyLunarNewYear](#)" – Yiru Rocky Huang (18/02/2015)

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