

Lead and Human Health: An Update

By ACSH Staff — July 1, 2000

EXECUTIVE SUMMARY

Despite years of intensive research, educational efforts, and remedial measures, lead continues to receive as much attention as any modern environmental health risk. Some would still characterize lead as America's leading environmental health concern. Based on a review of the scientific literature, and assessing lead from the perspective of public health, American Council on Science and Health (ACSH) has come to the conclusions stated below.

- Lead is an important toxicant that can exert adverse effects in humans, given sufficient exposure and accumulation in the body. Systems known to be susceptible to adverse effects of high exposure include: neurological, reproductive, renal, and hematological. Children are more sensitive than adults to the effects of lead, and precautions should be taken to limit childhood exposure and keep blood lead levels (BLL) below the CDC-recommended level of 10 $\mu\text{g}/\text{dL}$.
- Federal and state regulatory standards and programs have helped to minimize or eliminate the amount of lead in consumer products, occupational settings, and the environment; this decreased presence has contributed to remarkable reductions in BLL in the U.S. population, particularly in children.
- Symptomatic childhood lead poisoning seen years ago in children with markedly elevated blood lead levels (i.e., $> 40 \mu\text{g}/\text{dL}$), has almost disappeared as a clinical finding in the U.S. Such lead poisoning no longer constitutes a widespread public health threat in the U.S., although specific sectors of the population may remain at risk as a result of elevated exposures.
- The most recent published data show that the U.S. average for blood lead is 2.9 $\mu\text{g}/\text{dL}$; the CDC action level (i.e., education and followup testing) is 10 $\mu\text{g}/\text{dL}$, and the intervention level (clinical case management) is 20-44 $\mu\text{g}/\text{dL}$. For children 1-2 years of age, the most recent data show that the mean level is 3.1 $\mu\text{g}/\text{dL}$. Blood lead levels are continuing to decline, and given the reductions in major source exposures, these levels should continue to fall until equilibrium with background exposure is reached.
- The continued focus on trace amounts of lead in such consumer products as cosmetics and dietary supplements does not adequately take into account the relative exposures these sources represent; lead in these products does not appear to be toxicologically significant and should not pose a health risk to humans.
- Claims of subtle neurobehavioral effects in children due to elevated BLL are not based on firm evidence; many studies that attempt to link low-level lead exposure with learning disabilities, behavioral problems, attention deficit disorders, and lowered IQ are complicated by multiple confounding socioeconomic and familial factors.

- There is a significant degree of public confusion around the CDC action level of 10 $\mu\text{g}/\text{dL}$. This is the lowest level at which the CDC recommends initial action, limited to education and followup testing. Specific clinical intervention measures are not recommended until BLL values exceed 20 $\mu\text{g}/\text{dL}$.
- Targeted rather than universal screening for elevated lead levels is preferred in order to identify children and other individuals with an increased risk of elevated BLL cost-efficiently.
- Lead abatement of homes should not be universally mandated, but should be considered on a case-by-case basis; proper remediation techniques and attention to resident exposure during such remediation are critical.
- Elimination or minimization of exposure to lead can be successfully achieved through alterations in personal habits, increased public education, and improvements in living conditions, particularly among population groups known to have higher likelihood of exposure.

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