

Reducing Lead Exposure in the United States

Parameter Information

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Since 1971, the United States have seen a substantial and continued decline in exposure to lead.

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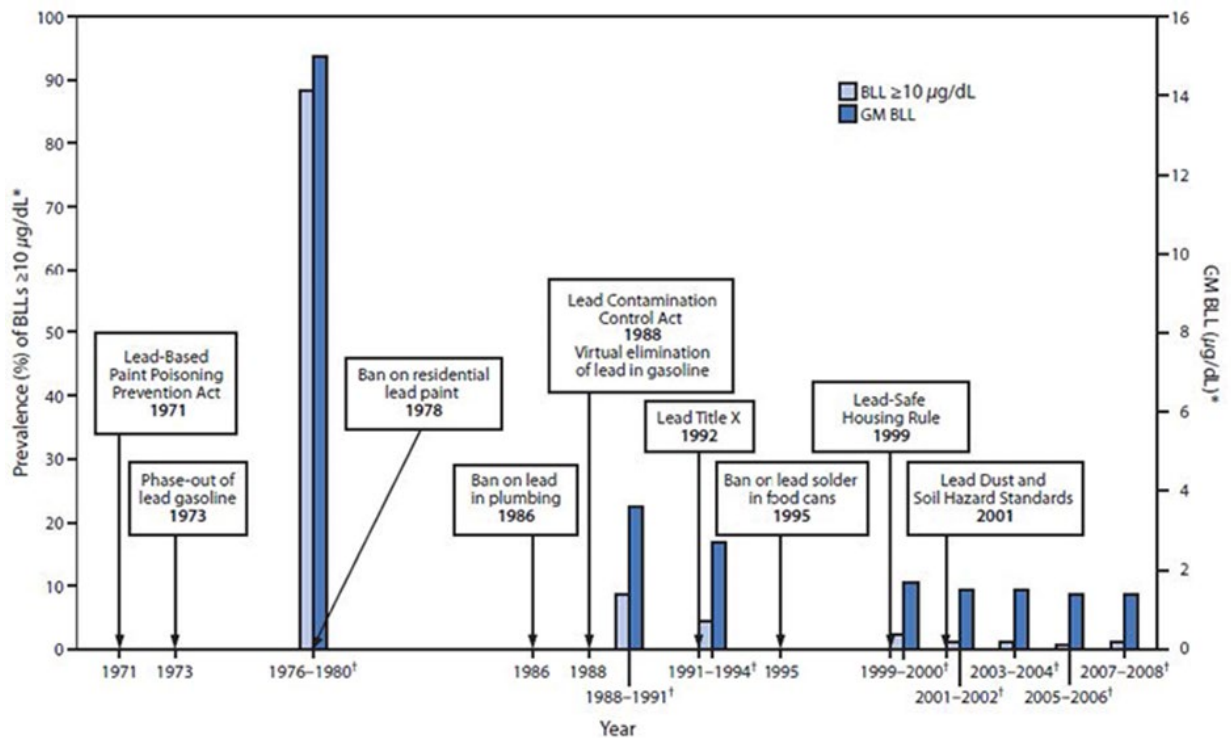


Figure 1: Timeline of lead poisoning prevention policies and blood lead levels in children aged 1 to 5 years old, categorised by year. Source: National Health and Nutrition Examination Survey, United States, 1971-2008.

Children absorb lead more readily than adults' representing approximately 80% of the disease impact attributed to lead, therefore, in the US, policies and actions have largely focused on the younger population.

Beginning in the 1970s, lead concentrations in the air, drinking water, food, dust and soil began to be substantially reduced. In 1971 The Lead-Based Paint Poisoning Prevention Act was introduced which prohibited the use of lead-based paint in residential structures constructed by the federal government. Additionally, the Federal Hazardous Substances Act banned toys and child products which contained high levels of lead.

This resulted in a significant reduction of blood lead levels (BLLs) in children throughout the United States. As a result of reduced lead in the environment, there was an estimated decrease in BLLs of around 15 µg/dL (150 µg/litre).

Children born after 1976 who were not exposed to high lead levels benefited from an estimated economic gain of \$110–\$300 million in earnings. A cost-benefit analysis suggested that for every dollar spent to reduce lead hazards, \$17–\$220 is saved. This cost-benefit ratio compares favourably to that of other public health interventions such as vaccines.

The Lead and Copper Rule

Many homes still contain drinking water service lines made from lead, as well as fittings which contain lead. Adequate corrosion control reduces lead leaching from the pipes into the drinking water supply. The majority of public water utilities are in compliance with the [Safe Drinking Water Act Lead and Copper Rule \(LCR\) of 1991](#), which has set an action level for lead of 15 µg/L.

Since 1991, tap water lead levels have substantially decreased. However, conditions still exist that could allow children to be exposed to water with lead levels greater than 15 µg/L. Drinking water from systems with lead service lines that do not have optimised corrosion control may not comply with the LCR. Even systems with lead service lines that are in compliance can still expose children to lead levels greater than 15 µg/L because the LCR permits up to 10% of sampled homes to exceed the action level of 15 µg/L.

Additionally, water from systems that serves less than 25 people and water from private drinking water wells is not regulated under the LCR. Consequently, it is estimated that around 40–45 million people in the United States drink water that is not subject to the LCR regulations.

Water treatment and disinfection

Changes in water treatment and disinfection practices can also substantially damage lead corrosion control. In the mid-1990s, the District of Columbia (DC) water utility used free [chlorine](#) to decrease coliform bacteria in water. When free chlorine was replaced with monochloramine because of carcinogen concerns, the drinking water became more corrosive and susceptible to lead leaching, producing increased levels of lead in tap water. Lead levels were only reduced when measures were taken to reduce corrosivity.

Lead testing

Although the Environmental Protection Agency (EPA) has the primary responsibility for ensuring the safety of drinking water state and local childhood lead poisoning prevention programs are important partners in ensuring that the public is protected from lead exposure.

Kemio™ Heavy Metals enables rapid on-site testing for both lead and **cadmium**. The only EPA approved portable test for lead in water, Kemio™ verifies the safety of water samples at source, combatting lead contamination to protect public health. Kemio™ allows for cost effective screening of multiple drinking water sites and a wide range of samples can be screened in a short amount of time. Find out more about Kemio [here](#).

View our [lead parameter page](#) to find out more about the health risks associated with lead, the different applications where you may find lead contamination and equipment for lead testing.