WHAT LEVEL OF LEAD IN BLOOD IS TOXIC FOR A CHILD?

Bernard states that current knowledge does not warrant lowering the Centers for Disease Control and Prevention's (CDC's) definition of pediatric lead intoxication below the current level of 10 μg/dL.[1] Bernard cites, in support, economic considerations, inadequate health risk data, and limited options for intervention.

As investigators of lead toxicity and pediatricians who have treated poisoned children, our position is that only health-based criteria are acceptable for setting a health standard. Cost–benefit analyses and policy issues are peripheral and subordinate to the central question: What level of lead in blood is toxic for a child?

Over the past century, as knowledge of lead toxicity has evolved, levels of lead in blood once considered safe have been found not to be. Governmental authorities have responded by lowering the definition of pediatric lead poisoning.

Only 100 years ago, when childhood lead poisoning was first described, physicians doubted the very existence of the disease. After the reality of pediatric lead poisoning was accepted, the received doctrine was that there were only 2 outcomes: death or complete recovery. The first follow-up study of children who had "recovered" from lead poisoning showed that almost all had severe learning difficulties or behavior disorders. Only children who displayed signs of encephalopathy were then thought to show residual brain damage. In the 1970s studies showed that blood lead levels too low to evoke symptoms produced IQ deficits, attentional dysfunction, and slowed growth.

Consequently, the definition of lead toxicity was lowered by the CDC, from 60 μg/dL in the 1960s to 10 μg/dL in 1991. Two factors brought about this reduction: improved investigational strategies and reduced background lead levels due to the removal of lead from gasoline. The mean blood lead level in this country in 1975 was 15.5 μg/dL. It is now 2 μg/dL, permitting contrasts with subjects with lead levels of 1 μg/dL.

Three studies now show that lead can cause IQ deficits in children at levels below 10 μg/dL.[2–5] Further, the slope of the IQ/lead regression in these studies is steeper at levels below 5 μg/dL than at higher levels. The meaning of this surprising finding (found in all 3 studies) is clear: a large part of the damage occurs at the lowest doses. Only partisans of the lead industry quarrel with these data.

To protect America's children, we must again lower the officially defined standard to conform to only the best science. Policy matters must adjust to the facts. ■

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