

industry line

MANAGING THE HAZARDS OF ENVIRONMENTAL TOXIC AND TORT LITIGATION

VOL. IV No. 2

Lead Levels – How Low Will They Go? Casual Relationship Between Intellectual Impairment And Low Blood Lead Levels

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There is little argument that extremely elevated lead blood levels in children will lead to serious neurological injury including alerted levels of consciousness, hearing loss, and possibly death. However, there is an ongoing debate regarding the levels necessary for intellectual impairment in children. On April 17, 2003, the New England Journal of Medicine published an article, *Intellectual Impairment in Children with Blood Lead Concentrations below 10 Micrograms per Deciliter*, which attempts to establish a loss of IQ when elevated lead levels in children are below ten micrograms per deciliter (*N Engl J Med* 2003; 348: 1517-26).

The article referenced six authors, the most notable being Bruce P. Lanphear, M.D., M.P.H. Lanphear gained some notoriety following publication of his article "Cognitive Deficits Associated with Blood Lead Concentrations Less than Ten Micrograms per Deciliter in U. S. Children and Adolescence". *Public Health REP* 2000; 115: 521-9. Dr. Lanphear's article was the first real attempt to associate very low blood lead levels with cognitive and intellectual deficits.

The ultimate conclusion of the article is that a child with a lead level between one and ten micrograms per deciliter will lose up to 7.4 IQ points. A blood lead level between ten and thirty micrograms per deciliter is, however, associated with a decline of only 2.5 IQ points. (It is important to note that the article never establishes that the initial 7.4 lost IQ points should or shouldn't be added to the 2.5 lost IQ points when a child's lead level is between 10.0 and 30.0). Nonetheless, the authors are in agreement that their finding of greater loss of IQ at lower

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This article will support the defendant's request for discovery regarding the minor plaintiffs' mothers' educational records, employment records and, to a smaller extent, medical records. Although plaintiffs have generally been successful in the past in denying production of such records, this article lends weight to defendant's argument of the necessity of acquiring such information.

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lead levels does not seem to make sense. Nor did they explore the mechanisms that would explain their counterintuitive findings. They simply theorized that “high concentrations of heavy metals may enhance cellular defense mechanisms and thereby lessen the rate at which additional damage occurs”.

Ultimately, the article will benefit lead defendants in several ways. The authors admit “It remains unclear whether lead-associated cognitive deficits occur at concentrations below ten micrograms per deciliter”. Similarly, significant is the authors’ admission that they cannot state that it is more likely than not that lead-associated impairments are irreversible. The article merely establishes that lead-associated impairments may be both persistent and irreversible.

The authors identified several primary factors for evaluating the alleged intellectual impairment caused by lead including: home environment, socio economic status and maternal IQ as primary factors. Important confounding factors such as the mother’s educational level, race, income level and prenatal smoking were also recognized by the authors. Their reliance on these factors is important because plaintiff neuropsychological experts have consistently downplayed, or dismissed altogether, the negative effect that various confounders have on a child with elevated lead levels.

Unfortunately, the article will probably increase the number of lead paint lawsuits filed on behalf of minor plaintiffs whose relatively low lead levels (between 1-10 micrograms per deciliter) would not otherwise have interested the plaintiffs’ bar. The article may also encourage the Center for Disease Control to further reduce the action level for pediatric lead exposure.

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