

# LEAD Action NEWS

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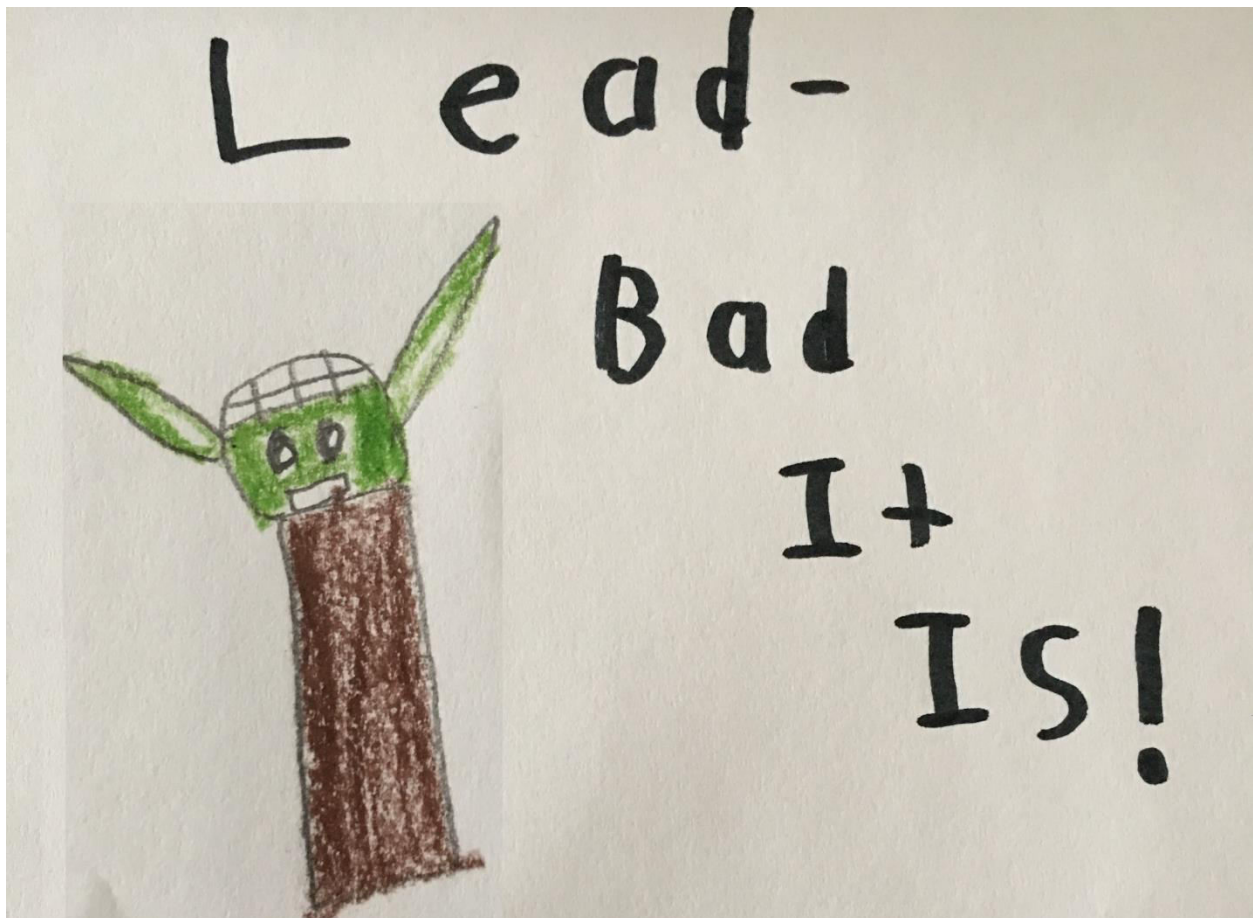
The newsletter of The LEAD (Lead Education and Abatement Design) Group Inc.

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## Truth about lead



2017 Volcano Art Prize (VAP) Entry. Title: *Yoda Wisdom*; Lead-Safety Message: Lead, bad it is!  
Artist: Kayson Parker, Age 9, Home school, Colorado USA. Description: Drawing, mixed media.

## Editorial

We are honored to have been invited to serve as guest editors of this issue of *LEAD Action News*. Thank you to Elizabeth O'Brien, President of The LEAD Group, for the opportunity to work together to share information with this newsletter's readership.

The theme of this issue, as is the theme of our lead advocacy work, is awareness and prevention. Prevention is always the goal, as lead has the potential to cause serious and



sometimes permanent harm. The precursor to prevention, of course, is awareness. One cannot be equipped to take preventative action without knowing where the risks are.

This leads us to our first article titled *Top 10 Myths about Lead in Drinking Water*, written by Dr. Yanna Lambrinidou, affiliate faculty at Virginia Tech, President of Parents for Nontoxic Alternatives, and founding member of the Campaign for Lead Free Water. Dr. Lambrinidou's article addresses many of the misconceptions surrounding the issue of lead in drinking water in the United States, and offers her reflections of why these misconceptions exist. We are very grateful for Dr. Lambrinidou's contribution to this newsletter and for her steadfast dedication to the lead in water issue.

The following two articles are ones that we contributed that talk about lead and its relation to the food we consume. *Nutrition to Help Prevent Lead Poisoning*, is pretty self-explanatory from the title—our nutritional status, among other things, plays a role in the amount of lead that the body retains. *Lead in Hunting Ammunition and Food Safety*, addresses the risk of lead exposure from consuming game meat that was hunted using lead bullets.

From there we move onto a more commonly-known lead risk: the risk from lead in paint. Elizabeth O'Brien writes about *Australia's Legislation Banning Lead Compounds in Paints and Inks* and her organization's role in making that happen. In the Q&A piece that follows, Elizabeth offers advice to Australians on how to select a vehicle that does not contain lead in the paint. Kudos to Elizabeth and The LEAD Group for keeping the conversation on lead awareness going—in Australia and beyond!

This month's newsletter also features the winners of this year's Volcano Art Prize. Thank you to the many talented artists who submitted their photos, drawings, and videos containing a lead awareness message.

Our last article, *My Experience of Living with the Aftermath of Occupational Lead Poisoning*, is Wayne's personal lead poisoning story. It is not meant to elicit pity or sympathy. Rather, it is meant to provide a real living example of what lead can do to someone even years later.

Lead is nothing to mess around with; it can change the course of someone's life. No amount of lead in the human body has been proven to be safe.

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**Wayne Askew** is a United States Navy veteran and former painter/historical home restoration specialist. He started his lead advocacy work in the 1980s when he found out he was lead poisoned. Over the past 30+ years, he has lived with the lingering health



effects of lead poisoning and seeks to help and inspire others by sharing his knowledge and lived experience. Follow him on Twitter @WayneAskew3.

**Maria Askew, BS, RN, CCRN**, is a registered nurse and graduate student. Follow her on Twitter @MariaAskewRN.

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# Top 10 Myths About Lead in Drinking Water

By Yanna Lambrinidou, PhD

It is an honor to be invited to write about lead in drinking water for *LEAD Action NEWS*, with lead poisoning prevention advocates Maria and Wayne Askew as guest editors. Although my knowledge about the subject is limited to the United States (US), I sincerely hope that at least some parts of this piece are useful to readers internationally.

The 10 myths below are preceded by a reflection on the social and political context of their creation and perpetuation. Out of concern that the existence of myths about a contaminant as hazardous as lead in drinking water can have serious public health and policy implications, and can exacerbate the environmental injustice that is already committed against communities across the US, I felt compelled to offer some thoughts on where the myths come from, and what role communities have played – and must continue to play – to correct them. This reflection is informed by my personal experience with Washington, DC's historic lead-in-water crisis of 2001-2004; my work on the crisis' aftermath since 2007; and my more recent collaboration through the Campaign for Lead Free Water with frontline communities in cities like Flint, Michigan; Milwaukee, Wisconsin; and Pittsburgh, Pennsylvania, working to address lead-in-water contamination problems of their own.

Although I hope that the context I provide can support and advance our work on the ground as well as perhaps the work on the ground of communities across the globe, this context is not necessary for making sense of the myths that follow. So, please, feel free to read it but also feel free to scroll directly to the 10 myths, below my reflection!



## Reflection

In my ten years of work on lead in drinking water in the US, I have come to the conclusion that the problem is as much one of lead-bearing plumbing as it is of structurally manufactured ignorance. What I am referring to by this jargonistic term is officially sanctioned silence as well as dissemination of inaccurate, incomplete, or misleading information about the issue that the very institutions with the responsibility, authority, and power to protect us, systematically employ. The result is a public that, by and large, lacks the knowledge required not only to prevent exposures to lead in drinking water but also to recognize the existence, prevalence, and severity of the problem; appreciate its associated health risks; take action to correct it; and hold those responsible for it accountable.



The institutions manufacturing our ignorance include:

- a. Regulated public water utilities and the drinking water industry at large;
- b. Regulating government agencies, policymakers, and elected officials at the federal, state, and local government levels;
- c. School officials; and
- d. The medical, public health, and environmental health communities, including influential non-governmental organizations.

It is important to note that all these institutions speak as, and through, officially sanctioned experts; claim as their mission to protect the public's health; and all, at least in theory, are dedicated to the prevention of childhood lead poisoning.

Three additional entities that often play a facilitating role in the cultivation of our ignorance are:

- a. Academic institutions and professional organizations, whose members tend to limit their participation in the matter to the production of specialized knowledge, shared primarily with groups other than affected publics (e.g., other academics, public water utilities and the drinking water industry, governmental institutions, and foundations);
- b. Funding bodies that refuse to sponsor projects on lead in water or sponsor projects led by groups with an established record of downplaying or obfuscating the problem; and
- c. The press, which frequently fails to carry out substantive or sustained reporting on the issue, or delivers official declarations uncritically and unquestioningly, even when these declarations are fundamentally incorrect.

It goes without saying that individuals within all of the above categories have at times taken decisive action to ensure that scientifically, historically, and legally accurate information is produced, publicly released, or adopted in policy recommendations or local interventions. In fact, the work and progress of affected communities so far would have been practically impossible without the contributions of dedicated government employees, drinking water quality experts, professionals in non-governmental organizations, and reporters willing to challenge the very foundations of the ignorance produced. Sadly, however, this informed resistance has had limited impact on how the institutions with the responsibility, authority, and power to protect us understand, respond to, and present the problem of lead in drinking water. More importantly, it has had limited impact on our ability to protect ourselves, as well as our fetuses, infants, and children from preventable, and yet irreparable, harm from lead at the tap.

In *Agnology: The Making & Unmaking of Ignorance* historian of science Robert N. Proctor asserts that the production of collective ignorance can be conscious and unconscious, intentional and unintentional. Collective ignorance can be created and



perpetuated by many different groups, formally organized and not. Its drivers can include multiple conditions – for example, “neglect, forgetfulness, myopia, extinction, secrecy, or suppression” ([2008:3](#)). Collective ignorance can feel “natural” both to those who promote it and to those who are subjected to it. It can cultivate in us a comfortable and comforting blindness. Perhaps most concerning is that collective ignorance can shape our understanding of matters that have significant effects on us – what historian and philosopher of science Kevin C. Elliot ([2012](#)) characterizes as “socially important.” Socially important ignorance can disempower us to act in our own best interests and can create the preconditions for exploitation, injustice, and harm.

A close examination of the recent history of lead in US drinking water reveals a recurring tension between, on the one hand, officially sanctioned narratives about the problem and, on the other, narratives of communities directly impacted by the problem. Community narratives are often generated in response to resident discoveries of lead-laced tap water or elevated blood lead levels from ingestion of such water. They are refusals to accept as “normal” experiences and observations that feel abnormal. They are at once articulations of distress and repositories of information that deviates from dominant understandings of reality. They are vehicles for protest where there was harmony, resistance where there was obedience, doubt where there was trust, and discomfort where there was comfort. They are demands for a “fix” that looks, feels, and measures like a fix. They are expressions of refusal to take for granted the “taken for granted,” even if the “taken for granted” is promoted and imposed by “the experts.”

Community narratives tend to question, complicate, expand, or oppose officially sanctioned narratives. Sometimes they go even further to challenge the trustworthiness of the creators and disseminators of officially sanctioned narratives. When this happens, community narratives signal decreasing willingness on the part of the public to accept the role of “non-knower” and to continue substituting its own judgments with the judgments of officially sanctioned experts ([Hufford 1996](#)). As a result, community narratives can pose a threat to the very authority of institutions that establish the dominant epistemic order (meaning, *who* can make knowledge and *how* knowledge ought to be made in order to be accepted as “valid”). Therefore, community narratives can pose a threat to the dominant social order as well. This is because institutional authority – and, by extension, status and power – necessitate the general public’s embrace of the idea that institutions hold superior knowledge, possess superior methods for developing this knowledge, and employ superior judgment for applying this knowledge to promote the public good.

Perhaps not surprisingly, community narratives tend to receive attenuated, if any, institutional credibility. The persistent and systematic rejection of information that a) comes from groups whose members our society deems to be “non-knowers,” and b) has the potential to change officially sanctioned paradigms of thought and practice, is a



phenomenon that philosopher Miranda Fricker calls “testimonial injustice.” According to Fricker, this is “the injustice that a speaker suffers in receiving deflated credibility from the hearer owing to identity prejudice on the hearer’s part” ([2007:Kindle Locations 100-101](#)). Fricker characterizes testimonial injustice as an “epistemic disadvantage” to the hearer – “a moment of dysfunction in the overall epistemic practice or system.” Furthermore, she explains, “That testimonial injustice damages the epistemic system is directly relevant to social epistemologies [...] for prejudice presents an obstacle to truth, either directly by causing the hearer to miss out on a particular truth, or indirectly by creating blockages in the circulation of critical ideas. Further, the fact that prejudice can prevent speakers from successfully putting knowledge into the public domain reveals testimonial injustice as a serious form of unfreedom in our collective speech situation – and [...] the freedom of our speech situation is fundamental to the authority of the polity, even to the authority of reason itself” ([2007:Kindle Locations 596-601](#)).

The history of lead in US drinking water is marked by a long and still-growing chain of testimonial injustices committed against community groups in Washington, DC; Flint, MI; Milwaukee, WI; Pittsburgh, PA; and other cities in the country. These groups have, at one time or another, all challenged different components of the manufactured ignorance about the problem because they have refused to accept these components as “natural” (e.g., [Carmody 2017](#), [Bence 2017](#), [Deprey 2017](#), [Earthjustice 2017](#); [Naccarati-Chapkis 2017](#), [Milman 2016](#), [Earthjustice et al. 2015](#), [Lambrinidou 2015](#), [Lambrinidou, Triantafyllidou, & Edwards 2010](#), [Mitchell & Brion 2010](#), [Alliance for Healthy Homes et al. 2008](#), [Birnbaum 2008](#), [Leonnig 2007](#), [Holder 2004](#)). In turn, they have often been discredited, silenced, or responded to in ways that seem to have done more to contain their politically disruptive potential than address their concerns.

What is especially important about the dynamic interplay of a) the structural cultivation of ignorance and b) the silencing of those who react against this ignorance is that it perpetuates and bolsters socially important beliefs about lead in US drinking water. These beliefs or myths have come to shape our society’s understanding of the problem and to form the cornerstone of related public policies, public messaging, public health decisions, medical practices, and drinking water use behaviors. I submit that as a result they have left, and continue to leave, generations of unsuspecting populations disempowered and needlessly at risk of irreversible harm from lead at the tap.

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## **The Myths**

The list of myths below is not exhaustive. It features only some of the most prevalent claims officially sanctioned experts in the US make about lead in drinking water.



### **Myth 1: Tap water that tests below 15 parts per billion (ppb) lead is safe for drinking and cooking.**

Fifteen ppb lead is a technical threshold that was developed and adopted to act as a trigger for water utility compliance with regulatory requirements ([Pupovac 2016](#)). It was not meant as a health-based standard. In infants, for example, lead-in-water levels below 15 ppb have been predicted to raise blood lead levels in at least a small percentage of the exposed population ([Triantafyllidou, Gallagher, & Edwards 2014](#)). For lead in drinking water, the health-based goal set by the US Environmental Protection Agency (EPA) is zero ppb ([EPA 2017](#)), and the recommended health-protective standard set by the American Academy of Pediatrics (AAP) for lead in water in schools is 1 ppb ([AAP 2016](#)).

It is also important to note that lead levels in drinking water tend to fluctuate. Any lead-bearing plumbing component can release dramatically different concentrations of lead at different times and under different conditions. According to a recent study, “To adequately characterize whether water in a given home with lead plumbing is truly safe, a very high number of samples would have to be collected under a range of flow conditions” ([Masters et al. 2016:13](#)). Standard lead-in-water testing, however, involves one or, at most, two samples from a tap, and routinely misses worst-case lead levels. It is, therefore, possible that a drinking water outlet measuring below 15 ppb one time will dispense lead in the hundreds and thousands ppb at other times ([Triantafyllidou & Edwards 2012](#)).

For these two reasons – the toxicity of even low levels of lead in water and the fact that our testing methods are not designed to capture worst-case lead in drinking water – a tap measurement below 15 ppb does not signify that the water is safe for drinking or cooking. Yet the 15 ppb myth is perpetuated even by leading public health institutions like the [US Centers for Disease Control and Prevention](#) (CDC).

### **Myth 2: Tap water that meets federal lead-in-water requirements is safe for drinking and cooking.**

In the US, federal lead-in-water requirements are embodied in the EPA regulation called the Lead and Copper Rule. For a city’s tap water to meet Lead and Copper Rule requirements, water utilities must take *one sample* from *one tap* at a small number of “high-risk” homes known to have either a lead service line (i.e., the pipe that connects a house to the water main under the street) or other lead-bearing plumbing prone to leach lead. For many major metropolitan utilities, for example, the minimum number of tap samples required from the entire system is as low as 50. If 90% or more of the samples collected measure below 15 ppb, the utility is





deemed “in compliance” with the Lead and Copper Rule. Lead and Copper Rule compliance allows for up to 10% of taps to dispense any concentration of lead whatsoever. For example, in the latest Lead and Copper Rule test results it made public ([July-Dec 2015](#)), the Washington DC water utility took one sample from one tap at 110 homes and achieved regulatory compliance with the following results: 59 homes measured at 0 ppb; 50 homes measured between 1-8 ppb; and 1 home measured at 1,269 ppb. In other words, even when water utilities comply with the Lead and Copper Rule, the consumers they serve can experience both chronic and acute exposures to lead, without triggering a regulatory violation. Despite this fact, the EPA allows water utilities to declare their water “safe” for drinking and cooking, simply because they meet regulatory requirements (Q&A session, EPA Lead and Copper Rule stakeholder workshop, Washington DC, October 14-15, 2008).

**Myth 3: Lead in drinking water is a “legacy” problem affecting only homes built before 1986.**

In 1986, US Congress passed a law called the “Lead Ban,” which made illegal the use of pipes and pipe fittings containing more than 8% lead by weight. The Lead Ban also made illegal solder and flux containing more than 0.2% lead by weight. Plumbing materials meeting the Lead Ban’s new requirements were labeled under the law as “lead free.” Almost 30 years later, in 2014, Congress implemented a stricter definition of “lead free” by reducing the 8% lead-by-weight cap for pipes and pipe fittings to “a weighted average of 0.25% lead calculated across the wetted surfaces of a pipe, pipe fitting, plumbing fitting, and fixture” ([EPA 2017](#)). However, as the non-profit environmental law organization Earthjustice has pointed out, “The amount of lead tolerated under this definition depends on how the ‘weighted average’ is calculated. [...] This averaging approach allows small components with significant amounts of lead to be cancelled out by other parts of a fixture or pipe that contribute a greater portion of the surface area” ([Earthjustice et al. 2017](#)).

Today:

- An estimated 6.5-10 million US homes have a lead service line containing 100% lead by weight ([EPA 2016](#)) (according to [Triantafyllidou & Edwards 2012](#), lead service lines and lead pipes inside homes are even more prevalent in countries like France, the United Kingdom, Germany, and Portugal);
- An estimated 81 million US homes have lead solder containing 40-50% lead by weight ([Triantafyllidou & Edwards 2012](#));
- US homes built between 1986-2013 have plumbing components containing up to 8% lead by weight; and
- US homes built since 2014 have plumbing components containing a weighted average of 0.25% lead calculated across their wetted surfaces.



Although homes built before 1986, especially those with lead service lines, are at very high risk for lead in drinking water, homes built after 1986 can also experience significant contamination ([Triantafyllidou & Edwards 2012](#)). In fact, recent evidence shows that in buildings with plumbing that meets the 2014 definition of “lead free,” taps can still dispense high levels of lead. Specifically, in 2016, testing at Flint, Michigan schools following removal of old plumbing and installation of new “lead free” fixtures showed lead-in-water concentrations that reached as high as [415 ppb](#).

**Myth 4: All one needs to do to find out if there is lead in their tap water is to have their tap water tested.**

Lead in drinking water appears in two forms: *soluble lead* (e.g., like salt or sugar dissolved in water) and *lead particles* (i.e., detached small pieces of lead-bearing rust, brass, solder, or pipes). Some lead particles can be large enough to be visible by the naked eye. Unlike soluble lead, lead particles can contain extraordinarily high concentrations of lead, reaching into the tens and hundreds of thousands ppb (water with lead levels over 5,000 ppb classifies as “hazardous waste”) ([Triantafyllidou & Edwards 2012](#)). Assessing lead-in-water problems where lead particles are present poses a serious challenge. Because lead particles tend to release erratically and unpredictably, “catching” them through standard sampling methods is often likened to a game of Russian roulette. In other words, lead particles can be – and are – easily missed. Moreover, because they can contain widely ranging concentrations of lead (their lead content can span from 3% to 100%), accurate determination of average lead levels from a single tap can require collection of hundreds and, in extreme cases, over 1,000 repeated samples (Masters et al., Power Point presentation, International Symposium on Inorganics, *American Water Works Association*, March 21-22, 2017). Yet standard testing for lead in drinking water involves one or, at most, two samples from a single tap. As a result, it routinely misses worst-case lead levels and often results in assumptions of “safety,” even when significant lead-in-water problems exist ([Masters et al. 2016](#)). It is worth noting that, according to a water utility industry funded study, if the sampling protocol used for Lead and Copper Rule compliance purposes were designed to capture worst-case lead from lead service lines, an estimated 70.5% of water utilities with such lines would exceed the Lead and Copper Rule’s 15 ppb threshold and would be legally required to take urgent remedial action ([Slabaugh et al. 2015](#); Slabaugh, Power Point presentation, Water Quality Technology Conference, *American Water Works Association*, November 16-20, 2014).



**Myth 5: For a child to get lead poisoning from tap water, they would need to drink an inordinate amount of this water every day.**

Given that lead in drinking water can appear in the form of particles, and that such particles can contain extraordinarily high concentrations of lead, elevations of blood lead levels above (and far above) 5 and 10 micrograms per deciliter can occur, and have been extensively documented, in children who ingest ordinary amounts of lead-tainted water or eat ordinary amounts of food cooked with such water ([Triantafyllidou, Parks, & Edwards 2007](#)). In fact, when particles contain high enough levels of lead, children are predicted to experience acute blood lead level spiking even from a single 250 milliliter drink of water or a single portion of food cooked with 750 milliliters of water ([Triantafyllidou, Gallagher, & Edwards 2014](#); [Lambrinidou, Triantafyllidou, & Edwards 2010](#)). In fact, exposure to lead particles with concentrations like those detected in 2011 in “[City B](#)” (580 ppb); in 2015 in [Flint, Michigan](#) (>5,000 ppb); and in 2015 in [Washington DC](#) (1,269 ppb) – all during periods of regulatory compliance with the Lead and Copper Rule – can expose pregnant women to a daily lead dose exceeding that in the lead abortion pills of the 1900s ([Edwards 2014](#)).

**Myth 6: Unlike Flint, Michigan, most cities do treat their water with corrosion control so they are protected against lead-in-water contamination.**

Corrosion control treatment aims at reducing the water’s ability to “eat away” at lead-bearing plumbing and cause contamination. Indeed, lead-in-water levels across the US have dropped markedly since the early 1990s due to the Lead and Copper Rule requirement that all large water utilities treat their water to reduce its corrosivity. Corrosion control treatment, however, has three significant limitations:

- It can reduce, but not entirely prevent, lead release into drinking water (e.g., [Wasserstrom et al. 2017](#));
- It is markedly more successful at reducing soluble lead than lead particles. As a result, the “majority of lead in many distribution systems is now in a particulate form” ([Masters et al. 2016:2](#)); and
- It cannot eliminate conditions unrelated to the water’s corrosivity that encourage the release of lead from plumbing (e.g., age of plumbing; prolonged periods of stagnation due to lack of water use; routine low water use; hot water use; use of high water flow; increase in outside temperature; and physical disturbance of plumbing due to, for example, street work, renovations, or heavy traffic) ([Lytle & Schock 2000](#); [Del Toral, Porter, & Schock 2013](#); [Masters et al. 2016](#)). These conditions can dislodge small pieces of lead-bearing rust, brass, solder, or pipe, which can in turn pose an immediate and acute health risk to consumers analogous to lead paint



([Lambrinidou 2015](#)).

According to Triantafyllidou and Edwards, “The drinking water industry presently lacks the tools or knowledge to completely prevent or control particulate lead release” ([2012:1318](#)). Precisely because corrosion control treatment cannot, by itself, address the problem of lead in drinking water, water utility compliance with the Lead and Copper Rule allows for all monitored taps to dispense up to 15 ppb lead and up to 10% of monitored taps to dispense any concentration of lead whatsoever. Despite this allowance, water utilities can still fail to meet the Lead and Copper Rule’s 15 ppb threshold (e.g., Providence, Rhode Island; Jackson, Mississippi) ([NRDC 2016](#)).

**Myth 7: Lead in drinking water can pose a problem only when the water has been sitting in lead-bearing plumbing for a long time. A quick flush before use will get rid of any contamination.**

Prolonged stagnation of water in lead-bearing plumbing has, indeed, been shown to increase lead leaching ([Lytle & Schock 2000](#)). But there are conditions other than stagnation that can encourage corrosion of lead-bearing plumbing (e.g., intentional and unintentional changes in water chemistry; age of plumbing; hot water use; use of high water flow; increase in outside temperature; and physical disturbance of plumbing due to, for example, street work, renovations, or heavy traffic) ([Edwards & Triantafyllidou 2007](#); [Del Toral, Porter, & Schock 2013](#); [Masters et al. 2016](#)).

Although flushing can, under certain circumstances, temporarily eliminate or partly reduce lead-in-water contamination, it cannot be relied upon to prevent exposures. First, if the home has a lead service line and the flush is not long enough, flushing prior to use can actually elevate the risk of exposure by bringing to the faucet the water that had prolonged contact with the lead service line ([Del Toral, Porter, & Schock 2013](#)). Second, because lead leaching, especially of lead particles, tends to occur unpredictably, flushing prior to use cannot guarantee that when the flush ends the water collected will be free of lead. In their discussion about the variability of lead release, Masters et al. ([2016](#)) assert that: “To adequately characterize whether water in a given home with lead plumbing is truly safe, a very high number of samples would have to be collected under a range of flow conditions. In some cases, it is desirable to characterize this risk in a given system, and in other cases, it would simply be more cost-effective to acknowledge that as long as lead-bearing plumbing is present, there is a significant risk of health hazards from semi-random concentrations of lead in water samples. *These hazards can be partly reduced by flushing, but can be eliminated by installation of lead filters or removal of lead plumbing*” (emphasis added).



### **Myth 8: Lead in drinking water is a problem of privately owned lead-bearing plumbing.**

One of the most hazardous plumbing materials in existence is lead service lines, which are made of 100% pure lead and in some jurisdictions – like Chicago, Illinois and Milwaukee, Wisconsin – were mandated by law ([Hawthorne & Matuszak 2016](#); [Spicuzza 2016](#)). In the majority of US jurisdictions, the utility owns the portion of a service line that lies between the water main and the property line, curb stop, or water meter ([AWWA 2014](#)). Legal ownership of the portion of a service line that lies between the property line, curb stop, or water meter and the home (i.e., in privately owned property) is often more difficult to determine but, in most cases, utilities or municipalities have control over the material composition and maintenance of this portion as well (1991 Lead and Copper Rule, 56 Fed. Reg. at 26504; [Earthjustice 2014](#)). Even when a home does not have a lead service line, however, attributing lead-in-water contamination to privately owned plumbing is misleading, for it implies that sole responsibility for the problem lies with homeowners. In reality, lead corrosion of plumbing materials is inextricably linked to drinking water corrosivity, and drinking water corrosivity is to a great degree – albeit not completely – controlled by water utilities. This link is the foundation of the Lead and Copper Rule. Additionally, the very fact that lead is added to plumbing materials to this day without consumer knowledge or approval renders consumer “blaming” for ownership of lead-bearing plumbing difficult to justify.

### **Myth 9: Lead in drinking water is almost never the primary source of lead poisoning.**

Historical and scientific documentation illustrates clearly that lead in drinking water can, indeed, constitute the primary source of lead poisoning ([Engel 1986](#); [Renner 2006](#); [Troesken 2006](#); [Triantafyllidou & Edwards 2012](#)). Moreover, the CDC estimates that 30% or more of elevated blood lead level cases in the US do not have an immediate lead paint source ([Levin et al. 2008](#)). But when children are diagnosed with elevated blood lead levels, environmental risk assessments at their homes are not designed to find lead at the tap. CDC’s case management guidelines recommend a focus on “immediate lead hazards,” pointing to deteriorating lead paint, dust, and soil ([CDC 2009:23](#)). The same guidelines insinuate that federal regulations to minimize lead in water (e.g., the Lead Ban, the Lead and Copper Rule) offer adequate public health protection. On the basis of this assumption, they suggest that environmental risk assessments at the homes of children with elevated blood lead levels forgo lead-in-water sampling unless:

- The tap water of the city where the children live exceeds the Lead and Copper Rule’s 15 ppb threshold; or



- No non-water sources of lead can be found in the children’s homes; or
- The water used for drinking and cooking in these homes comes from a well (well water is not regulated under the Lead and Copper Rule).

The same guidelines encourage any lead paint, dust, and soil identified in the children’s environments to be marked as the primary source of exposure, even if in reality the primary source is the drinking water. Moreover, when drinking water is actually tested, sampling techniques rarely – if ever – involve the extensive sampling required to capture erratically releasing lead particles. As a result, lead at the tap is routinely missed as the primary cause or a contributor to children’s elevated blood lead levels ([Scott 2009](#); [Renner 2009](#); [Triantafyllidou & Edwards 2012](#)).

**Myth 10: The fact that blood lead monitoring data show dramatic declines in children’s blood lead levels over the years suggests that lead in drinking water does not pose a significant public health risk.**

The preamble to the Lead and Copper Rule of 1991 states that, “...the total drinking water contribution to overall lead levels may range from as little as 5 percent to more than 50 percent of children’s total lead exposure. Infants dependent on formula may receive more than 85 percent of their lead from drinking water. As exposures decline to sources of lead other than drinking water, such as gasoline and soldered food cans, drinking water will account for a larger proportion of total intake” (1991 Lead and Copper Rule, 56 Fed. Reg. at 26470). To date, however, the US blood lead surveillance system does not include regular monitoring of fetuses’, infants’, or young children’s exposure to lead-laced tap water. Even though lead in drinking water has been found a) to be a primary source of lead exposure, and b) to cause miscarriage, fetal death, and elevated blood lead levels, systematic tracking of its presence in blood simply does not occur ([Hanna-Attisha et al. 2016](#); [Edwards 2014](#); [Triantafyllidou & Edwards 2012](#); [Edwards, Triantafyllidou, & Best 2009](#); [Triantafyllidou, Parks, & Edwards 2007](#)). In fact, the blood lead surveillance system currently in place misses both chronic and acute exposures to lead in drinking water. Specifically:

- The two most vulnerable populations to lead at the tap – fetuses and infants dependent on reconstituted formula – are rarely tested for lead in blood;
- A significant percentage of young children are never tested for lead in blood, and when they are tested their results often go unreported ([Roberts et al. 2017](#)); and
- Recommended strategies for blood lead testing are not designed to capture exposures to lead at the tap. Target children are around the ages of 1 and 2, prone to putting their hands in their mouth, and living in areas with housing presumed to contain deteriorating lead paint ([Schneyer & Pell 2016](#)).



Moreover, the actual test involves a one-time blood draw that is repeated only when the result is deemed “high.” This approach does not account for the fact that the half-life of lead in blood is approximately one month. Unless the test occurs within a few days or weeks after exposure, blood lead elevations can be missed. This is especially problematic for exposure to lead particles, which can contain exceedingly high concentrations of lead and cause short but acute blood lead level spikes ([Triantafyllidou & Edwards 2012](#)).

In summary, current blood lead monitoring data cannot be relied upon to draw conclusions about the public health risk of lead in US drinking water.

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**Acknowledgments:** I thank Jennifer Chavez, JD; Paul Schwartz; and Tom Walker, PhD for their invaluable feedback on this document. Miguel Del Toral at US EPA, Marc Edwards, PhD at Virginia Tech, and Michael Schock at US EPA have been instrumental in teaching me about the science of lead corrosion and the workings of the Lead and Copper Rule. All opinions and any errors are my own.

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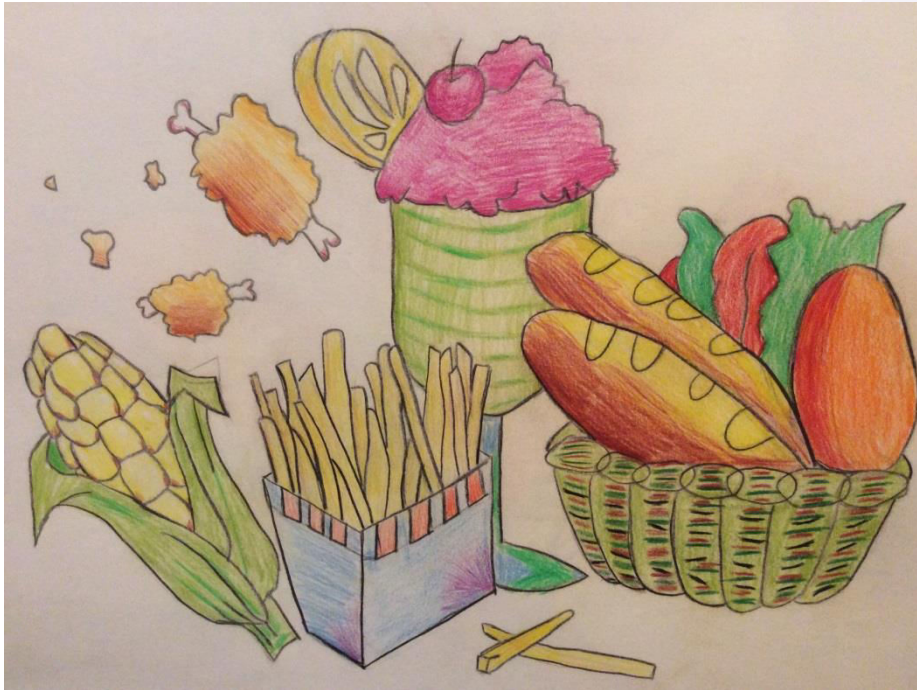


# Nutrition to Help Prevent Lead Poisoning

by Maria Askew

The internet is full of advice as to what to feed your children to help protect them from lead. The bottom line is that a balanced diet rich in iron, calcium, vitamin C will help reduce the amount of lead that is absorbed. Of course, this does not substitute for steering

clear of known lead exposures, but unfortunately lead is everywhere in various degrees, and a balanced diet rich in iron, calcium, and vitamin C helps to reduce the amount of lead that the body retains. It adds another layer of protection.



2017 Volcano Art Prize (VAP) Entry. Title: Fast Food. Lead-Safety Message: Watch out what you consume. Aim at lead free, healthy diet. **Artist: Mark Ju**, aged 11. [http://volcanoartprize.com/portfolio-item/Fast food/](http://volcanoartprize.com/portfolio-item/Fast%20food/)

## Why is this the case?

Lead mimics iron and calcium and can bind to their receptor sites. The problem is that lead can't carry out the same functions that iron and calcium normally would, which can affect various organs and physiological processes. Ensuring enough iron and calcium means that there is less competition with lead for these binding sites, so less lead gets retained by the body.

## Breakfast might very well be the most important meal of the day.

When the stomach is empty, more lead gets absorbed from the gastrointestinal tract because there is nothing to compete with the lead. Mornings are particularly vulnerable times because the body has been fasting since dinner the night before. Providing a balanced diet that includes breakfast is important.





## What are examples of food sources of iron, calcium, and vitamin C?

### **Iron:**

- Red Meat
- Tofu
- Dried Fruit (e.g., apricots, raisins)
- Fish
- Legumes (e.g., beans, lentils)
- Nuts and Seeds
- Poultry
- Iron-fortified Cereals (e.g., Cream of Wheat, Oatmeal)
- Blackstrap Molasses

*\*A note about heme versus non-heme iron:* Iron in heme iron form comes from meat, poultry, and fish. Non-heme iron is found in both plant-derived and animal-derived foods. About 25% of heme iron and 17% of non-heme iron is absorbed. Eating foods with vitamin C at the same time of consuming foods containing non-heme iron helps to increase non-heme iron absorption.

### **Calcium:**

- Milk & Milk Products
- Broccoli
- Almonds
- Calcium-Fortified Soy Milk & Juices
- Bok Choy
- Blackstrap Molasses
- Tofu (some kinds, check label)
- Figs



Calcium: This nutrient has many sources. Back row: Chinese cabbage, yogurt, milk, cheese, aniseed seeds (fennel), bokchoi. Middle row: seeds (poppy, sesame), tofu and coriander. Front row: Fish (sardines, salmon anchovy), dill, kale, broccoli. Not pictured: Chinese spinach (amaranth), mustard greens. **Photo** by Catherine Sweeny. Photo of foods containing Calcium.



### **Vitamin C:**

- Citrus Fruits
- Bell Peppers
- Watermelon
- Broccoli
- Strawberries
- Kiwi

### **Should I add supplements?**

Calcium and vitamin C supplementation is typically not necessary as long as a balanced diet containing these nutrients is consumed. As far as iron supplements go, whether or not this is necessary depends on various factors, and thus it's best to discuss this with your healthcare provider, especially because iron can be toxic if too much is taken.

### **References**

Goyer, R. (1995). Nutrition and metal toxicity. *American Journal of Clinical Nutrition*, 61(3), 6465-6505.

Lowry, J. (2016). Childhood lead poisoning: Management. In D. Mahoney, M. Burns, & J. Drutz (Eds.), *UpToDate*. Retrieved from <http://www.uptodate.com>

Nebraska Department of Health and Human Services. (2013). Nutrition and lead poisoning prevention. In *Division of Public Health*. Retrieved from <http://dhhs.ne.gov/publichealth/Pages/LeadNutrition.aspx>

United States Environmental Protection Agency. (2017). Learn about lead. In *Lead*. Retrieved from <https://www.epa.gov/lead/learn-about-lead>

Whitney, E., & Rolfe, S. (2011). *Understanding nutrition*. Belmont, CA; Wadsworth.

Wiemann, M., Schirmacher, K., & Busselberg, D. (1999). Interference of lead with the calcium release activated calcium flux of osteoblast-like cells. *Calcified Tissue International*, 65, 479-485.



## Lead in Hunting Ammunition and Food Safety

By Maria Askew and Wayne Askew

Those that follow *Truth about Lead* on Facebook know that nary a week goes by where we don't post about wildlife being poisoned by lead ammunition or lead fishing tackle that has polluted our environment. Despite the fact that the environmental risks are well-known, and safer alternatives exist, lead bullets and lead fishing weights are still allowed on US shelves. So far, California is the only state in the US that has managed to issue a complete ban on lead ammunition; the law goes into full effect in 2019 (California

Department of Fish and Wildlife, 2017).



fishing sinkers, jewellery, artists' paints, wheel weights. Photographer: Judy Pinn.  
<http://volcanoartprize.com/portfolio-item/a-lead-weight/>

### 2012 Volcano Art Prize (VAP) Entry.

Title: A Lead Weight.  
Lead-Safety Message:  
Always buy lead-free products if they are available eg lead-free ammunition, crystal,

One aspect of this issue that is often overlooked is the risk to public health in relation to consuming wild game that was hunted using lead ammunition. While a common practice by hunters and commercial meat processors alike is to discard a border of meat around the wound channel, research shows that it is not uncommon for bullet fragments to scatter and contaminate other areas of the meat. In a study of 30 carcasses of white-tailed deer hunted with standard lead bullets and then commercially processed, bullet fragments were found in the ground meat of 24 of the carcasses (Hunt et al., 2009).

Just how much of a risk are we looking at? In a study by Iqbal et al. (2009), of 742 participants, mean blood lead levels of those who consumed wild game were found to be 0.3 µg/dL higher than those who did not consume wild game. This might not sound like a lot on the surface, but consider that lead exposure from a variety of sources all contribute to the body's total lead burden. In addition, we know now that even low levels of lead can have harmful consequences. Lead serves no purpose in the body and no safe level of



exposure can be established; thus, all efforts should be made to reduce our lead exposure in areas that we can control.



2017 Volcano Art Prize (VAP) Entry.  
Title: Australian outback animals at a waterhole. Lead Safety Message: Keep the outback lead-free by not using leaded gun shot. Artist: Ritishaa Sreedhar, aged 11. Materials: lead-free “lead pencil”, oil pastel and textas.

<http://volcanoartprize.com/portfolio-item/outback/>

We are asking that hunters strongly consider switching over to non-leaded ammunition, if they haven't done so already. We also urge health care providers, health departments, and lead advocacy groups to discuss this topic in their lead education efforts.

## References

- Bellinger, D., Bradman, A.; Burger, J., Cade, T., Cory-Slechta, D., Doak, D., et al.(2013). Health Risks from Lead-Based Ammunition in the Environment - A Consensus Statement of Scientists. *University of California Santa Cruz: Microbiology and Environmental Toxicology*. Retrieved from: <http://escholarship.org/uc/item/6dq3h64x>
- California Department of Fish and Wildlife. (2017). Nonlead ammunition in California. In *Hunting*. Retrieved from <https://www.wildlife.ca.gov/hunting/nonlead-ammunition>
- Hunt, W., Watson, R., Oaks, J., Parish, C., Burnham, K., Tucker, R., Belthoff, J., & Hart, G. (2009). Lead bullet fragments in venison from rifle-killed deer: Potential for human dietary exposure. *Plos ONE*, 4(4), 1-6. doi:10.1371/journal.pone.0005330
- Iqbal, S., Blumenthal, W., Kennedy, C., Yip, F., Pickard, S., Flanders, W., Loring, K., Kruger, K., Caldwell, K., & Jean Brown, M. (2009). Hunting with lead: Association between blood lead levels and wild game consumption. *Environmental Research*, 109(8), 952-959.



## Info Pack - Australia's legislation banning lead compounds in paints and inks

*By Elizabeth O'Brien, President, The LEAD Group Inc, Australia*

There follows a history of The LEAD Group's successful advocacy for Australia to become the first country in the world to ban the addition of lead to (nearly) all paints and inks (with the exception of artists' paints).



2014 Volcano Art Prize (VAP) Entry.  
Title: Australia first to ban lead in all paint. Lead-safety Message: Test paint for lead before renovating. Never create lead paint dust or lead fumes. Artist: Hugh O'Brien.

<http://volcanoartprize.com/portfolio-item/australia-first-to-ban-lead-in-all-paint/>

In Australia, the residential paint lead limit for zinc-based coatings has been 0.2% since 1997, whereas all other residential coatings have been required to comply with the 0.1% lead limit since 1997.

But as for all paints and inks (with the exception of adults' artists materials), to my knowledge, Australia has the world's best legislation on lead (including lead chromates) in non-residential paints and inks. How did this come to be?

In February 1993, environmental health charity The Lead Education and Abatement Design (LEAD) Group Inc, published its objectives (written in July 1992), including:

- to facilitate research into replacements for current uses of lead;
- to investigate other sources of lead exposure with a view to legislating against them or otherwise lessening their effects. For example, to investigate the level of lead in packaging and its contribution to heavy metal fallout around municipal incinerators;
- to convince health and environment protection agencies to cooperate to set up lead task forces which steer lead poisoning prevention activities and further research, with the involvement of community groups. (<http://www.lead.org.au/lanv1n1/lanv1n1-17.html>)



The LEAD Group convinced the New South Wales (NSW) state Government, to set up an Interdepartmental Lead Taskforce involving 9 Working Groups, including a Lead in Paint Working Group, comprising representatives from the community (Elizabeth O'Brien of The LEAD Group contributed unpaid at all meetings of the 8 Working Groups which held meetings in Sydney), industry, academia and state and federal government departments.

The strategies arrived at by the Taskforce, in November 1994, included:

**Strategy 72.** Review the Standard for the Uniform Scheduling of Drugs and Poisons to reduce the permissible lead concentration of all paints except zinc based paints as defined by Australian Standards AS 2105 and AS 2204.

**Strategy 73.** Extend the existing prohibitions for the use of First Schedule paints under the Uniform Paint Standard to include industrial buildings and structures, mines and oil terminals, food and drink preparation equipment and utensils and small-scale automotive repair work.

The LEAD Group began collaborating with the Australian Paint Manufacturers Federation (APMF) through the Taskforce consultation process, and continued collaborating during the 1999 writing of the "Lead Alert Six Step Guide" booklets for the federal Environment department (<http://www.environment.gov.au/settlements/chemicals/lead.html>)

In February 2000, The LEAD Group proposed to the APMF, a lead-awareness project in hardware and paint trade centres about selling lead spot tests and having the "Lead Alert" booklets and Australian environment department fact sheets prominently displayed, for example Lead Alert Facts re:

- Lead in Auto Paints -

[www.environment.gov.au/atmosphere/airquality/publications/autopaints.html](http://www.environment.gov.au/atmosphere/airquality/publications/autopaints.html),

- Lead in Marine Paints -

[www.environment.gov.au/atmosphere/airquality/publications/marinepaints.html](http://www.environment.gov.au/atmosphere/airquality/publications/marinepaints.html) AND

- Lead in House Paints - [www.environment.gov.au/protection/chemicals-management/lead/lead-in-house-paint](http://www.environment.gov.au/protection/chemicals-management/lead/lead-in-house-paint)

The LEAD Group continued to get the APMF thinking about how they could contribute to lead-safety by asking the APMF questions like:

- "What regulations control the lead level that can be used in new paint on Historic Houses and are there any regulations that control imported paints for such uses?" (in 2001);

- "Have any of your member companies reformulated all their paints to ensure no lead is added to all types of paints?" (in 2002); and

- "Which companies manufacture lead-free paints in Australia or overseas? Are there any decorative paints (residential paints) made or sold in Australia today that have lead added, eg lead driers?" (in 2003).



- "Why is lead paint not mentioned at all in the Coatings Care - Codes of Management Practice for "Community Responsibility", "Manufacturing" or "Product Stewardship" sections of your website, or in your other web-publications, for instance, when talking about recycling old furniture, painting fences, children's bedrooms, etc.

In 2005, then Executive Director of the APMF, Michael Hambrook, rang Elizabeth O'Brien to say: "The work of your group has influenced a lot of people and you are to be congratulated for keeping the issue of lead alive. Over the next 2 years we will phase out the final auto paint colours that require lead."

In 2005, The LEAD Group Inc, was contracted by Australia's National Industrial Chemicals Notification and Assessment Scheme (NICNAS), to write: "Hazard Assessment and Controls on the Use of Lead in Surface Coatings, Inks, Cosmetics and Toiletries", which is still available online, to members of the BLPAC - Ban Leaded Paint and Cosmetics Egroup, (please apply to join the Egroup at

<http://groups.yahoo.com/neo/groups/BLPAC/info> if you wish to read it), at:

[http://fi.grp.yahoofs.com/v1/gDeMUoQouMx2g\\_KC4VwUH2qztXzLdKqvoz7wLQ628Xzg8mEBK1Mqaj9Dh2wh1BSjNr8RteRoRZ0o2SKNutGMow/NICNAS%20Pb%20Hazard%20Assesst%20Controls%20Coatings%20Cosmetics.doc](http://fi.grp.yahoofs.com/v1/gDeMUoQouMx2g_KC4VwUH2qztXzLdKqvoz7wLQ628Xzg8mEBK1Mqaj9Dh2wh1BSjNr8RteRoRZ0o2SKNutGMow/NICNAS%20Pb%20Hazard%20Assesst%20Controls%20Coatings%20Cosmetics.doc)

"On 3 January 2006, fifteen lead compounds used in industrial surface coatings and inks were declared Priority Existing Chemicals for health risk assessment because of the human toxicity of lead..." (

<http://web.archive.org/web/20160331145609/https://www.nicnas.gov.au/communications/consultations/past-consultations/lead-in-surface-coatings-and-inks-review-of-restrictions> )

In September 2007, after consultation with stakeholders over the above 2005 report, NICNAS published a report which contained recommendations for industry and government (including the Director of NICNAS) regarding lead compounds in industrial surface coatings and inks, at:

[https://web.archive.org/web/20150415000000\\*/http://www.nicnas.gov.au/\\_data/assets/pdf\\_file/0016/4390/PEC\\_29\\_Lead-Compunds-in-Industrial-Surface-Coatings-and-Inks\\_Full\\_Report\\_PDF.pdf](https://web.archive.org/web/20150415000000*/http://www.nicnas.gov.au/_data/assets/pdf_file/0016/4390/PEC_29_Lead-Compunds-in-Industrial-Surface-Coatings-and-Inks_Full_Report_PDF.pdf)

The Director of NICNAS decided to implement all the recommendations in the 2007 report, and the resulting gazette notice about banning lead compounds in industrial paints and inks imported into, made and sold in Australia as of 1st January 2010 is called: "Notice of Proposed Variations to the Australian Inventory of Chemical Substances (AICS) for Certain Lead Compounds in Industrial Surface Coatings and Inks" and can be found at:

[https://web.archive.org/web/20080721163548/http://www.nicnas.gov.au/Publications/Chemical\\_Gazette/pdf/2008feb\\_whole.pdf](https://web.archive.org/web/20080721163548/http://www.nicnas.gov.au/Publications/Chemical_Gazette/pdf/2008feb_whole.pdf)

Comments from the Australian Paint Manufacturers Federation (APMF) on the lead ban were published by the Productivity Commission, at

[https://web.archive.org/web/20080801000000\\*/http://www.pc.gov.au/\\_data/assets/file/0004/68386/sub008.rtf](https://web.archive.org/web/20080801000000*/http://www.pc.gov.au/_data/assets/file/0004/68386/sub008.rtf) - and a March 2008 news article about the ban, written by the



APMF: “Lead in paint restrictions finally gazetted” is at:

[https://web.archive.org/web/20080718223146/http://www.apmf.asn.au/html/lead\\_in\\_paint.html](https://web.archive.org/web/20080718223146/http://www.apmf.asn.au/html/lead_in_paint.html)

The effect of the ban on adding certain lead compounds (ie all the lead compounds that were identified as ever having been added to paints sold in Australia) to industrial surface coatings and inks, is that all paints and inks imported into, made or sold in Australia as of January 1st 2010, must meet the 1997 residential lead paint limits (regarded as lead contamination levels) of 0.1% for non-zinc based paints and 0.2% for zinc-based paints, and that anyone wishing to import the 15 lead compounds, or paints or inks which contain them, (with the exception of artists materials), must notify NICNAS.



**2013 Volcano Art Prize (VAP)**

**Entry.** Title: The Other Side of Uluru.  
Lead-safety message: Etchings can be lead free. Today you can buy artists paints that do not contain heavy metals. Materials: Solar Plate Etching with Stencil & Viscosity Printing with lead free inks. Artist: Eli Gallwey.

<http://volcanoartprize.com/portfolio-item/the-other-side-of-uluru/>

According to the *PIR - Post Implementation Review for the NICNAS Director’s 2007 decision to vary conditions on the Australian Inventory of Chemical Substances (AICS) for certain lead compounds used in industrial surface coatings and inks*, February 2013:

“...the continued introduction of lead in industrial surface coatings and inks, without notification to NICNAS, is illegal under the ICNA Act [*the Industrial Chemicals (Notification and Assessment) Act 1989*]”; and

“...[the] PIR concludes that:

the 2007 annotations of 15 lead compounds to phase-out their use in industrial surface coatings and inks were marginally effective in reducing the risk to workers and the public from lead used in industrial surface coatings and inks with minimal imposts on business, given:

- the concurrent voluntary industry program to phase out such use, and





- that in some specific sectors, poor PPE practices were in place; and the annotations should continue in their current form, with appropriate monitoring and compliance, given the:

- increased scientific concern over appropriate standards for blood lead levels; and

- continuing, though isolated instances of lead introductions, possibly for appropriate commercial reasons, combined with continuing poor use of PPE in some sectors, which therefore requires on-going assessment and management of associated risks.”

(Ref: The February 2013 Lead Compounds *PIR* was originally at:

[http://ris.finance.gov.au/files/2013/06/Lead\\_Compounds\\_PIR.doc](http://ris.finance.gov.au/files/2013/06/Lead_Compounds_PIR.doc) but not found online as at August 2017.)

In September 2013, NICNAS wrote:

“As the PIR report identified possible instances of continuing introductions of lead compounds for use in industrial surface coatings, compliance monitoring activities are proposed for 2013-14 which aim to determine compliance with the conditions of use associated with the introduction of these chemicals.”

(<http://web.archive.org/web/20160331145609/https://www.nicnas.gov.au/communications/consultations/past-consultations/lead-in-surface-coatings-and-inks-review-of-restrictions>)

According to LEAD Group Technical Advisory Board (TAB) Member Dr Perry Gottesfeld of Occupational Knowledge International (USA), in his *Frontiers of Public Health* article “Time to Ban Lead in Industrial Paints and Coatings” (18 May 2015),

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4434842/> ):

“Perhaps Australia has the most comprehensive list of lead compounds that have been banned for use in paints since 2008 with some exceptions.” (Ref: Commonwealth of Australia Gazette, No. C 02, 5 February 2008 (archived at):

[https://web.archive.org/web/20080721163548/http://www.nicnas.gov.au/Publications/C\\_hemical\\_Gazette/pdf/2008feb\\_whole.pdf](https://web.archive.org/web/20080721163548/http://www.nicnas.gov.au/Publications/C_hemical_Gazette/pdf/2008feb_whole.pdf) )

Dr Gottesfeld goes on to say: “It is more difficult and costly to verify compliance with these kinds of chemical-specific restrictions rather than outright limits in the lead concentration allowed in paints. That has been the approach in the U.S. and Canada where there are restrictions on the total lead content of [residential] paints at 90 ppm [parts per million], without regards to specific pigments or drier additives.”

As for the rest of the world, the only other policy The LEAD Group is aware of, that comes close to banning the addition of lead to non-residential paints is a ban on only some lead compounds in the REACH legislation in the European Union.

Again quoting from Dr Perry Gottesfeld’s 2015 journal article:



“The EU has restricted the use of some specific pigments for residential applications and recently initiated action to ban the use of lead chromate pigments for additional applications. However, the REACH process allows companies to apply for exemptions (i.e., authorizations) to these restrictions, and in the case of lead chromate pigments, have accepted false assertions that alternatives are not available.”

As it says in the Volcano Art Prize (VAP) 2012 Entry titled “Sunset clause on lead in auto



paints”, Lead Safety Message: the next step for Australia is to ban the import of painted or inked objects (vehicles, building componentry, cranes, ships, mirrors, furniture, garage doors, playground equipment, fencing, etc) which are coated with inks or paints from containing any of the banned lead compounds that cannot be made or sold here.

**2012 Volcano Art Prize (VAP) Entry.** Title: “Sunset clause on lead in auto paints”.  
Photographer: Sue Gee.

<http://volcanoartprize.com/portfolio-item/sunset-clause-on-lead-in-auto-paint/>

You might like to consider whether you’d like to order copies of the printed “Sunset clause on lead in auto paints” as a Lead Safe World Poster (or any other VAP Entry as a Poster) for your office or network. See <http://volcanoartprize.com/purchase-poster/> and <http://www.lead safeworld.com/product/lead safeworld-poster/>

Lead Safe World Posters can be ordered at [www.lead safeworld.com/shop](http://www.lead safeworld.com/shop)

Please be encouraged to enter our environmental art competition (VAP) too! See details at [www.volcanoartprize.com](http://www.volcanoartprize.com)



## Q&A: How can I buy a car that has no lead in the paint?



**Question from Suburb: Cloverdale 6105, Western Australia, 22<sup>nd</sup> August 2017**

Hello,

Currently I am considering purchasing a new car, I am aware that in the past Lead was used in Automobile Paint as a Pigment. My question is if any Manufacturers still do this? If so are there any particular companies to avoid? Thank you.

This e-mail was sent from a contact form on LeadSafeWorld by The LEAD Group Inc. (<http://www.lead safeworld.com>)

**Answer, 29<sup>th</sup> August 2017**

Dear Sir,

As far as I am aware, Australia is the only country that has banned the addition of lead to automobile paints (as of 1/1/2010) but unfortunately, Australia has not banned the importation of cars painted with non-compliant lead-containing auto paints, so to be certain of getting a car that does not contain lead in the auto-paint, you'd need to ask the manufacturer for overseas-made vehicles whether the paint contains lead (or more specifically to provide you with a lab analysis report for the lead content of the coatings including anti-corrosion coatings and the top coat in the colour you want to purchase), OR buy an Australian-manufactured car, manufactured after 2010.

Note: The anti-corrosion coatings and top coat pigments in the colour range of white, yellow, orange and red are the most likely coatings applied overseas (legally, even when importing the car into Australia) to contain lead.



**Car colours collage** (at left) of all car ads in one issue of Australia's National Roads and Motorists Association (NRMA) *Open Road* Magazine, showing lack of range of colours and that most are white or red. Advertisements collaged by Elizabeth O'Brien.

If you do obtain a lab analysis report for the coatings lead concentrations for a car made overseas, I'd be very keen to receive a copy of it for our



library - in case this query happens again.

Please find above our Info Pack on the relevant Australian regulation.

Yours Sincerely

Elizabeth O'Brien

The Lead Education and Abatement Design (LEAD) Group Inc. (environmental health charity) [www.lead.org.au](http://www.lead.org.au)

Manager, Lead Safe World Project (LSWP) – a collaboration between NGOs and businesses with products or services which help to create lead-safety locally and further afield [www.lead safeworld.com](http://www.lead safeworld.com)

Lead Advisor, LEAD Group test Kit results interpretation service

[www.lead safeworld.com.au/solutions/lead-group-diy-sampling-lab-analysis-lead-test-kits](http://www.lead safeworld.com.au/solutions/lead-group-diy-sampling-lab-analysis-lead-test-kits)

and LEAD Group test kit advice-via-Skype service, re: type of samples and where to collect them from, for your LEAD Group Kit <http://volcanoartprize.com/portfolio-item/lead-needs-my-attention-for-my-daughters-sake-video/>

Our Lead-Safety Art/Photo/Film competition is now open for 2018! Volcano Art Prize (VAP) [www.volcanoartprize.com](http://www.volcanoartprize.com)

Please make your tax deductible donation via our secure payment system at <http://www.lead safeworld.com/donations/>

PO Box 161 Summer Hill NSW 2130 Australia

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## Announcement of 2017 Volcano Art Prize Winners

*By Wayne Askew, New York, USA, Volcano Art Prize Judge for 2017 VAP*

I would like to thank Elizabeth O'Brien for the honor of being chosen as this year's Judge of the Volcano Art Prize. All of the entries received were wonderful; it is great to see so many talented people who are spreading the word on lead awareness! Thank you to all who participated.

The grand prize winners, Faris Sheridan and Hesaan Sheridan (film-makers for "Lead in paint and varnish: The hidden dangers") were selected as on the basis of having the best lead-safety message. They did a fantastic job in explaining that lead accumulates in the body by settling into bones and organs, and thus can continue to wreak havoc on the body long after blood lead levels have gone down.

Kudos to all the winners listed below, who were also selected on basis of lead message. Honestly, it was hard to select who to pick, as it is clear that everyone who participated cares about furthering the message of the hazards of lead.

### Entries Highly Commended by the Judge



Artists: Elizabeth O'Brien (text, film & voice), Ian Smith (soundtrack), Poornima Murthy (editor).

Title: 1.2 million.

Lead-safety Message: The LEAD Group's target for 2018 is that 1.2 million people ask their doctor for a blood lead test and start to reduce their body burden of lead.

Materials: Video filmed on iPhone 4S.

Voice improvisation composed by Ian Smith, recorded & edited using Ableton.

Edited using Filmore by Wondershare.

YouTube: <https://www.youtube.com/watch?v=SgtTm1p-JDc>

<http://volcanoartprize.com/portfolio-item/1.2-million/>



Artist: Claire O' Brien

Title: LUCY GOOSEY

Lead Safety Message: DON'T BE A GOOSE AND LET LEAD LOOSE.

Description of Work: photo

<http://volcanoartprize.com/portfolio-item/lucy-goosey/>



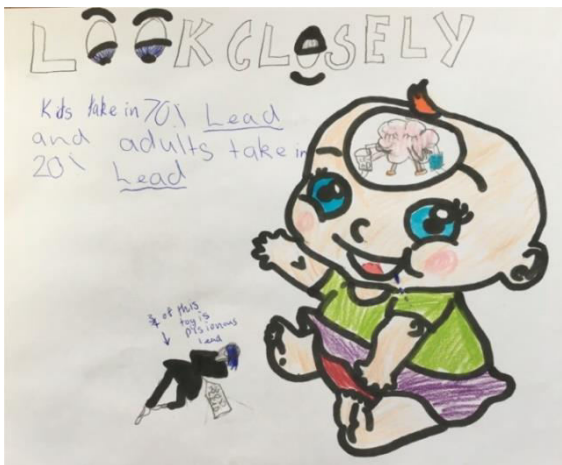
Artists: Olivia York (plate artwork) and Elizabeth O'Brien (photo)  
Title: Lemon or lime zest - a grate addition to any plate!

Lead-safety Message: Adding fresh citrus zest to hot meals and salads is a Mediterranean tradition which turns out to be a great way to detox lead from the body

Description: iPhone 4S photo of Cockatoo Eating Fairy Bread Plate from Lalaland Melamine Plate set "Australian Sweets" by artist Olivia York.

<http://volcanoartprize.com/portfolio-item/lemon-or-lime-zest-a-grate-addition-to-any-plate/>

## Winners of Pictureproducts mugs



Artist: Sophie Kilburn

Title: Look Closely

Lead-Safety Message: Kids take in 70% lead and adults take in 20%

Description of Work: Drawing

Age: 9 years.

<http://volcanoartprize.com/portfolio-item/look-closely/>



Artist: Grace King Matchett

Title: Pb-free person.

Lead-Safety Message: Keep People Pb Free

Description of Work: Drawing with mixed media

Age: 9 years.

<http://volcanoartprize.com/portfolio-item/pb-free-person/>



Artist: Harrison Desmond  
Title: Poisoned Pond.  
Lead-safety Message: This beautiful water in a volcanic crater in Iceland is likely full of lead and other heavy metals which reign down when volcanoes erupt.  
Description: iPhone photo  
<http://volcanoartprize.com/portfolio-item/poisoned-pond/>



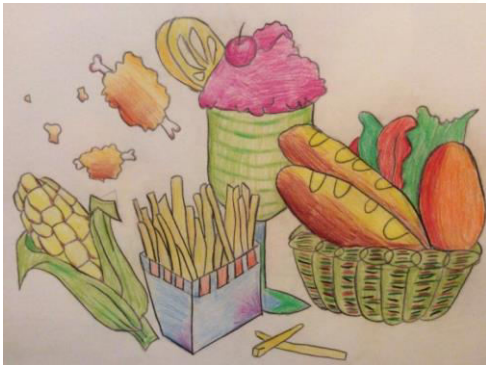
Artist: Emily Carpenter  
Title: Trapped.  
Lead-safety Message: This water geyser exploding in Iceland fills the air with mineral-laden water, hopefully not too  
Entry Description: iPhone photo  
<http://volcanoartprize.com/portfolio-item/trapped/>



Artist: Cherry Qin  
School Name: Creative Einstein Education  
Title: Kid eating apples  
Lead-Safety Message: A healthy apple a day keeps the lead away as it contains lots of pectin.  
Description of Work: Colour pencil drawing.  
Age: 12 years.  
<http://volcanoartprize.com/portfolio-item/Kid eating apples/>



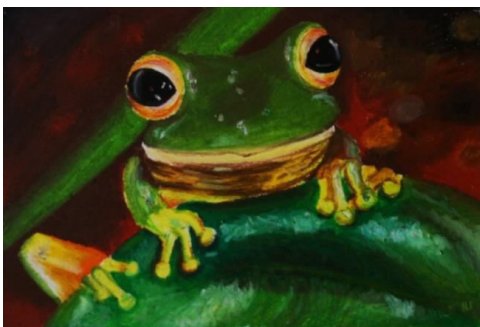
Artist: June He  
School Name: Creative Einstein Education  
Title: Couple in love  
Lead-Safety Message: To live a long life with your loved one, be lead free  
Description of Work: Colour pencil  
Age: 12 years.  
<http://volcanoartprize.com/portfolio-item/Couple in love/>



Artist: Mark Ju  
School Name: Creative Einstein Education  
Title: Fast Food  
Lead-Safety Message: Watch out what you consume.  
Aim at lead free, healthy diet.  
Description of Work: Colour pencil  
Age: 11 years.  
<http://volcanoartprize.com/portfolio-item/Fast food/>



Artist: Li-Ke Shi  
School Name: Creative Einstein Education  
Title: Boat in a lake  
Lead-Safety Message: Try not to add lead to water while fishing  
Description of Work: Oil pastels on acid free paper  
Age: 10 years.  
<http://volcanoartprize.com/portfolio-item/boat-in-a-lake/>

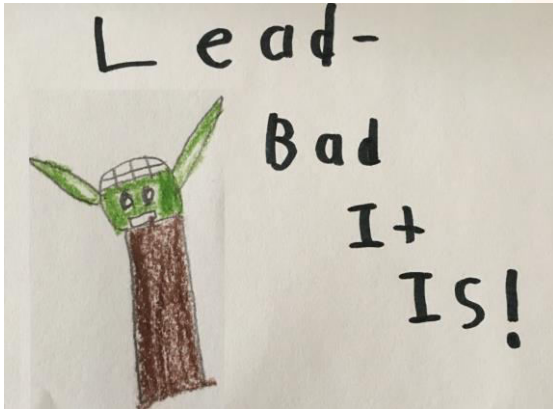


Artist: Alice Ju  
School Name: Creative Einstein Education  
Title: Red eyed tree frog  
Lead-Safety Message: Lead affects even the smallest of creatures.  
Description of Work: Painting  
<http://volcanoartprize.com/portfolio-item/red-eyed-tree-frog/>



Artist: Dylan Andrew Hsieh  
Title: Keep our world safe.  
Lead-Safety Message: Please keep our world safe and lead-free  
Description of Work: Crayons on paper  
Age: 4 years.  
<http://volcanoartprize.com/portfolio-item/keep-our-world-safe/>





Artist: Kayson Parker

Title: Yoda Wisdom

Lead-Safety Message: Lead, bad it is!

Description of Work: Drawing with mixed media

Age: 9 years.

<http://volcanoartprize.com/portfolio-item/yoda-wisdom/>



Artist: Tamara Rubin

Title: Testing Fidget Spinners For Lead

Lead Safety Message: No level of lead is safe in a child's toy.

Description of Work: 90 Second Video of 31 Fidget Lead Test Results.

Vimeo Link: <https://vimeo.com/225702053>

<http://volcanoartprize.com/portfolio-item/testing-fidget-spinners-for-lead/>



Artist: Violet Winters

Title: Cycle of Life

Lead Safety Message: Our children deserve a clean world.

Description of Work: photo new born child

<http://volcanoartprize.com/portfolio-item/cycle-of-life/>



Artist: Ritishaa Sreedhar

Title: Outback

Lead Safety Message: Keep the outback lead free by not using leaded gun shot.

Materials: lead-free "lead pencil", oil pastel and textas.

Age: 11 years.

<http://volcanoartprize.com/portfolio-item/outback/>



Artist: Ankit Patel  
Title: Love is in the lead safe world  
Lead Safety Message: Love is in the lead safe world  
Description of Work: Photograph  
<http://volcanoartprize.com/portfolio-item/love-is-in-the-lead-safe-world/>



Artist: Cecile Chen  
School Name: Creative Einstein Education  
Title: Cookie  
Lead Safety Message: Lead is the sweetest of poisons like Cookies  
Description of Work: Non-lead pencil colour  
Age: 10 years.  
<http://volcanoartprize.com/portfolio-item/cookie/>



Artist: Sophea Wang  
School Name: Creative Einstein Education  
Title: Uluru  
Lead Safety Message: Visit the heart of Australia but without poisoning it with lead.  
Description of Work: Crayons on paper  
Age: 6 years.  
<http://volcanoartprize.com/portfolio-item/uluru/>



Artist: Scarlett Tran  
School Name: Creative Einstein Education  
Title: Lead free Landscape  
Lead Safety Message: We must save our landscapes from lead poisoning.  
Description of Work: Crayons on paper  
Age: 9 years.  
<http://volcanoartprize.com/portfolio-item/lead-free-landscape/>



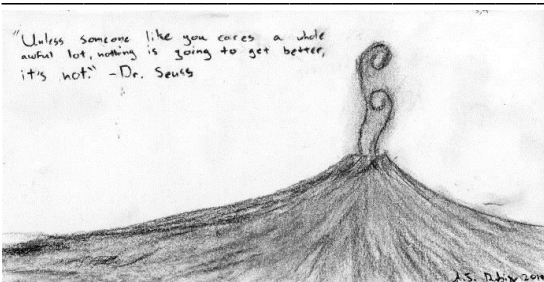
Artist: Brandon Banh  
School Name: Creative Einstein Education  
Title: Aquatic Life  
Lead Safety Message: Lead contamination can harm aquatic life. We must protect the aquatic species.  
Description of Work: Crayons on paper  
Age: 10 years.  
<http://volcanoartprize.com/portfolio-item/aquatic-life/>



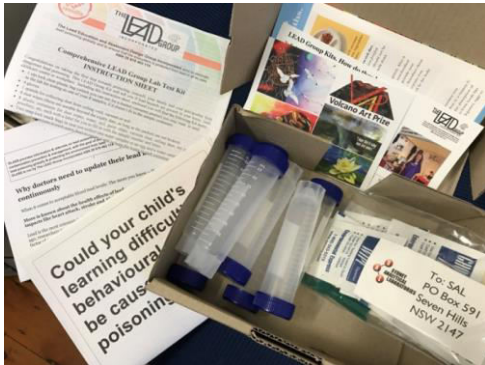
Artist: Avi Rubin  
Title: Educate Your Kids About Lead  
Lead Safety Message: Educate your kids about lead (Pb), don't hide it from them.  
Description of Work: Acrylic on Paper, cover design for a book.  
Age: 12 years.  
<http://volcanoartprize.com/portfolio-item/educate-your-kids-about-lead/>



Artist: Kai D W Kehoe  
Toxic Pots and Pans, Utensils and Windows  
Lead Safety Message: For a better idea of lead sources, test home items with an XRF.  
Description of Work: Drawing on paper with beeswax crayons  
Age: 6.5 years.  
<http://volcanoartprize.com/portfolio-item/toxic-pots-and-pans-utensils-and-windows/>



Artist: A.J. Rubin  
Title: Unless  
Lead Safety Message: Unless someone like you cares a whole awful lot, nothing is going to get better, it's not." - Dr. Seuss  
Description of Work: Charcoal on Paper.  
Age: 14 years.  
<http://volcanoartprize.com/portfolio-item/unless/>



Artist: Demonstration and Video editing -Malveek Kaur Dhaliwal, Recording - Poornima Murthy

Title: The LEAD Group Kit's Dust Wipe in action!

Lead Safety Message: The LEAD Group Report will tell me if my floor is safe from lead for children and pets.

Description of Work: HTC 1X9 and Filmora Video.

<http://volcanoartprize.com/portfolio-item/the-lead-group-kits-dust-wipe-in-action/>



Artist: Kim Cole, Korey Nicolas

Title: Massachusetts Legislature Bill SD.751

Lead safety Message: An Act creating a special commission to study the prevalence and prevention of child lead poisoning

Description of Work: Computer generated description "No Lead Symbol with description of Bill SD.751

<http://volcanoartprize.com/portfolio-item/massachusetts-legislature-bill-sd-751/>



Photographer: Peter Kozaitis

Title: Elizabeth O'Brien at work in The LEAD Group's office  
Lead-safety Message: Use a LEAD Group Water Kit to test for lead in water before you drink rainwater or water from new taps or new plumbing or your new home.

Description of Work: Photograph

<http://volcanoartprize.com/portfolio-item/elizabeth-obrien-at-work-in-the-lead-groups-office/>



Artist / Photographer: Isla MacGregor

Title: Peeling lead paint polluting patios and potato patches  
Lead-safety Message: Use a LEAD Group Kit to test for lead in peeling paint, dust, water and soil before you plant your potatoes or let your children play on the patio.

Materials: Photograph

<http://volcanoartprize.com/portfolio-item/peeling-lead-paint-polluting-patios-and-potato-patches>



Artist / Photographer: Geoff Walker  
Title: Lead Soldered Yorkshire Fittings  
Lead-safety Message: Lemon Tree Passage Plumber Geoff Davey inspecting lead soldered 'Yorkshire' fittings at the local library March 2017.  
Yorkshire Fittings.jpg  
Materials: Photograph  
<http://volcanoartprize.com/portfolio-item/lead-soldered-yorkshire-fittings/>

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## Judge-Awarded cash prize winner of VAP 2017



Artists: Faris Sheridan,  
Hesaan Sheridan  
(Film-makers)

Title: Lead in paint and varnish. The hidden dangers.  
Lead-Safety Message: Before the dangers of lead were known, it was a common

ingredient in house paint and varnish, where it acted as a pigment and increased durability and a drying agent. Millions of homes, schools and businesses still have lead based paint on their walls, both inside and out. If the paint is in good condition and has been painted over, it usually doesn't pose a problem. But if the paint is peeling or has been disturbed by scraping, sanding, or burning, it can pose significant health risks to people and pets, especially young children.

Description: Film & Animation; schools, and businesses still have lead based paint on their walls, both inside and out. If the paint is in good condition and has been painted over, it usually doesn't pose a problem. But if the paint is peeling or has been disturbed by scraping, sanding, or burning, it can pose significant health risks to people and pets, especially young children.

<http://volcanoartprize.com/portfolio-item/lead-group-video/>  
<https://www.youtube.com/watch?v=LgzVvimN5Bw&feature=youtu.be>



## People's Choice cash prize winner of VAP 2017

While the above 30 artists were chosen the judge to receive a mug from our sponsor Pictureproducts, the People's Choice cash prize winner was chosen by facebook likes.

Proudly sponsored by:



Our People's Choice winner this year is Poornima Murthy.



Artist: Poornima Murthy

Title: Champagne Beach, Vanuatu

Lead-safety Message: To preserve nature's pristine beaches and the colourful fishes, don't discard leaded items into the ocean. Being lead free adds years to one's life.

Description of Work: Photograph shot using a HTC One X9 phone.

URL: <http://volcanoartprize.com/portfolio-item/champagne-beach-vanuatu/>

Facebook likes: 119



## **My Experience of Living with the Aftermath of Occupational Lead Poisoning**

*by Wayne J. Askew*

When people think of lead poisoning, many will think of it as a problem that applies only to children. While young children are especially susceptible to the toxic effects of lead, given their stage of development, I'm a living example that lead poisoning can have devastating effects on people of any age. Lead poisoning in adults is a topic that gets little attention; I'm hoping to help get the word out by sharing my personal experience.

My lead poisoning story goes back to 1980 when, at age 21, I joined the United States Navy as a boatswain's mate. I was in prime physical and mental shape at the time, and was proud to join the generations of my family before me in serving my country at sea.

The primary responsibility of a boatswain's mate is the upkeep of the ship's structure. I reported to the USS Leahy CG-16, which at the time was in a state of overhaul at Long Beach Naval Shipyard. US Navy ships are covered with lead-based paint. Wearing only my standard work uniform, a respirator, and goggles, I was tasked with grinding the paint off the deck of the ship using pneumatic tools. Meanwhile, the shipyard workers (who were civilian personnel) were tasked with removing the paint from the sides of the ship, using sandblasting methods. It wasn't until years later that I understood that the protections offered to us, and the clean-up efforts employed, were woefully inadequate in protecting people and the environment from the dangers of lead. We were covered in lead dust from head-to-toe. It was common practice to take meal breaks while dressed in the same clothes; some even slept in their cot with their work clothes still on. Also, the debris was not adequately contained, thus contaminating the areas around the ship as well. Clean-up consisted of sweeping up the debris with a dry broom. Basically, there was potential for lead exposure for everyone on ship—regardless of rank—and for families visiting the shipyard while the overhauling process was taking place. After standard work hours, families were allowed to come onto the ship to visit their loved ones. It was not unusual to see my fellow shipmates hug their wives and children while still dressed in their lead-dust-laden work clothes. None of us were ever told of the risks.



*Photo: Wayne (center) and shipmates on USS Leahy CG-16 in c.1982. Photographer unknown*

The US Centers for Disease Control and Prevention (CDC) and US Environmental Protection Agency (EPA) both acknowledge that there is no known safe level of lead in the body. It is also important to note that lead exposure affects everyone differently depending on various factors such as how much lead is retained by the body, acute versus chronic low-level exposure, and even genetic characteristics. Not everyone who is exposed to lead will develop symptoms of toxicity. In addition, some might never know that they were poisoned because they experienced symptoms that can be easily misdiagnosed as other problems.

I was not diagnosed with severe lead toxicity until some years after leaving the Navy, when I was exposed to high levels of lead on a daily basis while working in the private sector. However, my exposure in the Navy was not without consequence, either. Before I entered the military, I was quiet and reserved—a *wallflower*, so to speak. While serving in the Navy, my personality drastically changed: I was quick to anger, and often found myself in physical altercations with others. I started to drink alcohol, and found myself in frequent trouble with the law. I guess I was your stereotypical “drunken sailor”. The “sweet kid,” as my mother used to say of me, suddenly became the “black sheep” of the family.

My aggressive behavior did not go unnoticed by the Navy and, at first, was even valued. I was increasingly entrusted with more dangerous tasks because of my “bravery”. However, as time went on and I became more out of control, the Navy began to grow frustrated with my antagonistic nature. At one point, in an attempt to get me back in line, I was sentenced to three days of solitary confinement in the brig, given only bread and water. I was demoted from rate E-4 (Petty Officer Third-Class) to rate E-1 (Seaman Recruit) and was almost separated from the military on other-than-honorable terms. I now know, in retrospect, that this aggressive phase I was experiencing was due to my lead exposure during the time that I served. Temper and irritability are some of the first





symptoms that adults experience from lead. I often think about my shipmates, and I wonder what impact lead exposure had on their lives—I remember many who were thrown out of the service due to behavioral issues. On a broader scale, I wonder about all naval personnel who have served throughout the years and how many of them have had the course of their lives changed because of the effects of lead—whether they were formally diagnosed, or not.

When I left active duty, I received a full physical by the Navy and was given a clean bill of health. I entered civilian life and started a career in painting and historic home restoration. I worked in Tompkins County, New York, and surrounding areas—a region with lots of historic architecture and century homes. Restoring the exteriors of these homes is big business in this area. In the late-1980s, when I was working in this industry, there was such a demand for these services that we even worked throughout the winter. Exterior restoration involves taking off the old paint using a variety of tools and methods—e.g., high-speed electric grinders, torching, heat plates, and heat guns—before applying the new paint.

In the United States, lead in house paint was not banned until 1978, which means that almost every house we worked on carried with it the risk of lead exposure. Restoration methods give off lead-containing dust and, if heat methods are used, lead-containing vapor as well. We used only dust masks for protection, as that was deemed to be adequate by the Occupational Safety and Health Administration (OSHA) at that time. And, just like in the Navy, workers took their lunch breaks while still dressed in dusty work clothes because nobody knew any better. Some workers smoked cigarettes while working, creating frequent hand-to-mouth contact with lead-contaminated hands.

Employees were not the only ones exposed to lead from the job site. No one I worked with changed into alternate clothes before getting into their vehicles to go home, thus contaminating their vehicles. How many of them hugged their loved ones when they got home before changing out of their work clothes, and/or washed their work clothes with the regular family laundry instead of keeping it separate? *Probably most.*

These restoration projects also put the homeowners and their neighbors at risk. Lead dust was blown all over the neighborhoods because its containment at job sites was not regulated at the time. And, if we're going to be honest, there is little enforcement of existing rules to ensure that the public is protected today. There are still companies and do-it-yourselfers that are not following lead-safe practices, all contributing to the various sources of lead exposure in our communities. Rules are useless without proper enforcement.

As for me, it was my lead exposure while working in this industry that has left me permanently disabled with a degenerative condition. I was diagnosed with lead poisoning



when our entire work crew was tested, after a coworker of ours presented to the hospital with severe gastrointestinal distress and hallucinations. Our coworker was found to have a blood lead level (BLL) of 150 µg/dL. The rest of us all had vague symptoms, such as increased irritability, fatigue, lack of coordination, and occasional confusion; we had just passed it off as being tired from working long hours. As it turned out, we were all lead poisoned with high BLLs.

My BLL from the first time I was tested was 68 µg/dL. I was chelated at the hospital and told that I could safely return to work with the new protections that OSHA had put in place after reviewing our case. Unfortunately, this proved to not be enough. Upon retesting, after having only been back to work for a month or two, my lead level went up to 88 µg/dL. By this time, I was having more severe physical symptoms, such as muscle weakness due to the neurological damage I sustained. Unfortunately, the damage done was irreversible and I was no longer able to work.

I am now 57 years old, but feel like I'm in a 90 year old's body. Lead poisoning has left me with brain damage, peripheral neuropathy, muscle atrophy, joint problems, hypertension, cardiomyopathy, fatigue, problems with hearing acuity, and chronic pain. My condition is degenerative; over the years I have been experiencing a decline both physically and cognitively. I can only walk for short distances, while experiencing pain with every step. I am mostly bedridden at this point, and every day I fear losing the little mobility that I have left. From a cognitive functioning perspective, I have been diagnosed with toxic encephalopathy, which left me with permanent brain damage causing short-term memory problems, ADHD-like symptoms, and a bipolar-like syndrome. On top of it all, over the last year I've been struggling with a lack of appetite and have to supplement what little I eat with protein shakes in order to maintain an adequate weight.

Despite my struggles, I will never give up. Over the last three decades I have made lead poisoning awareness my life's work, and there's still so much more that needs to be done. Over the years, I've worked with the media and politicians to help spread awareness about the dangers of lead exposure and the need to better protect the public. Recently, I have expanded my advocacy efforts to social media. My Facebook group, *Truth about Lead*, is a public group where people can share and discuss personal experiences, lead stories in the news, lead-related research, and advocacy efforts. I welcome anyone that is interested to join our online community to learn more and to share in the discussion. You can also follow me on Twitter: @WayneAskew3.



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