



THE ROLE OF WIC IN LEAD SCREENING

Introduction: The WIC Program



Providing nutritious foods to supplement diets, nutrition counseling, breastfeeding support, and access to health services for the nation's low-income women, infants and children, the mission of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is to safeguard the health of this population. Serving 4.15 million children in 2018, children between the ages of one and five make up over 50% of all WIC participants.¹ With decades of research demonstrating that WIC improves the nutrient intake of low-income children, WIC plays a unique role in not only providing referrals for lead screening but also in helping to prevent the absorption of lead in children through adequate nutrient intake.²

A potent neurotoxin, lead poisoning can impair brain development thereby resulting in a reduced I.Q and behavioral changes such as reduced attention span and increased antisocial behavior. At high levels of exposure, lead attacks both the brain and nervous system thus causing coma, convulsions and even death.³ Lead exposure can also result in anemia, hypertension, renal impairment, and immunotoxicity. Believed to be irreversible, the neurological and behavioral effects of lead cannot be minimized.⁴ Therefore, it's important to understand the factors that contribute to, and increase, a child's likelihood of lead poisoning.

The National WIC Association (NWA) is the non-profit education arm and advocacy voice of WIC, the over 6.3 million mothers and young children served by WIC and the 12,000 service provider agencies who are the front lines of WIC's public health nutrition services for the nation's nutritionally at-risk mothers and young children. NWA's efforts on behalf of WIC have been effective in gaining broad support for the program, including bipartisan support of the US Congress, successive Administrations, advocacy groups, the health care sector, religious organizations, and the business community.



NWA recognizes that lead poisoning has serious health consequences and emphasizes WIC's role in enhancing health care through education, referrals, and care coordination. NWA supports a collaborative effort involving a child's health care provider, other public health programs, and WIC to prevent the risks associated with lead poisoning in children.

History of Lead Screening in WIC

In 1979, CDC initiated a coordinated effort to detect and prevent childhood lead poisoning. Other agencies that had major roles were the Department of Health and Human Services (DHHS), Bureau of Community Health Services, Early and Periodic Screening Diagnostic and Treatment Program (EPSDT), and the Department of Housing and Urban Development. At that time, an inexpensive screening test, Erythrocyte Protoporphyrin (EP), was available for the detection of high blood lead levels as well as a test for iron-deficiency anemia in determining nutritional risk for WIC eligibility. WIC's role was to identify children with possible lead toxicity and refer them for further testing without additional invasive testing.

In 1983, with the onset of the Maternal and Child Health block grant, the CDC coordinated lead screening program was dismantled. Lead screening was simultaneously removed as a mandated service in the MCH block grant. In 1991, CDC recommended the replacement of the EP test for blood lead levels with a more sensitive and complex lab procedure which involved taking capillary blood samples. While capillary blood testing is more sensitive than the EP test, blood capillary testing requires more staff technical skill and participant preparation time to reduce the high possibility of contamination resulting from improper blood collection techniques. In addition, an elevated capillary blood lead level must be confirmed by a venous blood sample.



At-Risk Populations for Lead Exposure

Children under the age 6 are at greatest risk for lead poisoning due to the rapid growth and brain development they experience during this life stage and because they tend to put their hands, along with other objects that may be contaminated with lead dust, into their mouths. To protect against lead poisoning, at-risk children are best served through lead screening, diagnosis, and tracking administered by their primary health care provider. Additional populations at risk for lead exposure include non-Hispanic Black children, refugee children, pregnant women, and workers of certain occupations.^{5,6,7}

1. Non-Hispanic Black

Research shows that lead exposure is vertically transmitted, from mother-to-child, in Black children before they are born and persists into early childhood. In one study, Black children had 2.2

times higher lead levels in the second and third trimesters and 1.9 times higher lead levels post-natally in the first year of life compared to their White counterparts.⁸

2. Refugee Children

After the resettlement of 242 refugee children predominantly from Africa in 2004, a significant number, ages 6 months to 15 years, developed elevated lead levels. Environmental investigations found moderate lead hazards in these children's residence with some contamination in the soil of the play areas frequented by them. While little is known about lead exposure in the country of origin, data and research shows that most refugee children are poisoned after their arrival in the US.^{9,10}

3. Pregnant Women

According to risk code 211, Elevated Blood Levels, put forth by the United States Department of Agriculture's Food and Nutrition Service, lead poisoning during pregnancy results in lead crossing the placenta and can detrimentally impact the fetus.¹¹ Although WIC does not screen pregnant women for lead poisoning, staff are able to provide referrals to women who report being diagnosed with lead poisoning.

4. Occupational Factors

Certain industries put workers at risk for lead exposure. These occupations range from artists and auto repairers to construction workers, shipbuilders, and those working directly with lead such as lead manufacturers, miners, refiners, and smelters.¹² Additionally, military service may put service members and their families at risk for lead exposure.¹³ The Military Family Advisory Network (MFAN) recently released a preliminary report based on a poll of military families living on base and found that more than half of families living in privately managed housing reported negative experiences including lead exposure. Report findings also revealed that lead in the paint and water of military housing are among the many issues that these families cope with.¹⁴

Socioeconomic Factors, Health Equity, and Environmental Justice



Low income and minority children are disproportionately impacted by lead exposure predominantly through contact with deteriorating lead-based paint from older homes and through contaminated drinking water due to failing leaded pipes.¹⁵ Approximately 24 million housing units have deteriorated leaded paint and elevated levels of lead-contaminated house dust with more than 4 million of these dwellings housing one or more young children.¹⁶ Data also shows that a total of 535,000 US children ages 1 to 5 have blood lead levels high enough to result in damaged health.¹⁷

Additionally, the lead crises in Flint, Michigan and Newark, New Jersey speaks to how certain disadvantaged populations suffer from lead exposure. Despite years of complaints from residents in both cities, officials constantly denied allegations of lead contamination in the water, claiming instead that the tap water was safe for human consumption. For both cities, the populations most impacted were low-income, Black communities – in Flint, 54.1% of residents are Black with 38.8% living in poverty and in Newark, 50.1% of residents are Black and 27.4% live in poverty.^{18,19} Because certain population groups are disproportionately impacted by lead exposure in their environment, the need for an environmental justice approach in addressing this issue is all the more imperative.

Beginning as a movement in the 1980s, the environmental justice movement is a direct result of the Civil Rights movement of the 1950s, 60s and 70s. Environmental justice addresses the significance of a healthy environment as a necessary component to a healthy life and focuses on disproportionate exposures to environmental toxins and pollution as well as quality of life issues including housing, transportation, employment, food access, inclusion, etc.²⁰ An environmental justice approach towards addressing lead poisoning involves a coordinated and comprehensive effort that includes the creation of multilevel and multisectoral policies and partnerships, such as the provision of access to reliable transportation and food systems while fostering ideas from those within and outside of low-income and minority neighborhoods.²¹ In order to make true and meaningful progress in the reduction of lead poisoning, issues such as racial residential segregation, unemployment, educational attainment, and home ownership must be addressed.²²

WIC's Role in Lead Screening

WIC is not funded at a sufficient level to provide medical services, care coordination/case management, or medical nutrition therapy warranted by the serious consequences of accurate identification of lead poisoning. The EPSDT program, funded through Medicaid, is already required to screen children for lead poisoning. Although it's been suggested that Medicaid can reimburse WIC, the reimbursement process would require additional administrative staff and enhancements to financial billing systems in order to assure that reimbursements go directly into the WIC budget at the state or local level. Additionally, not all WIC agencies are Medicaid providers.

The additional costs associated with implementing enhanced lead screening efforts would compromise the nutrition services provided to WIC participants. The associated additional costs include:

- 1** The availability of staff to perform testing;
- 2** Additional staff time (i.e. lengthy procedures for lead sticks require longer waiting times for participants adversely affecting clinic flow and resulting in a decrease of participants served);
- 3** Computer system enhancements;
- 4** Clinic renovation or relocation costs which in some cases may not be practical;

- 5 Clinical Laboratory Improvement Amendments (CLIA) costs for on-site lab supervision;
- 6 CLIA waivers/certifications. Costs of testing equipment and overhead resulting from changes in current practice;
- 7 Lengthened clinic time becomes a barrier to service for working parents.

Although WIC does not have a specific legislative mandate to screen for childhood lead poisoning, some state WIC agencies provide counseling, referrals, paper screenings and capillary blood screening.

Recommendations: How WIC Can Support and Prevent Lead Poisoning in Children

Given the aforementioned factors, the appropriate role for WIC in preventing lead poisoning is one where staff provide information and referrals while assisting in an appropriate plan of nutrition intervention through nutrition education. Therefore, NWA recommends that:

- » The health care provider conduct a blood lead test as part of the well-child health visit.
- » WIC staff provide nutrition counselling and education to participants at risk of high-dose exposure to lead.
- » WIC staff provide referrals for children at high risk of lead poisoning.
- » WIC receive adequate funding to support lead screening activities.

Conclusion

The important role that WIC plays in lead screening cannot be understated because the program serves those populations at highest risk for lead poisoning. By providing referrals for lead screening and appropriate nutrition education, WIC continues to ensure and protect the health of its participants through effective nutrition services.

¹United States Department of Agriculture, Food and Nutrition Service (2020) WIC Participant and Program Characteristics 2018 Final Report. Available online: <https://fns-prod.azureedge.net/sites/default/files/resource-files/WICPC2018.pdf>.

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³World Health Organization (2021) Lead poisoning and health. Accessed online: <https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>.

⁴World Health Organization (2021) Lead poisoning and health. Accessed online: <https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>.

⁵Centers for Disease Control and Prevention (2021) Childhood Lead Poisoning Prevention. Accessed online: <https://www.cdc.gov/nceh/lead/prevention/populations.htm>.

⁶Centers for Disease Control and Prevention (2018) The National Institute for Occupational Safety and Health (NIOSH) Lead. Accessed online: <https://www.cdc.gov/niosh/topics/lead/jobs.html>.

⁷Military Family Advisory Network (2019) United States Senate Committee on Armed Services Joint Subcommittee on Personnel, Readiness, and Management Support Preliminary Research Report: Living Conditions of Families in Privatized Military Housing. Accessed online: http://militaryfamilyadvisorynetwork.org/wp-content/uploads/Privatized-Military-Housing-Survey-Report-5_20.pdf.

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¹¹United States Department of Agriculture, Food and Nutrition Service (2015) 211 Elevated Blood Lead Levels.

¹²Centers for Disease Control and Prevention (2018) The National Institute for Occupational Safety and Health (NIOSH) Lead. Accessed online: <https://www.cdc.gov/niosh/topics/lead/jobs.html>.

¹³Military Family Advisory Network (2019) United States Senate Committee on Armed Services Joint Subcommittee on Personnel, Readiness, and Management Support Preliminary Research Report: Living Conditions of Families in Privatized Military Housing. Accessed online: http://militaryfamilyadvisorynetwork.org/wp-content/uploads/Privatized-Military-Housing-Survey-Report-5_20.pdf.

¹⁴Military Family Advisory Network (2019) United States Senate Committee on Armed Services Joint Subcommittee on Personnel, Readiness, and Management Support Preliminary Research Report: Living Conditions of Families in Privatized Military Housing. Accessed online: http://militaryfamilyadvisorynetwork.org/wp-content/uploads/Privatized-Military-Housing-Survey-Report-5_20.pdf.

¹⁵Whitehead L, Buchanan S (2019) Childhood Lead Poisoning A Perpetual Environmental Justice Issue? *Journal of Public Health Management and Practice*, Vol 25, Issue . pp S115–S120. Available online: https://journals.lww.com/jphmp/Fulltext/2019/01001/Childhood_Lead_Poisoning_A_Perpetual.19.aspx.

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¹⁷Centers for Disease Control and Prevention Prevent Childhood Lead Poisoning. Accessed online: https://www.cdc.gov/nceh/lead/publications/nceh_prevent_childhood_lead_poisoning_508.pdf

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²¹Whitehead L, Buchanan S (2019) Childhood Lead Poisoning A Perpetual Environmental Justice Issue? Journal of Public Health Management and Practice, Vol 25, Issue . pp S115–S120. Available online: https://journals.lww.com/jphmp/Fulltext/2019/01001/Childhood_Lead_Poisoning_A_Perpetual.19.aspx

²²Whitehead L, Buchanan S (2019) Childhood Lead Poisoning A Perpetual Environmental Justice Issue? Journal of Public Health Management and Practice, Vol 25, Issue . pp S115–S120. Available online: https://journals.lww.com/jphmp/Fulltext/2019/01001/Childhood_Lead_Poisoning_A_Perpetual.19.aspx