



PARTNERSHIP FOR
PUBLIC HEALTH



U.S. National Library of Medicine
National Network of Libraries of Medicine
Middle Atlantic Region

A Guide to Lead Exposure

Partnership for Public Health and National Libraries of Medicine

August 10, 2018

Importance of Case Workers to Public Health

- Direct contact with families
- Trusted by clients
- Voices of authority and caring
- All-around great people!



**AS A CASEWORKER, WHERE DO YOU GO FOR
TRUSTED SOURCES ON HEALTH INFORMATION
FOR YOUR CLIENTS?**

You should go to the source with trusted and researched information for you and your clients.



U.S. National Library of Medicine

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Developed resources reported in this presentation are supported by the National Library of Medicine (NLM), National Institutes of Health (NIH) under cooperative agreement number UG4LM012342 with the University of Pittsburgh, Health Sciences Library System. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

NLM and NNLM

National Library of Medicine

- World's largest biomedical library
- Founded in 1836
- Part of the National Institutes of Health
- Produces a large number of electronic resources in addition to maintaining a print collection
- Supports and conducts research, development, and training related to biomedical information

National Network of Libraries of Medicine

- Program Coordinated by the National Library of Medicine to:
 - Provide health professionals with equal access to biomedical information
 - Improve the public's access to information to make informed health decisions
- The Middle Atlantic Region is based at the University of Pittsburgh, which is the regional medical library for NY, NJ, PA & DE



**HOW MUCH DO YOU KNOW YOU ALREADY
KNOW ABOUT LEAD POISONING?**

How much do you know about lead poisoning?

What are the effects of lead exposure in children?

- Nervous system and brain damage
- Bad behavior
- Trouble with focus, memory and learning
- Slow growth
- Speech and hearing problems

How much do you know about lead poisoning?

What are the effects of lead exposure in adults?

- Early death
- Heart and kidney disease and stroke
- High blood pressure
- Infertility and miscarriage
- Anemia

How much do you know about lead poisoning?

What are signs that my kid may have Elevated Blood Lead Level (EBLL)?

- Temper tantrums or constant crying
- Less hungry and weight loss
- Tiredness
- Stomach pain or vomiting
- Constipation
- Seizures

How much do you know about lead poisoning?

Lead exposure
can come
from what
sources?

- Chipping paint on door and window frames
 - (Homes built before 1978 were likely painted with lead based paint)
- Old furniture
- Playing with toys made outside the US
- Playing in dirt with lead
- Lead water pipes
- Some spices and cosmetics made outside the U.S.

How much do you know about lead poisoning?

How is
someone
tested for lead
exposure?

- Finger Prick
- Blood Test

How much do you know about lead poisoning?

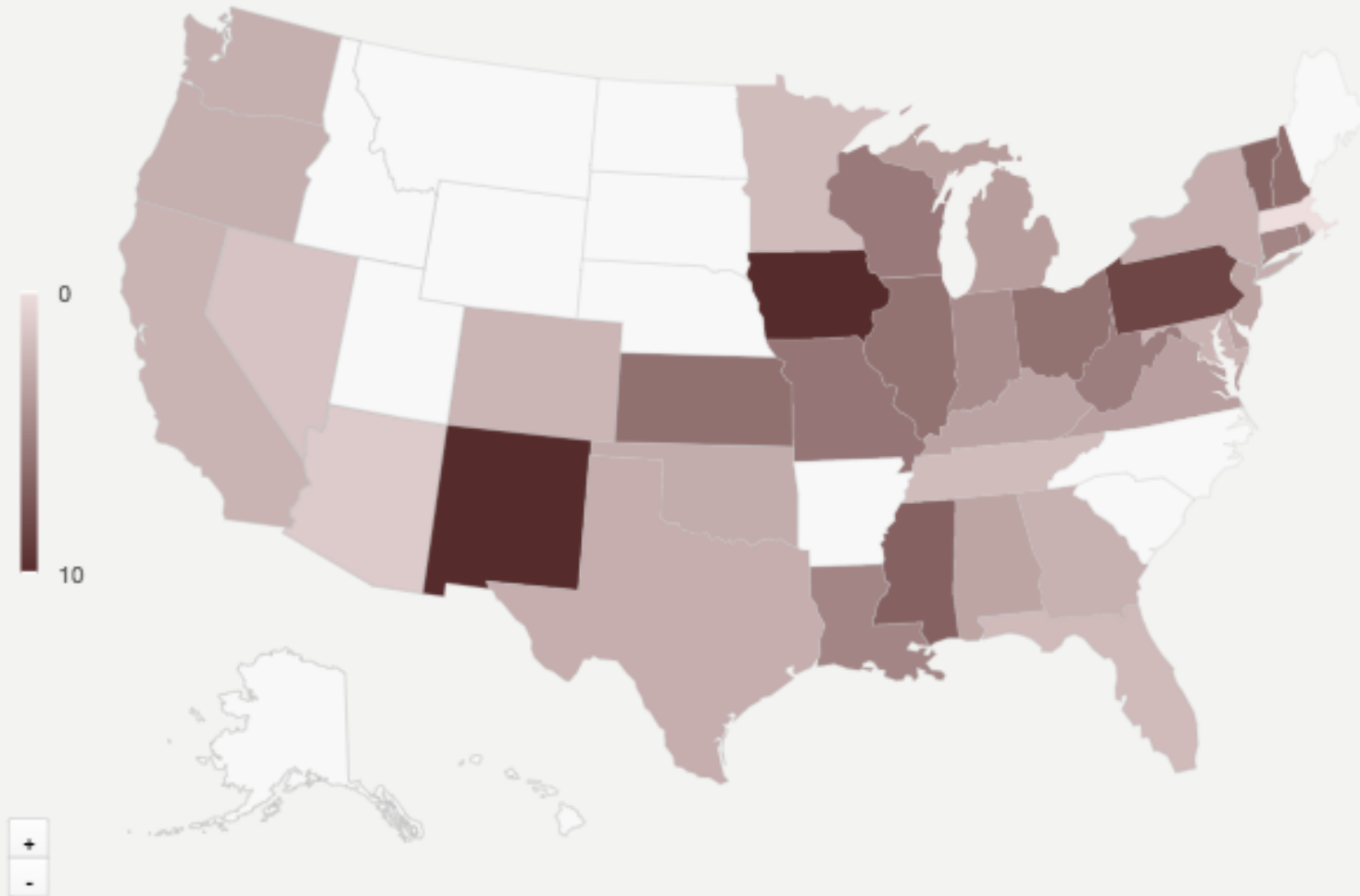
What is the best method of cleaning up lead dust?

- Wash your floors, windows, and doors with a WET mop or rag
- Wash toys, stuffed animals, pacifiers, and bottles often with soap and water
- Do **NOT** sweep or vacuum, it can send lead dust in the air.
- Do **NOT** sand or scrape old paint yourself.

**BUT WHAT ABOUT
LEAD IN OUR OWN COMMUNITY**

Lead contamination

At least 4 million households have children living in them that are being exposed to high levels of lead, and the CDC says there is no safe blood lead level in kids. The map shows the percent of tested children under the age of 3 with elevated blood lead levels. States that did not report data to the CDC are in white.



Source: CDC

State: PA
Percent EBLL: 8.5%
Kids Tested: 139,774
Year Reported: 2014

Study: Lead Exposure Linked to 10 Times More Deaths Than Reported

A new study found lead exposure is responsible for more deaths in the U.S. than previously thought.

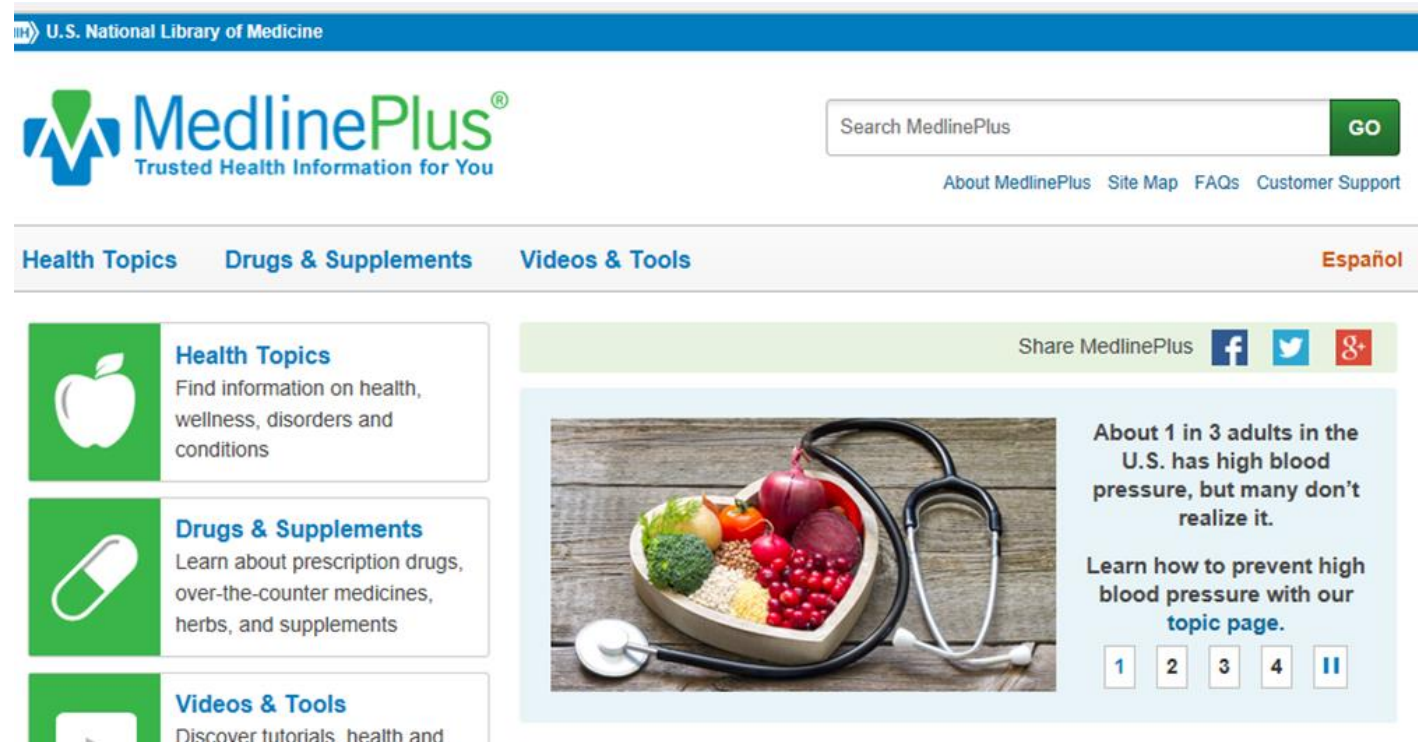
- **14,289 adults over 20 years** found those with a blood lead concentration at the 90th percentile (6.7 micrograms per deciliter) had a 37 percent increase in:
 - mortality
 - cardiovascular disease
 - infertility
 - high blood pressure
 - neurological symptoms

**For any questions on lead, call the
county's new lead information line:**

211


MedlinePlus

- NLM main portal for consumer health information
- Available in English and Spanish
- Offers information on over 1,000 health topics, medications and supplements





[MedlinePlus Homepage](https://medlineplus.gov/)


(<https://medlineplus.gov/>)



3. **Kohl, Kajal, Al-Kahl, or Surma: By Any Name, Beware of Lead Poisoning** (Food and Drug Administration) 
... Tozali, or Kwalli: By Any Name, Beware of **Lead Poisoning** Share Tweet LinkedIn
Pin it More sharing options ... 6% **lead**. [15] What are the effects of **lead poisoning**?
The risks associated with exposure to **lead** are ...
<https://www.fda.gov/.../productsingredients/products/ucm137250.htm> - External Health Links

4. **Lead Poisoning**  (National Institute of Environmental Health Sciences) 
... Be a Scientist Coloring Science Experiments Stories Lessons **Lead Poisoning** Kids
Homepage Topics Pollution **Lead Poisoning** What is ... you can avoid contact with it!
Sources of **Lead Poisoning** HOUSE PAINTS: Before 1950, **lead**-based paint was used
...
<https://kids.niehs.nih.gov/topics/pollution/lead/index.htm> - External Health Links

5. **Lead poisoning** (Medical Encyclopedia) 
... this page: [//medlineplus.gov/ency/article/002473.htm](https://medlineplus.gov/ency/article/002473.htm) **Lead poisoning** To use the
sharing features on this page, ... often contained **lead**) have the highest risk of **lead poisoning**. Small children often swallow paint chips or dust ...
<https://medlineplus.gov/ency/article/002473.htm> - External Health Links

6. **Lead and Your Baby** (March of Dimes Birth Defects Foundation) 
... your health care provider. What is **lead** and **lead poisoning**? **Lead** is a metal that
comes from the ... not know it. Are you at risk for **lead poisoning**? You and your
family may be more likely ...
<https://www.marchofdimes.org/baby/lead-and-your-baby.aspx> - External Health Links

7. **Lead Poisoning Prevention Tips** (Centers for Disease Control and Prevention) 
... CDC.gov . **Lead** Home Calendar of Events National **Lead Poisoning** Prevention
Week Archived Materials CDC's Childhood **Lead Poisoning** Prevention Program
Blood **Lead** Test Safety Alert Advisory ...
<https://www.cdc.gov/nceh/lead/tips.htm> - External Health Links

8. **ClinicalTrials.gov: Lead Poisoning**  (National Institutes of Health) 
<https://clinicaltrials.gov/search/open/condition='Lead+Poisoning'> - External Health Links

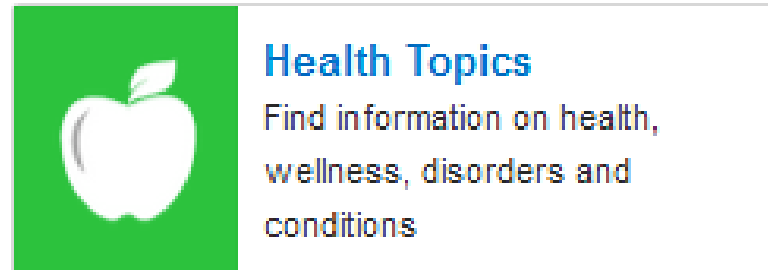
Trusted sources of health information

Quality Guidelines

- Accurate, science- based information
- Information appropriate for MedlinePlus audience & easy to use
- List of links are reviewed
- Preference given to pages free from advertising
- Availability and maintenance of webpage

MedlinePlus topic pages

- Bedbugs
- Cardiac rehabilitation
- Caregivers
- Coping with chronic illness
- Elder abuse
- Food allergy
- Asthma
- Osteoporosis
- Prescription drug abuse
- Self-harm
- Environmental Health
- Gay, lesbian, bisexual, and transgender health





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Lead Poisoning

Also called: Plumbism



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Summary

Lead is a metal that occurs naturally in the earth's crust. Lead can be found in all parts of our environment. Much of it comes from human activities such as mining and manufacturing. Lead used to be in paint; older houses may still have lead paint. You could be exposed to lead by

- Eating food or drinking water that contains lead. Water pipes in older homes may contain lead.
- Working in a job where lead is used

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- Eating food or drinking water that contains lead. Water pipes in older homes may contain lead.
- Working in a job where lead is used

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email 

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Lead - nutritional considerations

Nutritional considerations to reduce the risk of **lead poisoning**.

Function

Lead is a natural element with thousands of uses. Because it is widespread (and often hidden), lead can easily be seen or tasted. In 2014 health organizations estimated that nearly a quarter billion people had toxic (poisonous) blood lead levels.

Food Sources

Lead can be found in canned goods if there is lead **solder** in the cans. Lead may also be found in some containers (e.g., lead solder in the joints of lead pipes, lead in clay) and **cooking utensils**.

Old paint poses the greatest danger for lead poisoning, especially in young children. Tap water from lead pipes or old paint can contain lead.

Side Effects

High doses of lead can damage the nervous system, kidneys, and blood system and can even lead to death. Children living in cities with older houses are more likely to have high levels of lead. Lead can also damage the brain and kidneys. It is particularly dangerous for babies, before and after birth, and for children whose bodies and brains are growing rapidly.

Many federal agencies study and monitor lead exposure. The Food and Drug Administration (FDA) monitors lead in food and tableware. The Environmental Protection Agency (EPA) monitors lead levels in drinking water.

Recommendations

To reduce the risk for lead poisoning:

Lead poisoning



Lead is a very strong poison. When a person swallows a lead object or breathes in lead dust, some of the poison can stay in the body and cause serious health problems.

This article is for information only. DO NOT use it to treat or manage an actual poison exposure. If you or someone you are with has an exposure, call your local emergency number (such as 911), or your local poison center can be reached directly by calling the national toll-free Poison Help hotline (1-800-222-1222) from anywhere in the United States.

Where Found

Lead used to be very common in gasoline and house paint in the United States. Children living in cities with older houses are more likely to have high levels of lead.

Although gasoline and paint are no longer made with lead in them, lead is still a health problem. Lead is everywhere, including dirt, dust, new toys, and old house paint. Unfortunately, you cannot see, taste, or smell lead.

In 2014, health organizations estimated that nearly a quarter billion people worldwide had toxic (poisonous) blood lead levels.

Lead is found in:

- Houses painted before 1978. Even if the paint is not peeling, it can be a problem. Lead paint is very dangerous when it is being stripped or sanded. These actions release fine lead dust into the air. Infants and children living in pre-1960's housing (when paint often contained lead) have the highest risk of lead poisoning. Small children often swallow paint chips or dust from lead-based paint.
- Toys and furniture painted before 1976.

Other Relevant Topics

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Asthma

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Summary

Asthma is a chronic disease that affects your airways. Your airways are tubes that carry air in and out of your lungs. If you have asthma, the inside walls of your airways become sore and swollen. That makes them very sensitive, and they may react strongly to things that you are [allergic](#) to or find irritating. When your airways react, they get narrower and your lungs get less air.



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MEDICAL ENCYCLOPEDIA

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Bed Bugs

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For You

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Summary

Bed bugs bite you and feed on your blood. You may have no reaction to the bites, or you may have small marks or itching. Severe allergic reactions are rare. Bed bugs don't transmit or spread diseases.

Get Bed Bugs updates by email



Easy-To-Read



Health Topics

Find information on health, wellness, disorders and conditions



Drugs & Supplements

Learn about prescription drugs, over-the-counter medicines, herbs, and supplements



Videos & Tools

Discover tutorials, health and surgery videos, games, and quizzes



Lab Test Information

Learn why your doctor orders laboratory tests and what the results may mean



Medical Encyclopedia

Articles and images for diseases, symptoms, tests, treatments

Share MedlinePlus



This week's recipe is **Pupusas Revueltas**, Salvadoran-style stuffed masa cakes.

Low-fat chicken and cheese help reduce the calories in this dish.

1 2 3 4 II

Tweets by @MedlinePlus



MedlinePlus.gov
@medlineplus

New [#stroke](#) research finds our eyes may be windows to the brain. Read the latest research updates from NIH in the MedlinePlus Magazine: [ow.ly/v7I430kCTsg](#) @NINDSnews



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Multiple Languages



Health Topics

Find information on health, wellness, disorders and conditions



Drugs & Supplements

Learn about prescription drugs, over-the-counter medicines, herbs, and supplements



Videos & Tools

Discover tutorials, health and surgery videos, games, and quizzes



Lab Test Information

Learn why your doctor orders laboratory tests and what the results may mean



Medical Encyclopedia

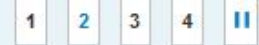
Articles and images for diseases, symptoms, tests, treatments

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Tweets by @MedlinePlus



New **#stroke** research finds our eyes may be windows to the brain. Read the latest research updates from NIH in the MedlinePlus Magazine: ow.ly/v7I430kCTsg @NINDSnews



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Available on Any Device



Practice Exercises- MedlinePlus

1. Open MedlinePlus and locate the topic page on Lead Poisoning.
 - Under what heading can you find information about nutritional considerations to reduce the risk of lead poisoning?
 - Where could you look on this topic page if someone wanted to know about blood testing for lead?
2. Explore the topic pages menu. What are some other topic pages that you think you will find useful?

ToxTown

- Provides information on:
 - Everyday locations where you might find toxic chemicals
 - Non-technical descriptions of chemicals
 - Links to selected, authoritative chemical information on the Internet
 - How the environment can impact human health
- Developed for:
 - The general public
 - Community leaders
 - Educators
 - Students above elementary-school level

[ToxTown Homepage](https://toxtown.nlm.nih.gov)

(<https://toxtown.nlm.nih.gov>)

Tox Town

ENVIRONMENTAL HEALTH CONCERNS AND TOXIC
CHEMICALS WHERE YOU LIVE, WORK, AND PLAY



U.S. National Library of Medicine



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[Chemicals & Contaminants ▼](#)

[Diseases & Conditions](#)

[Key Concepts & Glossary](#)

[Community Action Tools](#)

[Tools for Teachers](#)

Welcome to

TOX TOWN

Tox Town provides consumer-level information on everyday locations and situations where you might be exposed to toxic chemicals. This site will help you better understand risks of exposure, potential health effects, and how to protect yourself.

Sources of Exposure ▼

Chemicals & Contaminants ▼

Diseases & Conditions

Key Concepts & Glossary

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Tools for Teachers

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All Sources of Exposure

Abandoned Military Sites	
Agriculture	▼
Air Pollution	▼
Algae Blooms	
Beaches	
Boats and Ships	▼
Brownfield	
Chemical Spills and Accidents	
Chemical Storage Tank	
Construction	
Drinking Water	
Dry Cleaning	
Electromagnetic Fields	

Factories	
Fish Farming	
Food and Cooking	
Fuel Industry	▼
Gas Station	
Hair and Nail Salons	
Healthcare Services	▼
Homes	▼
Meat Processing	
Microplastics	
Mines	▼
Natural Disasters	▼
Noise Pollution	

Pests	
Power Plants	▼
Runoff	▼
Schools	
Sheep Ranching	
Shellfishing	
Trash	▼
Uranium Tailings	
Urban Sprawl	
Vehicles and Engines	▼
Wastewater Treatment/ Wastewater	▼

About

Even the cleanest home can present human health hazards. Problems may be caused by the structure of the house or the materials used to build it. Chemicals found in common household products may be toxic. Household conditions can cause [asthma](#) and allergies. Fire, injuries, and insect or animal bites may also threaten your safety and health at home.

See also:

Acetone

Ammonia

Benzene

Bisphenol A (BPA)

Cadmium

Carbon Monoxide

Chlorofluorocarbons (CFCs)

Endocrine Disruptors

Ethylene Glycol

Formaldehyde

Lead

Methanol

Nanoparticles

Natural Gas

Nitrogen Oxides

Particulate Matter

Perfluorooctanoic Acid (PFOA)

Pesticides

Phthalates

Polybrominated Diphenyl Ethers (PBDEs)

Polyvinyl Chloride (PVC)

Radon

Solvents

Styrene

Volatile Organic Compounds (VOCs)

Allergies	▼
Gardens and Houseplants	▼
Home Construction	▼
Household Chemical Products	▼
Mold	▼
Pets	▼

Reduce your risk

Evaluate	▼
Avoid and Address	▼
Protect Children	▼

Reduce your risk

Evaluate



Avoid and Address



- Routinely test well water for chemical contamination.
- If your well water has high levels of chemicals, contact your local or state health agency or the Centers for Disease Control and Prevention for information on how to reduce your exposure to these chemicals.
- Test for and remediate high levels of [radon](#) in your basement.
- Maintain good [indoor air](#) quality at home.
- If you smoke, quit, and encourage your friends and loved ones to quit. Avoid second-hand smoke.
- Use household chemical products safely:
 - Keep products in their original containers.
 - Properly ventilate when using chemical products.
 - Read all labels on chemical products before you buy and use them.
 - Never mix bleach or any bleach-containing product with any cleaner containing [ammonia](#).
- Install smoke and carbon monoxide detectors in your home, and change their batteries regularly.
- Resolve any water leakage to avoid mold, mildew, and [pests](#).
- Hire qualified experts for home renovations and repairs, and for asbestos and lead remediation.
- Know the symptoms of poisoning and how to contact your local poison control center.

Protect Children



Sources of Exposure ▼

Chemicals & Contaminants ▼

Diseases & Conditions

Key Concepts & Glossary

Community Action Tools

Tools for Teachers

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Acetone

Read about health effects of exposure to this common solvent. Reduce your risk.



Bisphenol A (BPA)

Concerned about health risks of BPA in plastics? Visit this page.



Chlorine

Exposure to chlorine can cause negative health effects. Learn more. Protect yourself.



Pesticides

Exposure to pesticides can harm your health. Find out how to reduce your risk.

Chemicals & Contaminants



L

Lead

Lead is a metal that has been used in a variety of products, including paints, pipes, solder, ceramic glazes, batteries, cosmetics, gasoline, and devices to shield X-rays. [More...](#)

Most Common: [Drinking Water](#) [Brownfield](#) [Factories](#) [Mines](#) [Homes](#) [Food and Cooking](#)

Related to: [Cardiovascular \(Heart\) Disease](#) [Learning and Developmental Disabilities](#)

Lead



What is it?

Where is Lead found?

How can I be exposed to Lead?

What happens to when I am exposed to Lead?

Who is at risk for exposure to Lead?

Reduce your risk

External links

What is it?

Lead is a metal that has been used in a variety of products, including paints, pipes, solder, ceramic glazes, batteries, cosmetics, [gasoline](#), and devices to shield X-rays.

Lead naturally occurs in the rocks and soil of the earth's crust as a heavy, soft, bluish-gray metal. Lead is also produced from [fossil fuels](#) such as coal, oil, and [natural gas](#).

Because of health concerns, lead and lead compounds were banned from house paint in 1978 and from solder used on water pipes in 1986. Lead was also banned from gasoline in 1995 and from food cans and wine bottles in 1996.

See also: [Drinking Water](#) [Brownfield](#) [Factories](#) [Mines](#) [Homes](#) [Food and Cooking](#) [Cardiovascular \(Heart\) Disease](#)

[Learning and Developmental Disabilities](#)

Where is Lead found?

- Soil and earth - in rocks and soil as a naturally occurring mineral, and in soil from burning [fossil fuels](#)
- Water pipes and drinking water – in water flowing through old pipes
- Lead-based paint in schools and homes - indoor air can contain lead dust from lead paint scraping off surfaces, including during opening and closing of doors and windows.
- Consumer products – lead-glazed pottery and products made outside the United States, such as medicine

Reduce your risk

If you think your health has been affected by exposure to lead, contact your health care professional.

Always wash your hands thoroughly after handling chemicals. For poisoning emergencies or questions about possible poisons, please contact your local poison control center at 1-800-222-1222.

Evaluate



Avoid and Address



- If your home was built before 1978 and lead-based paints in it are flaking, chipping, or deteriorating into dust, these paints should be removed and replaced with lead-free paints.
- Talk to your state or local health department about testing paint and dust from your home for lead.
- Work with certified professionals to safely remove lead-based paints.
- Create barriers between living/play areas and lead sources until environmental cleanup is complete.
- Routinely wet-mop floors and wet-wipe window components to keep levels of leaded dust low.
- Routinely check your well water for lead.
- If your home was built before 1986 and you think you have lead solder in your water pipes, routinely check your home's drinking water supply for lead.
- If tests indicate that lead is leaching from household plumbing, work with a certified professional to find and eliminate the source. Use only cold water from the tap for drinking, cooking, and making baby formula.
- Avoid using traditional folk medicines and cosmetics that may contain lead.
- Avoid eating candy imported from Mexico.
- Avoid using containers, cookware, or tableware that are not shown to be lead-free to store or cook foods or liquids.

Protect Children



Sources of Exposure ▼

Chemicals & Contaminants ▼

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Welcome to

TOX TOWN

Tox Town provides consumer-level information on everyday locations and situations where you might be exposed to toxic chemicals. This site will help you better understand risks of exposure, potential health effects, and how to protect yourself.

Diseases & Conditions

Learn about possible associations between environmental contaminants and select diseases and conditions.



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A

Asthma and other Lung Diseases

The lower respiratory tract includes the trachea, bronchi, bronchioles, and lungs. Lung diseases include any condition that causes the lungs not to function properly. Asthma occurs when the airways (bronchi and bronchioles) swell, making it difficult to breathe (move air into and out of the lungs). Symptoms include wheezing, coughing, tightness in the chest, and difficulty breathing.

What triggers asthma varies from person to person but may include pollen, dust mites, mold spores, pet dander, or other [indoor allergens](#). [Outdoor air](#) polluted with chemicals from [vehicles](#), [factories](#), and other sources may also trigger asthma and other lower respiratory tract diseases.

Emphysema occurs when the air sacs (alveoli) of the lungs are damaged, causing shortness of breath and reducing the amount of oxygen reaching the bloodstream. People with emphysema also tend to have chronic bronchitis, an inflammation of the bronchi, which often causes a persistent cough.

Emphysema and chronic bronchitis are two conditions that make up chronic obstructive pulmonary disease (COPD). Symptoms of COPD include breathing difficulty, cough, mucus (sputum) production, and wheezing. Causes include long-term exposure to irritating gases or [particulate matter](#), often from cigarette smoke. Smoking is the leading cause of COPD. People with COPD have an increased risk of developing heart disease, lung [cancer](#), and other conditions, but most can control their symptoms fairly well with proper treatment.

Other lower respiratory tract diseases include pneumonia and lung cancer. Pneumonia is an infection of the air sacs caused by bacteria, viruses, and fungi. Lung cancer is the uncontrolled growth of abnormal cells in one or both lungs, usually in the cells that line the air passages. The abnormal cells divide rapidly and form tumors.

Related Information:

[Acetone](#)[Ammonia](#)[Arsenic](#)[Chromium](#)[Crude Oil](#)[Formaldehyde](#)[Particulate Matter](#)[Asbestos](#)

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Welcome to

TOX TOWN

Tox Town provides consumer-level information on everyday locations and situations where you might be exposed to toxic chemicals. This site will help you better understand risks of exposure, potential health effects, and how to protect yourself.

Practice Exercises- ToxTown

1. Open ToxTown and select “sources of exposure” and then “homes”
 - What are some ways someone can evaluate the risk in their home?
2. Navigate to the lead page using the green boxes at the top of the homes page.
 - What are some ways someone can be exposed to lead?
 - What are some ways to reduce chances of exposure to lead?
3. Navigate back to the “homes” page.
 - What is another chemical that is listed here?

Questions / Discussion



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Now it's your turn.

- We're going to see if you can navigate the resources MedlinePlus and ToxTown.
- Think of a health problem you've encountered within one of the families you visit.
- Go to one of these websites and look for the information that you are interested in finding.