Testimony before the
Subcommittee on Federal Workforce, Postal Service, and the District of Columbia
Committee on Oversight and Government Reform
U.S. House of Representatives

Lead Exposure in D.C.: Prevention, Protection, and Potential Prescriptions

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For Release upon Delivery
Expected at 2:00 p.m.
June 15, 2010

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Mr. Chairman, Ranking Member Chaffetz, Delegate Norton: Thank you for the opportunity to testify today at this important hearing. I am Dr. Ileana Arias, Principal Deputy Director for the Centers for Disease Control and Prevention (CDC). In this role, I am responsible for advising the director, Dr. Thomas Frieden, on all scientific and programmatic activities of CDC. I have been at CDC since 2000. Prior to coming to my current position, I served as the Director of the National Center for Injury Prevention and Control at CDC. I previously served as Director of Clinical Training and Professor of Clinical Psychology at the University of Georgia.

Childhood Lead Poisoning Prevention:

CDC is the Nation's premier health promotion, disease prevention, and preparedness agency and a global leader in public health. CDC remains at the forefront of public health efforts to prevent and control infectious and chronic diseases, injuries, workplace hazards, disabilities, and environmental health threats. One such environmental health threat is lead, which is a systemic toxin and has neurobehavioral effects, particularly in young children. The largest remaining sources of lead exposures to children are leaded paint and contaminated house dust and soil in older homes; lead in water derived from lead solder in copper plumbing; plumbing fixtures and water lines made with lead; lead brought into homes from the workplace; and other more recently

identified sources such as leaded paint on consumer products like toys and charms; lead in imported candies; traditional medicines, and spices.[1]

Public health efforts to prevent lead exposures have been very successful. CDC and other federal agencies' efforts to control or eliminate lead hazards in children's environments, through the removal of lead from gasoline, paint, pipe and solder, among other activities, have resulted in dramatic reductions in elevated blood lead levels in our country. Between 1976 and 1980, CDC's Second National Health and Nutrition Examination Survey (NHANES II) and our biomonitoring laboratories found elevated blood lead levels (greater than10µg/dL) in 88% of children aged one to five. These numbers dropped significantly by 1991 - 1994, when an estimated 890,000 young children (4.4%) had elevated blood lead levels. By 2005-2006, the estimated number of children with elevated blood lead levels dropped to 121,000 (0.60%). This is a significant public health accomplishment, achieved through collaboration with the Department of Housing and Urban Development, the Environmental Protection Agency, and others.

CDC's Role in Reducing Childhood Lead Exposure:

CDC has reduced and prevented lead poisoning in children by supporting state and city programs and working with other Federal agencies, monitoring the blood lead levels of children in the United States, establishing guidelines that protect children from lead, and investigating situations where children have been exposed to lead. CDC's Childhood Lead Poisoning Prevention Program (CLPPP) provides funding to state and

[1] http://www.cdc.gov/nceh/lead/tips/sources.htm

local health departments to determine the extent of childhood lead poisoning by screening children for elevated blood lead levels and ensuring that lead-poisoned infants and children receive medical and environmental follow-up (case management). This program also supports the development of state and local government agencies' capacity to reduce and prevent lead poisoning in their communities through the development of protective policies.

Since the inception of CDC's lead program, nearly 60 state and local jurisdictions have received funding for their CLPPPs. During Fiscal Year 2009, CDC was appropriated more than $34 million through the Childhood Lead poisoning and Healthy Homes program to support 35 states and five of the largest cities in the U.S., including the District of Columbia. State and local CLPPPs have several important responsibilities for carrying out their CDC-supported programs. Each program is required to create its own coalition of state and local agencies and organizations to implement primary prevention efforts to reduce the number of children with elevated blood lead levels. CDC requires that each recipient program work with its coalitions to create and implement its own strategic plan for the elimination of lead, in order to comply with its own unique state and local laws, as well as local conditions. All forty CLPPPs currently funded by CDC have strategic plans in place and are making progress toward their goals. CDC also requires that each program provide case management and home inspections for lead when children with elevated blood lead levels are identified. Another basic responsibility of the CLPPPs is to collect and process data that identifies children with elevated blood lead levels, and to use these data to drive state and local primary prevention activities to eliminate lead sources, targeting the neighborhoods where the risk for elevated lead

levels are highest and housing where children are known to have been exposed to lead and had elevated blood lead levels in the past.

CDC has provided sustained leadership in preventing and addressing exposures to lead, including playing an active role in HHS's plan to eliminate lead poisoning. CDC led the effort over time to change the blood lead level threshold guideline from 60µg/dL to 10µg/dL. Based upon the expert guidance of CDC's Advisory Committee on Childhood Lead Poisoning Prevention, 10µg/dL is the threshold at which CDC recommends case management and follow-up for children. Another example of CDC's scientific recommendations related to lead poisoning is the set of guidelines (http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5608a1.htm) produced by the CDC Advisory Committee on Childhood Lead Poisoning Prevention that address the identification and follow-up of children who are exposed to lead. CDC has institutionalized these guidelines on case management into requirements for all of the cooperative agreement recipients. CDC also works on interagency committees focusing on preventing and removing lead in consumer products and safe removal of lead paint hazards. CDC continues to focus on populations especially vulnerable to lead exposure, such as children, both in the U.S. and internationally. We have provided assistance to other countries - - such as Kosovo, Peru, China, and Nigeria - - to help address significant lead poisoning problems.

DC Lead Poisoning Prevention Program:

The District of Columbia's Childhood Lead Poisoning Prevention Program, with CDC funding, undertakes activities including collecting and processing D.C.-based lead

surveillance data; building D.C.-based community coalitions focused on preventing lead exposures; testing children for elevated blood lead levels; and implementing public health education campaigns. CDC has worked hard over the years with the D.C. Lead Program to help address shortcomings, such as problems in reporting data to CDC that became an issue during the period of elevated levels of lead in water in homes with lead service lines. As an example, CDC automated the surveillance reporting system and required that all data be reported directly to CDC. The District of Columbia's CLPPP moved to the D.C. Department of the Environment in 2007 and evolved into an effective program. As an example, the program worked to secure the adoption and implementation of a new and rigorous lead poisoning prevention law passed by the D.C. Council in 2008, currently one of the strongest laws in the country. CDC continues to work with the D.C. Department of the Environment to further strengthen its Childhood Lead Poisoning Prevention Program and protect the residents of D.C.

CDC's Public Health Response to Lead in D.C. Water in 2004:

Recently, public attention has returned to the previously elevated levels of lead in the drinking water in D.C. homes with lead service lines. For roughly four years, lead levels in these homes were elevated, and local residents (and CDC) were not notified of the threat. The recent focus has been for the most part on an April 2004 article (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5312a6.htm) that CDC published roughly six weeks after CDC and the general public learned that lead levels in D.C. water had been high since 2000, and remained high for several years, including four years during which local residents were not sufficiently notified of the threat. CDC testified

about this at a recent Congressional hearing, and CDC Director Dr. Frieden and I subsequently met with Delegate Norton to discuss related concerns. I will briefly discuss steps CDC has taken to address concerns raised by Del. Norton and others, and then focus on CDC's first priority at the time, to take immediate steps necessary to protect District residents against further harmful exposures to lead in their drinking water.

Morbidity and Mortality Weekly Report (MMWR):

In response to concerns that CDC's 2004 conclusions may have been flawed due to the large number of test results that were not available to the D.C. lead program or CDC at the time, last fall Dr. Frieden asked the D.C. Government to provide any test results that had not been turned over to CDC during its original review.. CDC recently completed an intensive re-analysis to determine if the missing tests affected the results we released in 2004. The re-analysis was peer reviewed. Although it clearly showed more residents had been exposed to lead than previously known to CDC, the missing tests did not alter our earlier findings that lead in water was associated with an increase in blood lead levels, and that people living in homes with lead service lines had higher blood lead levels than those people who did not live in homes with lead services lines. In fact, the rate of elevated blood lead tests was lower when we included the newly available 2003 tests previously unavailable to us.

However, because more test results were examined, these new data document that more children had elevated blood lead levels than were previously documented in surveillance data. At the hearing last month and during our subsequent meeting, Del. Norton expressed concern about the children whose test results had been missing in 2004,

and turned out to have had elevated blood lead levels. And, this is one of the issues the Subcommittee asked us to address today.

Among the data missing from the 2004 analysis were test results for 100 children who had elevated blood lead levels in 2003. We have checked the records of the D.C. Childhood Lead Poisoning Program to learn more about those children and have confirmed that the program followed-up on all of these cases in 2003, when these tests had been conducted. Ninety-five of them received appropriate case management through the D.C. Department of Health, and of the remaining five children, three showed tests below 10, and the parents of one child, who lived in an embassy, were notified at that time. We have not been able to determine whether appropriate case management from CLPPP was provided for one child, though it is likely that the child's clinician was aware of the findings and may have initiated follow-up.

We published the results from the reanalysis (http://www.cdc.gov/nceh/lead/leadinwater/reanalysis.htm) as well as a notice to readers acknowledging shortcomings in our communication in the 2004 article (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5919a4.htm), and reaffirming our findings. Those findings include that no safe blood lead level for children has been identified, and all lead exposures in children should be controlled or eliminated. We are committed to learning from our experience in working with the D.C. lead situation, have been forthcoming about our mistakes in communication, and have taken steps that I will describe later to apply those lessons to our future work on lead, in D.C., and in other areas.

Prevention of Lead Exposure in the District:

Unfortunately, even though tests of the D.C. drinking water in homes with lead service lines began showing elevated levels of lead in 2000, CDC was not informed of the problem until the winter of 2004. That clearly was too long a lag time between potential exposure and intervention. But once we learned of the contamination, CDC's public health response was immediate. CDC acted rapidly to educate the public and prevent ongoing lead exposures. CDC first learned that thousands of homes had drinking water lead levels exceeding the EPA action level in early February, 2004, when contacted by EPA. Soon after, the D.C. Department of Health requested CDC's assistance. Over a period of six weeks, CDC conducted a rapid public health response to prevent exposure to lead in drinking water, through public health education, provision of water filters, and blood lead testing to identify adversely affected individuals. CDC's work with the D.C. government and the U.S. Public Health Service Commissioned Corps includes:

- On February 26, 2004, recommendations were made that children less than six years of age, pregnant women, and nursing mothers living in households with lead water service lines refrain from drinking unfiltered tap water.
- CDC notified all households with lead water service pipes that young children and pregnant and breastfeeding women should refrain from drinking unfiltered tap water.
- On March 4, 2004, CDC updated its lead website with specific recommendations regarding the length of time to run tap water prior to consumption.

- CDC was visible in the media and at public meetings to draw attention to these recommendations. For example, a March 31, 2004 *Washington Post* article quoted CDC's Mary Jean Brown as saying "There is no safe level of lead… Even a small contribution, especially in small children, is not something that we want to happen… We don't want to increase the blood lead levels of those individuals by even 1 microgram if it can be prevented."

- On March 8, 2004, CDC lead branch staff participated in the first of several community meetings addressing lead in the water and protection of residents.
- On March 9, 2004, then Surgeon General Carmona activated the Commissioned Corps Readiness Force (CCRF) to assist with blood lead testing and distribution of water filters to D.C. residents. The CCRF also was charged with blood testing residents of homes with the highest levels of lead in their water.
- On April 1, 2004, CDC Lead Program staff began participating in the EPA expert panel on lead in D.C. drinking water. CDC Lead Program staff continue to participate in efforts to improve D.C's lead program.
- Extensive ongoing technical assistance and training has and is being provided to the D.C. Lead Program, particularly as related to program management, data/surveillance and statutory authorities.

Current Analysis of Lead in D.C. Water:

CDC is currently completing a new scientific manuscript that addresses some of the limitations in the previous work and extends the analyses through 2006, two years after Washington Aqueduct made changes to assure appropriate corrosion control in the D.C. water supply. Preliminary findings from the manuscript include the following:

- Lead water service lines are a risk factor for elevated blood lead levels independent of age of housing (a proxy measure of lead paint), and the method used to disinfect water.
- The changes in the water disinfection method used in the District of Columbia enhanced the risk of the impact of lead water service lines for elevated blood lead levels and had the unintended consequence of further increasing this risk.
- Preliminary data show that strategies of replacing only the publicly owned portion of lead pipes (known as partial mitigation) have significant limitations and do not decrease (and may increase) blood lead levels.

Due to the significance of the finding concerning risks from partial pipe replacement, in January 2010 CDC sent letters to state and local health departments and federal agencies advising them of the findings (http://www.cdc.gov/nceh/lead/waterlines.htm).

Moving Forward to Further Reduce Childhood Lead Exposure:

CDC has identified a number of priorities for preventing childhood lead poisoning in the District. First, the percentage of eligible children in the District who are being screened needs to be increased. In 2009, approximately 38% of children less than six years of age were screened. While the District has taken several steps to improve lead screening, public health officials need to encourage clinicians and parents to have all

District children tested. Second, officials should be concerned about all sources of lead and assure that case-management practices consider all potential sources of exposure. Since 2007, the District has included routine sampling of drinking water every time it inspects homes with children having an elevated blood lead level.

CDC will continue reviewing currently funded Childhood Lead Poisoning Prevention Programs, and take steps to further improve the programs in D.C. and nationally. For example, CDC has streamlined the process for reporting of raw data from grantees to CDC, and is currently launching an improved surveillance system for the program. In addition, CDC plans to conduct a program review of the entire lead program to inform our next grant cycle. And, CDC has taken steps to ensure that it is promptly informed of elevated lead levels in water.

Organizational changes made by Dr. Frieden also will benefit lead poisoning prevention programs. CDC has established two new offices to support epidemiology and surveillance, and state and local programs.

In addition, CDC is evaluating the concern that CDC's use of the phrase blood lead *level of concern* can be interpreted as suggesting that blood lead below this level are not of concern. This term is intended to define when case management is recommended for a child who has been exposed to lead. It is not intended to describe a "safe" level of exposure to lead. In light of studies that show that blood lead levels less than 10 µg/dL are associated with adverse health outcomes, and that all sources of lead in children's environments should be controlled or eliminated, CDC wants to ensure that our terminology does not suggest otherwise. Dr. Frieden will ask CDC's Advisory Committee on Childhood Lead Poisoning to reevaluate this issue and provide evidence-

based recommendations. This work would build on an August 2005 statement by the Advisory Committee that primary prevention efforts, namely controlling or eliminating lead in children's environments before they are exposed, are the most important actions supported by the data. It will also build on CDC's published recommendations for clinical health care providers on the treatment and follow-up of children with BLLs less than 10 µg/dL.

Public health scientists also continue to question what systems are in place to evaluate drinking water exposure as a cause of elevated blood lead levels. To answer this question, CDC will ask the Advisory Committee to review both the science related to health risk exposure to lead in water and the guidance that CDC provides the CLPPS regarding lead safe water practices.

I am committed to continuing progress toward elimination of childhood exposure to lead in DC and throughout the country, and welcome the Committee's help and suggestions in accomplishing this important goal.

Mr. Chairman, this concludes my prepared statement. I will be happy to answer questions from the Subcommittee. Thank you.