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When Home is the Most Dangerous Place: How a Community Development Organization Learned to Get the Lead Out

By Marty Johnson,
with Peter Rose and Elyse Pivnick
Isles, Inc.

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Executive Summary

The debacle of lead-poisoned children in Flint, Michigan reminded us of the insidious and permanent impact of this toxic poison on a child's brain. Before Flint, many Americans thought the problem of environmental lead had been "solved," when the US eliminated lead from paint in the 70s and gasoline by 1996.[1] Those sensible regulations led to a 90 percent reduction in the average blood lead levels of American children – raising their average IQ by 6 points and saving society billions of dollars. However, millions of children (and seniors) living in older homes, especially ones with flaking paint, are still being lead poisoned. And unlike Flint, water is less likely to be the culprit. Instead, the source of the lead threat is dust in homes. On floors, countertops and windowsills, for example, microscopic particles of lead from old paint cling to the dust and get ingested by children. Today, the vast majority of children who become poisoned by lead come from lower-income families of color – those least able to shoulder this added burden.

Recent research makes it clear – even lower levels of lead affect children's cognitive capacity, behavior (especially impulse control), health and of course, chances in life. Underachieving students, special education, incarceration and imprisonment, health care, and numerous other costs are borne by taxpayers and communities when lead sneaks into a child's bloodstream. Despite the many threats in the news that face urban kids, this paper argues that the most dangerous place for millions of them is in their own home, where they spend about 70 percent of their time.

At its root, this is a systems problem, and solving it requires new ways of *thinking and investing and creating new systems in these communities*. This includes new public policies and simple regulations, like requiring lead to be treated like radon during real estate transactions. Other tactics, like assuring that building inspectors test every home they enter and that children are tested before entering school (and that their results are shared with educators), help improve that system.

In concert with these common-sense approaches, many dangerous occupied homes need to be quickly cleaned up. This is where community-based nonprofit organizations – especially the 1,000+ groups that weatherize and retrofit older homes across the country – can step in and play a key role. Since 40 percent of the lead in homes comes from windows and doors (friction surfaces that cause paint to flake), replacing them reduces the toxins and improves the envelope of the home, saving energy. These community-based organizations can enter toxic homes where lower-income children live and test for the presence of lead, asthma triggers and other health hazards. They then can develop plans to retrofit the homes to make them safe, coordinate and monitor contractors to get the work done right, and educate the residents about the threats inside their walls.

There is tremendous potential for community-based organizations across the country to learn, retool, and clean up the ecosystems that deeply impact children's futures. Why is this important today?

- New research on lead shows that even low levels of lead in the blood stream impacts cognitive function (IQ) and behavior.
- Improved research exposes the high cost of treating the *symptoms* of home poisonings
- Streamlined federal lead cleanup regulations reduce the cost of remediating homes
- Experience of groups like Isles show how we can predictably avoid the scourge of home lead dust, asthma triggers and other health threats, cost effectively.

[1] Chronology of Leaded Gasoline /Leaded Petrol History http://www.lead.org.au/Chronology-Making_Leaded_Petrol_History.pdf

This paper shows how Isles, Inc., a Trenton, NJ –based community development and environmental organization, learned how to do this, through trial and error. Isles' experience led to new ways to think about the threat of dangerous homes as a system, and develop low cost ways to change it. The organization tested and developed low cost ways to remove lead, asthma triggers and other threats from homes, train local contractors and health workers, educate residents, and perform these tasks for under $10,000 per unit. *This is a fraction of the cost of treating the symptoms of just one lead poisoned child.* Hundreds of thousands of mostly lower income kids are poisoned annually by their homes. The cost of this status quo far exceeds the cost of doing something about it.

Introduction

In October of 2013, *New York Times* columnist Nicholas Kristof wrote a 'good news' story about child lead poisoning. He reminded us that, despite industry protests, government regulation and the removal of lead from paint and gasoline years ago resulted in a 90 percent decline in blood lead levels of children under six. "As a result, scholars have estimated that children's I.Q.s' on average have risen."[2] That is the good news. The bad news is that the last 10 percent of lead in our collective bloodstreams remains largely in the bodies of those who can least afford it – lower income children in cities and older neighborhoods. The Center for Disease Control estimates that 4 percent of children in the suburbs have high lead in their bodies, but a whopping 36 percent of children in our inner cities suffer from it.

The crisis in Flint, Michigan reminds us that lead remains in our infrastructure, like water pipes. However, the primary source of lead poisoning in most older cities is not water – it is the dust from flaking paint in homes built before 1978, when lead paint was phased out nationally.

Recent research has improved our understanding of lead's impact – especially on young children and the elderly. Lead is a powerful toxin, causing neurological damage in children at far lower concentrations than was once thought and regulated against.[3] An emerging scientific consensus agrees that there is no safe level of lead in a child's blood.[4] Even low lead levels can cause irreversible damage to developing brains.[5] Tragically, most of those impacted are lower-income children of color. Its costs are immense. Lead poisoning drives higher special education costs, higher levels of juvenile crime, a higher proportion of high school dropouts, higher rates of unemployment, and a variety of health problems that lead to earlier retirement, enrollment in Medicaid, and death.[6] Each dollar invested in lead paint hazard control results in a return of $17–$221 or a net savings of $181–269 billion.

Even today however, most governments react to this pervasive problem only *after* a child has been poisoned. In most places, it is only a child's high blood lead level test that triggers lead paint testing and abatement of the child's home. In addition, those with a direct stake in homes that poison kids – property insurers, banks, lenders, landlords, and even most teachers and school systems – are not adequately

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[2] Nicholas Kristof, "This Is Your Brain on Toxins," *The New York Times,* October 16, 2013.

[3] Theodore I. Lidsky and Jay S. Schneider, "Lead Neurotoxicity in Children: Basic Mechanisms and Clinical Correlates," *Brain* 126 (2003):10.

[4] Educational Services for Children Affected by Lead Expert Panel, *Educational Interventions for Children Affected by Lead* (Atlanta: U.S. Department of Health and Human Services, 2015), 13.

[5] M. Mazumdar, D.C. Bellinger, M. Gregas, K. Abanilla, J. Bacic, and H. L. Needleman, "Low-Level Environmental Lead Exposure in Childhood and Adult Intellectual Function: A Follow-Up Study," *Environmental Health* 10:24 (March 2011).

[6] New Jersey Department of the Public Advocate, *The Social Costs of Childhood Lead Exposure in New Jersey,* (Trenton, New Jersey: New Jersey Department of the Public Advocate, 2009): 11.

attuned to the lead threat. Why? Perhaps they think the problem was solved a long time ago. Perhaps they believe it is too expensive or complicated, and worry about their liability. Perhaps they are afraid to go into the neighborhoods to test and remediate homes.

Today, the lead issue is getting tougher to ignore. Data from the American Housing Survey indicate that 23.2 million U.S. housing units have prominent lead hazards and 1.1 million are in low income households with children under six. Approximately 17 million homes have elevated levels of four or more allergens, which are triggers for asthma and other respiratory illnesses. Throughout the country, researchers and community groups better understand the cause and impact of lead poisoning. As importantly, they are developing affordable ways to test and clean up homes. With hundreds of thousands of homes continuing to poison kids, it's time to act.

This paper describes how one organization, Isles, Inc. in Trenton, New Jersey, learned to address the challenge of lead in their city. A community development and environmental nonprofit organization, Isles has worked for 35 years to build community gardens and parks, redevelop older homes and factories, educate dropouts and train young people in the construction and energy efficiency trades, and to foster other self-help revitalization efforts. Early on, Isles discovered and removed the threat of lead from soil where community gardens were being planted. Through trial and error, Isles developed innovative, low cost ways to find and remove lead from homes as well as soil.

The Trenton Challenge

Trenton is a mid-sized capital city in Mercer County, NJ with a median household income of $35,647. Nearly 30 percent of the population lives in poverty[7] and only 68 percent of Trenton high school students graduate on time.[8] Roughly 93 percent of Trenton's homes were built prior to 1978, when lead paint was banned from consumer use nationwide.[9] Tests of 2,000 homes in Trenton done by Isles over the past ten years show that harmful levels of lead dust were present in 60 percent of homes, and at least some lead dust was present in 80 percent of homes.

The consequences of this exposure are dire: at least 15 percent of Trenton kindergartners enter school with their blood lead level already at harmful levels, and New Jersey Department of Health data suggest that over 50 percent of children currently enrolled in Trenton schools are likely to have enough lead in their bodies to affect learning outcomes.[10]

While NJ regulations require that children be tested for lead in their blood at ages one AND two, few enforce this testing. For those who do get tested and have elevated blood lead levels, their data is not shared with the schools that could potentially intervene to deal with cognitive damage. In addition, we know that about 40 percent of Trenton public school children move at least once a year[11], so plenty of opportunities exist for children to be exposed to harmful lead levels between the ages of 0 and 6, the most precarious time for children's brains. For most homes in Trenton, except multifamily apartments,

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[7] United States Census Bureau, *QuickFacts: Trenton City, New Jersey,* United States Census Bureau, http://www.census.gov/quickfacts/table/PST045215/3474000

[8] State of New Jersey Department of Education, *2015 Adjusted Cohort 4 year Graduation Rates,* State of New Jersey Department of Education, http://www.state.nj.us/education/data/grate/2015/4Year.xlsx

[9] City of Trenton, *2010 Five Year Consolidated Plan* (Trenton, New Jersey: City of Trenton, 2010), 19.

[10] New Jersey Department of Health, *Childhood Lead Poisoning in New Jersey Annual Report: Fiscal year 2014, July 1, 2013 to June 30, 2014,* (Trenton, NJ: New Jersey Department of Health Public Health Services Branch, 2014), 16 and 20.

[11] Margaret Dooley, former Supervisor of Trenton School Nurses, interview, undated.

no one is required to test for the presence of lead. This includes landlords or one or two unit apartments, which are the most common here.

The danger of lead in homes is amplified by other factors that also make houses unhealthy. A leaking roof, pests or mold, for example, exacerbate asthma triggers and cause paint to flake. All this gives rise to a complex and expensive problem that is shared by many older cities and towns. In at least four other New Jersey municipalities with over 50,000 residents, more than 10 percent of kindergartners enter school with elevated blood lead levels.[12] On the national scale, the National Center for Healthy Housing estimates that as much as 40 percent of all US housing contains some leaded paint.[13]

The costs of lead poisoning are immense. In 2009, the New Jersey Department of the Public Advocate conservatively estimated that annually, each lead-poisoned child cost society $31,173.[14] Other studies suggest that the return on investment of systematic lead hazard control nationwide could be in the range of $221 per each dollar invested.[15] However, while the responsibility for lead rests with housing or health, the costs are incurred in many different government levels and departments (Education, Health, Corrections, HUD, etc.), complicating the cost accounting.

Working with the Trenton Community to Address Needs

Isles was founded in 1981 by a small group of ambitious Princeton students and faculty, intent on finding better ways to redevelop challenged older communities and restore the environment. Trenton was a depopulating city, with a growing number of vacant lots, few and shrinking supermarkets, and talented gardeners from the south, Puerto Rico, and other agrarian immigrant cultures. By combining technical know-how with the latent capacity of families to adopt vacant lots, Isles began to help groups build community gardens throughout Trenton. As Isles tested more and more vacant lots, it became clear that Trenton had extensive soil contamination. Nearly 75 percent of the sites across the city had contaminants, including lead, other metals, and PCBs.

A few powerful community leaders began to express their concerns about having lived alongside contaminated brownfields for many decades and thought the land could be making some of them sick. Isles began partnering with community groups to conduct surveys, questionnaires, and focus groups to build a community profile. They found an environmental firm to help research the history of the site, its owners, its characteristics, and its health hazards. Meanwhile, Isles helped residents learn the complex technical and bureaucratic language of brownfield cleanup. When the experts — the government workers, lawyers, planners, environmental consultants, insurance companies, and the like – arrived, Isles also helped residents engage with them around a common goal, and vice versa. At the first community meeting, a few mothers asked the most basic question: “What has been the impact of that site on our children?” Brownfields were common play sites for kids, especially when open parks were many blocks away. The experts could only shrug and say that they didn’t know - it was complicated. As more and more stories about local children with asthma, lead poisoning, and other maladies were told, the community grew determined to better answer their question.

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[12] New Jersey Department of Health, *Childhood Lead Poisoning, 19-20.*

[13] National Center for Healthy Housing, *What We Do: Health Hazards, Prevention, and Solutions: Lead,* http://www.nchh.org/What-We-Do/Health-Hazards--Prevention--and-Solutions/Lead.aspx (August 3, 2016).

[14] New Jersey Department of the Public Advocate, *“ Childhood Lead Exposure”,* 11.

[15] Elise Gould, “Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control,” *Environmental Health Perspectives* (July 2009), 1166.

After four years, the successful cleanup of one of the largest brownfield sites, the 5-acre Magic Marker factory site, made headline news. Meanwhile, Isles was looking upstream to find out more about the fundamental elements, causes, and effects of the environment on public health, especially on kids. At the time, little was known about the health effects of this neighborhood's toxic "soup," but it seemed there was much more to the story than dangerous brownfield sites alone. Through a community survey, Isles began to uncover high levels of lead poisoning and asthma in the community. Soon after, they started testing homes for lead, discovering unusually high levels of lead in the dust of the homes. But did the hazards come from the nearby site or the actual homes?

Isles started testing homes farther and farther away from the brownfield site, looking for hazardous lead and asthma triggers. By 2010, after testing 2000 homes (about 6 percent of all Trenton homes), the evidence was clear: more than 60 percent of them had enough lead in the dust of the homes that kids should not be living in them. From well-maintained single family, middle class housing to decaying apartments, the results were frighteningly consistent. The source of the lead was lead-based paint that flakes off friction surfaces, or peeling paint that that falls to window sills or the floor and is pulverized into tiny lead particles that mixes with household dust. This dust then gets ingested, especially by young children who might crawl on the floor or put dropped food or their hands in their mouth. Across the country, few organizations had tested homes for lead in a systematic way, *before* a child became poisoned. While some multiple-unit, government subsidized housing received periodic visual inspections for flaking paint, little attention was paid to this silent toxin. Too often, the only time that the government would remove families from unhealthy homes was *after* a child had been found to have high blood lead levels.

At the time, the cost of making homes lead safe was prohibitively expensive. Lead abatement protocols required most lead to be *removed* from the home, typically requiring tens of thousands of dollars. The work required certified lead abatement contractors and complex procedures that few contractors could perform. Fortunately, in 2008, the US Department of Housing and Urban Development eased the credentialing requirements for lead remediation contractors while also enabling contractors to encapsulate (rather than remove) lead paint, and apply special, chemically secure sealing paint over walls and fixed surfaces. These rule changes made it possible to develop lower cost ways to make homes lead-safe, using interim controls rather than full abatement procedures. This also made it possible for Isles to more easily train and hire local contractors, leading to positive employment and economic impacts locally.

There was another potential benefit of this "health" initiative. The source of the lead was often the cause of energy inefficiency in older homes. Poorly maintained or damaged doors and windows accounted for roughly 40 percent of the lead dust in homes. The friction surfaces and moisture-swollen wood caused paint to flake, which then turned to dust and migrated through the house. Modernizing the windows and doors improves the energy efficiency of the house. Since most of these older affordable homes lacked energy efficiency upgrades, it made sense to make the homes energy efficient while making them healthy for the residents.

Early on, Isles found one major barrier to achieve this whole house approach: the vast majority of homes had roofs that leaked. The leaks made it impossible to insulate the homes, caused paint to flake, triggered asthma, mold and other threats. Too often, the water leaks were threatening to force families out of their homes altogether, leading to abandonment. As a result, repairing/replacing the roof became the vital first step. Isles' goal was to create a system that makes homes lead-safe, and free of asthma triggers, household pests, trip and fall hazards, damaged roofs and walls, and energy leaks. Reduced health and

energy costs along with increased comfort and overall housing stability all add up to a powerful set of benefits.

Developing a New Approach

A new system was needed to accomplish the work at an affordable price in order to reach scale. Isles tested and refined the new model, and found the need to build the capacity of six key players: local contractors, building analysts, property inspectors, home health service workers, outreach workers and families. Training them would become an important element of this work.

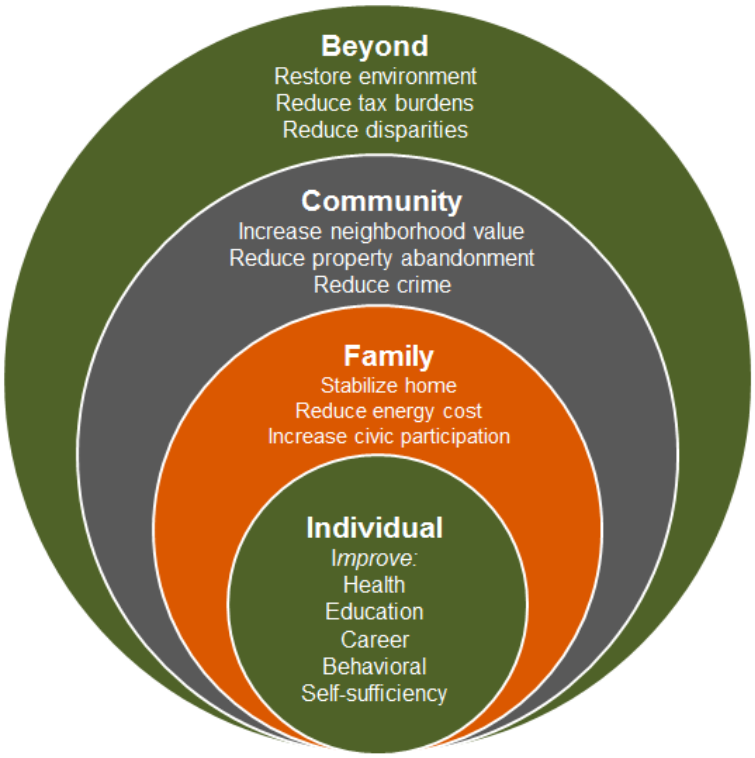
In 2009, Isles created the Center for Energy and Environmental Training (CEET) with support from private donations and the NJ Department of Labor. CEET became a private training center under the Isles umbrella, affiliated with the national Building Performance Institute (BPI). To assure that underemployed folks could access a growing "green job" career pathway, Isles helped create job training curriculum for an entry-level certificate in Air Sealing and Insulating. They also began training and certifying underemployed and incumbent workers in a variety of energy efficiency, solar installation and environmental remediation positions.

Funding for this work must be flexible enough to test ideas and approaches while integrating the various specialties. For example, typical funding for home energy efficiency cannot be used to do roofing, or clean environmental hazards, or train contractors and building inspectors and home health workers or perform community outreach. In New Jersey, the Neighborhood Revitalization Tax Credit (NRTC) Funding Program along with a few private unrestricted funding sources gave Isles the ability to test, take risks, and ultimately develop this bundle of integrated services. This work is a case study in why unrestricted funding is vital to effective community-based work, and further, why government budgets for healthy homes and energy efficient should be blended.

Home Retrofits Today

Using an integrated approach to health, safety, and energy efficiency, Isles has repaired over 260 homes to date, investing millions of dollars into the local economy. The average per unit cost has been reduced to $7,000 per home, although for individual residences, costs may vary from $2,500 to $18,000 depending on the size and severity of the need.

Core benefits of this work include improved health for residents, financial savings for families and communities, reduced costs for government agencies in health, education, criminal justice and more. Increased home values, stronger family economic assets and other social benefits are valuable outcomes. Energy costs savings average $437 per home per year. Nearly 56 percent of the homes had structural deficiencies, and more than half had moisture and pest problems that are linked to asthma. Isles saved six homes from pending condemnation, bringing resiliency and stability to residents and neighborhoods. These benefits not only demonstrate the cost-effectiveness of whole house repairs, but the broader point that the benefits stretch across a range of health and quality of life areas.



To date, more than 2,000 individuals have completed training in energy efficiency, more than 1,000 national certifications have been issued to CEET graduates, and more than 800 Community Health Workers have been trained on healthy housing.

With funding from the New Jersey Department of Health, the New Jersey Department of Human Services' Division of Developmental Disabilities, the State Energy Sector Partnership (SESP), and an array of private foundations, Isles offers free or very nearly free education through CEET to community health workers, building inspectors, homeowners, and others.

An Opportunity for Other Community Organizations

The health of a community is too important to leave up to the health care industry alone. As we understand how environmental hazards impact public health, we must find ways to move "upstream" to solve the problem at one certain source: our homes. That requires community-based approaches to accessing and cleaning up dangerous homes, where young children spend 70 percent of their time and seniors, 90 percent.

Isles created their approach to lead safe and healthy housing with six core competencies that can be applied in other community-based settings nationwide:

1. Learn
2. Assess and Retrofit
3. Train
4. Improve Policy
5. Educate
6. Build Coalitions

Lesson 1: Learn

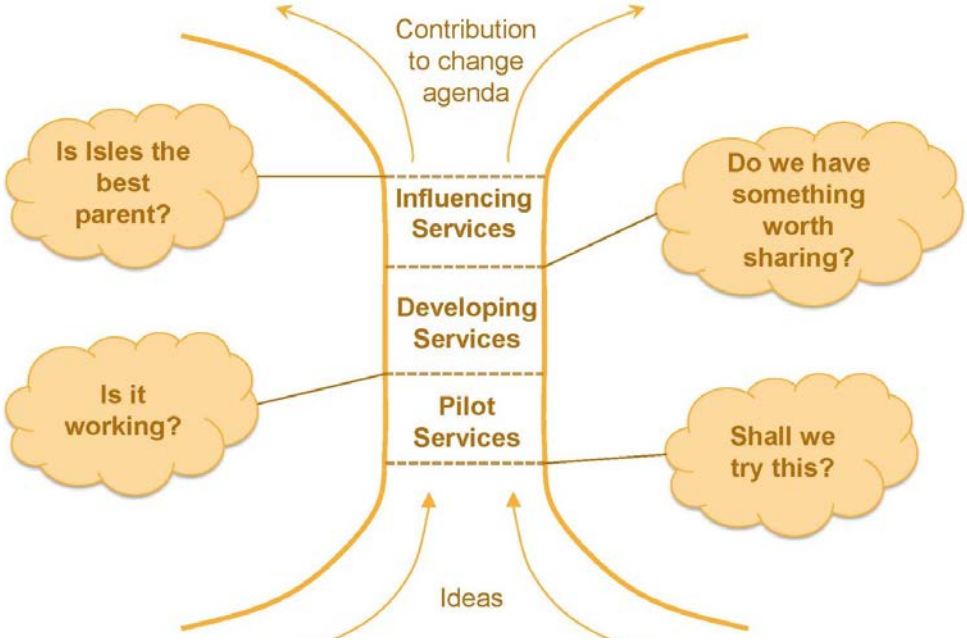
It sounds simple, but it's not: community organizations, and those that support them, have few clear pathways to learn how to be most effective. Universities, research centers, and think tanks are not measuring the impact of unhealthy homes, despite their high costs to families and society. At Isles, we have a culture of learning that looks at problems and solutions across sectors.

For organizations, the first big step is to fully understand the scope of the problems you are trying to solve. The old adage - that a challenge well-defined is half-solved – is still mostly true. Starting with a mission to foster self-reliant families in healthy, sustainable communities, Isles tries to understand the shape of the problem when confronting social and environmental barriers. What issues lie at the problem's root? What does the most recent research say about the problem? What kind of data and feedback do they need to understand the problem in our local context? Does that data exist, and if not, how do they create it?

For example, Isles first brownfield assessment brought experts from environmental and health fields to look at both the condition of the site and community challenges and opportunities. At the same time, surveys of local residents and focus groups brought their voice to the mix. By creating forums for both outside experts ("This is what we know about the contaminants") and local residents ("What's been the impact on my kids, and what can we do about it?") to explore the local challenges, new ways of thinking unfolded. ("Why don't I know about the hazards in my home? Let's start systematically testing our homes now!")

Answering a question well is rarely a single activity. Instead, it is an ongoing process and demands learning from data and experience and adjusting, or iterating, based on that better information. To manage a process that researches ideas, pilots them, tests them in real world situations, and then shares the learning with others, Isles built a "Pipeline" to manage these collective decisions (see Figure 2).

Figure 2: The Isles Pipeline



The Isles Pipeline helps leaders decide the best ways forward. Managed by a board/staff committee, it divides the work into three types:

- Pilot Services are new approaches to better meet the mission. They come from external and internal sources. If successful, they "graduate" into:
- Developing Services when increased production reduces "unit cost" of the work and tests the "market." Does it make good business sense and stand the test of time? If successful, they graduate into:
- Influencing Services, when lessons learned helps others apply them, improving organizations and public policies beyond Isles' footprint.

The Pipeline instructs Isles to routinely ask whether and how services succeed, how they might change, what insights they bring, and whether Isles is still the best provider of that service. Isles strives to work entrepreneurially and across "silos," or areas of specialty, trying to use data, experience and beneficiary feedback to better meet the mission.

Lesson 2: Assess and Retrofit Homes

The best way to combat lead poisoning in places like Trenton is to assess and remediate homes *before* kids are poisoned, as part of an integrated home repair strategy. Today, Trenton can begin to imagine – and plan for –making all Trenton homes lead-safe within the next 10 years. Community organizations can play a critical role in this process. They can learn to manage most or all of these six key tasks:

1. Access homes: Word of mouth and direct marketing drive demand for Isles services. Isles maintains a list of interested residents in search of help for their homes, using a first-come, first-serve method to choose between them. Traditional marketing materials are delivered door to door in targeted neighborhoods and staff presence at fairs, agency coalitions and stakeholders meetings to spread the word to our target customer.

2. Test homes: Once an eligible home and family are identified, Isles' Construction Manager meets with the customer to generate a formal home assessment. This includes health, safety, structural and (preliminary) energy assessment. They test for lead, identify likely asthma triggers and detail structural repairs through a visual inspection and interview the homeowner to learn about the health practices of the occupant(s). Healthy homes information is documented using HUD's Healthy Homes Rating System.

3. Create scopes of work: Given the wide range of repairs needed to older, substandard homes, Isles develops the scope of work for each home based on health threats, energy saving opportunities, and budget constraints. Retrofit services *could* include: structural repairs (roofing, gutters), lead safe repairs, refrigerator replacement, heating system repair/replacement, hot water tank replacement, window/door repair/replacement, air sealing and insulation, and integrated pest management.

4. Train and manage crews: Isles works with a handful of Trenton-based subcontractors vetted for the proper licenses, workers comp, liability insurance, and lead safe repair training. Our Construction Manager works with contractors on reasonable costs in order to insure budgets are met. Whenever possible, the designated Weatherization Assistance Provider or the utilities' NJ Comfort Partners contractor is used for energy efficiency repairs. In this way, Isles leverages grant dollars to get the most services to the most residents.

5. Monitor work: Isles Construction Manager monitors work quality on a regular schedule. To ensure lead safe conditions, lead clearance testing is conducted.

6. Educate residents: Isles provides "Healthy Homes" education to customers and leaves behind materials on how residents can maintain a healthy and high performing home. Isles also provides broader community education at faith and civic locations.

Lesson 3: Train workers and key stakeholders

As groups across the country gear up to perform this work, local contractor and home health worker training will be vital, especially in underserved communities, where future-focused jobs and economic development are critical. As an affiliate of both the Building Performance Institute and the National Center for Healthy Housing's affiliate-- Healthy Homes Solutions, Isles' CEET customizes training to meet the needs of more entry-level workers as well as offer nationally-recognized certifications in a range of building, energy and health specialties.

CEET trains contractors to provide lead safe repairs, energy workers to develop and practice healthy home skills, and home visitors to assess and address home health threats. Currently, CEET provides training for the following certifications and credentials: the US EPA's Lead Safe Renovation, Repair and Painting Rule; EPA Lead Abatement Worker and Lead Abatement Supervisor; HUD Dust Sampling worker; and the Building Performance Institute's (BPI) Building Analyst/Envelope Professional, Whole house Air Leakage Control Installer, Home Performance, Weatherization and Healthy Homes, Infiltration and Duct Leakage, and ASHRAE 62.2 (ventilation) . CEET has also trained more than 800 community health workers in the principles of healthy homes, more than any state in the country.

CEET provides free or nearly free education for building code inspectors (Healthy Homes for Code Inspectors), community health workers (Healthy Homes for Community Health Workers), and childcare providers (Eco-Friendly Child Care) to recognize lead and healthy homes problems in their field.

These types of training help build bridges across silos, so that workers in one sector can identify and respond to healthy homes threats of many types. CEET also provides education for homeowners and renters through Isles' Seven Keys to a Healthy Home. Residents learn how to recognize and mitigate lead and healthy homes issues themselves, and when to call a professional.

Lesson 4: Improve Public Policy

Historically, local or state government health departments do not require a home be tested or remediated until *after* a child is poisoned by lead (evidenced by a high blood lead level test). And in school districts like Trenton, where nearly 40 percent of students move at least one time per year, finding the source of the poisoning is often very difficult.

Damage from lead poisoning is irreversible, so the saying that "an ounce of prevention is worth a pound of cure" deeply applies to lead. Improved policies will effectively flip the old sequence around, **putting prevention first**. That requires changes in five core public policy areas:

1. Modernize housing and health regulations/enforcement to clean up and prevent lead threats, and place lead at the equivalent level of concern as radon in real estate disclosures.
2. Push for the widespread training and education on the risks of lead exposure for elected officials, residents, building professionals, home health workers and community-based organizations,

3. Create lower cost, methodical systems, programs and funding (for example, Pay for Performance funding, Medicaid or other predictable sources) for locally based organizations to test and retrofit homes.
4. Change housing and mortgage regulations to require systematic testing of homes at high risk for hazardous lead to better prevent lead poisoning.
5. Offer improved services for those already exposed to lead.

Lesson 5: Educate the Public

Many believe that the problem of dangerous lead was solved with the removal of lead from paint and gasoline, or never knew about the issue in the first place.

- Families need to be educated on the dangers of lead paint/dust in their homes and how those dangers can be mitigated or avoided entirely. This is a crucial step, and new ways to communicate the threat are needed on many different levels, from neighborhoods to nationwide campaigns.

- Educators and policymakers need to understand current research about how even low levels of lead poisoning affects the brain, behavior, and school performance. They should coordinate with local health officials who are responsible for identifying children with lead poisoning, so that those children can access targeted educational interventions; for more, see the CDC's *Educational Interventions for Children Affected by Lead.*[16] This can only be done if a child's lead status is required at school entry and that information is shared with educators.

Lesson 6: Build Coalitions

Is the challenge of dangerous homes a health issue, a housing and community development issue, an education issue, or a criminal justice issue? Of course, it is all of the above. So who is responsible for solving it? Organizations that cut across these specialties need to find new ways to work together. Too often, these organizations and funding programs have their own silos and even their own language. Even within silos, there is often further specialization and division.

While some specialization is necessary, it is time to tear down the walls that keep us separated. It is at the intersection of specialties where real innovation and real progress tends to happen. That requires learning from, and building relationships with others not like you. For example, as a community development and environmental organization, Isles and its healthy homes work grew out of two core foundations:

1) The mission: to foster self-reliant families and healthy, sustainable communities, and 2) Continually asking, what is the best way to achieve those two mission goals?

When Isles discovered a major barrier to its mission (dangerous homes), it had to learn new ways of being in the health care and environmental cleanup worlds. Community development organizations can foster a culture of learning and collaboration by working across sectors including a comprehensive assessment of the problem and solutions managing data, developing success indicators that include community

[16] Educational Services for Children Affected by Lead Expert Panel, *Educational Interventions for Children Affected by Lead* (Center for Disease Control and Prevention), May 2015.

health, building personal relationships with other sectors, understanding power dynamics, and not backing down when others demand that you get back in your lane of specialty. Many community-based organizations are uniquely poised to work on cross-sectoral, entrepreneurial strategies that strengthen people and places. But for organizations to learn from and respond to new data, experience and change, they need flexible forms of funding.

Conclusion

While the U.S. has successfully removed 90 percent of the lead from children's bloodstreams over the past 40 years, the last 10 percent is primarily located in our oldest and poorest communities across the country. Research is increasingly clear – millions of unhealthy homes in older neighborhoods continue to poison and injure their occupants with toxic lead, asthma triggers, and other health threats. Children are most at risk, but the impacts ripple across all age groups and in communities that are least able to shoulder the burden. The costs of this threat are immense. Lead poisoned children result in increased special education, criminal justice, unemployment, long-term disability, family stress and health care.

The time to address this costly last 10 percent is now, but that requires entrepreneurial organizations working at the community level – not just improved public sector policies and procedures. These organizations can build the breadth of capacity to do health and environmental assessments, develop new ways to retrofit homes and train contractors, raise funding, partner with public sector stakeholders, educate residents and research and evaluate the work. That is how communities can rid the ecosystem of lead in even the toughest neighborhoods, on the ground -- and affordably.

The hundreds of community organizations across the country that are working to rebuild older homes can play a key role in this effort. Now that the framework is in place, let's build the courage, political will, and entrepreneurial tools to use it.

About the Authors

Martin Johnson, President and CEO, Isles

Martin Johnson is Founder and CEO of Isles, Inc., an urban sustainable development organization that fosters self-reliance and healthy neighborhoods. Founded in 1981, Isles arose from a student-initiated seminar and thesis at Princeton University. Nationally recognized as a model for innovative and effective nonprofit development, Isles has received awards from the U.S. EPA, the White House, the United Nations, and numerous other organizations. Mr. Johnson co-founded other development organizations and projects, including: New Jersey Community Capital, Housing and Community Development Network of NJ, Building One New Jersey and the Success Measures Project, a national effort to develop impact measures for community-building work. Marty is a 1981 graduate and former trustee of Princeton University, where he played football and baseball. He came back to teach a course on Rethinking Poverty: Community Development Research and Policy at the Woodrow Wilson School of Public and International Affairs in 1996. He is a former trustee of the Capital Health System and current trustee of the National Housing Institute. Marty and his wife Liz raised three sons in Trenton, New Jersey.

Peter Rose, Managing Director, Isles Community Enterprises

As Isles Managing Director since 2006, Peter Rose is responsible for a broad range of services to support family self-sufficiency and health, including, Isles Center for Energy and Environmental Training, Isles Financial Solutions, housing and homeownership and residential lead hazard control. Under Peter's leadership, Isles has created or expanded leading-edge services for financial capability for low wage workers, lead safe rehab, and environmental training. Peter's creativity and leadership skills were honed in Seattle, WA through his founding of an award-winning nonprofit (Ventures) that provides business training and lending for low income women and people with disabilities. Prior to starting Ventures, Mr. Rose was the Managing Director of RESULTS and RESULTS Educational Fund, the organizing agency for the Microcredit Summit — a 9-year coordinated effort to bring microcredit to 100 million of the world's poorest families by 2005. He has a B.A. from Evergreen State College and a teaching certificate from the University of Puget Sound.

Elyse Pivnick, Director of Environmental Health, Isles

Ms. Pivnick has over 25 years of experience in developing and managing environmental health projects in the public, private, and nonprofit sectors. In 1999, she created Isles' Environmental Health Initiative with funds from the Robert Wood Johnson Foundation. The program has since grown to address a broad range of policy and practice challenges in the areas of lead poisoning, asthma, pest management, healthy schools, open space needs, exercise, and nutrition. Ms. Pivnick has written extensively on lead and health issues and about the need to work across sectors to achieve healthier homes and better services for those already affected by lead. She has testified on behalf of legislative changes to support lead safety and community health and is a certified trainer for the New Jersey Healthy Homes Training Center. Prior to joining Isles, Ms. Pivnick was a project manager for a civil engineering firm in Austin, TX, where she also served as a member of the Austin Environmental Commission. Additionally, she was the founding executive director of a community development organization in Philadelphia and later became the project coordinator for Philadelphia's Office of Housing and Community Development overseeing projects that included housing rehabilitation, infrastructure reconstruction, community planning and organizing. Ms. Pivnick is a board member of the National Center for Healthy Housing. She has a Master's Degree in City Planning from the University of Pennsylvania.