

THE LINGERING LIFE OF LEAD POLLUTION: AN ENVIRONMENTAL JUSTICE CHALLENGE FOR INDIANA

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I. BACKGROUND

There is also a surprising lack of data on human exposure to environmental pollutants for Whites as well as for ethnic and racial minorities. One exception is lead exposures in children, and [there] the data are unequivocal: Black children have disproportionately higher blood lead levels than White children even when socioeconomic variables are factored in.¹

When the U.S. Environmental Protection Agency (“EPA”) initially tackled the issue of race- and class-based inequities in Americans’ exposure to harmful pollutants it recognized that little research had been done on the issue as a whole with one exception—lead exposure.² Today, twenty-two years later, lead exposure in children has drastically decreased but the statement above remains true—Black children continue to have substantially higher blood lead levels than their white counterparts even when socioeconomic variables are accounted for.³ Indiana is no exception. African Americans and Hispanics continue to show higher rates of elevated blood lead levels than their white counterparts in Indiana.⁴

Indiana has adopted the Lead and Healthy Homes Program.⁵ Its purpose is to eliminate childhood lead poisoning.⁶ The program is funded by the Center for

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1. ENVTL. PROT. AGENCY, ENVIRONMENTAL EQUITY: REDUCING RISK FOR ALL COMMUNITIES 15 (1992), *available at* http://www.epa.gov/compliance/environmentaljustice/resources/reports/annual-project-reports/reducing_risk_com_vol1.pdf [<http://perma.cc/3BEA-HYBT>].

2. *See generally id.*

3. *Morbidity and Mortality Weekly Report (MMWR)*, CTR. FOR DISEASE CONTROL & PREVENTION (Apr. 5, 2013), <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6213a3.htm#tab1> [<http://perma.cc/T32F-YR25>].

4. LEAD & HEALTHY HOMES PROGRAM, IND. STATE DEP’T OF HEALTH, 2013 SURVEILLANCE REPORT 9 (2013), *available at* http://www.in.gov/isdh/files/2012_Lead_Report_4-5-13.pdf [<http://perma.cc/QPQ6-664B>] (last visited Sept. 7, 2015) [hereinafter SURVEILLANCE REPORT].

5. *See generally id.*

6. *Id.*

Disease Control (“CDC”).⁷ Neither the racial disparities in nor the occurrence of elevated blood lead is on target for elimination by 2020—the state’s target goal for eliminating elevated blood lead in Indiana’s children.⁸ In fact, the state continues to fall short of the federal minimum screening guidelines which require that all Medicaid recipients be tested.⁹ Indiana consistently tests fewer than 36% of Medicaid recipient children.¹⁰ Moreover, Indiana children continue to evince blood lead levels significantly higher than currently established medical guidelines.¹¹

Indiana defines elevated blood lead levels as those at or above ten micrograms per deciliter.¹² Numerous studies demonstrated that children suffer irreversible adverse cognitive and physiological harm with blood lead levels less than ten micrograms per deciliter.¹³ These studies lead the CDC to adopt five micrograms per deciliter as a reference value for parents, physicians, public health officials, and others to reduce a child’s future lead exposure.¹⁴ Although this new level has been adopted by public health officials nationwide, medical studies demonstrate that there is no safe blood lead level in children and that almost every system in the body may be affected by lead exposure.¹⁵ Accordingly, Indiana has consistently undercounted both the children at risk and those suffering from harmful lead exposure.

Indiana has focused its efforts around lead-based paint.¹⁶ The mission statement for the Lead and Healthy Homes Program recognizes that “[d]eteriorated lead-based paint in the child’s home environment is the primary source of lead poisoning.”¹⁷ Unfortunately, this approach does not take into account the latest scientific findings about lead and its sources. Professor Gabriel Filippelli, Director of the Center for Urban Health at the Indiana University Purdue University Indianapolis, is one of the leading experts in the field and his

7. *Indiana*, CTR. FOR DISEASE CONTROL & PREVENTION, <http://www.cdc.gov/nceh/lead/programs/in.htm> [<http://perma.cc/F7XS-7C4S>] (last visited Aug. 25, 2015).

8. SURVEILLANCE REPORT, *supra* note 4, at 6.

9. *Id.* at 14.

10. *Id.*

11. *Id.*

12. *Id.* at 19.

13. *See, e.g., id.* at 7 (“[C]hildren, due to their age, size, and developmental status, are particularly susceptible to sustaining irreversible health complications.”).

14. *See National Lead Poisoning Prevention Week: October 25-31, 2015*, CTR. FOR DISEASE CONTROL & PREVENTION, <http://www.cdc.gov/nceh/lead/nlppw.htm> [<http://perma.cc/P7KT-6MVX>] (last visited Sept. 7, 2015) [hereinafter *National Lead Poisoning Prevention Week*].

15. *What Do Parents Need to Know to Protect Their Children?*, CTR. FOR DISEASE CONTROL & PREVENTION, http://www.cdc.gov/nceh/lead/ACCLPP/blood_lead_levels.htm [<http://perma.cc/VK46-AS24>] (last visited Sept. 7, 2015) (“No safe blood lead level in children has been identified.”).

16. SURVEILLANCE REPORT, *supra* note 4, at 11.

17. *See Lead and Healthy Homes Program*, IND. ST. DEP’T HEALTH, <http://www.in.gov/isdh/19124.htm> [<http://perma.cc/EJA9-QSSF>] (last visited Feb. 9, 2015).

research in Indianapolis indicates that lead in the soils from current industry and historic uses substantially affect the blood lead levels of children.¹⁸ Other studies indicate that child blood lead levels increase as lead concentrations in the soil increase.¹⁹ To address the significant effects of soil-based contamination, a new strategy is required. This Article proposes specific policy and legal recommendations for the State of Indiana to address this continuing crisis that affects too many of its children.

“[C]hildhood lead poisoning is considered the most preventable environmental disease among young children, yet approximately half a million U.S. children have blood lead levels above 5 micrograms per deciliter, the reference level at which Centers for Disease Control and Prevention (CDC), [sic] recommends public health actions be initiated.”²⁰ In a 1988 report to Congress, the Agency for Toxic Substances and Disease Registry stated: “[L]ead is toxic wherever it is found, and it is found everywhere.”²¹ For decades, lead has been used in a myriad of products that children have continual access to; especially those under seven years of age.²² From toys, to paint in homes, to the dirt on the ground that they walk and play on, lead is present.²³ However, the amount of lead that a child in this age group is exposed to depends a great deal on the race and socio-economic status of the family they were born into.²⁴

Over the past forty years, research has shown that lead, when ingested into the human body, causes significant adverse health effects.²⁵ Lead, when consumed through any pathway of the body, can affect the central nervous system and the cognitive development of a child.²⁶ It is particularly dangerous when consumed because, “it is distributed throughout the body just like helpful minerals such as iron, calcium, and zinc.”²⁷ Moreover, “lead can cause harm wherever it lands in the body.”²⁸ In the bloodstream, for example, it can damage red blood cells and limit their ability to carry oxygen to the organs and tissues

18. Gabriel M. Filippelli & Mark A. S. Laidlaw, *The Elephant in the Playground: Confronting Lead-Contaminated Soils as an Important Source of Lead Burdens to Urban Populations*, 53 *PERSP. IN BIOLOGY & MED.* 31, 38 (2010).

19. Michael Jonathan Bickel, *Spatial and Temporal Relationships Between Blood Lead and Soil Lead Concentrations in Detroit, Michigan* 25 (Jan. 1, 2010) (unpublished M.S. thesis, Wayne State University).

20. *National Lead Poisoning Prevention Week*, *supra* note 14.

21. Barbara Berney, *Round and Round It Goes: The Epidemiology of Childhood Lead Poisoning, 1950-1990*, 71 *MILBANK Q.* 3, 3 (1993).

22. *Lead Poisoning*, KIDS HEALTH, http://kidshealth.org/parent/medical/brain/lead_poisoning.html [<http://perma.cc/43MC-PC8N>] (last visited Feb. 9, 2015).

23. *Id.* at 2.

24. Paul B. Stretesky & Michael J. Lynch, *The Relationship Between Lead and Crime*, 45 *J. HEALTH SOC. BEHAV.* 214, 216 (2004).

25. *Id.* at 214.

26. *Id.* at 215.

27. *Lead Poisoning*, *supra* note 22, at 1.

28. *Id.*

that need it, thus causing anemia.²⁹ “Most lead ends up in the bone, where it causes even more problems.”³⁰ “Lead can interfere with the production of blood cells and the absorption of calcium that bones need to grow healthy and strong.”³¹ Other negative attributes of lead poisoning in children are attention deficit disorder, low I.Q., linguistic deficits, and, in some cases, even autism.³² Recent “research suggests that lead exposure is a potential source of crime and delinquency.”³³ Researchers have “concluded that, ‘lead exposure is associated with increased risk for anti-social and delinquent behavior, and the effect follows a developmental course.’”³⁴ Evidence from these studies additionally suggests that resource deprivation moderates the relationship between lead levels and adverse effects.³⁵ Therefore, “when minorities and the poor are not disproportionately exposed to lead in the environment, they are still more likely than whites and the affluent to suffer from the negative effects of lead.”³⁶ Though lead poisoning is not the sole component responsible for the high levels of adolescent children in the criminal justice system, it is one possible factor that can be eliminated through a collective and concerted effort.³⁷

In 1960, the CDC set national blood lead levels of concern at sixty micrograms per deciliter of blood.³⁸ After years of research from both the scientific and public health communities, the CDC has eliminated the term “blood lead level of concern.”³⁹ As of 2003, the CDC deemed national acceptable elevated blood lead levels in children to be no more than ten micrograms per deciliter of blood.⁴⁰ Most recently, in 2012, the Advisory Committee on Childhood Lead Poisoning Prevention for the CDC set the acceptable blood lead levels at less than five micrograms per deciliter of blood.⁴¹ A collection of the various forms of new research has caused scholars in all fields concerning the lead issue to draw the conclusion that adverse health effects of blood lead levels

29. *Id.*

30. *Id.*

31. *Id.*

32. *Lead Levels Linked to Lower IQ in Children*, ABC NEWS (June 2, 2015), [http://abcnews.go.com/GMA/AmericanFamily/story?id=125121& \[http://perma.cc/JCQ5-T65N\]](http://abcnews.go.com/GMA/AmericanFamily/story?id=125121& [http://perma.cc/JCQ5-T65N]); *Study: Lead Exposure Can Cause Autism*, METRO (Feb. 26, 2013), [http://www.metro.us/news/study-lead-exposure-can-cause-autism/tmWmbz---f8BPut5Sd7fF2/ \[http://perma.cc/Q86N-JPFL\]](http://www.metro.us/news/study-lead-exposure-can-cause-autism/tmWmbz---f8BPut5Sd7fF2/ [http://perma.cc/Q86N-JPFL]).

33. Stretesky & Lynch, *supra* note 24, at 214.

34. *Id.* at 215.

35. *Id.* at 222.

36. *Id.* at 216.

37. *Id.* at 226.

38. ADVISORY COMM. ON CHILDHOOD LEAD POISONING PREVENTION, CTR. FOR DISEASE CONTROL & PREVENTION, *LOW LEVEL LEAD EXPOSURE HARMS CHILDREN: A RENEWED CALL FOR PRIMARY PREVENTION 3* (2012), *available at* [http://www.cdc.gov/nceh/lead/acclpp/final_document_030712.pdf \[http://perma.cc/AS3X-HPBR\]](http://www.cdc.gov/nceh/lead/acclpp/final_document_030712.pdf [http://perma.cc/AS3X-HPBR]).

39. *Id.* at 5.

40. *Id.* at 3-4.

41. *Id.* at 18.

less than five micrograms per deciliter in children extend beyond cognitive function to include cardiovascular, immunological, and endocrine effects.⁴²

The Indiana State Department of Health (“ISDH”) has deemed that children who live in housing built prior to 1978, live in poverty or low-income households, are recipients of Hoosier Healthwise or state Medicaid, or who are of a minority race are at the highest risk of being exposed to lead hazards.⁴³ In 2007, approximately twenty-five million toys were recalled because of high lead content along with other safety hazards.⁴⁴ Recent studies conducted by the Indiana University-Purdue University Indianapolis (IUPUI) School of Science show that the soil that Hoosier children play on, in urban epicenters, is soil that contains up to two hundred or more parts per million of lead during the summer months.⁴⁵ This figure is almost double the natural amount found in more rural areas.⁴⁶ These findings make it apparent that soil is a significant lead hazard for children in Indiana.⁴⁷

In 2012, *USA Today* published the results of a fourteen-month investigation into the high lead levels left in the soil in hundreds of communities nationwide as a byproduct of factories that once inhabited the areas.⁴⁸ These abandoned locations were often lead smelters or other producers of lead or lead products.⁴⁹ As a result of the investigation, at least two former smelter sites were identified in northwest Indiana.⁵⁰ The EPA sent notice of these sites to the Indiana Department of Environmental Management (“IDEM”).⁵¹ IDEM’s response was that it was unable to identify the previous owners of the sites successfully or accurately identify the sites themselves.⁵² For example, in regards to the Charles Braman & Sons factory in Plymouth, Indiana, IDEM stated: “[n]umerous historical industrial directories, as well as Sanborn maps, were consulted without finding any reference to the site. Thus, no sampling was conducted for the

42. *National Lead Poisoning Prevention Week*, *supra* note 14.

43. Ind. Childhood Lead Poisoning Prevention Program, Ind. State Dep’t of Health, Indiana Childhood Lead Poisoning Elimination Plan 2 (2004), *available at* <https://secure.in.gov/isdh/19132.htm> [<http://perma.cc/43MC-PC8N>].

44. Montrece McNeill Ransom et al., *Toward Eradication: How Law and Public Health Can Be Used to Prevent Childhood Lead Poisoning*, 22 TUL. ENVTL. L.J. 1, 2 (2008).

45. Filippelli & Laidlaw, *supra* note 18, at 38.

46. *See* Mark A.S. Laidlaw & Gabriel M. Filippelli, *Resuspension of Urban Soils as a Persistent Source of Lead Poisoning in Children: A Review and New Directions*, 23 APPLIED GEOCHEMISTRY 2021 (2008).

47. Filippelli & Laidlaw, *supra* note 18, at 38.

48. Alison Young & Adam Kerlin, *Ghost Factories Poison in the Ground*, USA TODAY, <http://usatoday30.usatoday.com/news/nation/smelting-lead-contamination/index#sites/38> [<http://perma.cc/FS7U-GBEX>] (last visited Feb. 9, 2015).

49. *Id.*

50. *Id.*

51. *Id.*

52. *Id.*

Charles Braman & Sons [location].”⁵³ Although tests administered at the site did not reveal high concentrations of lead, those done on the soil of homes nearby showed lead levels of up to and greater than four hundred parts per million, which corresponds with remediation levels under the Superfund program administered by the EPA.⁵⁴

The commitment to lead research by scientists and health officials showcase the importance of this issue in communities across the nation.⁵⁵ Solid strides have been made through legislative action and public health initiatives to reduce and treat the large numbers of children who suffered from exposure to lead hazards over the past forty years.⁵⁶ This Article will focus on the legal landscape of childhood lead poisoning legislation over the years and how modifications to current statutes along with public policy initiatives and community involvement can serve as the missing elements that are necessary for eradication of childhood lead poisoning in the State of Indiana.⁵⁷ Part II explores the history of lead pollution and the legislative mechanisms used to address it. Part III examines Indiana’s past efforts to address childhood lead poisoning and their effectiveness, while Part IV presents law and policy options to eradicate childhood lead poisoning in the near future.

II. HISTORICAL OVERVIEW OF LEAD POLLUTION

For centuries, lead has been used in various industrial and manufacturing contexts in the United States.⁵⁸ Since the early 1930s, there has been continuous research conducted in relation to the adverse health effects stemming from the exposure to lead, more commonly known as lead poisoning.⁵⁹ Lead poisoning generally affects human health through three general modes of exposure: (1) Occupational, (2) Universal, and (3) Pediatric.⁶⁰ Occupational and Universal modes serve as the channels of lead exposure that occur in employment environments and the everyday ecosystems (air, water, etc.), respectively.⁶¹ Though both of these modes can still present adverse health issues for humans, currently, the most divisive mode of hazardous lead poisoning is the Pediatric mode.⁶² Pediatric mode will hereinafter be referred to as childhood lead poisoning.⁶³

53. *Id.*

54. *Id.*

55. *See infra* Part II.

56. *See infra* Part III.

57. *See infra* Part IV.

58. Christian Warren, *Little Pamphlets and Big Lies: Federal Authorities Respond to Childhood Lead Poisoning 1935-2003*, 120 PUB. HEALTH REP. 322, 323 (2005).

59. *Id.* at 324.

60. *Id.* at 322-23.

61. *Id.*

62. *Id.* at 323.

63. *Id.*

Concerns about childhood lead poisoning have a rich history in the United States.⁶⁴ Compared to the time period prior to the 1930s, by 1940, there were ten times the number of reported childhood lead poisoning deaths.⁶⁵ A slight shift in the attitudes toward childhood lead poisoning began as physicians started to recognize the similarities in the symptoms amongst their adolescent patients.⁶⁶ Lead was used for pigment and as a drying agent, which allowed companies to stretch lead's use in a myriad of products such as paint and children's toys.⁶⁷ During this same time period, private companies and the general lead industry provided the funding for national research on lead and the truth about the health effects of lead were brushed under the rug.⁶⁸

Health concerns continued to increase and actions promoting awareness on the federal level began to take place between 1930 and 1935.⁶⁹ The U.S. Children's Bureau was the first federal government agency to take action on childhood lead poisoning.⁷⁰ The mission of the Children's Bureau is to "improve the overall health and well-being of our nation's children and families."⁷¹ In accordance with their mission, the Children's Bureau performed small scale research about lead, compiled educational publications about lead poisoning in children, and distributed them to doctors' offices, health departments, and schools between the 1960s and the 1970s.⁷² The Children's Bureau publication distributed approximately 29,000 copies to the public, as opposed to the 61,000 copies of a popular Lead Industry pamphlet that included skewed statistics regarding lead.⁷³ Research efforts around the problem of childhood lead poisoning progressed and the medical community solidified the correlation between the harm and the toxicity of lead, which eventually led to legislation.⁷⁴

Publicity and activism around lead poisoning of mostly poor children were key factors that influenced lead poisoning legislation.⁷⁵ Since the outset, the laws pertaining to childhood lead poisoning have focused almost exclusively on lead in paint.⁷⁶ Much of the foundational research identifies lead in paint as the

64. *Id.* at 324-26.

65. *Id.* at 323.

66. *Id.*

67. *Id.* at 325-26.

68. *Id.* at 322.

69. *Id.* at 324.

70. *See id.* at 324-25 (highlighting the Children's Bureau's response to childhood lead poisoning).

71. *CB FACT SHEET*, CHILD. BUREAU, <http://www.acf.hhs.gov/programs/cb/fact-sheet-cb> [<http://perma.cc/AJW4-ZDG8>] (last visited Aug. 22, 2015).

72. Warren, *supra* note 58, at 325.

73. *Id.*

74. *Id.* at 326.

75. *Id.*

76. Clifford L. Rechtschaffen, *The Lead Poisoning Challenge: An Approach for California and Other States*, 21 HARV. ENVTL. L. REV. 387, 387 (1997).

primary mode of exposure for children.⁷⁷ To that end, Congress passed the Lead-Based Paint Poisoning Prevention Act (“LPPPA”) in 1971.⁷⁸ This particular statute gave the Department of Housing and Urban Development (“HUD”) the necessary legal teeth to eliminate lead-based paint in public housing.⁷⁹ Though these efforts were admirable, the job of removing lead paint from the millions of public housing complexes across the nation would prove to be more demanding than the agency actually had the resources to address.⁸⁰ Additionally, the passage of LPPPA only addressed lead paint in federal public housing and neglected the millions of children exposed to lead who lived in private homes.⁸¹ Federal legislation that focused primarily on the lead paint issue in public housing contributed to shaping societies prospective that childhood lead poisoning was exclusively a poor child’s condition.⁸²

The legal landscape expanded in 1974 with the passing of the Safe Drinking Water Act (“SDWA”), which Congress later amended in 1986 and 1996.⁸³ The regulatory role of the SDWA has evolved over time.⁸⁴ Originally, it was enacted to treat public waters that contained harmful contaminants such as lead.⁸⁵ The SDWA provides the framework Congress outlined for approaching these issues.⁸⁶ Lead contamination is not exclusive to particular geographic regions; thus, the government established a system where compliance regulations were set nationally, but states are given the responsibility to implement and enforce programs that fit within those parameters.⁸⁷ The SDWA birthed the current program for regulating public water programs—the Public Water Supply Supervision program (“PWSS”).⁸⁸ Forty-nine states and the District of Columbia use the PWSS program to manage local public water operations.⁸⁹ In relation to the focus of this article, the most significant byproduct of the SDWA is the Lead Contamination and Control Act (“LCCA”) that was enacted in 1988.⁹⁰ The provisions of LCCA were intended to reduce exposure to lead in drinking water by requiring the recall of lead-lined water coolers and requiring the EPA to issue a guidance document and testing protocol for states to help schools and day care

77. *Id.* at 393.

78. *Id.* at 396-97.

79. *Id.* at 397.

80. *Id.*

81. *Id.*

82. *Id.*

83. *Safe Drinking Water Act*, ENVTL. PROT. AGENCY, <http://water.epa.gov/lawsregs/rulesregs/sdwa/index.cfm> [<http://perma.cc/9VFA-4ACR>] (last visited Sept. 7, 2015).

84. *Id.*

85. *Id.*

86. *Id.*

87. *Id.*

88. *Id.*

89. *Id.*

90. *Id.*

centers identify and correct lead contamination in school drinking water.⁹¹ Because lead in public water sources was not deemed a highly critical mode of exposure, the SDWA was considered sufficient to address the issue of lead contamination in water.⁹² Later legislation would shift the focus back towards lead paint in homes, which public health scholars deemed the most prominent source of exposure for the nation's most vulnerable population—children below age ten at the time.⁹³ Other statutes, such as the Toxic Substance Control Act (“TSCA”) passed originally in 1976, provided the EPA with the authority to mandate reporting, record-keeping, and testing requirements, and regulate chemical substances and mixtures *inter alia*.⁹⁴ TSCA also addressed the presence of lead-based paint in interiors and exteriors of agricultural and agribusiness buildings.⁹⁵

The early 1990s was a significant period of influence for national environmental concerns as well as environmental justice issues.⁹⁶ The EPA defines environmental justice as:

[T]he fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socio-economic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.⁹⁷

Because industrial and commercial operations typically cause childhood lead poisoning and thereby force children of color in urban neighborhoods to bear a disproportionate share of those consequences, childhood lead poisoning is an environmental justice issue.⁹⁸ Various grassroots organizations mobilized to address environmental justice issues in low income and minority communities across the United States.⁹⁹ On February 16, 1994, President William J. Clinton

91. MARY TIEMANN, CONG. RESEARCH SERV., SAFE DRINKING WATER ACT (SDWA): A SUMMARY OF THE ACT AND ITS MAJOR REQUIREMENTS (Feb. 5, 2014), *available at* <http://www.fas.org/sgp/crs/misc/RL31243.pdf> [<http://perma.cc/LA2D-GRYR>].

92. *Id.*

93. *Id.*

94. LINDA-JO SCHIEROW, CONG. RESEARCH SERV., THE TOXIC SUBSTANCES CONTROL ACT (TSCA): A SUMMARY OF THE ACT AND ITS MAJOR REQUIREMENTS (2013), *available at* <https://www.fas.org/sgp/crs/misc/RL31905.pdf> [<http://perma.cc/8SN2-L4TQ>].

95. *Toxic Substances Control Act (TSCA)*, ENVTL. PROT. AGENCY, <http://www.epa.gov/agriculture/lsc.html#Lead-Based-Paint> [<http://perma.cc/Q3UT-XWXQ>] (last updated June 27, 2012).

96. THE QUEST FOR ENVIRONMENTAL JUSTICE 4 (Robert Bullard ed., 2005).

97. *Id.*

98. *Id.* at 4-5.

99. *Id.* at 6-7.

signed Executive Order 12898 to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities.¹⁰⁰

In accordance with the view that exposure through paint in homes built before 1978 was the primary method of exposure for children with lead poisoning, the next major legislative action taken to address the issue of childhood lead poisoning was the Residential Lead-Based Paint Hazard Reduction Act of 1992, also known as Title X.¹⁰¹ Because LPPPA authorized the regulation of lead paint in public housing funded by the federal government, presumably delegating authority to the states to address lead poisoning issues in non-federally funded housing, the federal government chose to maneuver through existing federal authority to address the loopholes in the plans to combat childhood lead poisoning.¹⁰² Thus, Title X was written to apply to both the EPA and HUD.¹⁰³ Contrary to LPPPA, Title X sought to address not only the presence of lead paint, but also the conditions that cause harmful exposures to lead.¹⁰⁴ It also expanded the definition of what researchers and lay people alike understood as a lead hazard in relation to human life.¹⁰⁵ Scholars argue that Title X embodies an environmental paradigm rather than a housing paradigm as a means of addressing lead-based paint hazards.¹⁰⁶ The environmental paradigm encompasses the idea that more pronounced standards regarding lead were necessary and emphasizes the need for disclosure to the public regarding the presence of lead-based paint and lead-based paint hazards that could result from such exposure.¹⁰⁷ Instead of focusing on the elimination of lead paint in all homes across the United States, Title X implements lead hazard evaluations and interim control measures for lead paint in federally owned public housing or housing subsidized by the federal government.¹⁰⁸ The most essential change in Title X was that it provided deadlines for abatement of the lead hazards LPPPA failed to introduce.¹⁰⁹ Title X represents the extent of federal laws specifically addressing lead hazards and childhood lead poisoning.¹¹⁰ Because Title X did not prescribe standards of care for private housing, states were left with the responsibility of enacting legislation that appropriately addressed the lead problem within their own jurisdictions.¹¹¹

An additional source of federal authority that deals with remediation of lead

100. *Id.* at 7.

101. Rechtschaffen, *supra* note 76, at 397.

102. *Id.* at 396-402.

103. *Id.* at 398-402.

104. *Id.* at 398.

105. *Id.* at 397-98.

106. *Id.* at 397.

107. *Id.* at 397-98.

108. *Id.* at 399.

109. *Id.*

110. *Id.* at 396-402.

111. *Id.* at 400.

and other hazardous chemicals is the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”).¹¹² CERCLA is commonly referred to as Superfund.¹¹³ CERCLA gives federal authorities broad authority to respond to threatened and actual releases of harmful substances that may endanger public health.¹¹⁴ CERCLA taxes the industries that release toxic substances.¹¹⁵ Over time the funds collected as a result of the tax are placed into a fund that is used to clean up abandoned waste sites.¹¹⁶ “The Superfund cleanup process begins with site discovery or notification to the EPA of possible releases of hazardous substances.”¹¹⁷ Sites may be “discovered by various parties, including citizens, State agencies, and EPA Regional offices.” “Once discovered, sites are entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).”¹¹⁸ “EPA then evaluates the potential for a release of hazardous substances from the site through [a series of] steps in the Superfund cleanup process.”¹¹⁹ CERCLA provides short-term removal plans, as well as long-term removal plans for sites on the EPA’s National Priorities List (NPL).¹²⁰ The EPA focuses resources and clean-up on sites with the higher known releases or threatened releases of hazardous substances and pollutants, which are featured on the NPL.¹²¹ In addition to the fund, CERCLA lays the liability framework for identifying potentially responsible parties at sites.¹²² Additionally, in accordance with revitalization and remediation efforts, the EPA created the Brownfields Program, which provides grants to fund environmental assessments, clean-up, and job training activities on properties whose sale or transfer may be complicated by the presence or perceived presence of contamination.¹²³ These programs allow for the cleanup of many sites with lead and other contaminants that would otherwise be left unaddressed.

112. *CERCLA Overview*, ENVTL. PROT. AGENCY, <http://www.epa.gov/superfund/policy/cercla.htm> [<http://perma.cc/B2ND-WR68>] (last updated Dec. 12, 2011).

113. *Id.*

114. *Id.*

115. *Id.*

116. *Id.*

117. *Cleanup Process*, ENVTL. PROT. AGENCY, <http://www.epa.gov/superfund/cleanup/index.htm> [<http://perma.cc/R9H3-FC2Y>] (last updated Dec. 24, 2013).

118. *Id.*

119. *Id.*

120. *CERCLA Overview*, *supra* note 112.

121. *Id.*

122. *Basic Information*, ENVTL. PROT. AGENCY, <http://www.epa.gov/superfund/about.htm> [<http://perma.cc/8VUU-5CJ9>] (last updated Aug. 11, 2015).

123. *Brownfields and Land Revitalization*, ENVTL. PROT. AGENCY, http://www.epa.gov/brownfields/basic_info.htm [<http://perma.cc/8QP7-23X3>] (last updated July 16, 2012).

III. INDIANA'S PAST EFFORTS TO ADDRESS CHILDHOOD LEAD POISONING

The prevailing structure for addressing childhood lead poisoning is through federal funding passed on to the states, who are then given the requisite funds and authority to carry out programs that will remedy their respective childhood lead poisoning problems.¹²⁴ Most states typically follow the national example and appropriate funds and direct responsibilities to county health departments.¹²⁵ The push for the overall recognition of environmental justice issues by local communities and grassroots organizations, along with President Clinton's Executive Order 12898 and corresponding federal legislation, served as a catalyst for state action in the mid-1990s.¹²⁶ However, to date, no substantive legislative action has been taken to address lead problems directly in most private housing or the substantial soil-based lead contamination in the State of Indiana.¹²⁷

In 1997, the Indiana General Assembly passed Indiana Code section 16-41-39.4, the state's Childhood Lead Poisoning Law ("CLPL").¹²⁸ The Indiana Childhood Lead Poisoning Law falls under the Public Health section of the Indiana Code.¹²⁹ Thus, the law, as originally drafted, merely outlined the role of the ISDH, which included determining the magnitude of the lead issue in Indiana, developing and maintaining a database of the children affected by lead, and coordinating with local health departments and social service organizations.¹³⁰ In 2002, the statute was amended to give specific directives on blood testing for lead exposure, the corresponding reports, and the penalties that would result in the event of incorrect procedure.¹³¹ The latest amendments to Indiana's Childhood Lead Poisoning Law took place in 2008.¹³² These amendments included provisions that addressed lead safe practices in the workplace and also the development of a childhood lead poisoning prevention fund.¹³³ The statute gives the state treasurer the authority to invest money from the fund that is not currently needed for its proscribed purposes and authorizes the interest accrued from those investments to be placed back into the fund.¹³⁴ The statute under section 9.3 also established a lead-safe housing advisory council, but that section of the statute expired as of July 7, 2011.¹³⁵

Following the structure of many other states, Indiana did in fact delegate lead

124. Rechtschaffen, *supra* note 76, at 400.

125. *Id.* at 403.

126. THE QUEST FOR ENVIRONMENTAL JUSTICE, *supra* note 96, at 2-3.

127. IND. CODE §§ 16-41-39.4-1 to -9 (2008).

128. *Id.*

129. *Id.*

130. *Id.*

131. *Id.*

132. *Id.*

133. *Id.*

134. *Id.*

135. *Id.*

poisoning programing to local government entities.¹³⁶ Because children of color are generally at the highest risk of exposure, this Article analyzes the childhood lead poisoning programs of Indiana's counties with the highest populations of African Americans, Latinos, Asian Americans, and others.¹³⁷ Lake County and Marion County feature the most highly concentrated populations of children with or at risk of lead poisoning.¹³⁸ In 1997, the Marion County Health Department was awarded a grant from the CDC to increase staff and outreach activities for its Marion County Childhood Lead Poisoning Prevention Program ("MCCLPPP").¹³⁹ Additionally, in 1998, MCCLPPP was awarded a grant from IDEM for educational and door-to-door screenings in census tract communities where children with the highest risks lived.¹⁴⁰ With funding from the State, Lake County dispersed funds to cities within its county, such as the City of Gary, to administer their own lead prevention programs.¹⁴¹ The program within the City of Gary offers free blood lead testing for children ages six and under and pregnant women, as well as medical and environmental case management of lead poisoned children and remediation referrals.¹⁴²

As previously noted, childhood lead poisoning is not a new phenomenon.¹⁴³ Actions to address the issue have taken place on the national level for over forty years.¹⁴⁴ Unfortunately, the national legislation coupled with existing state statutes and initiatives have not been sufficient measures to eliminate the significant threat that childhood lead poisoning still poses to children of color today.¹⁴⁵ History has shown that a unilateral approach to addressing childhood lead poisoning has been inadequate to remedy this problem. This Article suggests that a multifaceted approach would be most effective in reaching the elimination goals set by the ISDH in its 2004 Childhood Lead Poisoning Elimination Plan.¹⁴⁶ While acknowledging that over the past four decades childhood lead poisoning in Indiana has substantially declined, this Article proposes recommendations that can be adopted to ensure that in 2015, the State of Indiana and the local government entities within it focus their efforts toward eradication of the existing childhood lead poisoning problem rather than the current model that neglects

136. *Id.*

137. *Ind. Childhood Lead Poisoning Prevention Program, supra* note 43, at 2.

138. *Id.* at 16.

139. *Lead Safe and Healthy Homes Department, Marion County Health Dep't*, http://mchddatamart.com/site_index_detail.php?ID=224 [<http://perma.cc/FU8L-8WA9>] (last visited Sept. 7, 2015).

140. *Id.*

141. *Id.*

142. *Gary Childhood Lead Poisoning Prevention Program, City of Gary, Ind.*, http://www.gary.in.us/healthandhumanservices/health_clppp.asp [<http://perma.cc/H446-EUXP>] (last visited Sept. 7, 2015).

143. Warren, *supra* note 58, at 323-24.

144. *Id.*

145. *See generally* SURVEILLANCE REPORT, *supra* note 4.

146. *See generally* *Ind. Childhood Lead Poisoning Prevention Program, supra* note 43.

some sources of lead that are plaguing many communities of minority children.¹⁴⁷

The first and, what this Article would argue, most critical element necessary in eradicating childhood lead poisoning in Indiana is a successful public policy campaign that both further educates the parents of at risk children on the adverse effects of lead and provides more alternative measures that are focused on primary prevention.¹⁴⁸ Of the estimated 606,000 children in Indiana ages seven and under, only 9.1% of those children were tested for elevated blood lead levels in 2012.¹⁴⁹ The State of Indiana has only seen a decrease of 191 identified children affected with lead poisoning from 2004 until 2012.¹⁵⁰ This is due in part to the fact that, under current Indiana law, testing for childhood lead poisoning is only required for a specific demographic of children, those who are recipients of state Medicaid.¹⁵¹ Despite this legal requirement, many of these children continue to slip through the cracks and are not being screened for elevated blood lead levels.¹⁵² Subtle changes have been made through legislation to take Indiana from a secondary prevention to primary prevention state; that is, state action that initially focused on children who already had elevated blood lead levels rather than measures to eliminate the sources of lead.¹⁵³ The 2010 amendments to Indiana Code section 16-41-39.4 mandated landlords, business owners, and homeowners to adhere to specific practices to prevent lead contamination in pre-1978 homes.¹⁵⁴ To accomplish the goal of elevated blood lead level elimination by 2020, as established by the Indiana Lead and Healthy Homes Program's ("ILHHP") plan, a more assertive public policy approach must take place.¹⁵⁵ Research has shown that when implementing public policy issues concerning lead, "some of the issues that may hinder the translation of research into policy include the relevance of the issue, the lack of channels through which academic research can be communicated to the public and to policy makers, and the acceptability and feasibility of the solution."¹⁵⁶ Fortunately, with the work that has taken place regarding childhood lead poisoning in Indiana, convincing policy makers that there is an issue should not be a problem. Communicating the severity of the issue, however, could be problematic. When recommending changes to the state's approach to the lead issue, policy makers and legislators should be made aware of the public nuisance posed by lead and the mechanisms by which it can realistically be done away with.¹⁵⁷ The ILHHP's report provides

147. SURVEILLANCE REPORT, *supra* note 4, at 9.

148. *Id.* at 3.

149. *Id.*

150. *Id.*

151. *Id.* at 3, 13-14.

152. *Id.*

153. *See generally* IND. CODE §§ 16-41-39.4-1 to -9 (2008).

154. *Id.* § 16-41-39.4-9.

155. *Lead and Healthy Homes Program*, *supra* note 17.

156. Felicia A. Rabito et al., *From Research to Policy: Targeting the Primary Prevention of Childhood Lead Poisoning*, 119 PUB. HEALTH REP. 273 (2004).

157. *Id.*

a wealth of information on the childhood lead poisoning issue, but it falls short. Consistently, the report illustrates the state's drastic failure to test the minimally required number of children.¹⁵⁸ Although federal law requires that all children receiving Medicaid be tested for lead poisoning, the state has consistently tested less than one third of the target population.¹⁵⁹ This contributes to an undercount of children suffering lead poisoning and those at risk of harm.¹⁶⁰ Convincing policy makers to invest the requisite resources and commitment needed to test the large numbers of children currently neglected is an initial minimum obligation for Indiana.

The ILHHP's report provides a wealth of information on the childhood lead poisoning issue, but those findings are only being communicated to top federal and state health officials. Implementing community-based programs that allow citizens to be informed of the findings and learn the skills to combat lead actively in their communities would be a small change that would produce monumental results. These types of programs have proven to be effective in other communities across the United States. For example, in New Orleans, community workers called "Lead Busters" work inside their communities to inform residents about issues such as lead in the soil, treatment programs, and other aspects of health education in community forums.¹⁶¹ In Marion County specifically, various neighborhood organizations such as the Brightwood Community Center and the Mapleton-Fall Creek Neighborhood Association already exist and have small-scale programs that work towards making the community more environmentally conscious.¹⁶² That said, the outreach component necessary for effective public policy is already established in many communities. Instituting these types of public policy changes would not only help to eradicate the lead issue but would also promote the resurgence of a sense of community in participating neighborhoods.

IV. ERADICATING CHILDHOOD LEAD POISONING

Another significant concern when implementing public policy or instituting the type of changes necessary to eliminate childhood lead poisoning is funding. As this Article indicates, this issue is very prevalent in the lives of families who live at or very near the poverty line.¹⁶³ That said, the resources within these communities are insufficient to resolve this issue, but even if they were sufficient, these victims of pollution should not be required to channel their limited resources to cleaning up the dangerous and damaging mess made by the unrestrained and unremediated pollution caused by some of America's most

158. SURVEILLANCE REPORT, *supra* note 4, at 13-14.

159. *Id.* at 13.

160. *Id.* at 13-14.

161. *See* Rabito et al., *supra* note 156, at 274.

162. MAPLETON-FALL CREEK DEV. CORP., <https://mfcdc.sharepoint.com/Pages/default.aspx> [<http://perma.cc/KS9Q-WZME>] (last visited Sept. 7, 2015).

163. Ransom et al., *supra* note 44.

successful companies. Responsibility for this problem rests with petroleum companies, paint manufacturers, industrial lead smelting operations, and other lead emitting operations.¹⁶⁴ Accordingly, the state government has a responsibility to hold polluting entities responsible by passing suitable legislation or correcting the problem through its action.

Indiana has acted in a minor way through Indiana Code section 16-41-39.4-3.1, the Childhood Lead Poisoning Prevention Fund.¹⁶⁵ Under this legislation, the state offers funding for outreach and prevention activities.¹⁶⁶ In the ILHHP's 2013 Annual Surveillance Report, there is no mention of any outreach or educational programs that are being sponsored by the fund in an effort to work towards the stated goal of eradication and compliance with the U.S. Department of Health and Human Services' Healthy People 2020 objectives.¹⁶⁷

To end the poisoning of thousands of children, Indiana Code section 16-41-39.4-3.1 should be amended by broadening the language to allow the funds to be used for remediation and abatement programs. Allowing these funds to finance remediation programs in local communities is critical to reaching the state's goal of eliminating lead poisoning for children by 2020. These funds can be used to support the development of new and existing technology companies that are capable of carrying out remediation efforts. For example, in regards to lead-based paint, the State of Indiana requires a license and certification for individuals or businesses who remove the paint from residential and commercial structures.¹⁶⁸ With funds from the Lead Prevention Fund, local community organizations could develop programs and workshops that allow men and women in the lead stricken communities to gain a new skill set, become certified with the state, and also play an active role in rebuilding and remediating where their children live and play. Moreover, by creating contracting and job opportunities, the State will help residents develop new skill sets that enhance their employment prospects. This would result in additional tax revenues for the State as a whole and bring much needed resources in some low-income communities.

The next recommendation is the creation of new lead legislation. At first thought, new legislation might seem counterproductive in light of the existing laws to address childhood lead poisoning. However, the proposed legislation would address a different aspect of the problem, while working towards the same goal. The federal CERCLA statute has proven very effective in the remediation of hazardous sites throughout the country.¹⁶⁹ Before any action is taken, CERCLA requires a preliminary assessment to determine if a site actually poses a significant threat.¹⁷⁰ After the preliminary assessment, CERCLA requires that a site meet specific qualifications to even be considered on the NPL, thus initiating

164. Young & Kerlin, *supra* note 48.

165. IND. CODE §§ 16-41-39.4-1 to -9 (2008).

166. SURVEILLANCE REPORT, *supra* note 4.

167. *Id.* at 3.

168. *Id.*

169. CERCLA Overview, *supra* note 112.

170. *Id.*

federal action to clean up the site.¹⁷¹ As illustrated by *USA Today*'s lead smelting factories investigation, some of the known hazardous sites in Indiana do not reach a level that would qualify for federal action. Therefore, CERCLA would not be assessable to address the seemingly "small scale" hazardous lead sites in Indiana.¹⁷² Although most lead soil contamination in Indiana may not qualify for action under Superfund, much of it still adversely affects the health of Indiana's children and families.¹⁷³ Accordingly, the Indiana General Assembly should develop a statutory scheme similar to CERCLA to address lead soil contamination throughout Indiana through proven remediation methods. This legislation could set up a fund that would be used to clean up lead contamination, which is currently concentrated at unsafe levels in the state's urban areas. This would allow the state to direct funds to end the redeposition of lead contaminated soils that make up the dust responsible for the continued lead poisoning of children. In some cases, remediation funds could be replenished through use of the Indiana's Environmental Legal Action statute, which allows recovery from parties responsible for contaminating property.¹⁷⁴ Such a statute would be instrumental in eliminating larger concentrations of lead and other hazardous waste within Indiana. This would promote primary prevention initiatives in relation to childhood lead poisoning and eliminate substantial sources of lead in overlooked communities.

CONCLUSION

Childhood lead poisoning is one of the most preventable environmental diseases, yet it still poses a major health threat to thousands of Indiana's children in 2015.¹⁷⁵ Over the past forty years, important strides have been made on the issue, but the established approach remains insufficient to eliminate the issue from the country's most vulnerable population, children under the age of seven years old.¹⁷⁶ Since 1992, the EPA and state environmental organizations have been aware that children of color are at much great risk from the dangers of lead.¹⁷⁷ Unfortunately, the racial disparities of lead exposure and injury remain firmly intact despite real progress in reducing the lead exposure of children.¹⁷⁸ Indiana's current approach will neither eradicate lead poisoning of children nor diminish the drastic racial disparities that currently exist. Besides underestimating the number of lead-poisoned children in the state, Indiana's approach fails to make use of the most recent scientific findings regarding the source of lead

171. *Id.*

172. Young & Kerlin, *supra* note 48.

173. *CERCLA Overview*, *supra* note 112.

174. IND. CODE §§ 13-30-9-1, -2 (2007).

175. SURVEILLANCE REPORT, *supra* note 4.

176. Warren, *supra* note 58, at 322, 323.

177. *Id.*

178. Young & Kerlin, *supra* note 48.

contamination.¹⁷⁹ Through legal reform, public policy adjustments, and community involvement Indiana can make the changes necessary to end racial disparities in lead exposure and eradicate childhood lead poisoning for all children.

179. SURVEILLANCE REPORT, *supra* note 4.