

## What you can do

At home:

- Take off outdoor shoes
- Wash your hands before eating
- Clean your home regularly with a wet mop or HEPA-filter vacuum
- Don't dry sand or scrape old paint
- Check the Housing Health and Safety Rating System (HHSRS)
- If renovating, see the DEFRA guide

At work:

- Follow the Control of Lead at Work Act (CLAW)
- If painting, follow "PaintSafe"
- Don't take leaded dust home or into your car
- Take a lead-safe training course

Test for lead in:

- Paint
- Soil
- Dust
- Water
- Blood



5



## Real quotes from parents

"I feel so upset. So sad. So guilty. And first and foremost so scared. My 18 month old son deserves so much more than to be lead poisoned. All I can do now that I have found the source is to eliminate it. And keep him away until then. And I'm heartbroken."

"My little man had a lead level high as 20 when we found out. As a mum I'm completely devastated that I didn't do more research on my house before moving in! My sweet baby. The guilt I feel is terrible."



The LEAPP Alliance is a group of academics, parents, service providers and advocates who aim to promote lead poisoning prevention in the UK.

See [leappalliance.org.uk](https://leappalliance.org.uk) for more details, evidence and our manifesto; or email [info@leappalliance.org.uk](mailto:info@leappalliance.org.uk).



6



## LEAPP Alliance



## Toxic Lead: Still Here Still Harming



Does your home or workplace contain toxic amounts of lead?

Lead Exposure and Poisoning Prevention Alliance

[leappalliance.org.uk](https://leappalliance.org.uk)

1



## Should we still worry about lead?

- Lead is ubiquitous through use in old paint, petrol and plumbing, resulting in contamination of soil and house dust.
- Lead can also be found in other items such as toys, drinking glasses, traditional medicines, spices, brass, road markings, cosmetics, ceramics, tyre crumb surfaces, jewellery and light-aircraft fuel.
- It is estimated that around 214,000 UK children have elevated blood lead concentrations. Most are never tested.
- Lead exposure is estimated to cost the country £6 billion per year.
- Around 55% of homes were built before lead paint was labelled (1963). 82% of homes were built before most lead paint was banned (1992).
- 6-9 million homes probably still have some lead pipes and some others have lead-soldered copper pipes.

2



## What harm does lead do?

Studies have found associations between lead and harm throughout life, and even before birth, contributing to:



**Reproductive** – miscarriage, pre-term birth, low birth weight, delayed puberty



**Neurological** - IQ loss, lower academic achievement, decreased hearing, essential tremor



**Psychological** - problem behaviour, ADHD, depression, anxiety, panic



**Cardiovascular** – heart attack, stroke, increased blood pressure



**Renal** – reduced kidney function

Symptoms of acute lead poisoning in children can include irritability and fatigue, loss of appetite and weight loss, abdominal pain, vomiting and constipation.

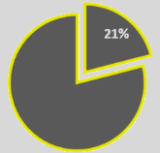
3



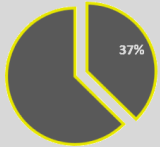
## How much disease can be attributed to lead?

### Examples

ADHD (21%)



Coronary heart disease deaths (37%)



Idiopathic developmental intellectual disability (62%)



## How much lead does it take



Very little. The USA FDA child reference intake level in food is just 3 µg lead per day (*3 millionths of a gram*). Imagine 3 average crisps divided among a million children.

4



## References

**P1**    **None**

**P2**    **Bullet 1**

- Lead and Public Health, Millstone;
- Resongeles et al, 2021 - <https://www.pnas.org/doi/10.1073/pnas.2102791118>
- Entwistle et al, 2019 - <https://www.sciencedirect.com/science/article/pii/S0160412018313138>
- The Environmental Protection (Controls on Injurious Substances) Regulations 1992 - <https://www.legislation.gov.uk/uksi/1992/31/sld/made/data.htm>

### **Bullet 2**

General

- Where lead hides, University of Southern California - <https://www.yumpu.com/en/document/read/3343733/where-lead-hides-hydrauscedu-university-of-southern-california>

Toys

- Turner, 2018 - <https://pubs.acs.org/doi/abs/10.1021/acs.est.7b04685?journalCode=esthag>

Drinking glasses,

- Turner, 2017 - <https://www.sciencedirect.com/science/article/abs/pii/S0048969717328747>

Traditional medicines

- UK Herbal Medicines Advisory Committee (HMAC) - [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/545681/HMAC\\_-\\_HerbalsafetyOctober2014Final.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/545681/HMAC_-_HerbalsafetyOctober2014Final.pdf)

Spices,

- Uffindell, UKHSA - <https://www.futurelearn.com/courses/public-health-incidents-involving-lead>

Brass,

- UK Water Industry Research Limited, 2014 - <https://cdn.dwi.gov.uk/wp-content/uploads/2020/10/27111244/DWI70-2-287exsum.pdf>
- DEFRA, 2016, <https://www.dwi.gov.uk/research/completed-research/risk-assessment-chemical/brass-fittings-a-source-of-lead-in-drinking-water-stage-two-and-stage-three/>

Road markings,

- Ennis Flint, 2017 - [https://www.roadtraffic-technology.com/contractors/road\\_marking/prismo2/pressreleases/presslead-chromate-why-it-is-banned-in-most-industries-apart-from-road-markings/Cosmetics](https://www.roadtraffic-technology.com/contractors/road_marking/prismo2/pressreleases/presslead-chromate-why-it-is-banned-in-most-industries-apart-from-road-markings/Cosmetics),



## Cosmetics

Filella, Martignier, Turner, 2020 - <https://www.sciencedirect.com/science/article/pii/S001393512030551X?via%3Dihub>

## Ceramics

- Uffindell, UKHSA - <https://www.futurelearn.com/courses/public-health-incidents-involving-lead>

## Tyre crumb

- Adeptus, 2016 - <https://adeptus.co.uk/waste-management/shredded-tyres-health-risk-contamination/books>
- Ecology Centre, 2020, <https://drive.google.com/file/d/1ouegpPJHIO6goZsU7U08Ddh0CVQnBeUt/view>

## Jewellery

- Uffindell, UKHSA - <https://www.futurelearn.com/courses/public-health-incidents-involving-lead>

## Light-aircraft fuel

- HMRC, 2021 - [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/946319/Avgas\\_TIIN\\_-\\_final.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/946319/Avgas_TIIN_-_final.pdf)
- Department for Transport, 2021 - <https://www.gov.uk/government/statistical-data-sets/energy-and-environment-data-tables-env>

## Bullet 3

- Unicef, The Toxic Truth - <https://www.unicef.org/reports/toxic-truth-childrens-exposure-to-lead-pollution-2020>

## Bullet 4

- Unicef, The Toxic Truth

## Bullet 5

Defra - [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/221085/pb10973-leadpaintleaflet.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/221085/pb10973-leadpaintleaflet.pdf)

BRE Trust - [https://files.bregroup.com/bretrust/The-Housing-Stock-of-the-United-Kingdom\\_Report\\_BRE-Trust.pdf](https://files.bregroup.com/bretrust/The-Housing-Stock-of-the-United-Kingdom_Report_BRE-Trust.pdf)

## Bullet 6

HHSRS - [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/15810/142631.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf)

WWT Magazine - <https://wwtonline.co.uk/features/lead-pipe-removal-taking-the-lead>

UK Legislation - <https://www.legislation.gov.uk/uksi/1992/31/sld/made/data.htm?wrap=true>

Erik Millstone, Lead and Public Health



## Page 3

### General

National Toxicology Program - [https://ntp.niehs.nih.gov/ntp/ohat/lead/final/monographhealtheffects/lowlevellead\\_newissn\\_508.pdf](https://ntp.niehs.nih.gov/ntp/ohat/lead/final/monographhealtheffects/lowlevellead_newissn_508.pdf)

### ADHD

Braun et al, 2006 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1764142/>

### Cardiovascular

Kim et al, 2021, - <https://ehp.niehs.nih.gov/doi/10.1289/EHP7351>

Lanphear et al, 2018 - <https://www.thelancet.com/pdfs/journals/lanpub/PIIS2468-26671830025-2.pdf>

Lamas, Ujueta and Navas-Ancien, 2021 – <https://www.ahajournals.org/doi/10.1161/JAHA.120.018692>

### Stroke, miscarriage, pre-term birth

WHO, 2021 - <https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>

### Depression, anxiety

Rueben et al, 2019 - <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2720691>

### Panic

Bouchard et al, 2009 - <https://pubmed.ncbi.nlm.nih.gov/19996036/>

### Acute poisoning

NHS inform Scotland - <https://www.nhsinform.scot/illnesses-and-conditions/infections-and-poisoning/lead-poisoning>

## Page 4

Braun et al, 2006 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1764142/>

Lanphear et al, 2018 - <https://www.thelancet.com/pdfs/journals/lanpub/PIIS2468-26671830025-2.pdf>

WHO, 2021 - <https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>

FDA, 2020 - <https://www.fda.gov/food/metals-and-your-food/lead-food-foodwares-and-dietary-supplements>

<https://measuringstuff.com/list-of-household-items-that-weigh-3-grams/>



**Page 5**

DEFRA Guidance - [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/221085/pb10973-leadpaintleaflet.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/221085/pb10973-leadpaintleaflet.pdf)

CLAW - <https://www.hse.gov.uk/pubns/books/l132.htm>

PaintSafe - <https://www.coatings.org.uk/paintsafe.aspx>

Sources of testing, examples I have used:

Paint

3MLeadCheck from SKC

Heritage Testing

Dust

Enviroprobe, New Jersey

Water

Drinking Water Test Kit for Lead (Twin Pack) from WaterSafe

Blood

NHS

Medichecks

**Page 6**

Facebook “Lead poisoning support group” and “Lead Poisoning Awareness and Support”



## **Image credits and licences**

- P1 Maine, USA Lead Poisoning Prevention programme. Copyright, but I don't suppose they will mind. <https://www.maine.gov/dhhs/mecdc/environmental-health/eohp/lead/index.shtml>
- P2 None
- P3 EPA - in the public domain
- P4 CDC - in the public domain
- P5 Heritage testing - permission granted
- P6 King County, Washington, USA - no copyright stated

## **Review comments**

David Ormandy

Andrew Turner

Abby Kinchy

Caroline Taylor

Lindsay Bramwell

Howard Mielke

Jane Entwistle

Julia Klien

Ashley Mills

Elizabeth O'Brien

