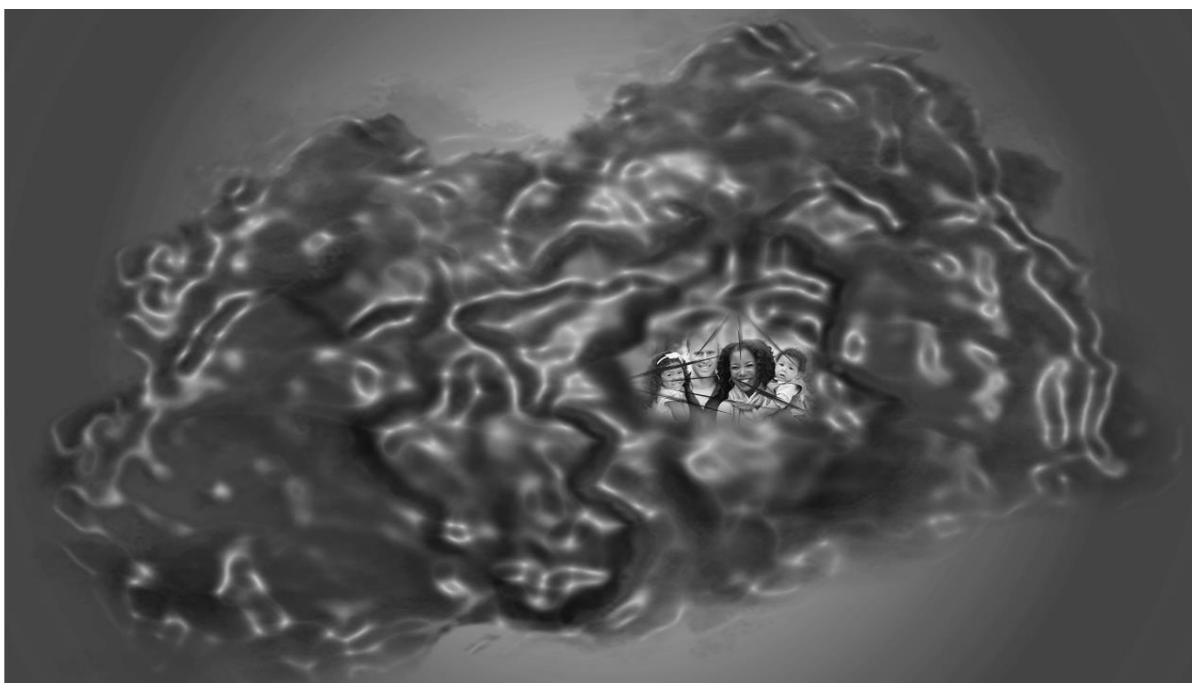




# Toxic Lead Still Here Still Harming



A manifesto for a lead-safe UK





# Toxic Lead - Still Here, Still Harming

## A manifesto for a lead-safe UK

### Document Control

Version	Date	Author	Contents
do.1	8 <sup>th</sup> March 2021	Tim Pye Lead Safe World UK	This version is an early draft for opinion about the approach. It requires completion of references, attribution and further reading. The symbol ~ indicates the reference needs to be added.
do.2	25 <sup>th</sup> March 2021	..	Additions and corrections. New, copyright free images. Changes suggested by Elizabeth O'Brien. References.
do.3	31 <sup>st</sup> March 2021	..	Update following comments from: <ul style="list-style-type: none"> <li>• Prof Brian Gulson</li> <li>• Elizabeth O'Brien</li> <li>• Julia Klein</li> <li>• Dr Andrew Turner</li> <li>• Dr Caroline Taylor</li> </ul>
do.4	1 <sup>st</sup> April 2021	..	Update following more information from: <ul style="list-style-type: none"> <li>• Dr Caroline Taylor</li> <li>• Julia Klein</li> </ul>
do.5	8 <sup>th</sup> April 2021	..	Update following comments from: <ul style="list-style-type: none"> <li>• Prof Erik Millstone</li> </ul>
do.6	21 <sup>st</sup> April 2021	..	The Lancet extrapolation now a range Additions following discussion with the Home Ownership Centre, Utica, New York state
do.7	22 <sup>nd</sup> April 2021	..	Add "The Perfect Predator" video link
do.8	1 <sup>st</sup> May 2021	..	Add UNEP 90ppm lead in paint
do.9	6 <sup>th</sup> May 2021	..	Add screening of pregnant women, ban on lead stabilisers
do.10	28 <sup>th</sup> June 2021	..	Add Resongles et al, 2021
do.11	2 <sup>nd</sup> July 2021	..	Update with comments from Prof Erik Millstone
i1.0	15 <sup>th</sup> July 2021	..	Rebranded and issued. Added additional further reading and HHB APPG white paper.



## Introduction

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This report aims to show how lead exposure is still a very significant issue in the UK that continues to be a dangerous blind spot in health and environmental policy.

The target audience is health and environmental policy leaders and politicians in the UK.

All information presented here is from authoritative and reliable scientific, industrial or governmental published sources.

## Key Points

The manifesto explains three key points about lead toxicity. How it:

- **Diminishes lives**
- **Costs billions**
- **Is preventable**

## Acknowledgements

With thanks to:

Professor Erik Millstone, University of Sussex

Elizabeth O'Brien, The LEAD Group

Dame Cheryl Gillan, MP

Frank Sheppard, Lead Containing Materials Association

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Professor Brain Gulson, Macquarie University

Julia Klein, parent

Dr Andrew Turner, University of Plymouth

Dr Caroline Taylor, University of Bristol

Caroline Williams and John Adams, Home Ownership Centre, Utica, New York

## Quotes

Quotes from letters to Dame Cheryl Gillan, MP, shared with the author:

*“prevalence is likely to be higher in at-risk populations, in whom lead exposure may be a public health concern”* Jo Churchill MP, Parliamentary Under-Secretary of State for Prevention, Public Health and Primary Care.

*“we agree that raising public awareness of lead poisoning is important”* Duncan Selbie, Chief Executive, Public Health England.



For too many in the UK, lead seems to stand for:

**L**ame

**E**xcuses

**A**nd

**D**enial

This document is organised into sections dealing with the misunderstandings there are commonly around lead exposure and toxicity.

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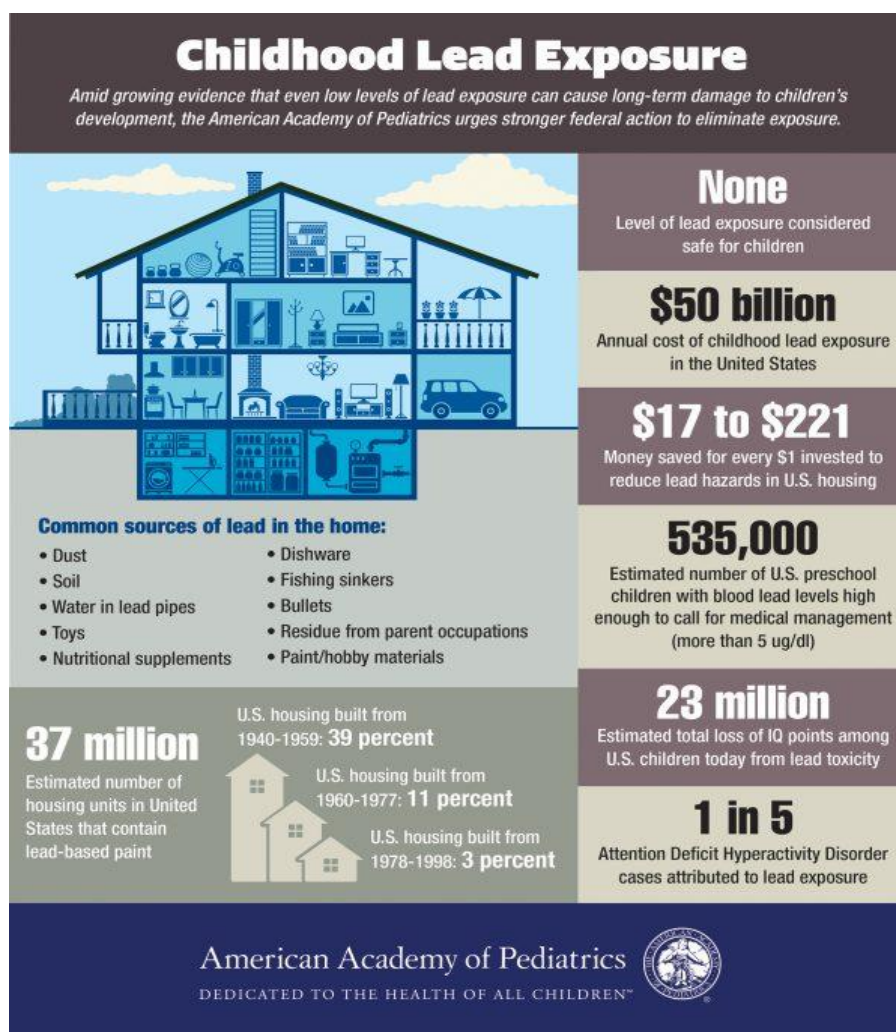


Figure 1



## Haven't we got rid of all the lead?

Most people know that lead is toxic. Most people will know that leaded petrol was phased out in the UK in the decade up to the year 2000 [\(1\)](#). Maybe many also know that, in the UK, the lead concentration permitted in new house paint was reduced in stages between 1963 [\(2\)](#) and 1992 [\(3\)](#). The problem is that the lead from these, and many other sources, is still around, still being added to, and we have learned that it is toxic at lower and lower levels. This diagram shows the change in knowledge. [\(4\)](#)

The UK child action level is, this year, being reduced to 5 µg Pb/dL blood [\(5\)](#). The USA may soon go to 3.5 µg Pb/dL blood [\(6\)](#).

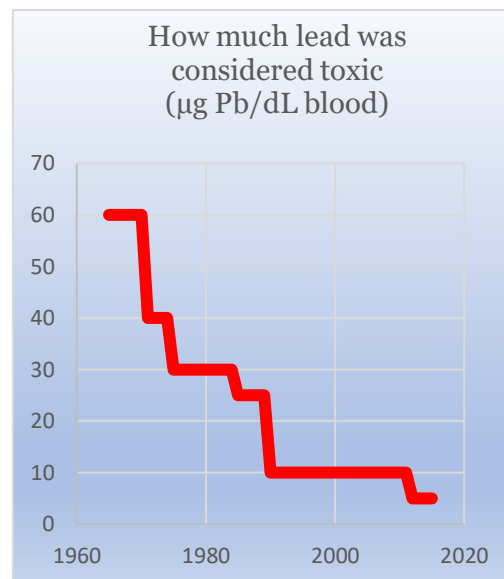


Figure 2

The science is also showing us that lead causes more conditions, and at lower levels, than previously thought. What may have seemed to be a reducing problem we now know is still a big problem [\(7\)](#).

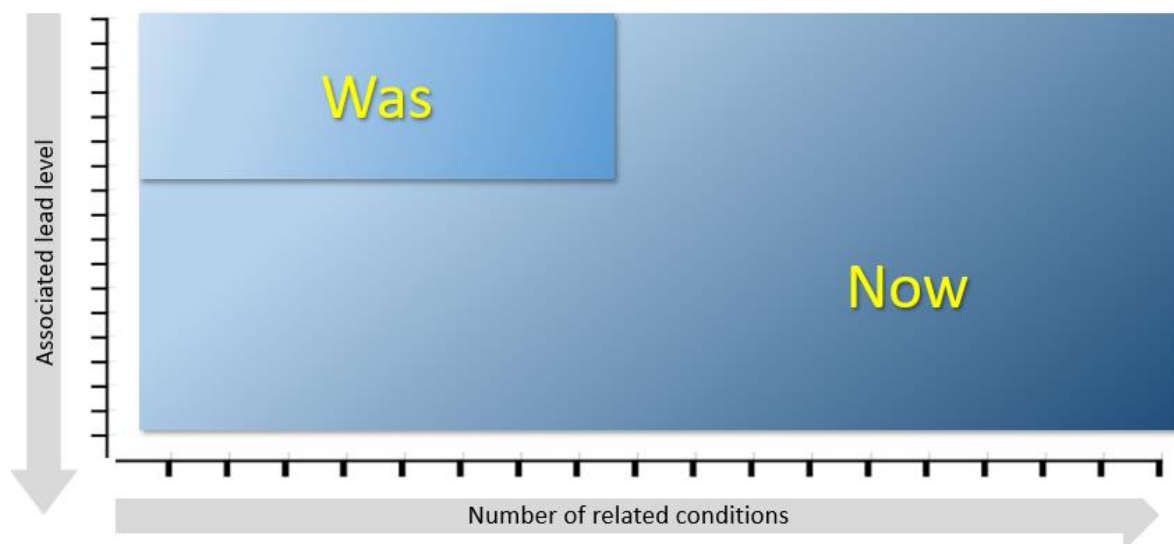


Figure 3

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Lead exposure and toxicity should be major public health concerns in the UK.





## All the lead is safely locked away

Lead is all around us and, unless managed properly, can migrate into our bodies. Lead compounds mostly get into the body by ingestion or inhalation<sup>(8)</sup>. Most inhaled lead contaminated dust is absorbed into the blood stream. Adults absorb up to 20% of ingested lead, but up to 80% on an empty stomach. Children absorb about 50%, but up to 100% on an empty stomach<sup>(9)</sup>.

Once absorbed lead is slowly excreted or deposited in the bones and teeth. Lead can be resorbed into the blood including in pregnancy, menopause or old age so we can be poisoned from within<sup>(10)</sup>,<sup>(11)</sup>.

The utility of lead has led to ubiquity. Here are just some of the places where lead exposure can come from.



Figure 4

Road paint<sup>(12)</sup>, kohl<sup>(13)</sup>, playgrounds<sup>(14)</sup>, glasses<sup>(15)</sup>, aviation<sup>(16)</sup>, the rest and many more<sup>(17)</sup>.

Lead is common in the UK human environment. Children are especially vulnerable.

## It takes a lot of lead to causing poisoning



Lead is a very powerful toxin. The USA FDA interim reference level (IRL) for children is  $3\mu\text{g Pb/day}$  (18), (19). That is 3 millionths of a gram. The IRL for adults is  $12.5\mu\text{g}$ .

For context, a 5m roll of 6mm self-adhesive lead window strip weighs 200g (20). If that was shared equally in food, it would be enough lead to exceed the FDA daily child IRL for the entire population of the UK, about 67 million. Let's hope all the lead stays where it is!



Figure 5

For adults it would take four windows. It should be noted that the IRL has a 10 times safety margin. This can also be illustrated in terms of spreading lead contaminated dust in homes.

## How much lead does it take?

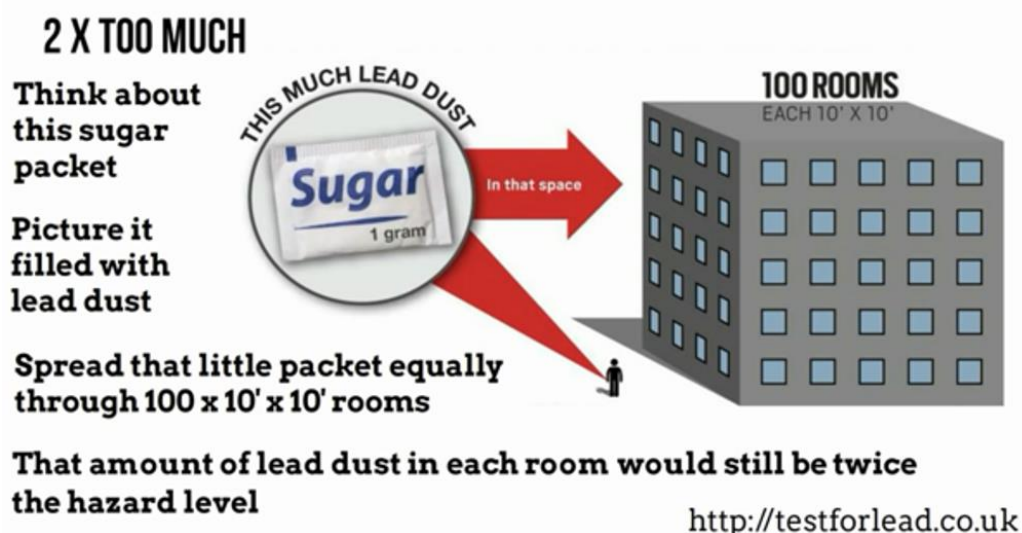


Figure 6

It takes very little lead to damage health. It just depends on how much, how often and for how long.





## I have never heard of anyone with lead poisoning

Lead is a general-purpose toxin. It impacts many organs and causes harm throughout life. Thankfully, acute lead poisoning is rare, but the cumulative load from chronic lead exposure can cause many, all too familiar, conditions.

The harm from lead can occur at levels considered to be below the UK 'reference' range - 10.35 to 14.5 µg Pb/dL blood [\(21\)](#) [\(22\)](#). A 2012 US National Toxicological Programme monograph [\(23\)](#) on lead reviewed around 600 scientific papers and concluded that there was sufficient or limited evidence that the following conditions can be attributed to an elevated blood lead concentration (eBLC) below 10 µg Pb/dL blood; and, for some, below 5 µg Pb/dL blood.





<p>Babies</p> 	<ul style="list-style-type: none"> <li>• Low birth weight</li> <li>• Reduced post-natal growth</li> </ul>
<p>Children</p> 	<ul style="list-style-type: none"> <li>• Problem behaviours</li> <li>• Attention problems</li> <li>• Lower academic achievement</li> <li>• Decreased IQ</li> <li>• Reduced cognitive function</li> <li>• Decreased hearing</li> <li>• Delayed puberty</li> </ul>
<p>Pregnancy</p> 	<ul style="list-style-type: none"> <li>• Miscarriage</li> <li>• Reduced foetal growth</li> <li>• Preterm birth</li> </ul>
<p>Adults</p> 	<ul style="list-style-type: none"> <li>• Kidney disease</li> <li>• Increased blood pressure</li> <li>• Essential tremor</li> <li>• Psychological effects; depression, anxiety, panic</li> <li>• Cardiovascular disease; stroke, heart attack, coronary</li> </ul>

Figure 7

More recent evidence shows that lead is linked to autism [\(24\)](#), [\(25\)](#), [\(26\)](#), [\(27\)](#), [\(28\)](#), [\(29\)](#), [\(30\)](#), [\(31\)](#), [\(32\)](#); and possibly dementia and Alzheimer's disease [\(33\)](#), [\(34\)](#), [\(35\)](#), [\(36\)](#), [\(37\)](#).

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Many are suffering these diseases and, for some, this could have been caused by lead exposure.



## Very few people are affected today

Some say that most people's risk of lead poisoning is very small nowadays [\(38\)](#). It is more likely that GPs see several patients every day who are suffering some effects of lead toxicity, but do not recognise it; or their patients are pre-symptomatic.

We can look at this as the number who had an eBLC that exceeds the new Public Health England child action level of  $5 \mu\text{g Pb/dL}$  [\(39\)](#).

The last time we did any sampling of people with eBLCs was in the mid-1990s. Some, toddlers and pregnant women, was part of the “Children of the 90s” project in Avon [\(40\)](#), [\(41\)](#). Other studies sampled older children and adult participants, [\(42\)](#), [\(43\)](#).

The proportions with eBLCs were:

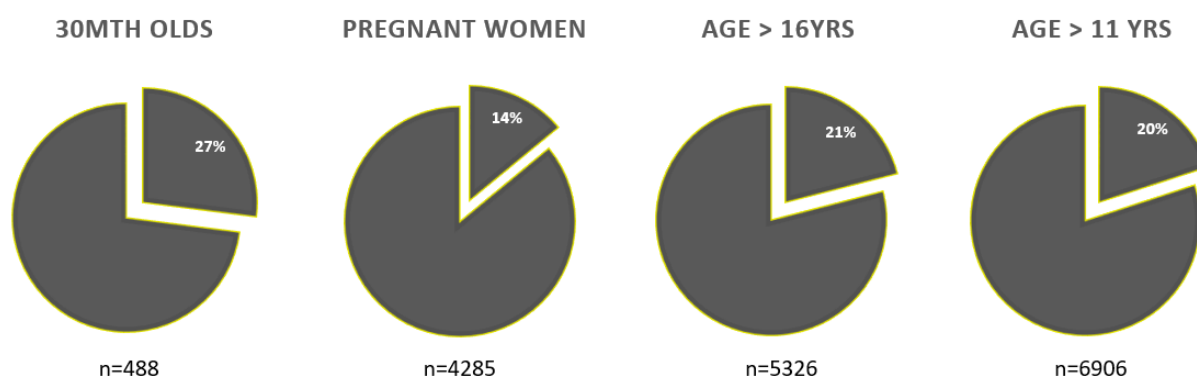


Figure 8

Not much has changed since then. The last leaded petrol has been phased out, but emissions were already less than  $\frac{1}{4}$  of the peak at that time [\(44\)](#) so there may not have been much improvement.

We don't have any more recent population prevalence data, but there are some indications.

- Unicef estimate that **214,000** under 19 UK olds have eBLCs [\(45\)](#)
- In the USA, the CDC estimated that 535,000 1-5 year olds have eBLCs. In population terms, that would equate to **108,000** in the UK [\(46\)](#)
- The 360DustAnalysis project [\(47\)](#), [\(48\)](#) has found, so far, that **11% of UK homes** (n= 146) have lead levels in dust high enough (299ppm) to cause children aged 1-3 to have eBLCs [\(49\)](#) - assuming Australian parameters can be applied to the UK [\(50\)](#), [\(51\)](#).

---

Until a prevalence study is carried out we should assume that lead exposure remains a significant health problem in the UK.



## Lead doesn't cause illnesses in many people

Lead is, of course, just one of many influences on our life long health. Like many diseases establishing how much morbidity and mortality can be attributed to any one cause can be complex and difficult [\(52\)](#).

The proportions, or burden, of diseases that can be attributed to lead toxicity has been reported in some studies. In the following table the percentage of cases of some conditions that have been found to be attributable to lead are applied to the numbers with each condition in the UK; or the whole UK population as appropriate [\(53\)](#).

Further research would be needed to really validate these numbers and assumptions, but they do give an indication of the scale of the problem in the UK.

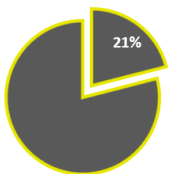
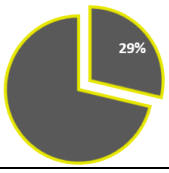
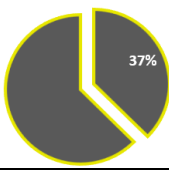
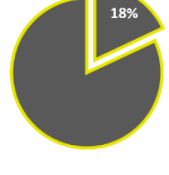
Based On	Condition, percentage attributable to lead	Percentage attributable to lead	UK occurrence of the condition	Estimated UK numbers attributable to lead *
Braun et al, Environmental Health Perspectives, USA, 2006 <a href="#">(54)</a> (n=4,704)	ADHD 21.1% (95% CI, 4.6–25.9%)		2% - 5% Children and adults <a href="#">(55)</a> <a href="#">(56)</a> <a href="#">(57)</a>	280,547 - 701,366 @ 21.1%
Lanphear et al, The Lancet Public Health, USA, 2018 <a href="#">(58)</a> (n=14,289)	Cardiovascular disease mortality 28.7% (15.5–39.5)		168,472 deaths in 2017 <a href="#">(59)</a>	26,113 - 66,546 deaths per year
	Coronary heart disease mortality 37.4% (23.4–48.6)		66,341 deaths in 2017 <a href="#">(59)</a>	15,524 - 32,242 deaths per year
	All-cause mortality 18.0% (95% CI 10.9–26.1)		593,410 deaths in 2019 <a href="#">(53)</a>	64,682 - 154,880 deaths per year

Figure 9

\* This is assuming that these percentages can be applied to the UK population.

It is probable that large numbers of people in the UK are affected by lead toxicity. Some for their whole lives.



## Do other countries do anything about lead?

### Denmark

- There is a general ban on products containing lead compounds and a ban on many items made of metallic lead [\(60\)](#).

### France

- All houses built before 1949 are tested for lead paint on sale or rent [\(61\)](#).
- Screening is targeted following detection of risk factors on a lead risk questionnaire administered at age 9 and 24-months [\(62\)](#)

### USA

- All children on Medicaid, and all the children in 11 states, are offered screening for eBLCs [\(63\)](#). About 4 million tests are done each year. [\(64\)](#)
- Sale or rent of housing built before 1978 [\(65\)](#) requires:
  - Disclosure of any lead paint
  - A "Lead Warning Statement" attachment or insertion in the contract
  - An EPA leaflet [\(66\)](#) (see below)
- Programmes mandate lead-safe working:
  - The Lead Renovation, Repair and Painting Program defines lead-safe work practices [\(67\)](#).
  - Contractors working on lead paint in homes or child-care facilities must be certified [\(68\)](#).
  - Trainers are also accredited [\(69\)](#).
  - Lead testing laboratories are accredited [\(70\)](#)
  - Lead laws can, and do, get enforced [\(71\)](#).
- There is a federal Childhood Lead Poisoning Prevention Program supported by state and city programs [\(72\)](#).
- The President's Task Force on Environmental Health Risks and Safety Risks to Children focusses strongly on lead [\(73\)](#).



Figure 10

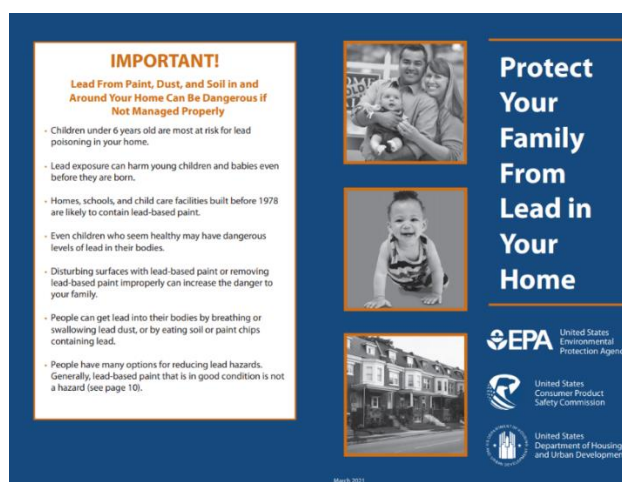


Figure 11

Some other countries, particularly the USA, are well ahead of the UK in lead poisoning prevention.



## You can't compare the USA to the UK

Perhaps not. It's worse in the UK!

We banned lead paint later:



Also, lead in paint started to be restricted in France, Belgium and Austria in 1909 (76). Soon followed, from 1922, by Estonia, Sweden, Spain, Poland, Latvia, Bulgaria, Chile, Romania and many others (77).

More housing was built before lead paint was banned. In both cases, lead paint use fell before the final ban. This chart shows the percentage of homes built before these bans.



We banned leaded petrol later:



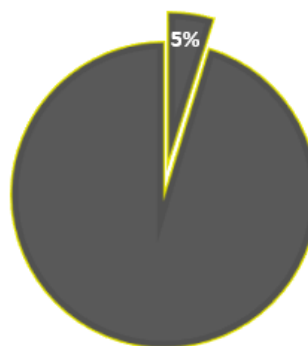
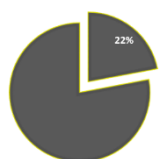
We did ban lead pipes for drinking water earlier,



but we have a bigger proportion of housing remaining with lead pipes somewhere in the supply

UK 6.2 million (84) out of 28 million.

USA 6.1 million (85) out of 128 million



---

If lead exposure is a problem in the USA, then it is almost certainly a problem in the UK.





## If lead was a problem the government would do something

The UK is not without any legislation that specifically references lead and there are some more general regulations. Some lead specific examples are:

### The Control of Lead at Work Regulations (CLAW) 2002 (86).

A key point in these regulations are occupational exposure blood lead levels which are:

Employee	Action Level	Suspension Level
Woman of reproductive capacity	25 µg/dL	30 µg/dL
Young person	40 µg/dL	50 µg/dL
Any other employee	50 µg/dL	60 µg/dL

It should be noted that these are all above the Public Health England action level for adults of 10 µg/dL(87).

Related to the CLAW is the Approved Code of Practice (88). This provides details on how employers can comply with the regulations.

The Health and Safety Executive conviction history register(89) records that just 6 businesses have been fined over the last 9 years for breaches of the CLAW.

### Housing Health and Safety Rating System (HHSRS) 2006 (90), (91)

Lead poisoning is classified as a Class 2 harm (out of seven). It is noted that there are indications that 'low' levels of lead can impact IQ in children.

The main causes of lead exposure are stated as lead based paint in pre-1970's properties and from lead or lead-soldered pipework accompanied by plumbo-solvent water. Industrial sources and lead in soil from leaded petrol and paint removal are also noted.

It is noted that there are no UK guideline levels for lead in house dust, but there are statutory levels in water(92) and guidelines for soil(93).

### The Hazardous Waste (England and Wales) Regulations 2005 (94)

The definition of 'hazardous' in Schedule II includes lead and lead compounds. However, this is replaced in The Waste (England and Wales) Regulations 2011 by more general definitions of "harmful" or "toxic".

No specific levels to define "hazardous" are provided. Waste is defined as "toxic" if the listed constituents may involve serious, acute or chronic health risks and even death. Premises that produce less than 200Kg hazardous waste in 12 months are exempt from these regulations.

---

Some lead related legislation exists in the UK, but enforcement seems limited.



## No one is worried about lead exposure these days

Anecdotally, it seems that many businesses, and their employees, do not know about lead risks. However, some industry bodies and government agencies do provide information.



PaintSafe is an initiative developed by the British Coatings Federation



Advice on lead paint in older homes



The Chartered Institute of Plumbing and Heating Engineering. Lead Poisoning.



Drinking Water Inspectorate. Lead in drinking water



Lead Pipe Removal: Taking the Lead. It is estimated that around 6.1 million UK homes may still have some element of lead pipework



Water companies in England have made "no significant progress" on lead 50 years after use of lead pipes were made illegal



Health and Safety Executive. Old lead paint  
What you need to know as a busy builder

---

Many agree there is a problem, information is available, but we believe awareness and action is lacking.



## It will be too expensive to fix

### Costs

It is much more expensive to do nothing. Here are some estimates of the economic cost of lead exposure.

Cost/year	Source
£8Bn	Unicef estimate that in the European Union the economic burden associated with childhood lead exposure is 0.31% of GDP or \$58 billion. That equates to £8 billion per year for the UK. <a href="#">(95)</a> , <a href="#">(96)</a>
€23Bn	A study in France estimated the overall benefits of reducing eBLCs. At 1.5 µg Pb/dL the annual benefit was estimated to be €23 billion. <a href="#">(97)</a>
\$43Bn	A study in the USA estimated that the annual costs of lead poisoning is \$43.4 billion. <a href="#">(98)</a>

Costs of lead exposure are incurred in health care, parental work loss, increases in special education needs and reduction in lifetime earnings [\(99\)](#).

### Return on investment

A 2009 study [\(100\)](#) in the USA estimated the social and economic benefits of lead hazard control. The study examined conservative and optimistic returns on investment. The smallest return on investment was estimated to be 17:1 going up to 221:1 with more optimistic assumptions.

Every £1 returns at least **£17** (maybe £221!)

Maybe not all these returns can be found, but by focusing on the worst first, the cost benefit balance looks very worthwhile pursuing.

*“Some of the best tools we can use to keep our children safe from lead exposure are the most accessible and inexpensive: education, testing, paint, and soap and water.”* Oneida County, New York

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Managing lead exposure could yield significant savings for the country.



## There is nothing that can be done

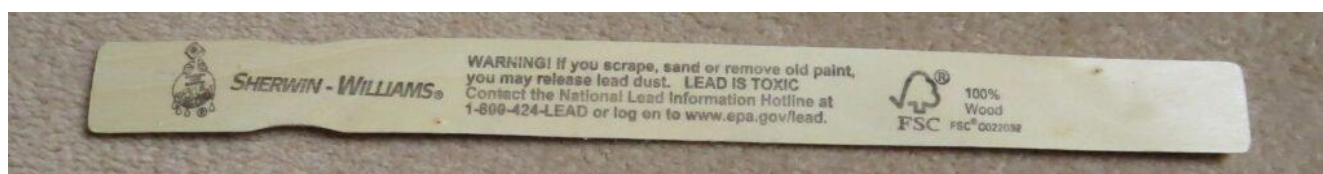
There are many things that could be done to reduce the prevalence of lead exposure in the UK. Many would not be expensive. Here are some examples:

### **Trade Bodies**

- Home surveys to including warnings, or tests, together with informative leaflets
- Establish a 'lead safe' training and accreditation scheme for decorators and builders together with accreditation of trainers
- The British Coatings Federation to recommend that paint containers to have better warnings explaining what precautions to take and where to find more information, e.g. "[PaintSafe](#)" (101), including recommendations about safe removal and disposal of old paint.

### **Retailers**

- Builders' merchants and DIY stores to stock lead paint and water testing kits
- Antique shops to provide warnings on furniture, ceramics, doors, toys, etc.
- Provide free paint stirrers with warnings, such as:



### **Manufacturers**

- All vacuum cleaners to feature HEPA filters
- Abrasives to have warnings on papers and packaging
- Power sanders to have warnings on packaging
- Paint stripper to warn that lead could be left exposed
- Develop light aircraft engines that run on unleaded fuel
- Develop semi-quantitative red-amber-green dust tests
- Develop lead-free alternatives to lead lines on windows and doors

### **Services**

- Develop a list of service providers including paint, dust, soil, water and blood testing together with cleaning and consultancy services
- Maintain a list of accredited lead-safe decorators and renovators
- Maintain a list of accredited laboratories like the NLLAP in the USA (102).
- Door dippers to provide warnings to customers and employees
- Double glazing installers to provide warnings where lead decoration is applied especially if accessible to children



## Health Policy

- GPs to be taught about the dangers of lead exposure and to recognise BLCs lower than the “normal range” as a health risk
- Public Health England to conduct monitoring and research into UK blood lead levels
- Introduce screening of children for elevated blood lead levels particularly those living in older homes or urban areas. See “The Scafell Project”.
- Screen pregnant and pre-conceptual women for eBLCs.



Figure 12

## Governmental

### *Advisory*

- Establish a dedicated online lead poisoning prevention information service
- Provide public information leaflets in GP surgeries and elsewhere
- Setup a lead information hotline as they have in the USA
- Improve DEFRA advice on DIY and fix the broken link on the website

### *Regulatory*

- Test schools, playgrounds and children’s activity centres for lead in paint, dust, soil and water
- Implement equivalent of the US ‘Renovation, Repair and Painting’ standard
- Lower CLAW suspension, action and surveillance levels
- Define and enforce post-work lead contaminated dust clearance standards
- Define and enforce procedures for safe disposal of lead contaminated waste
- Require contractors to have lead-safe training accreditation
- Lead metal should be installed out of reach in normal use
- Approved warning messages on relevant products
- Require pre-rent and pre-sale lead clearance tests or inspections
- Lead-contaminated plastics should not be recycled into new products unless the lead is removed
- Brass used in plumbing fixtures for drinking water should have no more than 0.25% lead as per NSF/ANSI 372 [\(103\)](#).





### *Legislative*

- Ban leaded fuel in light aircraft and racing cars
- Ban import of lead based PCV stabilisers
- Extend Housing Health and Safety Rating System (HHSRS) to adults
- Phase out lead shot, bullets and propellant in recreational shooting [\(104\)](#).
- Other lead compounds, in addition to lead carbons and lead sulphates, [\(105\)](#), should be banned from most paint so that lead, as a component or contaminant, does not exceed the UNEP level of 90ppm [\(106\)](#).

The USA [Centers for Disease Control and Prevention](#) remind us....

The good news:  
Lead poisoning is **100%** preventable.

*Figure 13*

---

There is a lot that can be done to manage the risk of lead exposure and toxicity.



## Conclusions

This poster from the Nevada Childhood Lead Poisoning Prevention Program provides a useful summary (Includes acute effects at higher eBLCs).[\(107\)](#)

**HOW LEAD AFFECTS CHILDREN**

Hearing Damage

Nausea Stomachaches

Kidney Problems

Reproductive Problems

Dizziness Headaches Lower IQ Learning Disabilities Low Impulse Control Concentration Problems

Nerve Disorders

Muscle & Joint Pain

**SOME EFFECTS MAY NOT SHOW UP UNTIL I GROW UP!**

**SOURCES OF LEAD EXPOSURE**

- Pre-1978
- Paint
- Dust
- Soil
- Pre-1986
- Alternative Medicine
- Keys
- Imported Candy
- Toys
- Imported Pottery
- Make Up
- Vinyl Mini Blinds

Lead can be in everyday items like jewelry, tile, ceramics, and stained glass. You might even use lead at work or in hobbies like mining, welding, fishing, pottery, and home renovations. Some alternative medicines may contain lead like azarcon, kohl, ba-baw-san, and some ayurvedic medicines, among others.

ASK YOUR CHILD'S DOCTOR FOR A LEAD TEST AT THEIR NEXT APPOINTMENT.  
Test at **12 and 24 months**.  
If not previously tested, test at least once by **6 years old**.

**LEAD FREE NV** **NvCLPPP** Nevada Childhood Lead Poisoning Prevention Program

For more information, visit [NVCLPPP.ORG](http://NVCLPPP.ORG) or call us at:  
775-884-0392 Northern Nevada  
702-895-1040 Southern Nevada

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Figure 14

Instead of **L**aziness, **E**xcuses, **A**pathy and **D**enial let's make lead mean:

**L**egislation, **E**ducation **A**nd **D**econtamination.



## What's next for health policy leaders?

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This is an opportunity to help hundreds of thousands and save billions. Health policy leaders and politicians can make this happen. Here are some things that could be done very soon:

- Form an All-Party Parliamentary Lead and Health Group.
- Establish a Lead Exposure and Prevention Advisory Committee as in the USA [\(108\)](#).
- Commission eBLC prevalence surveys and regular, active surveillance.
- Include lead poisoning prevention in the NHS Long Term Plan [\(109\)](#).
- Add lead toxicity to the “Giving every child the best start in life” programme. [\(110\)](#)
- Include lead exposure in the “Building our Future Laying the Foundations for Healthy Homes and Buildings” white paper [\(111\)](#)
- The National Screening Committee [\(112\)](#) can recommend screening for children and endorse The Scafell Project [\(113\)](#).
- Implement the recommendations in the Lead Exposure In Children Surveillance System 2019 report [\(39\)](#) .

Keep in mind these points:

- US EPA
  - “Lead poisoning: **number one** environmental health threat to children ages six and younger in the U.S.” [\(114\)](#).
- Ben Carson, US Housing and Urban Development
  - “National Lead Poisoning Prevention Week is one of our **most important** educational campaigns” [\(115\)](#).
- US Presidential Task Force
  - Current **Priority Activity**: Federal Lead Action Plan Implementation [\(116\)](#).
- Benjamin Franklin, July 31, 1786, letter on lead poisoning:
  - “you will observe with concern how long a useful truth may be known and exist, before it is generally received and practiced on”.
  - 235 years is definitely too long.

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“You may choose to look the other way, but you can never say again that you did not know.”  
William Wilberforce.



## Appendix A – Further reading and viewing

### Web Sites

[United States, Centres for Disease Control, Lead](#)

[United States, Environment Protection Agency, Lead](#)

[World Health Organization, Lead Poisoning and Health](#)

[American Academy of Pediatrics, Lead Exposure and Lead Poisoning](#)

[Lead Safe World UK](#)

[The LEAD Group](#)

[LEAPP Alliance](#)

[Lead Containing Materials Association](#)

[Lead In The Water](#)

### Reports

[Unicef, The Toxic Truth](#)

[United States, US National Toxicological Programme, Monograph, Health Effects of Low-Level](#)

[United States, Environment Protection Agency, Integrated Science Assessment for Lead](#)

[SW Londoner, 'I was constantly paranoid' the danger of lead paint in UK homes](#)

### Videos

[Oneida County Health Department, New York state, "Lead Poisoning: The Perfect Predator"](#)

[Alameda County, California, "Together We Can Conquer Lead Poisoning"](#)

[TVNZ, "How much does NZ really know about the risks of lead?"](#)

[Unicef, Why lead poisoning is a danger to your child's health](#) – “Put lead to bed”



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## Appendix C – Image Credits and Licences

Figure	Source	Licence
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<i>Figure 2</i>	Original	N/A
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Figure 4 From the top left clockwise	<a href="#">Heritage Testing</a>	Permission granted
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## Appendix D - Notes from the author

Contents in this document have been selected to comply with copyright, attribution and reference requirements. All information presented is the author's opinion. If you feel that a mistake has been made please contact the author at [uki@leadsafeworld.com](mailto:uki@leadsafeworld.com).

If you represent a lead using business and feel threatened by the contents, there is no need to take legal, or illegal, action against me. I have no wish to be a martyr for this cause, but feel I am well placed to help in a small way to improve the health and wealth of the country through this campaign. Your help would be welcomed.

I do not believe it would be helpful to seek to blame, or hold responsible, any individual or organisation for lead exposure. Everyone has benefited from the use of lead, so there should be collective responsibility for resolving the consequential health issues. This is best addressed through government agencies.

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“Let us not seek to fix the blame for the past. Let us accept our own responsibility for the future”  
John F Kennedy