

Public Health Then and Now

Childhood Lead Poisoning: The Promise and Abandonment of Primary Prevention

Herbert L. Needleman, MD

ABSTRACT

In 1991, the Public Health Service published the *Strategic Plan for the Elimination of Childhood Lead Poisoning*. This document marked a fundamental shift in federal policy from finding and treating lead-poisoned children to authentic primary prevention. It spelled out a 15-year strategy to achieve this goal and provided a cost-benefit analysis showing that the monetized benefits far exceeded the costs of abatement. A strong national effort to eliminate the disease developed. Now, 7 years after publication of the plan, primary prevention of lead exposure has been abandoned.

This article examines the role of some prevailing attitudes and institutions in derailing the effort. Some institutions—the lead industry, real estate interests, and insurance interests—behaved as anticipated. Others, including private pediatricians, the American Academy of Pediatrics, some federal agencies, and a public interest group ostensibly dedicated to eliminating lead poisoning, also played an unexpected part in derailing the plan. (*Am J Public Health*. 1998;88: 1871–1877)

Lead is a useful metal and a versatile, subtle, and persistent poison. The history of its distribution in the human environment, its recognition as a neurotoxin, and attempts to control it spans 2000 years.^{1,2} Modern understanding of lead poisoning in children has evolved through 4 stages. When childhood lead poisoning was first described in 1892 in Brisbane, Australia, its very existence was disputed by elitist physicians in Sydney.³ After its existence was accepted, the prevailing belief among pediatricians was that children who did not die during the acute stage of the disease suffered no lasting ill effects.⁴ In 1943, Byers demonstrated the persistence of severe residua in children who had recovered from acute lead poisoning.⁵ The reality of sequelae was then accepted, but sequelae were thought to afflict only those patients who had had the most severe symptoms.⁶ In the late 1970s and 1980s, with the publication of papers from around the world showing IQ and behavioral deficits at silent doses of lead, the neuropsychological costs of asymptomatic lead exposure were established to the satisfaction of the scientific community.⁷ Regulations began to be shaped to accommodate the realization that lead at silent doses damaged the brains of children.

There are 2 important sources of lead for children: paint and leaded gasoline. Lead in household paint was recognized as a danger early in the 20th century; it was banned in Australia in 1920 and by international convention in 1925. The United States was not a signatory to that agreement. It was not until 1970 that a statute banning lead in household paint was passed in the United States.⁸ Although in the early 1930s the city of Baltimore recognized the wide-spread hazards of lead paint to children and took steps to control its use, lead paint was not banned by statute in this country until 1970.⁹

In 1923, a General Motors chemist, Thomas Midgely, found that tetraethyl lead was an effective antiknock agent and

boosted engine power. When General Motors began to manufacture tetraethyl lead, workers at all 3 plants began to display signs of psychosis, and many died. After a brief moratorium on the production and use of this additive, an abbreviated meeting was convened by the surgeon general of the United States and the use of tetraethyl lead was allowed to resume. Leaded gasoline continued in use for almost 70 years.^{10,11}

The removal of lead from gasoline in 1990, regarded by many as one of the major public health triumphs of the 20th century, had an immediate impact. Between 1976 and 1994, the mean blood lead concentration in children dropped from 13.7 $\mu\text{g}/\text{dL}$ to 3.2 $\mu\text{g}/\text{dL}$, in direct proportion to the amount of tetraethyl lead produced.¹² One could want no clearer testimony to the efficacy of a well-conceived and consistently applied public health policy.

Slow progress was made in controlling lead paint poisoning between 1970 and 1990, and the possibility of complete eradication of the disease—real primary prevention—came into view. Then the effort faltered; it is now virtually arrested. Victory, it is said, has a thousand fathers, but defeat is an orphan. The attempt to achieve primary prevention of lead paint exposure is a clear failure, and it can claim at least 8 foster fathers. Some are the traditional enemies of lead poisoning control, but significant opposition also emerged from surprising quarters. Who these opponents are and how they interacted to frustrate this ambitious public health goal are examined here.

The author is with the Lead Research Group, University of Pittsburgh Medical Center, Pittsburgh, Pa.

Requests for reprints should be sent to Herbert L. Needleman, MD, University of Pittsburgh School of Medicine, 100 N Bellefield Ave, Pittsburgh, PA 15213 (e-mail: hlnlead@vms.cis.pitt.edu).

The Plan to Eradicate Childhood Lead Poisoning

On February 5, 1990, Dr James Mason, assistant secretary of health in the Bush administration, assembled all of the senior Public Health Service officials involved with environmental health for a briefing on the effects of lead paint exposure on children's brains. At the end of the briefing, Mason turned to the late Dr Vernon Houk, then director of the National Center for Environmental Health (NCEH) of the Centers for Disease Control (CDC), and directed him to draw up a plan to eliminate childhood lead poisoning within 6 months. A challenge of this size did not intimidate the staff of the CDC's lead program. Twenty years earlier, the CDC had directed the successful World Health Organization effort to eradicate smallpox. Dominating the wall behind Mason's desk was a large bronze plaque celebrating the Public Health Service's greatest victory.

The next day, Houk flew to Atlanta and met with his staff of pediatricians and epidemiologists in the Lead Poisoning Prevention Branch of the CDC. In 6 months, the *Strategic Plan for the Elimination of Childhood Lead Poisoning* was on Mason's desk, and 6 months after that it was distributed to the public health community. The plan marked an authentic revolution in federal thinking. Until now, the CDC's strategy had been to find lead-poisoned children and then treat them; the CDC would now move in a new direction.

Three striking conclusions about childhood lead poisoning have emerged in the past several years: 1) the effects of exposure to even moderate amounts of lead are more pervasive and long-lasting than previously thought, 2) significant impairment of intelligence and neurobehavioral function is being reported at increasingly lower levels of lead in blood, and 3) millions of children in the United States have blood lead levels in this new range of concern. . . . Finding and treating children with lead poisoning is critical, but not sufficient. Preventive actions must be taken to remove sources of lead in the child's environment before poisoning occurs.^{13(pii)}

The plan listed 4 essential steps to achieve this goal: (1) an increase in the number of childhood lead poisoning prevention programs, (2) effective abatement of leaded paint and dust in high-risk housing, (3) continued reduction of lead from other sources, and (4) establishment of national surveillance for children with elevated blood lead levels.

A critical part of the plan was a cost-benefit analysis done under contract to the CDC by Battelle Laboratories (Washington, DC). This analysis estimated that an elevated

blood lead level resulted in avoidable medical costs of \$1300 per child and avoidable special education costs of \$3331 per child. The analysis estimated that a 1- μ g/dL increase in blood lead level resulted in an IQ decrease of 0.25 points, a decrease in years of schooling of 0.131 years, and a resultant decrease in lifetime earnings of \$1147. The estimated total monetized benefit of abatement of all pre-1950 lead-painted housing (23 million units) was \$61.7 billion. The discounted cost of abating these properties over 20 years was estimated at \$33.7 billion. The costs of true abatement were huge, but the bottom line for primary prevention would be written in black ink.

Considerable pious language had been devoted to the goal of primary prevention in the past, but no real effort had ever been undertaken. Finally, childhood lead poisoning had penetrated the public consciousness: *Newsweek* put a lead-poisoned child on its cover, and *Time*, *The New York Times*, and other major newspapers gave the disease large amounts of space. Goaded by the CDC's plan and the massive publicity, Congress held hearings. A Senate bill allocated, for the first time, real money—\$250 million—as a down payment for the abatement of lead in public housing. A separate bill in the House of Representatives called for the establishment of a trust fund to be used to remove lead from private housing. This fund was to be fed by a new tax on lead at the mine head that would raise \$1 billion per year. A public interest group, the Alliance to End Childhood Lead Poisoning, was founded. The federal government set up a hotline to answer parents' questions and direct them to help. The CDC called for blood lead screening of every American child between the ages of 1 and 5 years. Lead poisoning had been admitted into the front rank of public health concerns.

Now, 7 years after the plan's publication, the drive to eliminate childhood lead poisoning is stalled. Universal screening of children, once an article of faith of modern public health practitioners, has been forsaken, first by the American Academy of Pediatrics (AAP) and then by the CDC.¹⁴ The Alliance to End Childhood Lead Poisoning has rejected comprehensive lead abatement as too expensive and has recommended a weak substitute: housecleaning and minimal home repairs. The strategic plan has been abandoned. Copies of it are nearly impossible to find.

How did this retreat occur in the face of overwhelming scientific evidence that children's brains were being damaged and pronouncements at the highest level of the Public Health Service that primary prevention was

achievable? How was a program disabled that attacked what Secretary of Health Louis Sullivan called the "most important environmental health problem for American children"?¹⁵

Opposition to the Strategic Plan: Pediatricians and the AAP

The call for universal screening of children and abatement of all lead paint in housing built before 1950 in the strategic plan and in the CDC's 1991 statement quickly aroused opposition from many directions: the lead industry, realtors, landlords, insurance companies, some health maintenance organizations (HMOs), and some pediatricians in private practice. The fact that African American children living in poverty had a higher rate of elevated blood lead levels than White children was distorted to indicate that White children were free of risk. The general decrease in blood lead levels that followed the removal of lead from gasoline was interpreted to mean that the threat had ended. Lead poisoning was once again portrayed as a disease of the ghetto. In fact, between 1988 and 1991 about 8.9% of White children from families above the poverty level had blood lead levels higher than 10 μ g/dL, the value currently accepted as toxic. A long-standing tension between medical practice and public health theory became more pronounced. Pediatricians in many middle-class areas believed that testing children's blood for lead was an unnecessary bother and expense and were reluctant to screen children even when asked to do so by parents.

Resolutions against universal screening began to appear on the agendas of local AAP chapters, and these sentiments were passed up the ladder.¹⁶ In 1993, the official statement of the AAP took a progressive position in support of the strategic plan: "Identification and treatment of the child poisoned with lead continues to be essential, but of greater importance is identification of the source and prevention of subsequent exposures for that child and other children in the future."^{17(p176)} The statement encouraged screening as a part of routine health supervision while indicating that in some areas, selective screening would be more appropriate. While the AAP's official statement supported the plan, other AAP publications largely ignored it. In March of 1993, the AAP's executive director wrote, "There is a good deal of question about whether or not universal testing should be carried out throughout the country."¹⁸

An organized campaign against universal screening began in California. Commentaries acknowledging the editorial assistance

of the medical editing department of the Kaiser Permanente Foundation Hospitals began to appear as letters to pediatric journal editors, in California newspapers, and in "throwaway" journals (free medical journals that subsist on advertising). These commentaries claimed that the reported prevalence of elevated blood lead levels was questionable, that health effects at these levels were dubious, and that spending money on screening, treatment, and abatement would starve more worthy public health efforts.¹⁹ The same argument, with minor variations, was circulated to chapter heads of the AAP. This theme was picked up by a former AAP president, who wrote a lengthy attack on universal screening, questioning its efficacy and the value of identifying and treating children with elevated blood lead levels of less than 20 µg/dL.²⁰ The CDC, feeling pressure from these quarters, undertook to revise its 1991 statement.

The Evolution of the CDC's Posture

In 1973, the CDC had assumed responsibility for childhood lead poisoning from the Bureau of Community Environmental Management, where the issue lay dormant. Dr Vernon Houk, an internist and commissioned Public Health Service tuberculosis officer, was assigned to direct the Childhood Lead Poisoning Program. Houk's prodigious energy, occasional spleen, and intense commitment to eliminating childhood lead poisoning energized his staff and drove the program forward. The CDC began to support lead programs and to conduct seminars for public health authorities in many cities. Under the CDC's aegis, the practice of lead poisoning identification and management across the country flourished, became increasingly professional, and was integrated into other preventive services.

In 1975, the CDC published its first statement on lead poisoning, "Increased Lead Absorption and Lead Poisoning in Young Children." This brief paper, written by pediatric consultants to the CDC with direct experience in the treatment of lead poisoning, put the diagnosis and management of lead toxicity across the country on a sound base. It also called for screening children to prevent "symptomatic and asymptomatic lead poisoning and their sequelae." It specified that "all children who live in . . . poorly maintained housing units constructed prior to the 1960's should be screened at least once a year." The CDC formed an advisory committee of physicians and public health specialists to meet periodically and revise the statement.

The statement, retitled "Preventing Lead Poisoning in Young Children," was updated in 1978, 1985, and 1991. The advisory committee was scheduled to meet in February 1984, but the International Lead Zinc Research Organization (ILZRO), a major trade organization, blocked the meeting, claiming that the provisions of the Federal Advisory Committee Act had not been followed. The CDC, closely following the act's requirements, reconvened the committee later in the year. The Lead Industries Association, a sister organization to ILZRO, then sought an injunction in the US District Court of Georgia, claiming that the industry point of view was insufficiently represented, that there was no need to lower the lead standard, and that the regulatory repercussions of the CDC statement extended past clinical applications to influence regulations by the Environmental Protection Agency. In July of 1984, the motion was denied and the committee was convened.²¹

The statement issued by the advisory committee in January 1985 declared, "Ideally, all children in this age group (9 months to 6 years) should be screened." It then laid out a hierarchical list of groups for screening, placing at the top children who lived in dilapidated housing. One member of the committee dissented from the statement: Jerome Cole, the president of ILZRO. In 1991, the CDC issued an updated version of "Preventing Lead Poisoning" that mirrored the content of the strategic plan and called for universal screening except in areas where the prevalence of lead poisoning had been demonstrated to be low.

In 1993, the CDC's lead program underwent significant changes. Vernon Houk, who had been director of the NCEH since its birth, died. A number of longtime advisory committee members, including most of the clinicians and investigators who actually worked in lead poisoning, ended their terms on the committee, and 2 AAP members, the aforementioned former president and a paid AAP staff member, were added.

In February of 1995, Dr Richard Jackson, the new director of NCEH, convened the advisory committee to revise the CDC statement on lead poisoning. He opened the meeting by noting the progress that had been made in lead exposure control and commenting, somewhat cryptically, that a shift away from the medical model had occurred. This seemed to imply that pediatricians would play a lesser role in the program. While the focus in the past had been on universal lead screening, he noted, the California chapter of the AAP reported in 1995 that the cost of universal screening was prohibitive.²² He also observed that Congress was actively

seeking programs to cut and that all regulatory programs must be risk based. The CDC's headquarters sat in the district of Congressman Newt Gingrich, and the anxiety of CDC staff about their own survival was palpable.

Feeling exposed and vulnerable, the CDC hastily agreed that universal screening could not be sustained in the climate of imminent program cuts. What it found itself unable to do was to support the merits of universal screening as an ultimate goal on the way to primary prevention, and to develop clear and concise instructions on how to find the children at greatest risk first. The CDC could not bring itself to say, "Screening of all children is a good thing, but for the time being we can't afford it."

The early draft statement of February 1996 carried the old title, "Preventing Lead Poisoning in Young Children." Sometime later in 1996, the title was quietly changed to "Screening Young Children for Lead Poisoning." It was clear that the CDC lead program staff were determined to withdraw the mandate for universal screening and were justifying this decision with a new cost-benefit analysis conducted by CDC staff. It was also clear that the task of writing this statement would not, as it had in the past, be assigned to advisory committee members. This time CDC staff would write the statement, and the committee would be asked to approve it.

The new cost-benefit analysis dealt exclusively with screening. It concluded that screening of all children in an area would be cost-effective only when the expected prevalence of blood lead levels higher than 10 µg/dL was greater than 14%. To justify dropping universal screening, the CDC cited a survey in Alaska in which, of almost 1000 children screened, not 1 had an elevated blood lead level. The inappropriateness of using Alaska as a model escaped the CDC; elevated blood lead levels in other, more typical, American communities were not cited. This notion that screening need not be universal in communities where fewer than 1 child in 7 had an elevated blood lead level was greeted with derision by many members of the advisory committee, who also criticized the document as too long, complex, and ambiguous.²³⁻²⁵ A lengthy letter from the Alliance to End Childhood Lead Poisoning gave the draft an "extremely negative assessment."²⁶

The new draft had a glaring omission. The 1991 statement had concisely listed the clinical indications for screening, including such health effects as growth failure, speech deficits, attention deficits, behavior disorders, developmental delay, and hearing loss. All of these impairments are known effects of lead poisoning, and in the past many

children had been treated for these symptoms and deficits without having their blood lead status tested. Later some were found to be lead poisoned. This section of the CDC's statement established a standard of care for all pediatricians and pressed them to draw blood for lead measurement in any child, regardless of class or race, who exhibited any of these signs. These indications were removed from early drafts of the 1997 version. Only after vigorous protest from the medical consultants to the committee were most of these indications returned to the final document.

Earlier CDC statements had provided the only concise guide to the identification and management of children exposed to lead. For this reason the statements found a prominent place in practitioners' offices and on many pediatric wards, not only in the United States but also in Europe. The 1997 statement, in contrast, has no utility for clinicians; it contains no medical guidance, no discussion of the epidemiology of lead poisoning, and no reference to the toxicology of the metal. The CDC replaced a valuable tool for improving the effort to manage lead poisoning with a limited pamphlet on how to decide who to screen. For clinicians, there is no replacement for the CDC statement of years past.

The final 1997 statement is 121 pages long. Almost the entire text is a discussion instructing state and local authorities how to decide whether to conduct universal or targeted screening and how to identify high-risk areas. It is well known that poor children, minority children, and children who live in old housing are at higher risk. Instead of a concise set of guidelines giving priority to these categories, the statement offers a cumbersome and ambiguous set of algorithms. The final product, written by CDC staff, is so unclear that several members of the committee with long experience in lead programs have found it unreadable. Some consultants expressed their dismay to the CDC in language unconventional for a scientific debate, calling the statement "ridiculous,"²⁷ "a monster,"²⁸ and "worse than the Edsel, but not as bad as the Crusades."²⁹ Even Jackson, director of the NCEH, confessed that he found the draft difficult to follow and said that he would take time off to rewrite it himself. The final rewriting, however, was left to a junior nonmedical staffer in the CDC lead program.

After the statement was written, a surprising discovery was made. The CDC had in its possession Graphical Information System maps for the entire country, developed from census data, that identified the location of all old, low-income, and minority housing

down to the block level. The availability of this information made the CDC's complex set of recommendations on where to screen entirely redundant. When this came to light, it was suggested that these maps replace the plan; however, these maps are nowhere mentioned in the statement or offered to public health officials.

On November 3, 1997, the screening statement was released to the public. About 8 weeks before its release, former AAP president Birt Harvey published an editorial in *Pediatrics* summarizing the statement and giving it high praise: "These recommendations represent a marked improvement over the 1991 guidelines."³⁰

The Role of the Department of Housing and Urban Development

The early history of the Department of Housing and Urban Development (HUD) in dealing with lead in its own properties had earned the agency a great deal of opprobrium. Under the Lead Paint Poisoning Prevention Act of 1971 and the 1973 amendments, Congress gave HUD the responsibility to study the nature and extent of lead-based paint poisoning and the methods by which lead-based paint could be most effectively removed from houses. The return on the \$9 million in research grants funded by HUD was marginal, but one useful study estimated the cost of abatement of the 28 million dwellings thought to contain lead at \$28 to \$35 billion.

HUD's research managers decided that abatement was unaffordable. They responded by ignoring their congressional mandate; instead of looking at paint, they shifted their focus to other sources of lead in the environment. This was a deadly serious enactment of the well-worn story of the surgeon who, on learning that his patient could not afford surgery, touched up the x-rays. HUD's managers began to speak at meetings on the subject of lead poisoning, deprecating paint as a hazard and pointing to airborne lead as the chief risk.

For its efforts, HUD was lacerated by the General Accounting Office in 1980 in a report titled *HUD Not Fulfilling Responsibility to Eliminate Lead-Based Paint Hazard in Federal Housing*. The report noted that after 6 years and \$9 million in expenditures, the extent of lead paint problems in HUD-associated housing was still unknown: "HUD has little information on how many housing units it subsidizes, insures, or owns that contain lead paint. . . ."^{31(px)} The General Accounting Office also found that the funds spent to develop innovative lead abatement techniques had produced no marketable

methods. The most damning charge was that "HUD is not complying with all of its [own] lead-based paint regulations, and thus many tenants may be unnecessarily exposed to lead paint hazards."^{31(piii)} Finally, the report attacked HUD's diversion of attention away from the subject of its mandate: "HUD researchers' questioning of the long-held and still-accepted belief that lead-based paint is a major health problem has led to severe coordination problems which inhibit the effectiveness of lead-based paint research activities."^{31(p17)} HUD had a lot to answer for.

It appeared that with the appointment of Secretary of Housing and Urban Development Henry Cisneros, positive changes might take root. Title X of the Housing and Community Development Act of 1992 directed the secretary of HUD to create a task force to make recommendations on lead-based paint hazard reduction and financing. In 1993, Secretary Cisneros appointed as members of the task force 39 people "representing the wide spectrum of organizations and interests affected by lead based paint in public housing."^{32(pvi)} Of these 39 members, 2 were parents of lead-exposed children, 4 were public-interest lawyers, and 1 was a lead toxicologist; almost half represented real estate or insurance interests.

The Alliance to End Childhood Lead Poisoning and the Task Force on Title X

The coordination of the task force meetings and the writing of the task force report was given to the Alliance to End Childhood Lead Poisoning. The alliance was founded in 1990 by 3 pediatricians, members of the AAP Committee on Environmental Health, who realized that a campaign to eradicate lead poisoning, to be successful, would require a full-time dedicated staff. The founders envisioned a staff consisting of a Washington, DC, representative in a small office with a secretary and a photocopier. The alliance began with a start-up grant of \$60 000 but soon had a budget of over \$500 000, a growing staff, a fundraiser, a public relations consultant, and an increased dependence on grants. By the summer of 1992, well over 50% of the alliance's income came from grants from HUD and the Environmental Protection Agency. Members of the alliance's board questioned whether this amount of government funding would constrain the alliance's ability to criticize the government and were reassured that the alliance would continue to be an independent voice. But as the alliance wrote grant proposals and fulfilled its obligations to conduct studies for funding sources, it began to lose its advocacy

edge and adopted a diluted position toward the abatement of lead properties. Like HUD, the alliance recoiled from the cost of true abatement. It began to seek avenues of rapprochement with realtors and insurance agencies.

In 1992, David Maxwell, chairman of Fannie Mae, the largest supplier of home mortgage funds, retired. His retirement package was \$12 million; he turned part of this amount, \$5.5 million, over to the Fannie Mae Foundation. With these funds, Fannie Mae gave the largest grant in its history to the Enterprise Foundation and to the Alliance to End Childhood Lead Poisoning to establish the National Center for Lead-Safe Housing (NCLSH). The board of this new entity was composed of members of the alliance's board and members of the Enterprise Foundation, whose major concern had been the provision of low-cost housing. The governing principle of the NCLSH was to offer "a real alternative to 'all-or-nothing' solutions [to the problem of lead paint poisoning] that usually mean nothing gets done to help the millions of children at risk."^{33(p3)} The CDC's cost-benefit analysis was ignored in the calculations of the alliance and the NCLSH. They focused solely on the cost side of the equation, while ignoring the medical and social benefits of abatement.

Confronted with the costs of abatement and the growing number of lawsuits against landlords and their insurers, the Title X task force, guided by the Alliance to End Childhood Lead Poisoning and the NCLSH, sought a market solution. Their resolution of the dilemma had 3 parts: relax the requirements for abatement from removal of lead to reduction of lead hazard; increase education among building owners and parents about the dangers of lead; and finally, give building owners who met an unspecified standard of lead paint control immunity against litigation. The task force report argued that the threat of lawsuits for damages from lead made obtaining insurance for lead properties difficult, and that this difficulty could result in landlords' abandoning their properties. The report recommended that state legislators establish a "complete defense to lead based paint liability" if the property owner obtained a certificate that the house was free of lead. The real estate-dominated task force sought to guarantee that landlords whose properties were certified as safe could not be sued by parents of lead-poisoned children under any circumstances.

Part of the reason that landlords allowed homes to remain leaded, the report argued, was lack of knowledge on the part of landlords about the hazards of lead paint. The suggestions that lawsuits for damages to children should be weakened and that the ignorance of

landlords was the reason for the condition of their properties evoked outrage from many community groups. Four of the members of the task force wrote a strong dissent to the report. The dissenters were 2 of the 4 public-interest lawyers, the single lead toxicologist on the task force, and 1 of the 2 parents. The other parent wrote a separate dissent. The 2 public-interest lawyers who did not dissent were both members of the Alliance to End Childhood Lead Poisoning.

HUD, which published the report of the task force, declined responsibility for its content in the front pages of the book.³² Nor did the alliance acknowledge responsibility. Accountability was assigned, by default, to the 39 members of the task force, who by now had scattered to all corners of the United States. Subsequently, HUD gave a grant to the alliance to promulgate the report at meetings on the subject of lead around the country.

In 1994, the American Society for Testing and Materials (ASTM) convened a group to examine the existing standards of care for control of lead paint hazards. Toward the end of 1994, ASTM invited the participation of 3 public-interest attorneys in the group, which was dominated by real estate and insurance interests and defense attorneys. In the spring of 1995, the executive director of the Alliance to End Childhood Lead Poisoning wrote to ASTM, suggesting that ASTM use the task force report as a model for its standard. He provided a draft of the task force report, noting that these standards "had the broad (though not universal) support of the Task Force's diverse membership."³⁴ The final ASTM document strongly resembled the alliance-directed task force "benchmark standards." Strenuous objections to the standard and to the procedures used to obtain it were submitted to ASTM by 3 public-interest attorneys, a widely recognized pediatric lead expert, the Philadelphia Tenants Action Group, and the Philadelphia Council for Children and Youth.³⁵

In May 1996, without prior notice, a ballot was taken and the standard was approved. HUD distributed the ASTM standard with a cover letter prepared by the Alliance to End Childhood Lead Poisoning. The cover letter stated that the standard had received the "strong support of children's health advocates, legal services attorneys, state and local health departments, pediatricians, the USD-HUD, the USEPA, affordable housing advocates, environmentalists, risk assessors, property owners and insurers. . . ."^{32(p9)} Since all of the legal services attorneys, all of the children's health advocates, and the 1 pediatrician who had attended the meetings had objected repeatedly to the standard, one of the dissent-

ing attorneys asked the alliance to justify the endorsement.³⁶ Two weeks later, the executive director of the alliance withdrew the endorsement, saying, "Upon reflection, we realize that this paragraph was misleading."^{31(p200-204)}

The reports of the task force and ASTM were immediately put to use by defense attorneys and real estate interests in lead litigation. In 1995, the New York State Court of Appeals had ruled that landlords, under the law, had an affirmative duty to inspect for and remove lead paint in dwellings where small children lived. If a child had been poisoned, the landlord could not disclaim liability by asserting that he or she had not been informed that the property had lead paint. Six amicus curiae briefs contesting that ruling were filed with the Court of Appeals, many citing the task force report. The briefs were filed by insurance companies, housing authorities, and mortgage institutions. The New York City legal department, defending the city against a class action suit brought by the New York City Coalition to End Lead Poisoning for nonenforcement of the city's own lead paint statutes, cited the position of the Alliance to End Childhood Lead Poisoning in support of the proposition that the presence of lead paint is not by itself a hazard.

Attitudes and Beliefs

In addition to the institutions discussed above, some pervasive and long-held attitudes have influenced lead detection and prevention. One important factor is racism.³⁷ The proportion of African American children with blood lead levels higher than 10 µg/dL is 21.6%; the proportion among non-Hispanic Whites is 8.9%. This unfair distribution of the problem, which is due primarily to hypersegregation in houses built before 1940, has resulted in a widely held belief that lead poisoning is a problem exclusively affecting African American children. As the current attitude of indifference toward problems of the poor and minorities developed, the attack on lead exposure lost its urgency.

A related issue is the belief that lead poisoning is a product of poor mothering, not of environmental pollution. This weighting of personal choice or behavior over environment is a tool used to shift responsibility away from health authorities or polluters and onto the victim. It has been employed with some skill by the tobacco industry, which has emphasized the freedom of choice of smokers while denying the addictive powers of cigarettes and downplaying the efficacy of the advertising that the industry spent billions of dollars to purchase. This tactic has recently been

examined by Burris, who points out that "the individual choice heuristic powerfully impedes . . . public health work."^{38(p1609)} Conscious choice has little or nothing to do with lead exposure. Poor mothers have few housing options; if they could, most would not choose to live where their child was or could be poisoned.

The belief that our society cannot afford the cost of true prevention is a powerful opiate. It was strong enough to change the mandate of at least one government agency, HUD, and realign the thinking of one public interest group, the Alliance to End Childhood Lead Poisoning. The belief that we cannot afford primary prevention coexists in a mutual paradox with another powerful fiction: that the struggle to eliminate lead poisoning has been won. After all, it has been said, don't we have a law forbidding the use of lead in household paint, and haven't we taken the lead out of gasoline?

Conclusion

Braced by abundant data on the damage done by lead at low doses, the Public Health Service in 1991 embarked on a visionary, indeed radical, adventure: it set out to permanently end lead exposure and toxicity. A combination of long-held prejudices, market forces, and bureaucratic timidity conspired to frustrate that enterprise. Opposition was expected, and was encountered, from the traditional enemies of lead control: the lead industry, realtors, and their insurers. What was surprising and disillusioning was the role of some pediatricians, their professional organization, 2 government agencies, and a public interest group.

The old belief that lead was a problem only for inner-city minority children and that maternal neglect was the cause of their exposure enabled authorities to dodge their responsibility. Lead screening was seen as an unnecessary burden by middle-class pediatricians and as a financial loser for HMOs. The AAP quickly rose to support the position of those constituents who objected to screening. While the trade organizations continued their expected efforts to block progress, the public interest group moved with agility from advocacy to what it believed was pragmatism. It accepted uncritically the notion that compromise with the very forces responsible for lead poisoning was the only route to reducing lead in housing, and that if this compromise required abridging a basic civil right of parents to sue for damages, so be it. Comprehensive abatement—the removal of lead paint—was abandoned for an untried measure. The CDC, concerned for its own sur-

vival, was unable to think clearly, and in its rush to jettison universal screening issued a hasty, complex, and unnecessary set of guidelines for deciding how to screen.

The costs of abatement received close attention, while the benefit analysis establishing that the costs of abatement would be more than recouped by the benefits achieved was ignored. Also ignored was the self-evident fact that lead is present in excess in precisely the same places where jobs are scarce and decent housing is nonexistent. That this dangerous and immoral situation could be corrected by training the unemployed in safe deleading procedures and paying them to carry out the task was invisible to policymakers. The same health-expenditure dollar would remove people from the welfare rolls and make them taxpayers, make houses decent to live in, and wipe out lead poisoning forever. The authors of the "pragmatic" responses to the cost of lead abatement had neither the imagination nor the courage to take such a bold step.

The persistence of lead toxicity in the face of the vast amount of information about where it is, what it does, and how to get rid of it is a modern riddle. The fates of the *Strategic Plan for the Elimination of Childhood Lead Poisoning* and Title X clearly delineate some explanatory factors. This combination of forces and attitudes was strong enough to stifle a campaign that had engaged the imaginations and energies of the US government's health leadership at the highest levels. It derailed an undertaking that promised to wipe out childhood lead poisoning in this country forever, that would have lifted the disease out of the pediatric textbooks and entered it into the histories of medicine and disease control. □

Acknowledgments

I thank John Balaban, Dave Bellinger, Paul Mushak, Liane Norman, Roberta Needleman, Matthew Chacere, and Ellen Silbergeld for reviewing this manuscript.

In the interests of full disclosure, it is pertinent to note that I was the founding chairman of the Alliance to End Childhood Lead Poisoning.

References

- Nriagu J. Historical perspective on the contamination of food and beverages with lead. In: Mahaffey KR, ed. *Dietary and Environmental Lead: Human Health Effects*. Amsterdam, NY: Elsevier Science Press; 1985:1–36.
- Lin-Fu JS. Modern history of lead poisoning: a century of discovery and rediscovery. In: Needleman HL, ed. *Human Lead Exposure*. Boca Raton, Fla: CRC Press; 1991.
- Fison DC. The Royal Children's Hospital, Brisbane: 1878 to 1978. *Med J Aust*. 1978;2: 137–138.
- Mckhann CF, Vogt EC. Lead poisoning in children: with notes on therapy. *Am J Dis Child*. 1926;32:386–392.
- Byers RK, Lord EE. Late effects of lead poisoning on mental development. *Am J Dis Child*. 1943;66:472–483.
- Smith H. Pediatric lead poisoning. *Arch Environ Health*. 1964;8:68–73.
- National Academy of Sciences and National Research Council. *Measuring Lead Exposure in Infants, Children, and Other Sensitive Populations*. Washington, DC: National Academy Press; 1993.
- Rabin R. Warnings unheeded: a history of child lead poisoning. *Am J Public Health*. 1989;79:1668–1674.
- Fee E. Public health in practice: an early confrontation with the "silent epidemic" of childhood lead paint poisoning. *J Hist Med*. 1990;45:570–606.
- Rosner D, Markowitz G. A "gift of God"? The public health controversy over leaded gasoline during the 1920s. *Am J Public Health*. 1985;75:344–352.
- Needleman HL. Clamped in a straitjacket: the insertion of lead into gasoline. *Environ Res*. 1997;74:95–103.
- Pirkle JL, Brody DJ, Gunter RA, et al. The decline in blood lead levels in the United States. The National Health and Nutrition Examination Surveys (NHANES). *JAMA*. 1994;272:284–291.
- Binder S, Falk H. *Strategic Plan for the Elimination of Childhood Lead Poisoning*. Atlanta, Ga: Centers for Disease Control; 1991.
- Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials*. Atlanta, Ga: Centers for Disease Control and Prevention; 1997.
- Sullivan L. Keynote address at: First National Conference of the Alliance to End Childhood Lead Poisoning; October 7, 1991; Washington, DC.
- American Academy of Pediatrics. *Change in Academy Recommendation Regarding Lead Screening in Children*. Submitted by California Chapter 1, 1993 Annual American Academy of Pediatrics Chapter Forum, May 30, 1993.
- Committee on Environmental Health, American Academy of Pediatrics. Lead poisoning: from screening to primary prevention. *Pediatrics*. 1993;92:176–182.
- Strain J. Executive Director's response. *AAP News*. 1993;9:17.
- Schoen EJ. Lead toxicity in the 21st century: will we still be treating it? *Pediatrics*. 1992;90:481–482.
- Harvey B. Should blood lead screening be revised? *Pediatrics*. 1994;93:201–204.
- Lead Industries Association Inc v US Centers for Disease Control and Prevention*, Vernon Houk, James O. Mason, Margaret M. Heckler, C84-203 F Suppl (ND Ga 1984).
- Minutes from: Centers for Disease Control and Prevention, Lead Poisoning Prevention Branch Advisory Committee; February 15–16, 1995; Atlanta, Ga.
- Landrigan P to Briss P. March 7, 1996.
- Rosen J to Tips N. October 24, 1996.
- Rosen J to Briss P. March 4, 1996.
- Ryan D to Jackson R. December 21, 1995.
- Piomelli S to Satcher D. November 12, 1996.
- Chisolm J to Falk H. October 30, 1996.

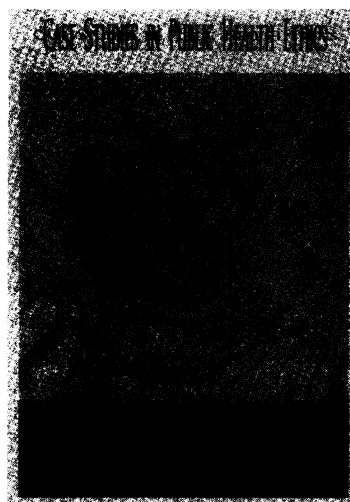
29. Needleman H to Falk H. December 18, 1995.
30. Harvey B. New lead screening guidelines from the Centers for Disease Control and Prevention: how will they affect pediatricians? *Pediatrics*. 1997;100:384-388.
31. *HUD Not Fulfilling Responsibility to Eliminate Lead-Based Paint in Federal Housing*. Report by the Comptroller General of the United States. Washington, DC: US General Accounting Office; 1980. Publication CED 81-31.
32. *Putting the Pieces Together: Controlling Lead in the Nation's Housing*. Washington, DC: US Dept of Housing and Urban Development; 1995. HUD-1547-LBP.
33. Fannie Mae Foundation finances new national center for lead-safe housing [press release]. Washington, DC: Fannie Mae Foundation; September 21, 1992.
34. Memorandum from Alliance to End Childhood Lead Poisoning to ASTM, May 5, 1995.
35. Memorandum from Chachere MJ, Billings L, Gould G, Evert J, Goldman M to Moran GC, chairman, ASTM.
36. Chachere MJ to Ryan D. June 14, 1996.
37. Weintraub MS. Racism and lead poisoning [letter]. *Am J Public Health*. 1997;87:1871-1872.
38. Burris S. The invisibility of public health: population-level measures in a politics of market individualism. *Am J Public Health*. 1997;87:1607-1610.

NEW!

Case Studies in Public Health Ethics

Steven S. Coughlin, PhD, Colin L. Soskolne, PhD,
and Kenneth W. Goodman, PhD

Suitable for classroom discussions and professional workshops. Topics covered include: moral reasoning, issues of privacy and confidentiality protection, informed consent in public health research, ethics of randomized trials, institutional review board system, scientific misconduct, conflicting interests, and intellectual property and data sharing, publication and interpretation of research findings, communication responsibilities of public health professionals, studies of vulnerable populations, cross-cultural research, genetic discrimination, HIV/AIDS prevention and treatment, health care reform and the allocation of scarce resources. An instructor's guide is also provided at the end.



• \$37 for nonmembers • \$26 for APHA members*

(add shipping and handling costs to all prices.)

• ISBN: 0-87553-232-2 • ©1997 • 170 pages • Softcover

To order: 301/893-1894 • To fax: 301/843-0159

* Members may purchase up to 2 copies of the book at this price



American Public Health Association
Publications Sales • P.O. Box 753
Waldorf, MD 20604-0753