

## Grandma Lead visits Broken Hill

Earlier this year, Grandma Lead (aka Elizabeth O'Brien) visited Broken Hill in outback NSW as part of her mission to create a lead-safe world.

Find out all about the significance of her trip in this written interview.

### What is the historical link between lead and Broken Hill?

Broken Hill is a town in far western New South Wales, Australia. Lead ore has been continuously mined at Broken Hill for over 140 years, since 1883, along with a range of other ores of both radioactive and heavy metals.

Broken Hill NSW is the most productive lead mining town in the world and for over 100 years has supplied lead ore (by train) to the world's most productive lead smelter at Port Pirie in South Australia.



### Why did you go to Broken Hill when you did?

I've been wanting to go to Broken Hill for the entire 33 years I've been researching lead and working to make the world lead-safe, but the tyranny of distance from the east coast where I live, and consequent high travel/time cost has stopped me.

So when Australia's most published lead researcher, Professor Emeritus Brian Gulson (founding and former Head of The LEAD Group's Technical Advisory Board), was asked by [Dr. Aaron Reuben](#) (pictured, also see all hyperlinked references below), postdoctoral scholar in neuropsychology and environmental health at Duke University in the USA to explain Australian lead issues to him for Aaron's upcoming book, Brian (being retired) referred Aaron to me. Via Zoom on 25<sup>th</sup> January 2024 I instantly took to the likeable red-haired Aaron who has a son around the same age as my grandson, so when he told me that he was coming to Australia for four days in early February 2024 and visiting Broken Hill for most of that time, I felt I just had to take the opportunity to meet Aaron there and finally see for myself what living with lead in Broken Hill is all about.



My favourite New Zealand client Brian Arndt (see [Who can mend old leaded men?](#)) had earlier sent me Aaron Reuben's [Childhood Lead Exposure and Adult Neurodegenerative Disease](#) (2018) about the

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millions of Americans [and I posit billions of humans] now entering middle to old age who are potentially facing Alzheimer's Disease, Parkinson's Disease and dementia [among other lead-related fatal diseases such as heart attack, stroke and osteoporosis] as a result of having elevated blood lead levels as children and osteoporosis later in life or for women, just going through menopause.

Based on Port Pirie, Boston, Massachusetts, Cincinnati and Dunedin cohorts, in this [Journal of Alzheimer's Disease paper](#) Aaron expressed, six years ago, the view that "the next twenty years will provide the last opportunities for possible early intervention". Aaron is a former presidential policy intern at the White House Council on Environmental Quality. Wow!

My best effort to encourage governments, institutions and philanthropists to fund such tertiary lead poisoning prevention research is my [Model National Lead Safety Policy - Towards a Lead-Safe World](#) (2023) which I've yet to convince the Australian Prime Minister Anthony Albanese to read let alone fund the development of, and Aaron had just obtained grants to extend the [Dunedin study](#) (to include blood lead testing and bone XRF lead testing) and write a book about lead which enabled his trip to Australia and New Zealand, so I figured I had a lot to learn from him, not only about lead but about getting funding for [solutions to lead's effects](#) and being heard on policy such as that doctors do a whole lot more targeted blood and bone XRF lead screening as people age!

## Did you meet some interesting people when you were there?

Yes! The first Broken Hillite I met was Semitj Hopcraft (photo at right) who kindly picked me up from the airport (where he took the above photo of me) and gave me a tour of his life in Broken Hill as a traditional indigenous artist, photographer, volunteer bush regenerator and all-round amazingly knowledgeable and wonderful Aboriginal elder.



I had been looking forward to meeting Semitj for 8 years, since we applied for a NSW EPA Lead Education School Food Garden Grant together in 2016 and in that process I'd found out that his students (pictured) at Alma Public School where Semitj was the Specialist Gardener, had named Semitj a [Local Land Hero](#).

Later the first day, Dr Aaron Reuben arrived by hire car from Adelaide and it was great to meet him for dinner as we're on the same page - being concerned about the urgent need to research and implement interventions in tertiary lead poisoning prevention or as I put it: stopping the lead that is already in all of us from re-harming us later-in-life or killing us earlier than our peers who have less lead in them.

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On my second day in Broken Hill at lunch with Semitj and Aaron (at right), I had the great honour of finally meeting a tireless Broken Hill Lead-Safety Campaigner, Jenny Rowbotham (at right), who I've been communicating with by phone and email since 1996! Jenny has an encyclopaedic knowledge of lead- and other heavy metal-related local happenings, test results and other unpublished documents, research, policy, political decisions, oversights and environmental, occupational and public health crimes that have occurred during her life raising her sons in Broken Hill.



Jenny provided most of the Broken Hill intel that I included in my [Capture by mining interests of regulatory and political processes voids the fitness for purpose of the mine approvals process](#) - Submission No. 184 into the NSW Parliamentary Inquiry into Gold, Silver, Lead and Zinc Mining, 2023, and her insights, observations and references she's supplied my library over the past 28 years have informed much of what I have written online

about lead, not just this article! I am so grateful to Jenny for the special guided tour by car that she gave me after our lunch together – her lived experience of raising children and now having grandchildren in Broken Hill should underpin any lead education campaign that truly seeks to inform Broken Hill residents and would-be residents.

At the same lunch with Semitj, Aaron and Jenny, I was delighted to meet a new contact I had sought from Dr Amanda Cohn of the NSW Greens (who chaired the 2023 Mining Inquiry): Ghislaine "Gigi" Barbe (at right) - who later took Aaron and I on a fascinating walking tour of Broken Hill city's workers union and mining history.



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## Did you encounter anything that made you stop in your tracks?

Yes, the first view Semitj showed me was by driving (along this road at left) up on top of the town-bisecting giant line of lode (ore body) which has gradually been covered by mullock – millions of tons of toxic mining waste which constantly gets washed into stormwater as acid mine drainage despite regularly sprayed-on “adhesive”.



Standing at the various lookout points on top of this mullock heap, you can see how shockingly close to houses is both the dust cloud of the current above-ground lead mining operations in one direction (photo bottom left) and close to main town of Broken Hill in the other direction (behind Semitj, middle photo).

I was also awestruck when we visited the iconic rusty metal [Line of Lode Miner's Memorial](#) perched on top of the mullock heap – with its rose tributes to the

over 800 miners who've died.

Aaron and I were later fascinated to see that the first death memorialised was attributed to “Lead Poisoning”, followed by many more “Lead Poisoning” deaths and “Dust on lungs” deaths from the early 1880s (photo at right).



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But death by "Accident" or "Fall", are common and could arguably be related to lead exposure because lead affects balance, reduces IQ and ages the brain. Death by "Heart Attack" and "Heart Failure" – which are definitely lead-related - becomes increasingly common over time (see rose-edged photos). Some miners' deaths were memorialised as "Heart Attack at Work." According to a [1990 article, there are another 2000 occupational deaths that didn't occur underground](#) – where are they memorialised?

I also stopped to wonder why there wasn't a similar memorial for lead-poisoning-related suffering, [miscarriages](#) and death of those Broken Hill residents who didn't earn a living by working in the mines, but were lead poisoned nevertheless by breathing the air, drinking the rainwater and ingesting lead dust and lead-contaminated soil through normal hand-to-mouth activity, growing up in the town.

At least the early miners, before social welfare or mandatory workers compensation insurance, were paid a [Lead Bonus](#) so when a miner died at work, his family would have some capital on which they could live.

**Would you say that Broken Hill is now lead-safe? If not, what further action needs to be taken to support Broken Hill in becoming lead-safe?**

Broken Hill will be lead-safe when above-ground lead mining closes down and the people move to new housing and facilities well away from the line of lode OR the line of lode and every property in Broken Hill is properly remediated and managed far into the future.

On this trip, when I met with Dr Frances Boreland of NSW Environment Protection Authority (EPA), the manager of Broken Hill blood lead testing and remediation programs, it was like she was the embodiment of Professor Mark Taylor's team's 2014 paper [Licenced to pollute but not to poison: The ineffectiveness of regulatory authorities at protecting public health from atmospheric arsenic, lead and other contaminants resulting from mining and smelting operations.](#)

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Dr Boreland explained to me how people in Broken Hill still drink water from rainwater tanks (because town water is so expensive) despite the education program telling them not to, and how difficult it is to get parents to bring their children in for blood lead testing.

From what I know of the Broken Hill lead education program downplaying lead's health impacts over the last three decades, and the fact that there is only enough government funding for Dr Boreland's team and the Maari Ma Health Aboriginal Corporation health centre team to respond to preschoolers' blood lead levels that are over 15 micrograms per decilitre / 15 ug/dL (when the national blood lead action level for all ages is 5 ug/dL or above), and that Broken Hill doctors refuse to test the blood lead levels of children over the age of six, and refuse to test all adults unless they work in direct contact with lead ore processes or are giving birth and their cord blood lead level is tested as part of a study, I personally am not surprised that under informed parents, [mised about lead](#), might avoid blood lead testing of their pre-schoolers.



One remediation technique Dr Boreland mentioned – using a filler to seal all the gaps in the corrugated iron ceilings common in Broken Hill homes which are often bowed by the weight of wind-borne mining dust that has settled in the ceiling void over time - would be the first technique I'd abandon in favour of professional vacuuming of the ceiling void dust using a truck-mounted industrial HEPA Vac (which is currently sitting unused

in Broken Hill), with the waste being sent to the smelter, followed by the family and all their possessions being relocated during replacement of the corrugated iron ceilings with gapless ceiling and roofing materials and effective cornices such that future dust that settles in the void from mining activity and the likely increasingly-frequent (due to climate change) dust storms will be sealed in until it can be safely and regularly vacuumed out again.



Some Broken Hill homes have lead poisoned multiple families and should be condemned, and the families [relocated to lead-safe housing](#) – easily determined with a [LEAD Group Lab-Analysis DIY-Sampling Kit](#) – with repeat blood lead testing and lead source removal until they reach non-notifiable levels (below 5 ug/dL).

I also recommended to Dr Boreland that the town mains water should be tested for lead by collecting a 50mL sample at the tap after 9 hours non-use of the tap following the installation of a new brass tap in the kitchen, then running the water until cold and collecting a “flushed” 50mL sample to determine whether the [new-since-April 2019 Murray River mains water](#) (which Dr Boreland said is softer than the old

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Darling River mains water) is leaching lead from the brass inside new taps. If lead is found to be leaching from new taps – just a couple of [LEAD Group Posted Kits](#) could answer that question immediately, then all plumbers should be advised to only install stainless steel taps.

Knowing that child blood lead test results from Broken Hill are always higher in Indigenous kids, I offered that The LEAD Group is prepared to give [free LEAD Group Kits](#) (worth around \$300 each) to any professional in Broken Hill who is prepared to follow the Kit's sampling instructions and collect 8 samples from the home and/or workplace of any at-risk First Nations families (whether they've had blood lead testing or not), if the (preferably Aboriginal) professional would also be prepared to follow-up with the family and assist them in implementing the recommendations I provide with the lab lead results. To date, Dr Boreland has not taken up this LEAD Group Citizen Science Indigenous Lead-Safety offer.

When Semitj drove me all around Broken Hill, he pointed out hundreds of vacant properties and mentioned that renovation contractors are rare as hen's teeth.



Despite guerrilla gardening efforts of Semitj's circle, bare soil was widespread. This can be easily picked up and redistributed by the wind into ceiling voids and living spaces, and onto previously remediated land so must feature in remediation and ongoing maintenance efforts.

Making Broken Hill houses and yards, footpaths and public parks lead-safe would definitely require some kind of mining company-funded or government-funded Lead Bonus to train up resident contractors in lead-safe renovation techniques and to draw lead-safety-trained and -experienced contractors (including landscapers) to the area to create lead-safe housing for other out-of-towners who are already drawn there by the cheap housing.

Every policy I've already elucidated in my [Model National Lead Safety Policy - Towards a Lead-Safe World](#) (2023) would usefully be urgently implemented in Broken Hill to make it lead-safe, beginning with offering free blood lead testing to every resident no matter their age, and re-training Broken Hill doctors to refer for a "blood lead series", any patient who by questionnaire screening might be at risk of, or who presents with any of the long list of lead exposure signs or symptoms (such as delayed puberty, miscarriage, preeclampsia or hypertension) listed in my Model Policy under the heading [Promote blood lead testing of individuals](#).

When the above-ground and poorly-controlled below-ground mining ends and the giant mullock heap known as the Line of Lode is encapsulated and topsoiled and has plants growing all over it just like the mounds of contaminated soil at Sydney's Olympic Park at Homebush, and all the other [Broken Hill Solutions](#) proposed by two other members of The LEAD Group's Technical Advisory Board (Mark Taylor and Anthony Morrison) and their team, there'll be a chance of lead-safety in Broken Hill.

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In the meantime, for just 1% of the \$30m most recently granted for cleaning up the town, 1000 [LEAD Group Kits](#) would be extremely useful in identifying the most urgent remediation for the most vulnerable residents, then retesting following the remedial works, to ensure lead-safety for young children, people with pica, pets, backyard chickens and anyone who has such a huge body burden of lead already that they can't afford to breathe in any more lead.

There's so much more to know about Broken Hill lead, such as, are residents' rates of domestic violence, high-school drop-out, cataracts, mental health issues like schizophrenia, anxiety and depression, early death from heart attack or stroke or osteoporosis or kidney failure, correlated with cumulative blood lead (obtainable by collecting and collating blood lead data over a lifetime) or bone XRF (obtainable by bone XRF machine which would need to be imported into Australia, but which gives the best measure of a person's total body burden or lifetime exposure to lead, especially in the absence of repeated blood lead testing)?

For instance, since we know that [hot flashes and night sweats protect the heart health of postmenopausal women](#), Broken Hill (and a control town without lead industry) would make the perfect setting for determining whether lead contributes to early death from heart attack in postmenopausal women and whether regular saunas or other ways of sweating (like exercise or physical work) and immediately showering to wash the potentially lead-contaminated sweat off the skin before it can be reabsorbed, can extend life and improve health for these women despite their earlier-in-life lead exposure.

## **What are your biggest takeaways from the trip?**

Semitj Hopcraft is a wise local hero who is well-placed to contribute significantly to making Broken Hill lead-safe for everyone, especially with his plan to grow a million autochthonous (as he corrected me when I, a botanist by training, called them "indigenous") plants to eradicate bare soil in the region!

The walking lead-safety encyclopaedia Jenny Rowbotham should be consulted extensively to give any future Lead Remediation Program its best chance of actually making Broken Hill lead-safe and of compensating its non-occupationally lead-exposed victims of past inadequate Lead Remediation Programs.

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**Just for fun, what did you love most about Broken Hill?**

The art! Especially the paintings of Semitj Hopcraft!



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And Semitj's photography! (Image: Plumes of dust off South Skimp dump).



But also I loved the local knowledge and the respect and love for country that Semitj demonstrates in everything he does and everything he showed and explained to me (photos below).



2024 Volcano Art Prize (VAP) entry by Elizabeth O'Brien. *Grandma Lead meets Dr Aaron Reuben in Broken Hill.*

Lead-Safety Message: It was truly fabulous to discover Broken Hill with a young and brilliant academic, Aaron Reuben, who could literally be quintessential in the creation of my vision: a lead-safe world by 2041! (iPhone8 selfie)

<https://volcanoartprize.com/portfolio-item/grandma-lead-meets-dr-aaron-reuben-in-broken-hill/>

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## Finally, where can readers get copies of your hyperlinked references?

Everyone is welcome to request copies of any of these references by their LID (LEAD Group Library Identifier) number [below], by contacting The LEAD Group on freecall 1800626086.

### [Dr Aaron Reuben](#)

Dr Aaron Reuben: Duke University postdoctoral scholar in neuropsychology and environmental health (n.d.) <https://moffittcaspi.trinity.duke.edu/aaron-reuben-0> [LID 27808]

### [Who can mend old leaded men?](#)

LEAD Action News vol 20 no 1 - LANv20n1 - Who can mend old leaded men? [includes numerous articles about Brian Arndt] by Elizabeth O'Brien (2019) <https://www.leadsafeworld.com/wp-content/uploads/2019/10/LANv20n1-Who-can-mend-old-leaded-men.pdf>; <https://lead.org.au/lanv20n1/LANv20n1-Who-can-mend-old-leaded-men.pdf>; <https://nla.gov.au/nla.obj-2108484174/view> [LID 19441]

### [Childhood Lead Exposure and Adult Neurodegenerative Disease](#)

and [Journal of Alzheimer's Disease paper](#)

*Childhood Lead Exposure and Adult Neurodegenerative Disease*, by Aaron Reuben (2018) in *Journal of Alzheimer's Disease* 64 (2018) 17-42, DOI 10.3233/JAD-180267, IOS Press, <https://content.iospress.com/articles/journal-of-alzheimers-disease/jad180267> [LID 19407]

### [Model National Lead Safety Policy - Towards a Lead-Safe World](#)

*Model National Lead Safety Policy - Towards a Lead-Safe World: The LEAD Group's Proposal for National Government Policy on the Prevention and Management of Lead Exposure, Poisoning and Contamination*, by Elizabeth O'Brien, Lucinda Curran, Ananda Card, Tim Pye and Anne Roberts, with review comments by Members of The LEAD Group's Technical Advisory Board (TAB) (2023) <https://leadsafeworld.com/fulldoc-natpol> [LID 27279] and [https://www.lead.org.au/lanv21n4/LANv21n4\\_Model\\_National\\_Lead\\_Safety\\_Policy\\_and\\_2023\\_VAP.pdf](https://www.lead.org.au/lanv21n4/LANv21n4_Model_National_Lead_Safety_Policy_and_2023_VAP.pdf) [LID 27718]

### [Dunedin study](#)

*Dunedin Multidisciplinary Health & Development Study (the Dunedin Study for short) - Assessment Phase 52 Has Commenced; Message from the Director, Professor Reremoana (Moana) Theodore*, by DMHDRU - Dunedin Multidisciplinary Health and Development Research Unit, University of Otago, New Zealand (2024) <https://dunedinstudy.otago.ac.nz/> [LID 27863]

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## [Solutions to lead's effects](#)

Solutions – Mainpage of Lead Safe World Website by The LEAD Group Inc. (2013-2024) <https://leadsafeworld.com/solutions/> [LID 17289]

## [Local Land Hero](#)

*Getting Back to Nature re Local Land Hero Semitj Hopcraft* by Lauren Hoysted, Mason Ferguson, Ryan Braes, Quinn Parker and Olivia Gittoes, 2014 Students of Year 5 and 6, and their Teacher: Ashlee Jameson, School: Alma Public School, Broken Hill (2014) <https://www.envirostories.com.au/wp-content/uploads/pdf/2014048Back2Nature.pdf>

## [Capture by mining interests of regulatory and political processes voids the fitness for purpose of the mine approvals process](#)

*Capture by mining interests of regulatory and political processes voids the fitness for purpose of the mine approvals process. Submission No. 184 to NSW Parliamentary Inquiry into Gold, Silver, Lead and Zinc Mining*, by Elizabeth O'Brien (author), Ian Smith (editor), The Lead Education and Abatement Design (LEAD) Group Incorporated (2023) [https://www.parliament.nsw.gov.au/lcdocs/submissions/82416/0184%20Lead%20Education%20and%20Abatement%20Design%20\(LEAD\)%20Group%20Incorporated.pdf](https://www.parliament.nsw.gov.au/lcdocs/submissions/82416/0184%20Lead%20Education%20and%20Abatement%20Design%20(LEAD)%20Group%20Incorporated.pdf) [LID 27620]

## [Line of Lode Miners Memorial](#)

*Line of Lode Miners Memorial, Broken Hill*, by Travel In - Adventures Staff (2016) <https://web.archive.org/web/20190412071319/https://www.travelin.com.au/articles/Line-of-Lode-Miners-Memorial-Broken-Hill-03433> [LID 18899]

## [1990 article, there are another 2000 occupational deaths that didn't occur underground](#)

How Broken Hill is facing up to the winds of change [Quotes from a book by Bob Bottom "Behind the Barrier" which quotes unionist Shorty O'Neill's 1966 speech: "it's the workers who provided all the cripples, all the orphans and all the widows"] by Nicholas Way in Australian Financial Review (5 Oct 1990) <https://www.afr.com/companies/how-broken-hill-is-facing-up-to-the-winds-of-change-19901005-kalh5> [LID 27862]

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## Miscarriages

*Pregnant women and parents misled about dangers of living with lead pollution* by Marianne Sullivan and Donna Green, in *The Conversation* (12th January 2016) reprinted in LEAD Action News vol 19 no 4 LANv19n4

<https://theconversation.com/pregnant-women-and-parents-misled-about-dangers-of-living-with-lead-pollution-52752>; <https://lead.org.au/lanv19n4/LANv19n4-37.pdf>; <https://leadsafeworld.com/wp-content/uploads/2021/01/LANv19n4-37.pdf> [LID 19298]

## Lead Bonus

Broken Hill Line of Lode Memorial article on Monument Australia website (n.d.)

<https://monumentaaustralia.org.au/themes/technology/industry/display/20555-line-of-lode-memorial> [LID 27857]

## **Licensed to pollute but not to poison: The ineffectiveness of regulatory authorities at protecting public health from atmospheric arsenic, lead and other contaminants resulting from mining and smelting operations**

Licensed to pollute but not to poison: The ineffectiveness of regulatory authorities at protecting public health from atmospheric arsenic, lead and other contaminants resulting from mining and smelting operations, by Mark Patrick Taylor, Peter J. Davies, Louise Jane Kristensen, Janae Lynn Csavina, in *Aeolian Research*, Volume 14, September 2014, Pages 35-52, Elsevier (2014) <https://www.sciencedirect.com/science/article/abs/pii/S1875963714000226> [LID 17534]

## Misled about lead

*Misled about lead? An assessment of online public health education material from Australia's lead mining and smelting towns* by Marianne Sullivan and Donna Green, in *Environmental Health* 201615:1

<https://doi.org/10.1186/s12940-015-0085-9> (2016) <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-015-0085-9> [LID 19299]

## Relocated to lead-safe housing

*Impact On Blood Lead In Children And Adults Following Relocation From Their Source Of Exposure And Contribution Of Skeletal Tissue To Blood Lead [in Broken Hill]* by BL Gulson, KJ Mizon, MJ Korsch, D Howarth, A Phillips, J Hall, in *Bulletin of Environmental Contamination. Toxicol.* (1996) 56, 543-550

<https://link.springer.com/content/pdf/10.1007/s001289900078.pdf> [LID 172]

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## [LEAD Group Lab-Analysis DIY-Sampling Kit](#)

Solutions: Lead testing kit information & purchase - LEAD Group DIY-sampling / lab analysis lead test kits. Which samples should I collect? By Lead Safe World Project, The LEAD Group Inc (2013)

<https://leadsafeworld.com/solutions/lead-group-diy-sampling-lab-analysis-lead-test-kits/> [LID 17290]

## [new-since-April 2019 Murray River mains water](#)

Drought-stricken Broken Hill's water supply switched to Murray River as \$500m pipeline turned on, by ABC Broken Hill / Sara Tomevska and Declan Gooch (26/02/2019) <https://www.abc.net.au/news/2019-02-26/wentworth-to-broken-hill-pipeline-turned-on/10844986> [LID 27859]

## [LEAD Group Posted Kits](#) and [LEAD Group Kits](#)

Lead Safe World Shop - for Lead Safe World Posters, LEAD Group Membership and LEAD Group Kits [1-Sample, 2-Sample, 8-Sample Posted (if for water or dust wipes) & Emailed Kits for lead lab analysis of soil eggs, paint, etc plus Add-Ons like extra metal analyses] by Lucinda Curran (2024) <https://www.leadsafeworld.com/shop/> [LID 18000]

## [Free LEAD Group Kits](#)

Free LEAD Group Kits for Indigenous Australians (application form) by Elizabeth O'Brien and Lucinda Curran (2024) <https://leadsafeworld.com/free-lead-group-kits-for-indigenous-australians/>; <https://leadsafeworld.com/freekits> [LID 27820]

## [Promote blood lead testing of individuals](#)

iv) Promote blood lead testing of individuals and inclusion in blood lead surveys of categories of people at risk of historical, current or future lead exposure, in *Initial Steps to Prevent Lead Exposure and Poisoning (part 2)* of Model National Lead Safety, by The LEAD Group (2023) <https://leadsafeworld.com/initial-steps-to-prevent-lead-exposure-and-poisoning-pt2> [LID 27860]

## [Broken Hill Solutions](#)

*Environmental Lead Risks at Broken Hill, New South Wales, Australia: Sources, Exposures and Forward Solutions* by Taylor, M.P., Isley, C.F., Lyle, D., Cattle, S., Dong, C., Juhasz, A., Morrison, A.L., Macquarie University, NSW, Australia. ISBN: 978-1-86408-844-1 (2019) [https://leadsmart.nsw.gov.au/wp-content/uploads/2023/10/BH\\_Pb\\_State\\_of\\_Science\\_FINAL-19-June-2020-Accessible-V2.0.pdf](https://leadsmart.nsw.gov.au/wp-content/uploads/2023/10/BH_Pb_State_of_Science_FINAL-19-June-2020-Accessible-V2.0.pdf) [LID 27864]

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[Hot flashes and night sweats protect the heart health of post-menopausal women](#)

*The Hot Flashes of Menopause May Protect Women's Hearts* [The 10 yr study found women who had the worst menopausal hot flashes & night sweats had an 11% lower risk of having a heart-related health problem & an 8% lower risk of dying from any cause] by Alice Park in Time Magazine Healthland section Reproductive Health, (24 Feb 2011) <https://healthland.time.com/2011/02/24/the-hot-flashes-of-menopause-may-protect-womens-hearts/> [LID 27855]