

Commentary on Lead & Kids: Why are 30,000 NYC Children Contaminated?

By ACSH Staff — January 1, 1998

A report by Mark Green, Public Advocate of the City of New York

Mark Green, the Public Advocate of the City of New York, recently released a report entitled *Lead & Kids: Why Are 30,000 NYC Children Contaminated?* The document reviews the issue of lead exposure in New York City and provides support for the proposed Childhood Lead Poisoning Prevention Bill (Int. 956).

The American Council on Science and Health (ACSH) is a national consumer-education consortium concerned with providing reliable health and environmental information to ensure that both individual health decisions and public policies are based on sound scientific evidence. In December 1997 ACSH published a booklet called *Lead and Human Health* a comprehensive examination of lead and lead exposure and a discussion of the risk that lead may pose to the general public today.

ACSH's New York City affiliate, the New York City Advisory Council on Health Priorities is dedicated to monitoring health threats both real and perceived within the five boroughs of New York City. In this commentary the Advisory Council proposes to address the findings and recommendations of the Public Advocate's report. Overall, the Advisory Council offers the following conclusions based on the Public Advocate's report:

The term "lead-poisoned" is a misnomer; the phrase should be eradicated from discussions of this public-health issue.

The term "lead-poisoned" has been used erroneously for years; it is used currently to describe asymptomatic children whose blood lead levels (BLLs) exceed 10 micrograms per deciliter ($\hat{\text{A}}\mu\text{g/dL}$). A "poison," in toxicological terms, is an agent that can cause lethality at very low dose levels. Lead does not possess such properties. Poisoning does not occur at BLLs as low as 10 $\hat{\text{A}}\mu\text{g/dL}$; in fact, at that level it is debatable whether any adverse health effect occurs. A 1984 report published in the *Journal of Pediatrics* determined that symptomatic lead poisoning in children was associated with BLLs in excess of 70 $\hat{\text{A}}\mu\text{g/dL}$. At levels less than 50 $\hat{\text{A}}\mu\text{g/dL}$ other descriptors and diagnoses such as "elevated blood lead" would offer a more accurate depiction of BLL. The Green report's use of the term "lead-poisoned" when referring to BLLs that are without defined health consequences serves only to confuse people; furthermore, it may cause anxiety in parents unfamiliar with the significance of blood lead concentration.

The report does focus on the important issue of subpopulations and specific population groups that are at elevated risk of lead exposure.

While blood lead levels in the U.S. population in general, and in children in particular, have dropped dramatically in recent years, there remains a need to identify and devise potential intervention measures for high-risk children. The Public Advocate's report does a credible job of bringing this point to light.

The Public Advocate's report often relies on emotional pleas and anecdotal examples to convince readers of the urgency of its proposed action.

Given that there is wide acknowledgment of the special sensitivity of children to the effects of lead, it is unfortunate that this report uses up so much energy creating a public health scare. The report would have been more effective had it devoted more attention to the specifics of the proposed bill its ramifications and the costs to society of implementing its provisions. But the Green report does not provide the critical details essential to readers' understanding of the safety measures of the proposed bill. Specifically, the report fails to consider the following issues adequately:

It does not discuss the costs of the proposed program. There is no detailed economic analysis or cost-benefit assessment of the proposals set forth in the bill; the reader is thus left with many questions concerning the city's ability to fund, implement, and monitor such a program.

It focuses exclusively on multi-unit apartment dwellings. The proposal should be extended to single-family homes as well. From a public-health perspective, if the Public Advocate is concerned about the welfare and health of children in New York City, his plan should be extended, at least in concept, to all children, regardless of the description of their living quarters.

The level of detail and specification related to remediation or correction of lead hazards once they are identified is grossly deficient in the Green report. This is particularly surprising given the existing evidence that attempted remediation of lead hazards, if conducted improperly or by persons without training, can actually increase children's risk of exposure and its subsequent effects. In describing repairs the Green report states: "while the best way to do that would be to follow the procedures set out in City DOH regulation, Int. 956 does not state such a requirement directly, which arguably leaves the landlord some flexibility in conducting the repair safely." Later, in a similar discussion, the report states:

Int. 956 gives the landlord the discretion to decide whether or not to hire a professional to inspect the apartment. It also gives the landlord the discretion to determine the nature of the inspection. Depending on the conditions in an individual apartment, a responsible landlord might, for example, conduct a more comprehensive and professional inspection initially, possibly including dust wipe samples.

Based on his report's own argument concerning the potential severity and risk posed by lead exposure, it appears not merely inconsistent but contradictory for the Public Advocate to argue emotionally for better surveillance and remediation of lead hazards and yet provide so little in the way of detail and specific requirements for the actual remediation an aspect of utmost importance.

The report devotes considerable attention to a planned reduction in lead exposure through surveillance, identification, and potential remediation of hazards but offers limited discussion of the evaluation and treatment of lead-contaminated children. The Green report should include provisions or recommendations for follow-up and surveillance of children's health recommendations that might be adopted from the New York State Department of Health (NYSDOH) or actions as recommended by the Centers for Disease Control and Prevention (CDC). The report overstates the hazards and effects of lead exposure. The Public Advocate's report extrapolates and attributes a variety of effects toxicological, behavioral, intellectual, and social solely to lead. Furthermore, in an attempt to amplify its position, the report cites numerous case reports and gives examples of effects that it arbitrarily attributes to lead to the exclusion of other factors and confounders that might also exert a significant role on human health.

Abatement of Lead Hazards

The New York State Lead Remediation Study

During 1993-1994 the New York State Department of Health (NYSDOH) assessed children for lead exposure resulting from renovations and remodeling of homes containing lead-based paint. The study identified 320 children in New York State (exclusive of New York City) whose BLLs were greater than 20 $\mu\text{g}/\text{dL}$; those levels were considered to be attributable to residential renovation and remodeling. In most of the cases (86%) cited in the study, the paint removal was not performed by a professional contractor. The researchers concluded that home renovation and remodeling in which lead-based paint is altered or disturbed particularly by untrained individuals constitutes an important source of lead exposure among children.

Clearly, the Public Advocate's report must provide additional detail: It must set forth specific recommendations as to when remediation is needed, how (and by whom) it will be conducted, and what follow-up surveillance of affected children is required.

The Baltimore Jobs and Energy Project

The Advisory Council recommends that anyone proposing to increase public expenditures for abatement of lead hazards in New York City dwellings first review the Baltimore, Maryland, Jobs and Energy Project, a successful program incorporating both lead abatement and public education. Because the majority of lead paint hazards are found in single-family units, the Baltimore Project was designed to provide affordable lead paint- and dust-hazard identification, remediation, and prevention programs for single-family homes, duplexes, and small apartment

buildings. Part of the success of the Baltimore program stems from its multifaceted approach, which includes both the identification and evaluation of the extent of a lead problem and the assignment of an abatement schedule based on a needs assessment.

Each Baltimore Project needs assessment includes, but is not limited to, the number of vulnerable children present; the levels of lead dust on surfaces; the degree of lead paint deterioration; the size of the surfaces to be treated; the rate of lead dust generation; and the BLLs of the resident children.

The actual abatement work is conducted by trained local contractors and appropriately trained volunteers. Abatement is followed by education for residents on the proper maintenance of their abated or partially abated home. The Baltimore Project has been successful because (1) it has been affordable; (2) it has selectively addressed areas in need of lead-based paint and dust abatement rather than arbitrarily removing all lead-based painted surfaces; (3) it meets U.S. Department of Housing and Urban Development (HUD) clearance standards; and (4) the appropriately trained local contractors and volunteers have performed the work in a safe manner.

Other Methods of Remediation

Abatement, if conducted properly by trained individuals, is one method of reducing exposure to lead and reducing exposure is a prime determinant in reducing risk. But other avenues of opportunity and means for reducing risk methods that the Green report fails to discuss also exist. These methods include: (1) educating parents and children about good hygiene practices (especially hand washing) and overall home cleanliness; (2) emphasizing the importance of good nutrition, particularly since persons with iron or calcium deficiencies tend to have higher blood lead levels, and nutritionally deficient individuals may be more vulnerable to the toxic effects of lead; and (3) monitoring the play activities of children to reduce or avoid excessive ingestion of dirt, which remains a source, however minor, of lead exposure.

Intelligence and Lead Exposure

Much emphasis has been placed on the purported relationship between lead exposure and IQ. While neurological and developmental effects are related to lead overexposure, the current data on low BLLs (10-15 $\mu\text{g}/\text{dL}$) and their effect on intelligence are uncertain. Clearly, we do not have the data or evidence to suggest, as the Public Advocate's report does, that much of the damage attributed to lead is "permanent and irreversible." Longer-term studies and follow-up studies of children are necessary to confirm this.

The Green report also states that "the adverse health effects of lead within the range of 10-19 are well established in scientific studies and the concerns over the impact of lead at even lower blood lead levels is increasing." There are no strong scientific data, however, to account for all of the various contributory factors and confounders associated with intelligence. Without this information we cannot attribute small deficits in IQ to low-level lead exposure.

The Public Advocate's report further attests that "new evidence indicates that blood lead levels lower than 10 $\mu\text{g}/\text{dL}$ are associated with lower IQ, stunted growth and behavioral disorders." If this were true we should have witnessed these effects on an entire generation of children. Since

the 1970s and 1980s nearly 9 out of 10 American children under age 5 have had BLLs exceeding 10 $\hat{\text{A}}\mu\text{g/dL}$, but no effects of this nature have been found.

Associations between blood lead and its effects on IQ have been reported for moderate to high BLLs typically those in excess of 30 to 40 $\hat{\text{A}}\mu\text{g/dL}$. It has been more difficult, however, to conclude that low-level blood lead is associated with adverse effects on long-term intelligence performance and neurobehavioral development. This issue remains controversial because of the complex nature of intelligence.

Many researchers assessing IQ have failed to evaluate adequately those additional known factors that influence IQ before establishing a causal role for lead. Among the many well-established variables influencing IQ are socioeconomic status, childhood disease, maternal substance abuse, parenting skills, and the time parents spend with children. Such factors remain uncontrolled for in most lead-IQ studies. Nutrition, for example, remains critically important in neurobehavioral development; it is a variable that researchers must consider when attributing minor deficits in IQ performance to low-level lead exposure.

While it is obviously prudent and appropriate to minimize children's exposure to lead, there remain numerous statistical, toxicological, and methodological questions that must be reviewed and their answers studied before the relationship between low BLLs and children's IQ can be better defined. The discussion on IQ and lead is incomplete; but the Green report concludes erroneously that lead, to the exclusion of other well-known and important influencing variables, is responsible for behavioral, social, intellectual, and even financial (decreased potential earnings) deficits among exposed individuals. Clearly, an objective, well-researched study would have concluded otherwise. In summary, the American Council on Science and Health concludes that:

The Public Advocate's report contains an important message one that needs to be discussed and debated in an open forum as it appropriately draws attention to children at risk of lead exposure. The report suffers, however, from biased language; from the inclusion of emotional, anecdotal case reports; and from its citation of only those scientific studies whose conclusions favor the author's perspective. A more objective and robust analysis of the scientific literature is needed before statements of certainty and foregone conclusion can be stated.

The report overstates our current knowledge concerning lead and its associated effects on IQ, particularly at low BLLs. Additional research and long-term studies are needed with respect to lead's acute and chronic effects on neurobehavioral and development endpoints. Likewise, a broader discussion of other well-known factors that influence IQ needs to be incorporated into the report.

While the Green report describes one means (surveillance and potential remediation) of reducing childhood lead exposure, the report offers no discussion of the costs of such a program. But more importantly and central to the safety of such a program the report does not say how, by whom, or by what methods such remediation and abatement will be accomplished. More detail is needed concerning evaluation and abatement as they will actually be carried out critically important factors, given that incorrectly abated lead paint can increase a child's blood lead level.

This report and the bill it proposes need to be assessed in light of local, state, and federal efforts and recommendations to insure that a consistent and appropriate message and plan of action are

being communicated to the general public.

Finally, the Public Advocate's report should acknowledge and recommend other measures that will aid in reducing children's risk of lead exposure. Those measures include educational efforts directed at both parents and children to inculcate good habits with regard to personal hygiene, home cleanliness, and nutrition.

Conclusion

The New York City Advisory Council on Health Priorities shares the Public Advocate's concern. Lead is a pervasive and persistent heavy metal. If sufficient exposure and absorption occur, lead can be toxic to humans. Recent data indicate, however, that for 95 percent of all young children in the U.S. lead poisoning is not an environmental health problem. Unfortunately, subpopulations at higher risk do continue to exist; and because lead is capable of adversely affecting the central nervous system at high blood lead levels, it is necessary that we target individuals in these at-risk groups. The Public Advocate's report lifts concern about lead poisoning in children to the emotionally charged pitch of a public health scare, however. The writers of the report unfairly attribute toxicologically significant behavioral or neurological effects to low blood lead levels an association that is difficult to make because of the numerous confounding factors that influence intellect and neurobehavior in children. The Advisory Council concludes, therefore, that while the Public Advocate's report raises several issues important on the local level, a broader and more robust analysis is needed prior to endorsement of the proposed Childhood Lead Poisoning Prevention Bill (Int. 956).

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