# *Children's Health Protection Advisory Committee*



March 29, 2012

Lisa P. Jackson, Administrator
United States Environmental Protection Agency
1200 Pennsylvania Ave, NW
Washington, DC 20460

RE: Childhood Lead Poisoning Prevention

Dear Administrator Jackson:

The Children's Health Protection Advisory Committee (CHPAC) has been asked by the Office of Children's Health Protection (OCHP) to provide input on upcoming lead regulations being considered by the US Environmental Protection Agency (EPA) as well as childhood lead poisoning prevention activities across EPA and in partnership with stakeholders and other agencies. In the past, EPA has played a leadership role in reducing exposures to lead and CHPAC encourages EPA to continue. Despite this, childhood lead poisoning remains a persistent public health problem especially among children living in older, poorly maintained housing, children under the age of six years, children of color, and among high risk women who are exposed before and during pregnancy. No "safe" threshold of exposure has ever been identified. This demonstrates the need for EPA to examine its current and pending policies and programs aimed at preventing childhood lead exposure and to take action.

CHPAC is concerned that both Congress and this Administration must continue—not abandon—the battle to protect children from lead poisoning.[1] As a leader in children's health protection, your immediate and urgent attention to CHPAC's recommendations is needed. The US Centers for Disease Control and Prevention (CDC) lead poisoning prevention program for 2012 has been largely eliminated and CHPAC believes EPA and US Housing and Urban Development (HUD) programs have inadequate and increasingly fewer resources.

We recognize that many recent funding changes may be beyond the control of an EPA administrator. However, the 1992 Residential Lead Hazard Reduction Act (Title X) and other statutes provided EPA with authority under the Toxic Substances Control Act to address certain key lead exposure sources related to housing.[2] EPA also has statutory authority to address lead in air, drinking water, hazardous waste and other media. Housing with deteriorated lead-based paint, contaminated house dust and contaminated bare residential soil accounts for 70 percent of the nation's lead poisoning cases.[3] Title X and related

statutes mandate that the nation's lead poisoning prevention efforts involve a three-legged stool to address the problem:

- EPA sets standards for exposure, training for inspectors and abatement contractors, environmental laboratory quality control, and disclosure (with HUD);
- CDC develops guidance for clinicians, supports staffing and surveillance at local lead poisoning prevention programs, conducts population-based prevalence studies to find children at greatest risk, ensures blood lead laboratory quality control, and conducts intervention in certain international disasters, such as the hundreds of children who died from lead poisoning in Nigeria;[4] and
- HUD supports local lead hazard control programs and enforces lead requirements in federally assisted housing programs.

Without all three legs, the nation cannot succeed in addressing childhood lead poisoning.

There are nearly half a million children who have blood lead levels above 5 µg/dL,[5] which has recently been recommended by the CDC Advisory Committee on Childhood Lead Poisoning Prevention as the reference value.[6] Over 30 million houses still have lead-based paint.[7] The National Toxicology Program recently drafted a major review showing the harm that lead does to children, pregnant women and breast feeding mothers is even worse than we thought previously, with sufficient evidence now available to conclude that at levels of exposure less than 5 µg/dL, a relationship clearly exists linking lead with decreased academic achievement and specific cognitive measures, increased incidence of attention deficit hyperactivity disorder (ADHD) and problem behaviors.[8]

How can education be a priority for the nation if at the same time we ignore the impact of lead exposure on academic achievement? One estimate for New York suggests that it costs $38,000 to provide three years of special education to a child.[9] Many studies have shown that lead poisoning prevention saves billions of dollars.[10] More than that, it avoids needless pain and suffering.

The retreat from childhood lead poisoning prevention will disproportionately affect children of color and from low-income families where the risks are greatest. Increasing the disparities and environmental injustices will only serve to add to the burden of these families. The Executive Order regarding Environmental Justice has recently been updated.[11]

EPA's recent lead poisoning prevention efforts have been wanting, mainly due to inadequate resources. EPA has taken only a few enforcement actions to implement its Renovation, Repair and Painting Rule in the four years after it was promulgated. EPA rejected a proposed rule to require dust lead testing following renovation to ensure cleanup is done properly and that children are protected,[12] as is already required in federally assisted housing and many local rules.[13] EPA has not updated its dust lead standard, despite reports from its Science Advisory Board (SAB)[14] and well-documented evidence that the existing standards promulgated more than a decade ago do not protect children adequately.[15,16] A recently published study also shows that even in high risk houses treated 12 years ago in the HUD lead hazard control grant program, dust lead levels of 10 µg/ft$^2$ on floors and 100 µg/ft$^2$ on window sills can be readily obtained and are feasible. These levels are far lower than the current EPA dust lead standards, which are 40 µg/ft$^2$ for floors and 250 µg/ft$^2$ for window sills.[16]

The EPA Administrator co-chairs the President's Task Force on Environmental Health and Safety Risks to Children with the Secretary of Health and Human Services (HHS). Previously,

this Task Force issued the first federal interagency strategy to eliminate childhood lead poisoning.[17] The country did not meet the goals set for 2010. We recommend that the Administrator meet with the HHS Secretary and convene a cabinet-level Task Force meeting to determine how the federal government's lead poisoning prevention activities can be restored to meet existing and new sources of lead exposure endangering our children. Specifically, such a meeting should determine how the nation can avoid ending lead poisoning prevention programs at hundreds of local health departments due to loss of CDC funding beginning this August.

**CHPAC response to EPA charge questions**

In July 2011, CHPAC was briefed on several current lead regulations under development at EPA and subsequently considered a set of OCHP charge questions. Based on these considerations, EPA should take actions on its own and/or with appropriate partners to address four overarching CHPAC recommendations:

I. Adopt a unified approach across EPA actions regarding target blood lead levels;
II. Engage other federal agencies and stakeholders on implementing lead poisoning prevention actions and communication strategies;
III. Identify emerging sources of lead exposure and children who may be at risk for these exposure sources; and
IV. Eliminate production of residential lead-based paint and the production of other sources of lead exposure in other countries.

**I. CHPAC Recommends that EPA adopt a unified approach across EPA actions regarding target blood lead levels.**

**I.a. CHPAC recommends that EPA revise its Integrated Exposure Uptake Biokinetic (IEUBK) model for estimating children's blood lead levels associated with different and multiple exposure pathways.** Historically, EPA has used the IEUBK model[18] to attempt a unified approach to estimating potential blood lead levels from environmental and other data. While the IEUBK model has been helpful in the past, there are important limitations that CHPAC believes can be overcome in part by simultaneous consideration of epidemiological data, consistent with recommendations made by EPA's SAB.[14] An important limitation of the model is the lack of a dust lead loading metric. Instead, the model only permits input of dust lead concentration (loading refers to lead mass divided by surface area (μg/ft$^2$) while concentration refers to lead mass divided by total sample weight (mg/kg)). Dust lead exposure has been shown to be one of the most significant sources of exposure to children and loading is the most appropriate metric for exposure.[19] The lack of the loading metric in the IEUBK model means that conversion factors needed to be developed for use in the model, which introduces another potential source of error. The model also necessitates the use of default terms that may or may not be relevant to a specific regulatory action. CHPAC agrees with the SAB recommendation that epidemiological studies should be evaluated as well, because they do not require the use of conversion factors or default assumptions. This recommendation will enable EPA policymakers to understand all scientific evidence from both the IEUBK model and epidemiological data.

**I.b. CHPAC recommends that EPA adopt an incremental approach to specifying target blood lead levels.** Ideally, regulations should be crafted to eliminate exposures entirely and that should be an expressed goal in all EPA regulations. Because it is not possible to eliminate all exposures, EPA regulatory actions should produce consistent

results by using an incremental rather than a static target blood lead level. The blood lead metric is both a measure of exposure and a measure of toxicity. Traditionally, EPA has set an exposure limit for dust that is expected to achieve a static target blood lead level, such as 1 or 5 or 10 µg/dL. The alternative is to select and use incremental levels in dust, soil, food, water, air and other relevant media that result in a corresponding incremental change in blood lead level, such that the incremental change is no greater than 1 or 2.5 µg/dL. CHPAC believes that an incremental approach to exposure assessment is superior, because it is more likely to be able to account for measured and estimated contributions to exposures from all exposure pathways. However, programs across EPA must also agree on the overall limit for an incremental change in blood level (this will be based on the corresponding decrement in a health or cognitive measure such as IQ). This recommendation is consistent with EPA's SAB[14] and its Clean Air Science Advisory Committee.[20]

**I.c. CHPAC recommends that EPA collect data from its Environmental Lead Proficiency Analytical Testing Program and assess feasibility for reliably measuring low environmental lead levels and also analyze housing data to assess the feasibility of meeting lower residential dust lead exposure limits.** An important consideration for lead poisoning prevention regulations is whether a given exposure limit can be reliably measured and is achievable and is sustainable, because there is little benefit to setting a regulatory standard that no one can meet or cannot be measured. CHPAC recommends that EPA assess the ability of laboratories to detect levels of lead in environmental samples as an essential component of its Environmental Lead Proficiency Analytical Testing Program (ELPAT). This program provides standardized approaches for assessing proficiency (e.g., blind testing of samples with known quantities of lead) and assesses specific laboratory performance. CHPAC recommends that EPA collect data on laboratory detection and reporting limits as part of its ELPAT program to inform its regulatory efforts as they apply to feasibility. With regard to cost-effectiveness, CHPAC recommends that EPA consider the health impact of regulatory decisions and the costs associated with decrements to health, not just the cost associated with compliance. EPA should also analyze new data from long-term follow-up studies of the HUD Lead Hazard Control Grant Program to determine the feasibility of meeting lower exposure limits for lead dust. EPA should revise the Renovation, Repair and Painting rule to include clearance testing, which at this time is the only validated method that has been correlated with children's blood lead levels,[21] and it is the only method that has a quality control system in place (the ELPAT).

**I.d. CHPAC recommends developing new, evidence-based health protective lead dust standards.** Perform research and/or analyze existing data to determine what dust loading standards are, in fact, health protective. Develop laboratory methodologies to permit routine, precise and accurate dust loading measurements in the necessary range. Incorporate the new standards into ongoing lead management education programs.

**I.e. CHPAC recommends that EPA review hazard control studies across EPA actions, including revisions to the Lead and Copper Rule.** Durability of exposure controls should be examined by EPA as it considers revisions to its Lead and Copper Rule for drinking water. Specifically, EPA should examine the long-term effectiveness of managing hazards from lead service lines through drinking water chemistry interventions intended to reduce lead content in drinking water. CHPAC also recommends that any revised regulation for drinking water end the practice of partial lead pipe replacements,

which has been shown to at least temporarily increase lead in drinking water.[22] Any new regulation should provide the legal foundation to permit leaded drinking water lines to be replaced completely, not only up to the property line.

**II. CHPAC Recommends that EPA engage other federal agencies and stakeholders on implementing lead poisoning prevention actions and communication strategies.**

**II.a. CHPAC recommends that the EPA Administrator and the Secretary of Health and Human Services convene a cabinet-level meeting of the Interagency Task Force on Children's Environmental Health and Safety Risks to develop and coordinate strategies to advance childhood lead poisoning prevention through enforcement, training and education of public health and health care professionals, communication strategies, and engagement of other stakeholders.** CHPAC believes that one of the biggest areas of untapped opportunity in lead poisoning prevention involves concerted and coordinated enforcement of existing laws with the Department of Justice, State Attorneys General, local prosecutors and local health, environmental and housing advocates. EPA should partner with the Health Resource Service Administration (HRSA) and CDC, Health Maintenance Organizations (HMOs) and health insurance companies to ensure that funds available for prevention, such as those in the Affordable Care Act are used in a way that incorporates lead hazard control activities. There are also important steps that other agencies, such as CDC, the Food and Drug Administration (FDA) and the Consumer Product Safety Commission (CPSC), can take to protect children and families from contaminated consumer products,[23] especially those imported from other countries. For example, FDA and other agencies should take action to prevent contaminated food, herbal remedies, and pottery from entering the country and prevent lead shot fragments in the food chain. CPSC should ensure that products recalled due to lead contamination are not allowed to be sent to other countries where they could poison children. EPA should work with the Occupational Safety and Health Administration (OSHA) to ensure workers do not inadvertently take home lead on contaminated work clothing, vehicles, or other work items and to conduct workforce training. CDC should continue to provide increased technical assistance to countries battling epidemics of childhood lead poisoning, such as the recent catastrophe in Nigeria that resulted in hundreds of children's deaths from lead poisoning.[4]

**II.b. CHPAC recommends that EPA engage health and other professionals** who can play an important role in providing information for families and communities regarding other sources of lead exposure such as take-home lead from the workplace (renovation sites, battery manufacturers, etc.), hobbies, sporting equipment (making lead weights for fishing lines at home), and reloading of ammunition used for hunting. CHPAC recommends that EPA work with other federal agencies, such as HHS and its Maternal and Child Health Bureau (MCHB) and HUD, to standardize training of non-traditional workers and utilize them to implement evidence-based lead exposure reduction strategies and educate residents at the community level. CHPAC recommends that EPA provide guidance for training of residents and practicing physicians as well as other healthcare providers about the harmful effects of lead exposure and avoidance practices. EPA should partner with American Academy of Pediatrics, American Academy of Family Practitioners, American College of Obstetricians and Gynecologist, and CDC to create a module for maintenance of certification on lead exposure, lead monitoring and avoidance practices. EPA should partner with HHS operating divisions (CDC,

HRSA, and MCHB) to create a training module for physicians, nurse practitioners, and allied health professional that can be integrated into medical training.

**III. CHPAC recommends that EPA identify emerging sources of lead exposure to children and women who are or may become pregnant or who are breastfeeding.** Further research is needed to identify emerging sources of lead exposure, such as those in consumer products. The nation still has no good assessment of exposures related to consumer products containing lead, like toys, jewelry, cosmetics, pottery, and batteries, especially those from other countries. For example, it is not known whether new lead-based residential paint now being manufactured in China, India, Nigeria and other countries is being imported into the US. Research is needed to determine if lead stabilizers used in plastics and other products is being released. Fate and transport studies are needed to determine sources of lead production and use in commercial products. Further research is needed to estimate exposures from commercial buildings. Sampling protocols to reliably measure lead in water in different building configurations is needed, and policy research is needed to determine the best way to stop partial replacement of lead drinking water lines. Specifically, the current practice is for public utilities to replace only the portion of the lead drinking water line on public property, with the owner expected to pay for the pipe replacement on the private property, which often cannot occur because owners do not have adequate resources.

**IV. CHPAC recommends that EPA work to eliminate production of residential lead-based paint and the production of other sources of lead exposure in other countries.** EPA should continue to provide financial and technical support for the Global Alliance to Eliminate Lead in Paints through the United Nations Environment Programme (UNEP) and the World Health Organization (WHO).[24] EPA should also support voluntary compliance programs for lead production activities in developing nations, such as BEST (Better Environmental Sustainability Targets).[25] EPA should work with the State Department, WHO and UNEP to help prevent lead exposures to refugees and others, and to promote international trade agreements and other instruments to eliminate the unnecessary use of lead in consumer and other products, as recommended by the American Public Health Association.[26]

CHPAC urges you to consider these recommendations. We have the knowledge and ability to ensure our children do not suffer from lead poisoning, which is entirely preventable.[27] Our goal to protect children from lead has not yet been achieved, and the problem remains large. CHPAC urges you to continue the campaign to end childhood lead poisoning.

Thank you for your consideration of our recommendations and suggestions.

Respectfully,

Pamela Shubat

Pamela Shubat, Ph.D.
CHPAC Co-Chair

Sheela Sathyanarayana, M.D., M.P.H.
CHPAC Co-Chair

cc: Peter Grevatt, Director, Office of Children's Health Protection
Gina McCarthy, Assistant Administrator, Office of Air and Radiation
Steve Page, Office Director, Office of Air Quality Planning and Standards

Jim Jones, Acting Assistant Administrator, Office of Chemical Safety and Pollution Prevention
Wendy Cleland-Hamnet, Office Director, Office of Pollution Prevention and Toxics
Cynthia Gyles, Assistant Administrator, Office of Enforcement and Compliance Assurance
Pam Mazakas, Office Director, Office of Civil Enforcement
Mathy Stanislaus, Assistant Administrator, Office of Solid Waste and Emergency Response
Jim Woolford, Office Director, Office of Superfund Remediation and Technology Innovation
Nancy Stoner, Acting Assistant Administrator, Office of Water
Pam Bar, Acting Office Director, Office of Ground Water and Drinking Water
Lek Kadeli, Acting Assistant Administrator, Office of Research and Development
Becki Clark, Acting Director, National Center for Environmental Assessment

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Endnotes

[1] The President's budget for 2012 proposed to cut in half the lead poisoning prevention program at CDC. Congress in the final budget appropriation reduced the CDC lead poisoning prevention program from $30 million to only $2 million. As a result, health departments' lead programs across the country will be forced to shut down as early as the summer of 2012, severely limiting the nation's ability to properly identify children who are at risk and take action before harm is done.

[2] Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X of Public Law 102-550) www.hud.gov/offices/lead/library/lead/Title_X.pdf

[3] Levin R, Brown MJ, Kashtock ME, Jacobs DE, Whelan EA, Rodman J, Schock MR, Padilla A, Sinks T. 2008. Lead Exposure in US Children, 2008: Implications for Prevention. Environmental Health Perspectives 116:1285-1293

[4] Dooyema CA, Neri A, Lo YC, Durant J, Dargan PI, Swarthout T, Biya O, Gidado SO, Haladu S, Sani-Gwarzo N, Nguku PM, Akpan H,Idris S, Bashir AM, Brown MJ. 2012. Outbreak of Fatal Childhood Lead Poisoning Related to Artisanal Gold Mining in Northwestern Nigeria, 2010. Environmental Health Perspectives 120:601-607

[5] In 2005-06, data from the National Health and Nutrition Examination Survey showed that an estimated 590,100 children 1-5 had blood lead levels ≥ 5 µg/dL; in 2007-08 that number increased to 646,400; in 2009-10 the number declined slightly to 442,000 (data from: National Performance Measures of Blood Lead in Children. Will Wheeler Presentation to the CDC Advisory Committee on Childhood Lead Poisoning Prevention Nov 14, 2011)

[6] Advisory Committee on Childhood Lead Poisoning Prevention of the Centers for Disease Control and Prevention. 2012. Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention. http://www.cdc.gov/nceh/lead/ACCLPP/Final_Document_030712.pdf

[7] Jacobs DE, Clickner RL, Zhou JL, Viet SM, Marker DA, Rogers JW, Zeldin DC, Broene P and Friedman W. 2002. The Prevalence of Lead-Based Paint Hazards in U.S. Housing. Environmental Health Perspectives 110:A599-A606

[8] National Toxicology Program. 2011. Draft NTP monograph on health effects of low-level lead. National Institute of Environmental Health Sciences, National Institutes of Health, U.S. Department of Health And Human Services http://ntp.niehs.nih.gov/?objectid=4F04B8EA-B187-9EF2-9F9413C68E76458E

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[10] Gould E. 2009. Childhood lead poisoning: Conservative estimates of social and economic costs of lead hazard control. Environmental Health Perspectives 117:1162-1167

[11] Memorandum of Understanding on Environmental Justice and Executive Order 12898 (http://www.doi.gov/oepc/EJ_MOU.pdf) and HHS 2012 Environmental Justice Implementation Progress Report 02/12 (http://www.hhs.gov/environmentaljustice/progress_2012.pdf)

[12] Lead; Clearance and Clearance Testing Requirements for the Renovation, Repair, and Painting Program, Environmental Protection Agency, Final rule. 47918 Federal Register Vol. 76, No. 151 Friday, August 5, 2011

[13] HUD Lead Safe Housing Rule, 24 CFR Part 35.
http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_12347.pdf

[14] SAB letter to the EPA Administrator, July 7, 2011.
http://yosemite.epa.gov/sab/sabproduct.nsf/CD05EA314294B683852578C60060FB08/$File/EPA-SAB-11-008-unsigned-revised.pdf

[15] Gaitens JM, Dixon SL, Jacobs DE, Nagaraja J, Strauss W, Wilson JW, Ashley PJ. 2009. U.S. Children's Exposure to Residential Dust Lead, 1999-2004: I. Housing and Demographic Factors Associated with Lead-contaminated Dust, Environmental Health Perspectives 117: 461-467; and Dixon SL, Gaitens JM, Jacobs DE, Strauss W, Nagaraja J, Pivetz T, Wilson JW, Ashley PJ. 2009. U.S. Children's Exposure to Residential Dust Lead, 1999-2004: II. The Contribution of Lead-contaminated Dust to Children's Blood Lead Levels, Environmental Health Perspectives 117: 468-474

[16] Dixon SL, Jacobs DE, Wilson JW, Akoto JY, Nevin R, Clark CS. 2012. Window replacement and residential lead paint hazard control 12 years later. Environmental Research. Accepted Jan 23, 2012.

[17] Eliminating Childhood Lead Poisoning: A Federal Strategy, President's Task Force on Children's Environmental Health Risks and Safety Risks, principal author, Washington DC (March 2000).
http://www.epa.gov/lead/pubs/fedstrategy2000.pdf

[18] EPA user materials for the IEUBK model. See http://www.epa.gov/superfund/lead/products.htm

[19] Lanphear BP, Matte TD, Rogers J, Clickner RP, Dietz B, Bornschein RL, Succop P, Mahaffey KR, Dixon S, Galke W, Rabinowitz, Farfel M, Rohde C, Schwartz J, Ashley PJ, Jacobs DE. 1998. The Contribution of Lead-Contaminated House Dust and Residential Soil to Children's Blood Lead Levels: A Pooled Analysis of 12 Epidemiologic Studies, Environmental Research, 79:51-68

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http://yosemite.epa.gov/sab/SABPRODUCT.NSF/81e39f4c09954fcb85256ead006be86e/546fdc6ecc836f158525795f0049242f!OpenDocument

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[22] Brown MJ, Raymond J, Homa D, Kennedy C, Sinks T. 2011. Association between children's blood lead levels, lead service lines, and water disinfection, Washington, DC, 1998–2006. Environmental Research 111 (2011) 67–74

[23] Toys and other consumer products recalled. See http://www.cdc.gov/nceh/lead/Recalls/allhazards.htm

[24] WHO Global Alliance to Eliminate Lead in Paints. See http://www.who.int/ipcs/features/pb_alliance/en/index.html

[25] Occupational Knowledge International certification standard for lead battery manufacturers. See http://www.okinternational.org/lead-batteries/BEST-Standard

[26] American Public Health Association policy statement on lead. See http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1348

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