4 The Coalition to Prevent Lead Poisoning: Promoting Primary Prevention in Rochester, New York

Case Summary

In 2002, rates of childhood lead poisoning in certain high-risk neighborhoods in Rochester, New York, were more than ten times the national average. In the context of failing schools, child poverty, and high crime rates, local advocates coalesced around the idea that addressing lead in older housing could make a difference in children's lives—and the community's well-being. The resulting Coalition to Prevent Lead Poisoning (CPLP) focused its efforts on promoting systems changes to prevent lead exposure. CPLP worked to develop awareness of the problem, support for policy change, and a framework for a cost-efficient local lead law. Although many older cities have similar lead problems, Rochester is one of the few that has successfully passed and implemented a housing law to prevent lead poisoning. The lead law includes provisions for reporting and data sharing, which CPLP leveraged to monitor implementation and adaptation over time. In addition to the law, CPLP fostered collaboration between community, government, and academic partners to sustain, support, and adapt Rochester's lead poisoning prevention efforts over time. A decade on, lead poisoning rates in Rochester have decreased more than twice as steeply as those in the rest of upstate New York. This case demonstrates how bringing together diverse stakeholders and reframing the problem of lead poisoning from a "health issue" to a "housing issue" were key to developing a new, locally appropriate solution to a longstanding problem.

Introduction

Home is where most of us spend the majority of our time. Although the air, dust, water, and materials inside homes are not typically considered within the realm of environmental management, home-based exposures can have significant impacts on health (Saegert et al. 2003). However, lead hazards in housing built before 1978, when lead was banned from residential paint in the United States, remain a major environmental health threat. Despite solid medical understanding of the dangers of lead toxicity, proven techniques to address home-based lead hazards, and decades of federal and state prevention programs, many children are still at risk of lead poisoning. Lead remains a particular problem in cities with older housing in poor condition. This case examines a collaborative effort in Rochester, New York, to prevent lead poisoning in neighborhoods with high rates of lead hazards in housing.

The story of how humans spread lead throughout the environment goes back thousands of years (Lewis 1985). Lead is a soft metal that melts at relatively low temperatures. It was one of the first metals humans processed and used, resulting in exposures as a result of mining, processing, and making lead into a wide variety of products (Chisolm 2001a; Lewis 1985). Lead colic was attributed to children putting lead toys in their mouths as early as 1848. At the same time, however, lead chromate ("chrome yellow") was used as a yellow dye for bread and candies (Rosner, Markowitz, and Lanphear 2005; Weis 2012). Lead use expanded in the industrial era, vastly increasing the amount of lead distributed into the environment.

Starting in the 1920s, lead was added to gasoline as an "anti-knock" agent to improve the performance of engines (Rosner and Markowitz 1985). Although public health professionals raised concerns about the use of lead in gasoline, industrial interests successfully prevented federal regulation until the 1970s. Lead was also used in water pipes, plumbing fixtures, and solder; although use of lead in pipes declined by the 1930s, it was not banned until 1986 (U.S. EPA 2018k; Rabin 2008).[1] Most significantly for modern children's health, lead was increasingly used in house paint in the late nineteenth century. J. Lockhart Gibson, an Australian physician, was first to document children poisoned from lead in household paint in 1904 (Rosner, Markowitz, and Lanphear 2005; Gibson et al. 1892; Gibson 1904). However, corporate interests downplayed the evidence of harm and

continued to produce lead paint. Companies actively marketed lead paints to families, citing the bright colors, durability, and "easy to clean" finish imparted by high lead content (Markowitz and Rosner 2000, 40). As a result of these industrial, commercial, and consumer uses, lead was distributed throughout homes, yards, and neighborhoods. Lead does not disappear over time and remains a threat unless it is removed or permanently covered. As a result, lead in paint, dust, and soil is still a significant source of exposure for children in the United States (Lanphear et al. 1998; Levin et al. 2008).

Environmental Health Policy and Lead Poisoning

Understanding of lead's wide-ranging health impacts has grown over time (Chisolm 2001a; Needleman 2009). By the middle of the twentieth century, neurological effects and even death were documented in cases of workers who were exposed to high levels of lead through mining, smelting, and other industries in the United States (Rosner and Markowitz 1985; Markowitz and Rosner 2013). Meanwhile, the number of cases of children exposed to lead in housing mounted as lead-painted surfaces began to deteriorate, particularly in lower-income neighborhoods (Jacobs 1995). The symptoms exhibited by these children added to the evidence that lead affects health and development. Despite the accumulated medical understanding of the causes and consequences of lead exposure, even today there is no effective treatment that can reverse lead's permanent damage to children's growing brains, bones, and organs. Therefore, lead poisoning is known as a disease that can be prevented but not cured (Cole and Winsler 2010; Ryan et al. 1999).

As a result of this growing understanding of lead's harms, public health professionals and community advocates pushed for policies to remove lead from children's environments (Chisolm 2001b). In the 1960s, cities including Baltimore, Boston, Chicago, and New York developed lead-screening programs, with public health nurses visiting the homes of children with elevated blood lead levels to provide hygiene education. Even at that time, many health professionals recognized that education alone was insufficient and that a solution could "only be mounted through an attack on slum housing" (Colgrove 2011, 48). In 1969, Dr. Rene Dubos of the Rockefeller Institute was quoted as saying, "The problem is so well defined, so neatly packaged with both causes and cures known, that if we don't eliminate this

social crime, our society deserves all the disasters that have been forecast for it" (Oberle 1969, 992).

Lead was banned from paint in most of Europe in the 1920s (Chisolm 2001a; Pueschel and Fadden 1975; International Labour Organization 2018). However, in the United States, lead industries resisted efforts to regulate lead for decades. Just as the tobacco industry undermined medical research and efforts to restrict smoking, the lead industries argued against evidence of lead's harm (Markowitz and Rosner 2000; Rosner and Markowitz 1985). Childhood lead poisoning was blamed on "slum dwelling and relatively ignorant parents" who allowed their children to eat paint chips and failed to clean properly (Markowitz and Rosner 2000, 43). Meanwhile, lead in gasoline and paint continued to spread lead throughout the country.

Pressure from physicians and public health professionals prompted several states and municipalities to restrict the use of lead paint (Pueschel and Fadden 1975; Freudenberg and Golub 1987). In 1960, both New York City and the state of Massachusetts banned lead paint from being used inside homes (Pueschel and Fadden 1975). Eventually, the federal government followed suit, banning lead in residential paint in 1978 and initiating the phase-out of lead in gasoline in 1976. Lead poisoning rates in the United States dropped dramatically after the federal policies to remove lead from paint and gasoline were implemented. The percentage of children ages 1–5 with blood lead levels greater than 10 micrograms per deciliter (μg/dL) dropped from 88 percent in 1980 to 0.8 percent in 2010 (CDC 2013). However, restricting lead from new paint did not eliminate risks from existing leaded paint in older homes. Even when covered over by new lead-free paint, old lead paint can still get into household dust from deterioration, friction (doors and windows opening and closing), or impact (walking on floors). Lead can also be tracked or blown into homes from bare soil in the yard or neighborhood (Mielke et al. 1999).

In addition to banning lead in paint and gasoline, the federal government took other steps to reduce the hazards posed by leaded paint in older housing. As part of the 1992 Housing and Community Development Act, the Lead-Based Paint Disclosure Rule (Section 1018 of Title X) required sellers and landlords of housing built before 1978 to provide information about known lead hazards (Korfmacher 2014). Also, as part of this law, the U.S. Department of Housing and Urban Development (HUD) developed lead-safety requirements for federally assisted housing and grant programs

to reduce lead hazards in private housing (HUD 2018a). These grant programs initially emphasized removal or permanent "abatement" of lead hazards. Subsequent housing research showed that hazards could be largely controlled through removal of lead on friction surfaces (e.g., windows, floors, and doors) using lead-safe work practices, but also that without careful work and cleanup, disturbing lead paint could increase hazards (Dixon et al. 2012; Ryan et al. 1999; Amitai et al. 1987). HUD also set forth standards for "interim controls," lower-cost methods for controlling lead hazards without removing all lead paint (HUD 2012). Whereas the HUD rules applied primarily to federally-assisted housing, in 2010, the U.S. Environmental Protection Agency (EPA) implemented regulations for safe renovation, repair, and painting practices (the "RRP rule") that also applied to most privately owned pre-1978 housing (U.S. EPA 2014c).

Many states have adopted additional policies to reduce childhood lead poisoning. Medicaid requires health care providers to screen all young children for exposure to lead and to test at-risk children's blood; many state health departments have similar requirements. Since low levels of lead seldom cause immediately visible symptoms, blood tests are the only way to detect exposure. When children are identified with elevated blood lead levels (EBLLs), health departments work to identify and require removal of the lead hazards from the children's environments. This "secondary prevention" approach aims to prevent further exposure in children who have already been identified as exposed (CDC 2004b; Ettinger et al. 2019). Unfortunately, secondary prevention does not protect children from the permanent injuries caused by lead poisoning. Because there is no effective medical treatment for most children with lead poisoning, public health professionals emphasize "primary prevention" (box 4.1)—that is, identifying and removing hazards before children are poisoned (Brown and Meehan 2004; Lanphear, Hornung, and Ho 2005).

Housing-based sources (paint, dust, and soil) are responsible for the majority of EBLL cases. However, other contributors such as imported folk medicines, consumer products, water contaminated by passing through lead pipes or solder, industrial emissions, and "take-home" lead from hobbies or occupations may be significant for some populations (Levin et al. 2008; Franko et al. 2009; Newman et al. 2015; Spanier et al. 2013). Such nonpaint sources may contribute to over 30 percent of EBLL cases in the United States (Levin et al. 2008).

Box 4.1
A Renewed Call for Primary Prevention

In 2012, the Centers for Disease Control and Prevention's Advisory Committee on Childhood Lead Poisoning Prevention issued a seminal report on low-level lead exposure that included this "Renewed Call for Primary Prevention" (ACCLPP 2012, 15):

The [aforementioned] arguments as well as those that follow all underscore the critical importance of primary prevention. Using a strategy of identifying lead poisoning or elevated BLLs relies on detection in the child, relegating the child to the function of a sensing device for poor/contaminated housing, contaminated water, and/or tainted consumer products. Thus, the child can be considered the proverbial "canary in the coal mine." The current strategy, which relies on identifying extant elevated BLLs, while still warranted to some extent, does not prevent the damage already incurred. Moreover, while agents such as chelators can be used to treat overt lead poisoning and possibly reduce the case fatality rate, these agents have been demonstrated not to improve IQ or behavioral consequences of lead exposure. Therefore, primary prevention is the most important and significant strategy.

Because housing-based lead hazards remain the dominant source of exposure for most children, several states, including Maryland, Massachusetts, and Vermont, as well as a handful of municipalities have adopted laws that aim to identify and fix lead hazards in housing before children become poisoned (Brown et al. 2001; Mares 2003; Breysse et al. 2007; National Center for Healthy Housing 2018b).

New York City has been a notable leader in lead poisoning prevention (Freudenberg and Golub 1987; Pueschel and Fadden 1975). In 1960, New York City required the city's health department to inspect the homes of children with elevated blood lead levels and order abatement of lead paint (Freudenberg and Golub 1987; Chachere 2018). New York City Citizens to End Lead Poisoning was formed in 1968 by scientists, health care providers, and community organizers to advocate for stronger municipal health department action on lead (Colgrove 2011; Freudenberg 2004). This group worked directly with affected communities and groups such as the Black Panthers and Young Lords, which made lead "part of their platform against racial injustice" (Colgrove 2011, 50). It was succeeded in 1983 by the New York City Coalition to End Lead Poisoning (NYCCELP), which

continued to push for programs to address lead poisoning, which it viewed as a "symptom of sick housing" (Colgrove 2011; Freudenberg and Golub 1987; NYCCELP 2016). It supported the passage of Local Law 1 in 1982, which required landlords to annually inspect and remediate lead hazards in most child-occupied units; legal actions and advocacy by groups including NYCCELP prompted further updates to this law over the next thirty years, culminating in adoption of a new, stronger lead law coincidentally also named Local Law 1 of 2004 (Chachere 2018).

More recently, a number of innovative state and local policies have been enacted to promote housing-based primary prevention with mixed results (Korfmacher and Hanley 2013; Brown et al. 2001; Brown 2002; Korfmacher 2014; Pew Charitable Trusts 2017). However, accessing, testing, and repairing pre-1978 housing—even just rental units—is expensive and logistically challenging. Therefore, housing-based primary prevention laws are rare and unevenly enforced (Korfmacher and Hanley 2013).

Despite these many policy interventions, lead poisoning remains a significant environmental health threat, particularly for low-income children who live in older housing (Landrigan et al. 2002; Gould 2009; Pew Charitable Trusts 2017). Because lead is a neurotoxicant that affects the developing brain, lead-poisoned children may experience behavioral and learning problems (Brown and Meehan 2004; Lanphear et al. 2000; Canfield et al. 2003; Lanphear et al. 2005; Jurewicz, Polanska, and Hanke 2013; Winneke 2011). Later in life, they are at greater risk for health problems including hypertension, osteoporosis, and cognitive deficits (Cole and Winsler 2010; Campbell and Auinger 2007; Navas-Acien et al. 2007; Beier et al. 2013). Although population blood lead levels have declined, new medical research showing a wide range of learning, behavioral, and health effects from very low lead exposures has sustained public health concerns about lead (Lanphear et al. 2005; Brown and Meehan 2004). In 2012, the National Toxicology Program concluded that children can experience decreased academic achievement, lowered IQ, and increased incidence of attention behavioral problems below blood lead levels of 10 micrograms per deciliter (μg/dL) (National Toxicology Program 2012). Accordingly, the Centers for Disease Control and Prevention (CDC) set a new "reference value" of 5 μg/dL, while emphasizing that there is no known lower threshold for lead's negative effects on children (CDC 2012). CDC estimated that more than half a

million children in the United States had blood lead levels above the new reference value (CDC 2013).

Geographic analyses demonstrate that the children of lower-income families of color living in older housing exposed to lead are disproportionately exposed to lead (Levin et al. 2008; Lanphear et al. 1998). Many cities have delineated specific neighborhoods that produce the majority of cases of lead poisoning, emphasizing the connection between lead and older housing in poor repair (Sargent et al. 1997; Boyce and Hood 2002; Haley and Talbot 2004; Meyer et al. 2005; Reyes et al. 2006; Korfmacher and Kuholski 2007; Hanley 2007). These localized concentrations of lead poisoning persist despite significant population-wide reductions of lead poisoning, prompting some to call lead a "public health success but an environmental justice failure."

In summary, most cities and states do not proactively regulate lead hazards in pre-1978 private rental housing. In addition, low-income owner-occupants often lack resources to maintain lead-safe homes. As a result, by 2000, federal government-assisted housing had fewer lead paint hazards compared to privately owned low-income housing (Jacobs et al. 2002; Ahrens et al. 2016). As recent cases in New York City and elsewhere show, public housing can still pose risks because of funding cuts, deteriorated conditions, and lax enforcement of federal law (Weiser and Goodman 2018; Parker 2018). However, lead hazards in privately owned pre-1978 housing—both rental units and owner-occupied properties—are largely unregulated and remain a major source of children's exposure to lead and resulting elevated blood lead levels.

Childhood Lead Poisoning in Rochester, NY

Rochester was typical of many cities with high rates of lead poisoning at the turn of the millenium. Most of its housing was built before 1978, with 87 percent built before 1950. The oldest homes generally had the highest risk of lead hazards because paint produced before 1950 had higher amounts of lead, many were repainted with lead multiple times, and their painted surfaces may have deteriorated over time (Boyce and Hood 2002; HUD 2011; Jacobs et al. 2002). Rochester also had a depressed housing market—the median sale price of a single-family home was under $50,000. In 2000, around 220,000 people lived in Rochester, down from over 330,000 in 1950.

Citywide, 60 percent of families rented their homes. In some neighborhoods, there were fewer than 10 percent owner-occupants. Because of the low housing values, many low-income owner-occupants lacked the capital to maintain their homes and ensure they were free of lead paint hazards.

In addition to Rochester having high lead-risk housing, many families lacked resources to avoid or respond to lead exposure. Child poverty rates climbed from 38 percent to 52 percent from 2000 to 2014, the second highest rate in the country for cities with populations over 200,000 (ACT Rochester 2015; Sharp 2014). High school graduation rates remained just over 40 percent during this period, and in 2012 the Schott Foundation for Public Education found that only 9 percent of black male students graduated from high school—the lowest rate in the country (Hofer 2012). Child poverty and educational attainment were therefore key community concerns.

Because of strong implementation in Monroe County of the state law requiring blood lead testing of all one- and two-year-olds, there was good data on lead poisoning trends. According to a 2002 report, the citywide childhood lead poisoning rate in 2000 was 23.6 percent (Boyce and Hood 2002). In twelve "extreme risk" census tracts, over 35 percent of screened children were identified as having elevated blood lead levels—over twenty times the national rate (figure 4.1) (Meyer et al. 2003). Black and Hispanic children were most likely to live in high-lead-risk neighborhoods (Boyce and Hood 2002).[2]

Many older cities, particularly in the Northeast and Midwest, have similar housing risks, demographics, and lead poisoning rates. Rochester is one of the few to have adopted a comprehensive housing-based lead ordinance. This case explores the collaborative effort that developed, promoted, and implemented the law, the resources that supported the effort, and the potential for dissemination to other cities.

Case Overview: The Rochester Coalition to Prevent Lead Poisoning

In 1999, Rochester Elementary School 17 Principal Ralph Spezio heard nurses in his school talking about the high rate of lead poisoning among special education students. He began researching lead's impacts on children's ability to learn and connected this information to his students' struggles to succeed in school. Working with the local health department, he

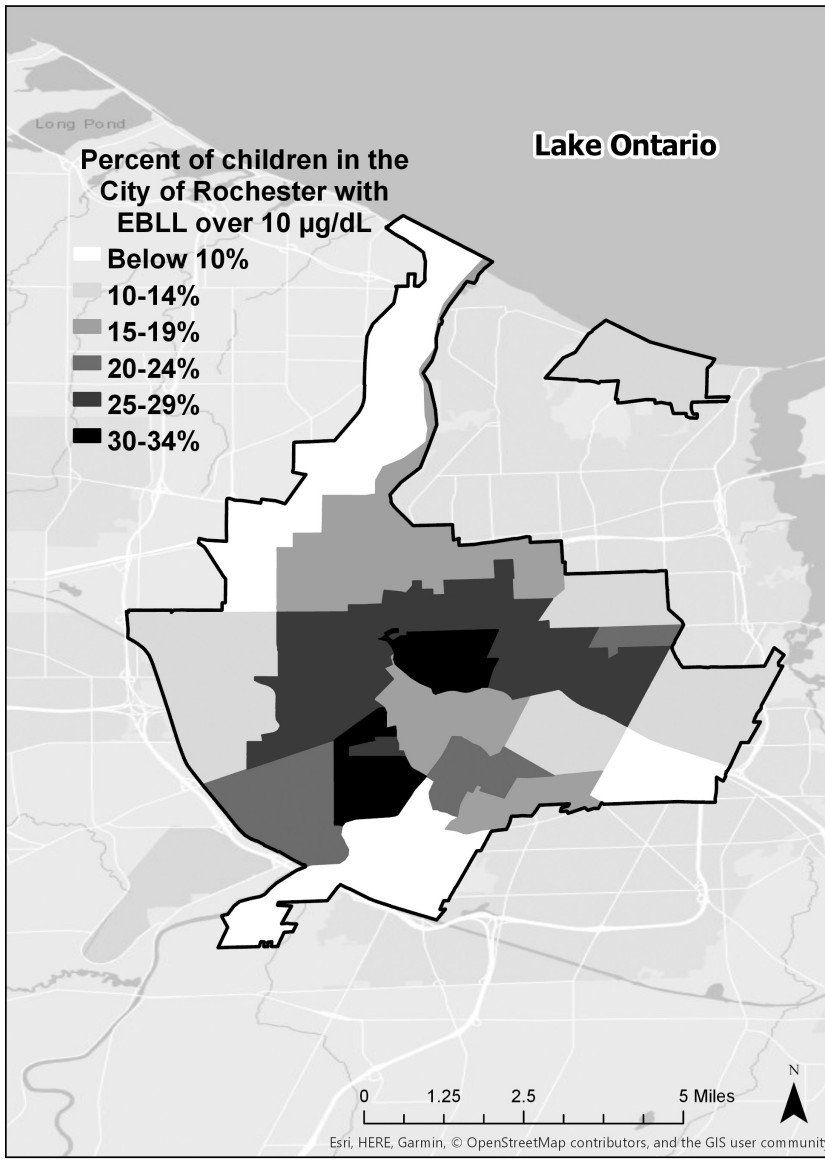

Figure 4.1

Rates of tested children found to have elevated blood lead levels in Rochester, New York, in 2000

Data source: Sarah Boyce and Kim Hood. 2002. *Lead Poisoning among Young Children in Monroe County, NY: A Needs Assessment, Projection Model, and Next Steps* (Rochester, NY: Center for Governmental Research). (Map credit: Karl Korfmacher)

discovered that 41 percent of the children entering his school had a history of elevated blood lead levels (EBLLs) (McDade 2018; Spezio 2017; Tevlock 2014; Spezio 2011; McGarvey 2010).

With the findings of this analysis in hand, he organized a meeting of nearly 100 community stakeholders at School 17 in 2000. Although concern about the issue was high, the City of Rochester's housing commissioner cautioned that abating lead in all of Rochester's housing would take all of the city's federal grant money for fifty years and could bankrupt the city. Nonetheless, the meeting inspired educators, community leaders, doctors, nurses, and researchers to organize a coalition to address the problem. Their collaboration has spanned nearly twenty years (table 4.1) and included the development and implementation of Rochester's lead law in 2006. This overview provides context for the discussion of the CPLP's collaborative activities, which are explored in greater detail in the sections that follow.

Initially called the Rochester Lead Free Coalition, the group soon changed its name to the Coalition to Prevent Lead Poisoning (CPLP) to better reflect its focus on cost-effective primary prevention, rather than full lead removal. One of CPLP's first steps was to gather more information about childhood

Table 4.1
Rochester Coalition to Prevent Lead Poisoning timeline

1998	First HUD Lead Hazard Control grant awarded to Monroe County.
1999	Principal Ralph Spezio finds 41% of incoming students have a history of elevated blood lead levels.
2000	Rochester Lead Free Coalition is formed.
2001	Coalition changes name to Coalition to Prevent Lead Poisoning (CPLP).
2004	Community Lead Summit held.
2005	Rochester lead law passes.
2006	Implementation of Rochester's lead law begins on July 1.
2007	Rochester City School District adopts school lead policy.
2009	CPLP and partners receive U.S. EPA Environmental Justice Award.
2014	County health department paper finds the decline in EBLL is 2.4 times faster than in other upstate counties (Kennedy, 2014).
2016	Lead law's tenth anniversary celebration; Over 140,000 city lead inspections completed.
2017	CPLP transitions administrative home to Causewave Community Partners.

lead poisoning in Rochester. In 2002 the Monroe County Department of Public Health commissioned a study that found the prevalence of lead poisoning in the highest-risk neighborhoods was nearly 24 percent, compared with a statewide rate of 5.8 percent and a national rate of 2.2 percent (Boyce and Hood 2002; Meyer et al. 2003).

Initial membership of CPLP included educators, public interest lawyers, primary care providers, academics, neighborhood group leaders, and the local health department. They met monthly in space provided by the Rochester Primary Care Network (RPCN), an organization that serves the region's federally qualified health centers. The group reached out to additional stakeholders, including housing professionals, community action agencies, the United Way, the local public television/radio affiliate, and civic and religious leaders.

By 2003, members were organized into seven working committees (Finance, Government Relations, Housing, Membership, Outreach, Science, and Screening/Professional Education) that carried out the bulk of CPLP activities. At CPLP's peak of engagement in 2004, each committee had between five and ten regularly attending members and most of them met on a monthly basis, as did the Board (with ten to twenty regular attendees). Active participation attenuated after passage of the Rochester lead law in 2005. By 2013, CPLP had reorganized into two monthly committee meetings (Screening/Professional Education and Government Relations) plus quarterly executive committee meetings and an annual membership meeting. These committees developed programs, conducted analyses, researched other communities' experiences, and drafted policy positions. The committees made recommendations to the Board, which finalized the organizations' decisions.

Committee members included both volunteers and professionals whose time was contributed by their employers. Table 4.2 provides a brief overview of members of CPLP and their roles. Professional educators, health care providers, community groups, and public interest lawyers were active participants. Local government agencies—particularly housing and inspections staff from the City of Rochester and the Monroe County Department of Public Health—were represented on committees but did not serve in leadership positions.

The University of Rochester engaged with CPLP in several ways (HUD 2018c). Many of the health care providers who worked with CPLP were

Table 4.2
Coalition to Prevent Lead Poisoning membership*

Organization Name or Type	Description of Role in CPLP
City of Rochester	Housing department and inspections staff served on committees; funded some CPLP educational efforts.
Community groups	Neighborhood and community groups, community action agency, child advocacy organizations, environmental and social justice groups sent staff and volunteers to committee meetings and events.
Educators	Principal Ralph Spezio initiated CPLP; Head Start staff served on committees; Rochester City School District environmental services staff sat on committees, developed Lead Safe Schools Policy.
Health care providers	5–10 individuals served on committees and in leadership roles over time; summarized medical literature; shared patient stories.
Lead professionals	Several private lead risk assessors served on housing committees; provided lead assessments for Get the Lead Out (GLO) project.
Monroe County Department of Public Health	Director commissioned 2002 Needs Assessment; appointed staff to sit on committees; funded several CPLP educational efforts.
Public interest lawyers	Staff attorneys from Empire Justice Center served on committees, drafted legislation, analyzed case law.
United Way	Staff served on committees; provided partial funding for Lead Summit and for CPLP staff.
University of Rochester	Health care professionals and Environmental Health Sciences Center outreach staff (COEC) served on multiple committees; arranged for talks by researchers; supported Lead Summit.

*CPLP had over 100 active committee members and 700 members on its mailing list. This chart does not encompass all the key stakeholders, but rather provides an overview of the types of organizations and members involved over time.

based at the University of Rochester Medical Center. The university's Environmental Health Sciences Center (EHSC) included nationally known experts on lead. The National Institute of Environmental Health Sciences supported the EHSC's Community Outreach and Engagement Core (COEC), whose goal was to translate research to meet community needs. Because of the importance of childhood lead poisoning to the Rochester community, the COEC staff focused much of their time on this issue. This amounted to commitment of around a half-time staff person during CPLP's most active period.

The CPLP bylaws required that at least 30 percent of Board members must represent "affected communities," meaning low-income and predominantly African American and Latino neighborhoods with the highest rates of lead poisoning. One co-chair position was also designated to be an affected community representative. Community seats were often filled by paid staff members of neighborhood or community groups that served high-lead-risk neighborhoods (i.e., community health center staff); others were volunteers. Around 2005, a "leadership development" group was formed to help recruit, train, and sustain community representation in these positions.

CPLP committees included only a small number of parents of lead-poisoned children. CPLP co-chair Mel Callan said, "I wish we had more direct participation from the affected families, but there is always that tension between not wanting to exploit their situation and being able to get the message out based on their stories" (Callan 2018). To protect the privacy and respect the time constraints of families affected by lead poisoning, CPLP aimed to understand their needs through individual interactions and involvement of community representatives rather than direct parent engagement in committees. Several parents of lead poisoned children also contributed their stories to CPLP communications materials or press events.

The CPLP Board made decisions by consensus, with a provision for a supermajority vote (75 percent) if consensus could not be achieved. In response to concerns that CPLP's open membership and meetings could attract individuals whose interests might undermine the organization's objectives, the Board developed Guiding Principles to which participants committed as a condition of membership (box 4.2, CPLP 2006).

The CPLP leadership debated obtaining 501(c) status several times but decided to instead use the services of a host organization as "fiscal agent."

Box 4.2
Guiding Principles of the Coalition to Prevent Lead Poisoning

Primary Prevention—The only way to truly protect children and their families from environmental health hazards is to identify hazards and take corrective and preventive action before harm occurs.

Right to Know—Community members have the right to know about environmental hazards in their homes, neighborhoods, and communities.

Community Organizing—Communicating directly, exchanging ideas regularly, and developing projects jointly with local communities is our organizing strategy. We understand that for solutions to be sustainable, those directly affected must be full partners in the project design and implementation.

Community Empowerment—Community residents are effective agents of change when they are provided with information and resources. Information about primary prevention is the most effective means to maintain a long-term lead safe community. Resources to test housing stock and abate lead hazards are required to establish lead safe environments for our children and families.

Environmental Justice—All people, regardless of income or color, deserve to live in housing that is decent, affordable, and safe from environmental hazards and to live, work, learn, and play in healthy communities.

Responsibility—Our responsibility is to communicate the best health hazard information and to educate the residents about steps they can take to reduce health risks.

Accountability—The central purpose of this effort is to hold property owners, governmental agencies, health care providers, insurers, and the legal system accountable for protecting the health and safety of our children and families.

Outcome-Oriented—The Coalition will consistently be outcome-oriented. Hence, its goals, objectives and actions will be directed toward achieving measurable outcomes within a specified period of time.

Collaboration—Coalition members will work together as a team to make this community's environment lead-safe. Because we recognize and value the differing perspectives of our Members, we seek to achieve a consensus on all Coalition decisions and use a formal consensus-building model to that end.

Science-Based—All initiatives, reports, and proposals publicly issued by the Coalition shall be based on the best scientific evidence available.

Respect—Individuals and organizations that share common values and work on kindred issues deserve mutual respect, honesty, trust, and candor, even when they may differ on tactics or short-term objectives (CPLP 2006).

Initially, this was the Rochester Primary Care Network (now known as Regional Primary Care Network), which also provided meeting space. When CPLP was able to hire full time staff in 2003, it rented office space in and moved most of its meetings to the United Way's building. Several years later, its administrative home transitioned to the Finger Lakes Health Systems Agency (now known as Common Ground Health), a not-for-profit regional health planning agency. In 2017, Causewave Communications, long-time partner in CPLP's communications campaign, became CPLP's fiscal agent.[3]

Initial funding for a part-time communications director came from a small community grant from the Eastman Kodak Company. This staff person worked with the Board to obtain additional funding from local foundations, the United Way, and government agencies. Most grants were identified and written by CPLP staff with support of Board members. Board members also worked with state elected officials to obtain partial funding from the state legislature to support operations of CPLP for several years. CPLP's budget consisted primarily of staff salaries, a communications campaign, and overhead costs. CPLP funding also paid for office space and administrative services through its host organizations.[4]

Levels of staffing for CPLP fluctuated over time, peaking around 2007, when staff included a full-time executive director, a communications director, and a part-time outreach specialist. Reflecting the reduction in the CPLP's membership, the formal bylaws were set aside in 2013 and replaced with a less-formal system of information-sharing, coordination, and planning by the working committees. In 2014, CPLP had just one part-time staff member focused on outreach and supporting the two active committees (Government Relations and Screening/Professional Education). By 2016, CPLP had no paid staff, but its two working committees and executive committee continued to meet, and Coalition activities were undertaken by committee members on a voluntary basis.

CPLP initially faced several significant challenges to motivating action on lead. First, many community leaders believed that the lead problem had already been solved by the federal bans on lead in paint and gasoline decades earlier. Second, childhood lead poisoning fell under the purview of the local health department. Indeed, the Monroe County Department of Public Health (MCDPH) was a leader in implementing New York State's secondary prevention system for children identified with elevated blood

lead levels. MCDPH served the entire county, but the majority of lead-poisoned children lived in the city of Rochester. However, housing inspections, permits, and planning were controlled by city government. Although the county health department shared information on lead violations with the city, the city housing inspections office had no role other than to help enforce these violations reactively. Third, many key leaders, including housing professionals in city government, believed that lead remediation was prohibitively expensive and that any systematic effort to address lead in Rochester would destroy the housing market. HUD's lead abatement protocols required expensive abatement of lead, which seemed infeasible in a city with such low housing values (U.S. Census 2000; HUD 2018a).[5] Since housing professionals were most familiar with HUD's approach to lead, they accordingly used cost estimates based on HUD's abatement protocols, which projected prohibitively high costs to make the city lead-safe. Fourth, the elected leadership of county government was Republican while the mayor and City Council were Democrats. This posed an additional challenge to coordinated action. Finally, those most affected by lead—low-income families of color—were not politically powerful voices in the community.

To address these challenges, CPLP articulated a clear goal: to end childhood lead poisoning in Rochester by 2010 (Korfmacher 2008). CPLP recognized the need to reframe the issue as one of children's health and well-being with a housing solution. Its messaging called lead poisoning "an invisible and silent monster" sapping children's intellectual potential and "a disease kids catch from their houses" (Korfmacher 2010; Drmacich 2011). To overcome fears that housing-based primary prevention was prohibitively expensive, CPLP first aimed to make it "morally, economically, and politically unacceptable" for lead poisoning to continue, then to design and implement cost-effective solutions (Hetherington and Brantingham 2004).

CPLP members worked together over the next five years to increase public awareness of the problem, build support among community leaders, and pass a local lead law. Adopted in 2005, the Rochester lead law has been widely hailed as a national model. It mandated lead inspections of rental housing as part of the city's existing Certificate of Occupancy program. Between 2006 and 2018, lead inspections were conducted in over 166,000 rental units (City of Rochester 2018). The Monroe County health department provided data on areas where children identified with elevated blood lead levels lived and funded part of the city's inspection costs. The Rochester

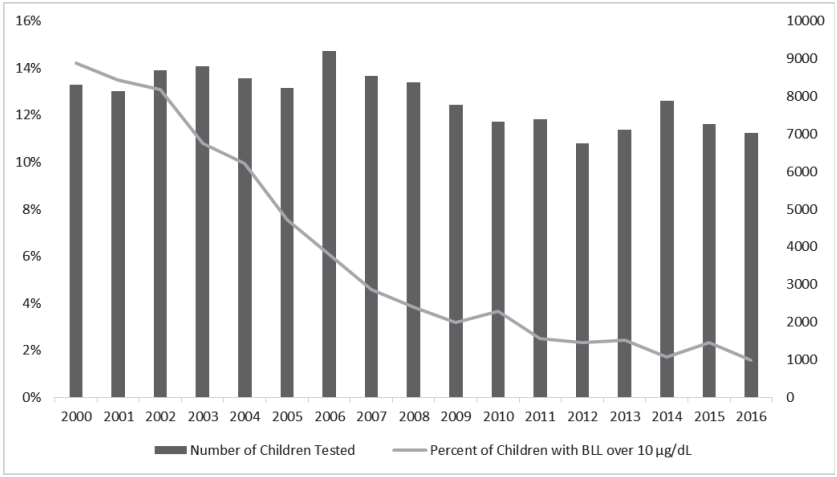

Figure 4.2
Number of tested children and percentage of tested children with elevated blood lead levels in Rochester, New York, 2000–2016 (includes tested children living in zip codes approximating the Rochester municipal boundary)
Data source: Monroe County Department of Public Health, 2018. Blood Lead Screening Data, 2003–2016, https://www2.monroecounty.gov/files/health/Lead/2016%20FINAL%20Screening%20Totals.pdf.

Housing Authority (RHA), housing grant programs, and social service agencies also coordinated their programs in support of this policy. Soon after passage of the lead law, the Rochester City School District passed its own policy to identify and address lead hazards in school buildings (Rochester City School District 2007). CPLP helped coordinate this comprehensive system of awareness, hazard identification, remediation, and implementation.

CPLP continued to educate the public, support ongoing lead prevention programs, and monitor implementation after passage of the law. By 2012, the City of Rochester had seen more than an 85 percent decline in children with elevated blood lead levels (figure 4.2); this decline was nearly two and a half times faster than in the rest of the state (Kennedy et al. 2014). This rapid decline in lead poisoning suggests that the community was able to create an effective local system for lead poisoning prevention. Its approach integrated a comprehensive communications strategy to promote lead prevention messages to a range of key stakeholders, a system for translating

science to address stakeholders' concerns and questions, and a strategy to support the design, passage, and implementation of a local lead law. An overview of each of these functions is provided next, followed by an analysis of the resources and approaches that successfully supported this work.

Collaborative Activities of the Coalition to Prevent Lead Poisoning

From the outset, CPLP promoted multipronged action to protect children from lead in their homes. First, it needed to define and communicate the problem effectively to the community at large, but particularly to community leaders who could voice persuasive support. Second, CPLP bolstered its credibility by bringing the best science to bear on addressing stakeholders' questions and concerns. CPLP members mined the published literature, experience in other communities, and local and national expertise to develop science-based solutions. Third, the group developed an organizing strategy to build support for local systems change.

Communicating the Problem to the Community

CPLP recognized that before promoting a specific systems change, it needed to address the community's lack of awareness of the extent, distribution, impacts, and tractability of childhood lead poisoning. Many CPLP members with experience in community organizing understood that politicians would only act if the public expressed strong concern. They developed a communications strategy tailored to raise key stakeholders' understanding of the problem, how it affected different community interests, and how various groups could contribute. CPLP devoted much of its staff time, committee attention, and funding to carrying out these communication efforts.

CPLP's communications reconceptualized childhood lead poisoning as a child health problem with a feasible housing solution. There were three main components of this message (Korfmacher 2008):

- Lead is costly to our entire community.
- We are all responsible for ending lead poisoning.
- Ending childhood lead poisoning in Rochester by 2010 is an attainable goal.

CPLP also balanced highlighting the environmental justice implications of childhood lead poisoning with the reality that all children living in

pre-1978 housing were at risk. CPLP produced maps that showed clusters of elevated blood lead levels (EBLLs) in older towns and shared stories of lead-poisoned children in rural, pre-1978 housing. However, CPLP emphasized the concentration of EBLL in the lowest-income neighborhoods around the center city that also had high rates of crime, low educational attainment, and low incomes. CPLP shared New York State Department of Health data showing that high percentages of black and Latino children lived in high lead risk zip codes. These same children were most likely to struggle in school, engage with the juvenile justice system, and be enrolled in Medicaid. Tabulating the data by race, income, and ethnicity helped mobilize community groups in these neighborhoods and captured the attention of educators, religious leaders, health care providers, and advocates for low-income children. At the same time, CPLP sought the support of the broader community by noting that all pre-1978 housing, including older housing in suburban and rural areas, could pose a lead risk. CPLP was clear, however, that its advocacy would focus primarily on protecting children at highest risk. This tied into the second message of shared responsibility. CPLP emphasized that while property owners are responsible for maintaining rental units in a safe condition, our entire society held historical responsibility for lead paint's legacy. To make their case, CPLP worked to design affordable solutions for property owners and helped secure funding for hazard control grants. The third point—that primary prevention was attainable—was based on experiences in other communities. CPLP emphasized to Rochester's leadership that lead poisoning prevention could be an important community "win" in a city that had suffered many recent setbacks (CGR 2015).

CPLP's vision was summarized in the catchphrase: "Find the hazards, fix the hazards, and fund the fix" (Hetherington and Brantingham 2004). This vision statement was used in many CPLP materials and was elucidated in a 2004 guest essay in the *Democrat and Chronicle* by Board Chair Bryan Hetherington and Executive Director Patricia Brantingham (Hetherington and Brantingham 2004): "We will find lead hazards before they poison children. We will fix the hazards using proven, cost-effective control measures. And we will fund the work through a combination of public and private financing that acknowledges that we as a society allowed this toxin to be used in homes and so we as a society must share in the cost of making homes lead-safe." Rather than focusing immediately on specific strategies

for accomplishing these objectives, CPLP first set about communicating these general principles as a basis for a community-wide discussion about solutions appropriate for Rochester. This strategy refrained from pointing fingers at government, landlords, or paint companies, common tactics for organizing in other communities. Instead, they framed the issue as a community problem that everyone had responsibility to solve.

"Lead 101" CPLP encouraged health, housing, and community organizations to think about lead poisoning in a new way. CPLP developed publications, a website, and training materials that expressed its reformulation of the lead problem as an issue of community well-being with a solution based on improving housing quality. CPLP developed a "Lead 101" PowerPoint presentation that included an overview of the effects of lead on children's health, behavior, and educational outcomes; the sources of lead in homes; maps of Rochester showing areas with high rates of EBLL children; the proposed solution of housing-based primary prevention; and ways to get involved with CPLP. This presentation was adapted for a wide range of stakeholders. In one instance, a pediatrician shared the presentation with city inspectors, adding personal stories of the problems his patients faced as a result of lead poisoning. This helped the inspectors appreciate that their efforts to pursue strong enforcement of housing violations would protect children's health. Similarly, Principal Ralph Spezio's presentations to groups of educators, community leaders, and children's advocates linked the issue to their core interests, emphasizing that lead prevention efforts could improve educational outcomes.

CPLP leaders also used the Lead 101 materials to explain their approach to the United Way of Greater Rochester. In 2004, the United Way was exploring how it could use its community credibility and role as convener to positively affect local conditions. It established a policy committee charged with selecting a local challenge that could be impacted by the addition of the United Way's advocacy voice. According to United Way Policy Committee staff member Kathy Lewis, "Childhood lead poisoning was not even a blip on United Way's radar screen, but the nascent Coalition to Prevent Lead Poisoning approached us with an impressive and cogent proposal that asked only for United Way's influence to help change specific local policies. This proposal rose to the top of the group, and United Way agreed to make ending childhood lead poisoning its top advocacy issue" (Lewis

2018). United Way also subsequently provided several years of core funding for CPLP (Prevention Institute 2010).

Whenever CPLP gave the Lead 101 presentation, audience members were encouraged to join CPLP and to do what they could to support its work by encouraging blood lead testing, providing funding, and sharing the message with others. A key message to these stakeholders was that the existing system of secondary prevention was "using kids as canaries in the coal mine" to identify lead hazards. This message gave a moral imperative to CPLP's approach of primary prevention through proactively addressing housing hazards.

Public Communications Campaign The goal of CPLP's communications campaign was to raise awareness among the general public—especially the parents of young children—and to reinforce the targeted outreach to community leaders. CPLP applied and was chosen in 2004 by Causewave Community Partners as a "Community Impact Campaign" (Causewave Community Partners 2018). This gave the group access to pro bono public relations and graphic design support from Roberts Communications, a private marketing and communications firm. A team of Causewave and Roberts Communications staff members contributed their time and talents to CPLP over a decade to develop messages and images to support their efforts. They created a slogan, "Let's make lead history," and a design template that was used throughout CPLP's communication materials. In subsequent years, Causewave and Roberts helped CPLP refine its messages about blood lead testing and the dangers of lead poisoning that were used in brochures, billboards, and public service announcements. As part of this arrangement, CPLP received free advertising from local television, radio, and print media outlets valued at around $250,000 per year. These efforts were supplemented with regular press releases, events, and editorials by CPLP members to keep the lead issue alive in the local media. In addition, staff regularly posted CPLP activities, scientific summaries, recent research, and news articles from Rochester and elsewhere on the CPLP website. CPLP also developed several issue-specific communications materials. For example, a task force was established to research, summarize, and communicate the workforce development needs and employment opportunities lead hazard reduction work could provide for low-income residents. The task force published a short booklet on workforce development for lead

hazard reduction. Finally, CPLP published a newsletter to provide resources to community members and organizations trying to learn more about the issue. This newsletter was delivered electronically to CPLP's membership list, which by 2016 included over 700 organizations and individuals.

Community Lead Summit By 2004, CPLP members decided that a local lead law held the most promise for addressing the problem. They also understood that passage of such a law would require strong community pressure. With support from staff at the United Way, CPLP leaders organized a Community Lead Summit in June 2004. The two-day event included an hour-long live show on the local public television station, featuring local and national experts on lead followed by a public call-in session with phone lines staffed by CPLP members. The Community Lead Summit attracted nearly 500 people, far exceeding the organizers' initial goal of 150 attendees (Hetherington and Brantingham 2004; Prevention Institute 2010). Several nationally known keynote speakers, including Mary Jean Brown, then director of the Centers for Disease Control and Prevention Lead Branch, and Don Ryan, executive director of the National Alliance for Healthy Homes, voiced their support for the local efforts.

At the end of the Lead Summit, participants were invited to take the podium in a "commitment session" to state how they personally would help end childhood lead poisoning by 2010. Speakers included parents who pledged to test their children. Religious leaders promised to speak about lead to their congregations and "to declare lead poisoning morally unacceptable" (Lewis 2018). Several key commitments had been carefully mapped out by CPLP in advance of the Lead Summit. Most significantly, Rochester Mayor William Johnson, a Democrat, stated that he would pass a comprehensive lead law before leaving office in December 2005. Republican County Executive Maggie Brooks then pledged to mirror the city's approach in the county's Quality Housing Inspections (QHI) program so that if the county was paying direct rent for residents receiving public housing assistance, those units would be inspected (Prevention Institute 2010; Korfmacher 2010; Korfmacher and Hanley 2013). As Coalition leaders noted in an editorial, "The Community Lead Summit demonstrated conclusively that Rochester and Monroe County have both the knowledge and the will to eliminate what the county health director has called the greatest environmental threat to our young children. In an extraordinary display of unity, Democrats stood

with Republicans, labor stood with business, teachers stood with school administrators and boards. All agreed that while much may still divide us, on this issue the community speaks with a single voice: We can and we must end childhood lead poisoning by 2010" (Hetherington and Brantingham 2004). These commitments made in a highly visible public forum paved the way to develop the city's lead law, which was unanimously adopted by the Rochester City Council on December 20, 2005.

Ongoing Support, Coordination, and Community Communications One of three "Resolutions" passed by the Rochester City Council as part of the lead law package was a commitment to continue community education (City of Rochester 2018). This resolution recognized that part of keeping children lead-safe depended on the actions of their parents—getting their homes tested, testing children at ages one and two, providing proper nutrition, using lead-safe cleaning practices, and calling the city or county for help if they suspected a lead hazard in the home. CPLP recognized that implementation and enforcement of the law would require ongoing political and financial support; therefore, keeping lead in the public's eye was essential. Maintaining public attention posed a challenge after the lead law went into effect and funders perceived that the lead mission had been accomplished. As a result, CPLP's resources declined, as did its communications capacity. Nonetheless, the organization continued to prioritize communications strategies through its partnership with Roberts Communications. For example, in 2011, CPLP received funding from the City and the local health foundation to update, translate, print, and distribute lead brochures in seven languages to community partners. Each year, CPLP partnered with the county health department to create a press release announcing the previous year's lead testing rates and number of children with elevated blood lead levels. These ongoing efforts to communicate about lead were critical to maintaining public, political, and government support for primary prevention efforts.

Translating Information to Meet Stakeholders' Needs

Throughout its work, CPLP emphasized that its positions were based on the best available science. The process of seeking, translating, and, when necessary, generating information was integrated into CPLP communications strategies. CPLP assembled information to include in its presentations,

website, and other outreach materials. It also used feedback from engaging with stakeholders about additional key questions that needed to be answered in order to move forward. These processes drove the agenda for summarizing science, synthesizing community knowledge, and analyzing existing data.

Costs of *Not* Preventing Lead Poisoning Early on, CPLP members heard in their conversations with stakeholders that the most significant barrier to action on lead was concern about costs. CPLP leaders therefore decided that data on the costs of *not* preventing lead poisoning might help to counterbalance these fears. CPLP's messages emphasized lead's effects on the immediate and long-term physical health of children, the need for special education services, and the increased risk of juvenile delinquency. In 2002, the CPLP Board Chair Bryan Hetherington asked the staff of the University of Rochester (UR) Community Outreach and Engagement Core (COEC) to search for cost estimates of lead poisoning. Most of the existing estimates of the costs of lead poisoning were extrapolated from projections of lead's impact on IQ and reduced future earning potential (Landrigan et al. 2002; Prevention Institute 2010). Local leaders were not persuaded by predictions of lost future earning potential since this did not affect their annual budgets. Instead, the COEC staff searched for short-term costs related to medical treatment, special education services, and the juvenile justice system and applied these estimates to local EBLL data. The resulting analysis projected the annual costs of lead in Monroe County to be nearly $500,000 for medical treatment and $1,000,000 for special education, with additional unquantified juvenile justice costs (Korfmacher 2010; Stefanak, Diorio, and Frisch 2005). CPLP later included these calculations in its Lead 101 presentation to show that avoided costs of ending lead poisoning would be enough to make over 400 units lead-safe each year.

Communicating the State of the Science Opponents of a strong housing-based lead law argued that it was unnecessary, excessively costly, and would be ineffective in preventing lead poisoning. Instead, they suggested that if parents cleaned their homes, fed children better diets, and washed their hands more frequently lead poisoning would be reduced. These arguments were repeatedly raised by landlords and some city council members. CPLP countered that focusing on nutrition and housekeeping implied that parents were to blame for their children's lead poisoning. Because the nutrition

and cleaning issues were complex, controversial, and had the potential to undermine its housing-based policy strategy, CPLP leaders asked several physicians and researchers on its science committee to summarize the relevant scientific literature. Their short, plain-language summaries were posted on the CPLP website and delivered in hard copy to all city council members. Because they were written by health care providers and cited peer-reviewed research, these summaries were credible counters to some of the criticisms of the housing-based policy approach. This effort supported the CPLP's argument that while education about good nutrition and housekeeping complemented a housing-based prevention law, educational strategies alone would not prevent lead poisoning.

CPLP members effectively leveraged additional resources from their organizations. Several University of Rochester researchers were nationally known for their work on topics including the contributions of lead in dust to children's blood lead levels, lead's role in osteoporosis, and the effects of low levels of lead on neurodevelopment. CPLP regularly invited University of Rochester researchers to present their latest findings about the human health effects of lead to its members and other key stakeholders. Although these detailed research findings did not directly influence the community's policy choices, such presentations enhanced the community's knowledge about lead, boosted CPLP's credibility, and helped keep lead "in the news."

Finally, CPLP secured technical support from national groups such as the Alliance for Healthy Homes and the National Center for Healthy Housing. These groups shared experiences from other cities, gave feedback on emerging proposals, and conducted new analyses of unpublished data to address Rochester's specific information needs. CPLP members also maintained connections with federal agency staff, including the Centers for Disease Control and Prevention Lead Branch and the HUD Office of Healthy Homes. Committee members maintained these connections by attending national lead and healthy homes meetings, participating in online networks, and communicating with national groups about ongoing local projects, emerging questions, and policy proposals.

Get the Lead Out (GLO) Dr. Richard Kennedy, then a family physician at the Orchard Street Community Health Center at School 17, worked directly with Principal Ralph Spezio and joined CPLP early on. As he learned more about the causes of lead poisoning, he grew frustrated by his inability to

prevent lead poisoning among his young patients. As he said, "When you learn that 41 percent of your patients are lead poisoned, what is a community doctor to do?" Kennedy responded by securing a small grant to test the homes of children in his practice for lead hazards. Partnering with the University of Rochester COEC, medical students, a VISTA volunteer, a lead risk assessor, and the neighborhood group JOSANA (the Jay and Orchard Street Area Neighborhood Association), he initiated the "Get the Lead Out" (GLO) project (O'Fallon 2004). GLO found lead hazards in 98 percent of the homes it tested and estimated an average cost of lead hazard repairs using interim controls at $3,300 (Korfmacher 2010). These homes were mostly private rental properties. GLO educated families to help them avoid lead hazards, notified the property owner of the hazards, referred them to existing funding sources, coordinated with the local code enforcement office, and, when necessary, helped the families locate safer housing. Despite this support system, GLO found that fewer than a third of the properties it assessed were made lead-safe as a result of its information and education efforts. This finding supported the CPLP's claim that education and knowledge alone were not sufficient to protect children.

GLO demonstrated the need for an improved housing quality policy system. The rental properties assessed by GLO were subject to the city's existing Certificate of Occupancy inspection system, which prohibited deteriorated paint. Nonetheless, GLO found deteriorated paint in nearly all of these properties. It concluded that the system of rental housing inspection and enforcement was not effectively protecting children.

In addition, GLO documented the stories of families facing lead hazards in their homes. For example, GLO staff told the city council about testing the house of a one-year-old child with blood lead levels just above the public health level of concern, which at the time was 10 μg/dL. GLO's risk assessor reported the lead hazards to the landlord and referred him to a local housing grant program and free lead-safe work practices training, but no action was taken. Meanwhile, the child's blood lead level continued to rise to over 20 μg/dL, at which point state law required the health department to assess lead hazards in the home and require repairs. Subsequent investigation by GLO showed that city inspectors had previously cited fifty-nine code violations in the house, but that deteriorated paint on windows—the most significant lead risk to the child—had not been cited. This child was poisoned despite the best efforts of her parents, her doctor, and GLO staff to

use existing systems to protect her. This case further demonstrated that neither the existing housing code inspection system nor education to promote voluntary action were effective. Perhaps most important, GLO showed that without a change in policy, the community was powerless to prevent continued poisoning of its most vulnerable members. GLO convinced CPLP that simply informing residents, landlords, and government agencies about lead hazards was not enough: a policy change was needed.

Identifying Cost-Efficient Lead Hazard Control Solutions The 2002 Center for Governmental Research needs assessment report estimated the total cost to make Rochester lead-safe was between $605 million and $5.6 billion. These figures were based on per-unit costs of $7,556 to make a unit lead-safe and up to $70,000 for complete rehabilitation, respectively (Boyce and Hood 2002). These figures reinforced fears that pursuing lead safety would bankrupt the city. The higher cost estimates reflected full lead abatement, which involves removing all lead hazards according to standards set by the Environmental Protection Agency (U.S. EPA 2000). Other, more recent housing-based lead laws, such as the Massachusetts law, had required partial abatement; however, even this approach was deemed to be too costly for Rochester because of its low property values and weak rental housing market (State of Massachusetts 2016; Brown 2002; Mares 2003).

To inform an alternative, less costly approach, CPLP summarized emerging research on housing interventions to reduce lead hazards. These summaries showed that lower-cost interim controls could effectively control lead hazards if combined with proper maintenance and monitoring (Dixon et al. 2005). CPLP also reviewed local experience with lower cost lead hazard controls. Local data came from a housing rehabilitation program funded by a 2002 HUD Lead Hazard Control grant to the Monroe County Department of Public Health. Health department staff reported that the average cost to make a unit lead-safe under this program was $3,253 per unit for interim controls ($5,598 for interim controls with window replacement) (Korfmacher 2010). The GLO project had estimated similar repair costs. These figures were well below the lowest cost estimated in the Center for Government Research needs assessment report (Boyce and Hood 2002). Thus, emerging national data on efficacy of interim controls combined with local data on costs of interim controls supported CPLP's arguments for this cost-effective strategy. This approach reduced the anticipated costs of

making the city's highest risk housing lead-safe, addressing a key barrier to policy change.

Informing the Inspection Approach While the cost of lead hazard controls was the biggest concern of landlords, city officials were also concerned about the costs, logistics, and liabilities involved in testing houses for lead. One option was to contract out inspections to private EPA-certified risk assessors, who would conduct a thorough assessment of each house at a cost of around $400 per unit. City officials argued that this was too expensive for the city to subsidize and landlords insisted that they could not afford to pay for private risk assessments. Instead, both city staff and landlord groups initially maintained that visual inspections for deteriorated paint would be sufficient.

CPLP argued that visual inspections could not detect invisible lead in dust. The Rochester Lead in Dust Study had previously shown lead in dust to be correlated with children's blood lead levels (Boyce and Hood 2002; Lanphear et al. 1995). CPLP asked the University of Rochester COEC staff to help identify an inspection protocol that would be more cost-effective. The COEC staff worked with the National Center for Healthy Housing (NCHH) to summarize recent research and found that a significant percentage of homes with no observable lead hazards had hazardous levels of lead in dust (Breysse et al. 2007; Jacobs et al. 2002). Based on these findings, CPLP proposed that the city use the EPA's lead clearance protocol for testing after lead hazard control work is completed. In "clearance testing," a certified Lead Dust Sampling Technician does a visual inspection and takes at least eight dust wipe samples, which are sent to a certified laboratory for analysis (U.S. EPA 2009c). The average cost of a clearance test was around $150, much less than the cost of a full lead-risk assessment (Korfmacher 2010).

CPLP staff and members coordinated with stakeholders and decision makers throughout the policy process to assemble data, research, and community knowledge to address their concerns, answer questions, and inform a cost-effective approach to prevent childhood lead poisoning. One city council member complained to the CPLP co-chair that it was impossible to find experts who were *not* part of CPLP when they wanted an "independent expert" to critique CPLP's positions (Hetherington 2016). Another noted that, because of the complexity of the lead issue and the scientific credibility of and breadth of expertise accessed by CPLP, this was the first

time he had seen the city council rely more on an outside group than on city staff to inform policy development (Korfmacher 2008, 2010). Thus, collaborating with local researchers, health care professionals, community members, government agencies, and national organizations to generate, use, and translate information was a critical part of CPLP's efforts to promote systems change.

Supporting Policy Change

CPLP interacted extensively with city council members, staff, and key stakeholders to provide the knowledge needed to design and pass a cost-effective lead law. CPLP's research and analysis capacity was accessed regularly during development of the Rochester lead law. After the law was passed, CPLP continued to coordinate with multiple stakeholders to support implementation, evaluation, and adaptation of the law and related efforts. Thus, CPLP's collaborative efforts supported systems change through multiple phases of the policy process (Korfmacher et al. 2016).

Developing the Rochester Lead Law Mayor William Johnson's commitment at the 2004 Community Lead Summit to pass a comprehensive lead law before leaving office launched a policy process that produced three separate legislative proposals, an environmental impact statement, and dozens of public meetings over 18 months. On December 20, 2005, the Rochester City Council unanimously passed the state's first local lead poisoning prevention ordinance outside New York City. The new local law went into effect in July 2006 (City of Rochester 2005). This law has been heralded as a national model, embodying the most recent medical and housing research on lead poisoning prevention in an economically feasible approach (Prevention Institute 2010; Pew Charitable Trusts 2017).

Importantly, CPLP's policy approach was also informed by community representatives on its committees and input from residents through GLO. For example, renters' fears of retaliatory eviction reinforced CPLP's position that the law must not rely on tenant complaints. Their concerns about housing discrimination against families convinced CPLP that the law must target all high-risk housing, not just child-occupied housing. This decision was reinforced by community and social service agency members' reports about how frequently low-income families moved and how many children may be exposed to lead from spending time in multiple older facilities,

including in-home informal day care centers and friends' or grandparents' homes. The observation that children frequently play on porches because of concerns about crime in high-risk neighborhoods led CPLP to insist on a porch dust standard in the final proposal.

Rather than promoting a single specific policy proposal, CPLP developed five "principles for an effective lead law" (Korfmacher 2008):

1. Targeted Roll-Out: Protect the kids who are at the greatest risk first.
2. Required Inspection and Lead Hazard Control: Inspect buildings, not bodies, to find hazards before kids are poisoned.
3. Lead-Safe Work Practices: Do the work safely—don't make the problem worse!
4. Disclosure: Warn people about lead poisoning risks when they buy or rent, and when work is being done.
5. Tenant Protection: Don't let the tenants be punished for asking for safe housing!

CPLP gathered information from the health department, Get the Lead Out, and the city to project the impacts of various proposals. It also relied on information from other cities, national healthy housing groups, and housing research to comment on how effectively each of the successive policy proposals met these five principles.

An additional underlying criterion was to develop a policy that would not significantly disrupt the Rochester economy, housing market, or availability of low-income rental housing. As a result of this commitment, CPLP's objectives for the lead law focused on maintaining lead-safe housing, not removing all lead.

One proposal, drafted by a public interest attorney who served on the CPLP housing committee and submitted by City Councilman Tim Mains, who was also a Rochester elementary school principal, would have required landlords to pay for risk assessments. Another proposal developed by a coalition of landlords relied on publicly funded inspection of child-occupied homes (both rental and owner-occupied units). City staff developed a third proposal that added lead to the city's existing inspections process.

The final lead law was based on the third model. As adopted, it added lead to the "Certificate of Occupancy" inspections already being carried out by the city in all rental housing. Under the city's longstanding Certificate

of Occupancy program, inspections must be carried out every three years in buildings with three or more rental units, and every six years for one- and two-unit rental buildings (Korfmacher and Holt 2018; City of Rochester 2018). Although the statewide Property Maintenance Code that guided these inspections already prohibited deteriorated paint, as GLO had discovered, minor deterioration of paint was sometimes overlooked by city inspectors and there was no presumption that deteriorated paint posed a lead hazard.

Based on the information it had collected, CPLP argued for including dust wipes as part of the new lead law (Korfmacher 2010). City staff countered that this would be cost-prohibitive. As a compromise, they agreed to use Monroe County Department of Public Health data on the location of homes of children with elevated blood lead levels to designate "high risk" areas within the city. Under this compromise, only houses in the high-risk area that passed a visual inspection for deteriorated paint inside the house would also receive dust wipes. While this approach may appear counter-intuitive (i.e., requiring additional testing in the *absence* of deteriorated paint), it was based on research showing that dust hazards exist in a significant proportion of homes with intact paint (Jacobs et al. 2002; HUD 2011). This scenario is particularly likely when painters disturb old paint and leave lead dust behind. If interior deteriorated paint was observed or a dust wipe test failed, the city would issue a compliance notice requiring the owner to address the hazard and obtain a lead clearance by a certified lead inspector or risk assessor. This system added a degree of protection in high-risk areas. The dust wipe lab test also provided built-in quality control for inspectors' visual assessment of paint condition.

The Rochester law included two triggers for inspection in addition to the periodic Certificate of Occupancy inspections. The first mechanism allowed occupants, community groups, or doctors to request inspections on a "complaint" basis. Second, as promised by Monroe County Executive Maggie Brooks at the 2004 Community Lead Summit, the county added lead inspections to its Quality Housing Inspections (QHI) program for county-subsidized housing (Korfmacher 2010). The QHI program had been established years earlier to protect the county from fraudulent damage claims. In order to receive direct payment of rent from the county, a property owner could request a QHI to document the condition of the apartment before and after the Department of Human Services client's tenure.

As of 2005, the city was conducting around 2,000 of these inspections under contract from the county each year. CPLP argued that these were by definition high-lead-risk units that merited more frequent inspection (CGR 2015). According to CPLP co-chair Bryan Hetherington, "We reached out to county executives and said that tax dollars were being used for housing that was poisoning kids," which persuaded the county to add lead to the QHI program (Hetherington 2016). These two additional mechanisms, complaint and QHI, ensured more frequent inspections of high-risk units (Korfmacher and Hanley 2013).

It is important to note that the Rochester lead law did not set forth standards for *how* to repair lead hazards. Thus, property owners cited for lead hazards could simply repaint and clean without removing paint from friction and impact surfaces as required by HUD's guidelines for "interim controls" (HUD 2012). CPLP acknowledged that these temporary control measures could fail within a few years. Proponents hoped property owners would be incentivized by the periodic reinspections to invest in more permanent controls and to maintain units free of lead hazards.

After incorporation of the dust wipe protocol, targeting of highest-risk neighborhoods, and the ability for tenants to request extra inspections on demand, CPLP leadership decided the city's proposal met its five principles for a sufficiently protective law. Accordingly, CPLP encouraged its members to show their support by attending the city council meeting on December 20, 2005, at which a vote on the law was expected. Over fifty supporters filled the council chambers holding signs on paint sticks reading, "Let's Make Lead History." Numerous rental property owners also attended to voice their opposition to the proposed ordinance. Going into the meeting, three of the nine council members were expected to oppose the proposal. Just before the vote, one city council member, elementary school principal Tim Mains, gave an impassioned speech about how important the law was to children in his school. This emotional appeal appeared to sway several additional members of council. Another city council member, Wade Norwood, later said that "there was a tidal wave of facts" and "a moral, scientific, and community imperative that the ordinance pass" (Dissell and Zeltner 2015a). The law passed unanimously, along with three accompanying resolutions:

1. Resolution 2005–23, requiring the city to report annually on the progress of inspections over time and establishing a process to update the

"high risk area" based on county health department data on where 90 percent of children with elevated blood lead levels reside.

2. Resolution 2005–24, encouraging funding and implementation of education campaigns and establishing a community-based advisory committee to monitor initial implementation.
3. Resolution 2005–25, establishing a voluntary program for owner-occupants to receive free lead inspections and establishing a registry of lead-safe properties.

The date for implementation was set as July 1, 2006, to give the city inspectors and property owners time to prepare for the new lead inspections.

After the lead law was passed, the city presented it to the Codes Council of the New York State Department of State for review to make sure it was not preempted by the statewide Uniform Fire Prevention and Building Code. The Codes Council determined that because lead paint was not explicitly addressed in the state code, the Rochester code was therefore neither more nor less restrictive and it was allowed to stand (Kirkmire 2018).

Implementing Systems Change CPLP recognized that passing an inspections law alone would not address lead hazards. It actively supported the city's implementation efforts, maintained public education and communications, and pursued other local systems changes to complement the law.

The city of Rochester's Division of Inspections was responsible for training inspectors, developing protocols, and educating property owners about compliance with the new law. The CPLP role included public communication about the lead law to help tenants, community groups, and property owners know what to expect and how to comply. In addition, CPLP advocated that the county health department contribute funds from its lead Primary Prevention Program to help subsidize the added costs of inspections by the city. The county agreed to give the city over $200,000 per year to defray dust wipe costs.

CPLP also promoted other local primary prevention efforts. CPLP worked closely with the Rochester City School District to develop a lead-safety inspection and maintenance program for school buildings, which was adopted in 2007 (Rochester City School District 2007). CPLP's government relations subcommittee provided a forum for the Rochester Housing Authority and the city to coordinate—for example, by harmonizing their inspection protocols—which saved money by reducing duplicate

inspections. CPLP wrote letters of support for the city's and the county's lead hazard control grant proposals to HUD; between 2002 and 2016, HUD provided over $30 million in grants to make low-income owner- and investor-owned properties in Rochester lead-safe. CPLP continued to advocate that outlying towns in Monroe County adopt lead laws, albeit with limited success. For example, in 2014 the adjacent Town of Irondequoit started requiring contractors to show proof of EPA Renovation, Repair, and Painting (RRP) certification as part of certain building permits (Town of Irondequoit 2018). CPLP's promotion of primary prevention helped ensure effective implementation, community support, and coordination among local government agencies after the lead law passed.

Notably, CPLP's successful collaborative approach caught the attention of other initiatives to change social determinants of health in Rochester. For example, the Finger Lakes Health Systems Agency modeled its Healthy Kids anti-obesity initiative on the lead coalition. CPLP also informed the Rochester Safe and Efficient Homes Initiative, a cooperative effort to integrate healthy housing into other grant-funded housing repair work. CPLP members have given numerous presentations on coalition-building to other communities within and outside New York.

Adaptation The CPLP Government Relations committee continued to meet monthly after passage of the law. One regular function of this committee was to review inspection data and consult on potential changes to the law. The first proposed change came in January 2006, when a group of landlords petitioned newly elected Mayor Robert Duffy to block implementation. They noted that although the Rochester law generally followed the EPA's clearance protocols, there was no precedent for Rochester's porch dust lead standard. CPLP responded that parents had reported that children frequently play on porches to avoid dangers in the neighborhood, so there were concerns both about lead exposure on porches and dust tracked into homes. Nonetheless, the landlord group was successful in getting this provision removed. CPLP later worked with the National Center for Healthy Housing and the City of Rochester's HUD grant program on a study that informed efforts to establish a national porch dust lead standard (Wilson et al. 2015). In 2017, HUD modified its clearance protocols to include a porch dust lead standard (HUD 2017). Thus, Rochester's local effort played a role in changing federal policy.

In 2010, Monroe County eliminated its Quality Housing Inspections (QHI) program because of budgetary concerns unrelated to lead. CPLP noted that this left a crucial gap in testing of high-risk homes. To fill that gap, CPLP worked with the City of Rochester and the Monroe County Department of Public Health and the Monroe County Department of Human Services (DHS) on a pilot to reinspect homes with earlier violations and found hazards in the majority of these children's homes. As a result, in January 2014, the city amended its lead law to provide more frequent inspections in units where lead hazards were previously found. The county DHS made lack of a valid Certificate of Occupancy a "health and safety" violation, triggering rent withholding in units with unaddressed hazards. This change greatly increased compliance with the city's inspection program.

The lead law also gave the city authority to audit and, if necessary, sanction third-party clearance testing firms found to have poor quality control. The lead law required property owners to obtain a clearance from a private firm after lead hazards were identified and repaired. Over time, a number of the private clearance firms were found to be falsifying dust wipe tests. In response, the City of Rochester suspended several clearance providers from doing dust wipe tests for a year.

In 2008, the U.S. EPA issued its Renovation, Repair, and Painting rule (RRP), which included training requirements, standards, and enforcement mechanisms for renovations that disturb paint in pre-1978 homes and child-occupied facilities (U.S. EPA 2014c). With support from CPLP, the city introduced and passed an amendment to the Rochester law to make the requirement for lead-safe work practices consistent with the new federal standards. The city also leveraged the RRP by requiring that all contractors receiving city permits for renovation of pre-1978 homes—both rented and owner-occupied—show proof of RRP certification. This approach allowed the city to reinforce the federal rule, augmenting the U.S. EPA's limited capacity to enforce at the local level. CPLP's ongoing involvement helped identify such needs for adaptation, develop appropriate responses, and promote community understanding of changes to local policies.

CPLP recognized that evaluation was key because (1) Rochester's lead law was a unique new model that might need adaptation; (2) documentation of progress could sustain support for implementation; and (3) it was an opportunity to learn lessons to share with other communities. CPLP was involved in several efforts to evaluate the progress of the lead law.

Evaluation was embedded in the law itself, which required the city to publicly report annual data on the number of inspections conducted, passing rates for visual, dust, and exterior inspections, and clearance rates. This data showed that inspections were keeping pace with the city's goal of inspecting all high-risk rental units before 2010. Passing rates for both visual and dust wipe inspections were over 90 percent, much higher than had been anticipated. This indicated that property owners understood and were able to successfully address the law's requirements prior to inspection. Passing rates continued to increase over time, suggesting that landlords were learning to successfully maintain lead-safe units. Another built-in evaluation mechanism was a requirement to review requests for emergency housing received by the county related to lead. This provision was included as a safeguard to make sure the lead law was not inadvertently causing housing disruptions for low-income families. The review found that lead was cited as a cause in only a handful of the hundreds of emergency housing cases each year (Korfmacher, Ayoob, and Morley 2012).

In collaboration with CPLP, the Center for Governmental Research (CGR) received funding in 2007 from the Greater Rochester Health Foundation to conduct an evaluation of the first four years of the lead law (Boyce, Ruffer, and Ayoob 2008; Korfmacher, Ayoob, and Morley 2012). CGR analyzed the county's EBLL data alongside the city's inspections data, conducted a landlord survey, and convened focus groups to explore the law's impacts. This study found that implementation had proceeded as planned with nearly all target units inspected in the first four years, higher than expected inspection passing rates, and no major disruptions of the Rochester housing market (Korfmacher, Ayoob, and Morley 2012). The Monroe County health director published a paper in 2014 showing a decline in EBLL cases from 13.4 percent to 1.1 percent of children tested in Monroe County between 1997 and 2011, 2.4 times faster than in upstate New York as a whole, and noting that "the experience of Monroe County demonstrates the role of local health department capacity and community-based efforts in reducing sources of environmental lead exposure for children beyond national and statewide policies" (Kennedy et al. 2014, 263).

Promoting Primary Prevention beyond Rochester In addition to supporting lead poisoning prevention in Rochester, CPLP promoted policy changes at state and national levels. CPLP contributed to efforts to revise state lead

policies and increase state resources for primary prevention. CPLP members were active in the New York State Coalition to End Lead Poisoning, a loose statewide affiliation of stakeholders that supported a comprehensive primary prevention bill. With CPLP's support, this bill was introduced by Rochester-area elected officials. It passed in 2008 but was vetoed by Governor David Patterson because of concerns about its economic impact following that year's stock market crash. Nonetheless, this legislation paved the way for expansion of the state's Primary Prevention Program, which eventually provided funding to health departments in fifteen high-risk counties to conduct additional lead prevention activities (New York State Department of Health 2019).

Despite this failure to achieve statewide primary prevention legislation, CPLP continued to advocate for changes in state policy to fill needs identified through its local work. For example, at the urging of its Screening and Professional Education committee, CPLP successfully advocated for a state policy change to allow school nurses to access students' lead levels in their health records. They were also successful in changing the language on blood test reports statewide to call attention to the dangers of lead levels below 10 μg/dL.

CPLP contributed to national lead poisoning prevention efforts by disseminating the story of the Rochester lead law through presentations, publications, news media, and outreach. In 2009, CPLP received an Environmental Justice Achievement Award in recognition of its efforts (U.S. EPA 2009a).

Through this publicity, staff at a local health department in Michigan heard about the Rochester lead law and encouraged the City of Benton Harbor to adopt a similar law. Benton Harbor is an older city with high-risk housing and elevated rates of lead poisoning, so the Rochester approach seemed an appropriate analogue. Health department staff invited representatives from Rochester to brief Benton Harbor city staff about the law, which was passed without significant discussion or opposition. However, Benton Harbor had only two housing inspectors and no proactive code enforcement. In addition, soon after the law was passed, the city government was taken over by the state of Michigan because of financial troubles. As a result, no lead inspections were conducted. Thus, while Benton Harbor had a nearly identical lead law to Rochester's "on the books," it had little if any impact on childhood lead poisoning prevention.

National interest in lead poisoning prevention spiked after the Flint water crisis was publicized in 2015 (Bellinger 2016; Butler, Scammell, and Benson 2016). Soon after, national advocates organized a "Find It, Fix It, Fund It" campaign—coincidentally adopting one of CPLP's early slogans—to push for national policy changes and resources to address childhood lead poisoning (National Center for Healthy Housing 2017). Several projects were undertaken to identify promising local models, and Rochester was frequently cited as an example (Pew Charitable Trusts 2017; National League of Cities 2017).

In the wake of this renewed interest in lead poisoning prevention, many cities contacted Rochester for advice on developing their own local housing-based lead laws (Dissell and Zeltner 2015a, 2015b, 2019; Lindstrom 2017; Tevlock 2014). In responding, CPLP members and city staff explained that the lead law was developed to work in the context of Rochester's community resources, its housing market, and, most important, its preexisting system of proactive code enforcement. Instead of recommending "replication" of the Rochester code, they advised building a community coalition to determine the best approach for each city and developing broad-based support for its implementation (Korfmacher and Hanley 2013). CPLP also highlighted the fact that the Rochester lead law was actually a rather modest, low-cost intervention appropriate to local context: because Rochester already had proactive code enforcement, adding lead to the inspection cost relatively little. In contrast, most smaller cities lack a proactive rental housing inspection system (Korfmacher and Holt 2018; ChangeLab Solutions 2014). CPLP members pointed to Benton Harbor as a cautionary tale of adopting a policy without first developing a strong local consensus about what works for each unique community, municipal governance system, financial resources, and housing market.

Summary CPLP's role in the policy process evolved over time. By first developing community support for ending childhood lead poisoning, CPLP generated support for the "what"—a comprehensive local lead law—that was able to minimize conflict about the "how"—which specific policy measures should be adopted. With the policy in place, the organization stayed involved in monitoring progress, coordinating implementation, and adapting the law.

Applying the Local Environmental Health Initiative Framework to CPLP

Rochester is similar to many cities with high rates of childhood lead poisoning. However, CPLP's collaborative process and the resulting local lead law are fairly unique. CPLP brought together a wide range of stakeholders, marshaled diverse evidence, and participated in a policy process to pass a housing-based lead law and supportive systems changes. Using the framework set forth in chapter 3, table 4.3 characterizes how CPLP supported local policy change.

Issue Framing and Problem Definition

CPLP realized early in its formation that since solutions lie in the housing sector, framing lead primarily as a medical issue was a significant barrier to lead poisoning prevention. Therefore, its communications, information, and policy efforts reframed the issue as a "disease kids catch from their houses." By focusing on geographic concentrations of children with lead poisoning in low-income neighborhoods and among communities of color, CPLP also highlighted lead as an issue of environmental justice. CPLP's messages connected with community concerns about the health, education, and economic future of Rochester's children. Additionally, CPLP broadened the definition of the "health" impacts of lead to include impacts of childhood lead poisoning on the whole community, including failing schools, increased criminal incidents, long-term health costs, and reduced earning potential by affected children.

Resources for Collaboration

Rochester is a relatively small city with a high poverty rate. It has a large number of active community, health, and advocacy organizations, but the resources of these groups shrank during the period CPLP was most active, as did the budgets of the city housing and county health departments. The University of Rochester has a medical school and an Environmental Health Sciences Center with a commitment to outreach. By leveraging these and other community assets, CPLP was able to sustain collaborative efforts to educate stakeholders, build support, and pass a local lead law that became a national model.

Human Resources The CPLP's committee members provided human resources that were the primary strength of the collaboration. The seven working committees engaged over a hundred people at the height of

Table 4.3
CPLP and the Local Environmental Health Initiative Framework

Collaborative Function	Analysis of CPLP
Issue framing and problem definition	Redefined childhood lead poisoning as threat to children's well-being caused largely by hazards in low-income pre-1978 rental housing. Highlighted concentration of hazards in low-income urban communities of color, as well as pockets of cases throughout county. Framing called for engagement of housing, children's advocates, educators, health professionals, and community leaders.
Resources for collaboration	Wide range of skills accessed through members' professional and volunteer roles, lending credibility, skills, and visibility to the effort. Modest funding raised to support core functions of coalition (activities and staff).
Structure and decision-making process	Sustained core committees and structure for over 18 years. Hosted and fiscally administered by series of community organizations. Structure and decision processes changed over time. In early years, detailed bylaws ensured a strong decision role for affected communities. Structures became more informal as CPLP transitioned to a coordinating role. Board included 30% affected community members; others included through outreach events and community group partners. Decisions made by consensus.
Impacts of collaboration:	
Outputs	Presentations, articles, media interviews, press releases, PSA's and written educational materials. Analyses, research summaries, and policy proposals. Community Lead Summit and other events.
Social outcomes	CPLP members collaborated on other issues and contributed to subsequent community coalitions in Rochester (healthy homes, obesity, etc.).
Impacts on policies, systems, and environments (PSE)	Built community support for policy change (city lead law, school lead policy, county government practices). Prevalence of lead hazards in inspected housing declined. Rate of lead poisoning declined more rapidly than in other cities. Helped bring $30 million in housing grants to city. Informed lead policy efforts in other communities.

activities, with several hundred additional people signed up as members. The CPLP was able to leverage human resources because individuals believed that the issue was important and the collaborative process was promising. As former CPLP co-chair Bryan Hetherington said, "We are not going to end poverty in my lifetime, but this one we can win!" (Hetherington 2016). This sense of optimism grew with the credibility, size, and activity of the organization. The CPLP staff and leadership also excelled at defining roles and tasks for members that gave them a sense of concrete contribution to the effort's success (Korfmacher 2010).

CPLP staff provided direct community outreach and public communications support. Staffing was limited by funding, so CPLP relied on the working committees to accomplish CPLP's objectives and goals.

Knowledge Resources CPLP's broad-based membership provided technical expertise, community knowledge, and access to data. Knowledge resources were provided through the expertise of working committee members, technical information members obtained through their organizations, and connections with national nonprofits and government agencies involved in lead poisoning prevention. CPLP's science-based approach, clear structure, and strategic process made it safe, straightforward, and rewarding for local experts—including health care providers, lawyers, and researchers—to provide input, thus boosting the group's credibility. Sometimes experts hesitate to get involved in advocacy groups for fear their technical contributions will be disregarded or manipulated for political gain, thus damaging their credibility. CPLP's demonstrated commitment to science and medical expertise assuaged these concerns. CPLP's efforts to maintain representation by affected community members provided knowledge about low-income families' preferences, priorities, and perceptions about lead. As former city councilman Wade Norwood noted when asked about CPLP's access to expertise, "Understanding can't become wisdom without context. … So, the experts need to be embedded in the community to help them gain this understanding" (Norwood 2007). CPLP was a place where this productive exchange could happen.

Financial Resources Funding for CPLP came from a variety of sources, including government agencies, the charitable giving of private companies, and foundations. Some of CPLP's funding was used to support production and dissemination of communications materials. Other funds were

project-based, and staff was directed by grant deliverables such as conducting a certain number of training and outreach events. For most of its existence, CPLP was able to maintain core support for dedicated staff time to lead the organization, support committee work, and seek additional funding. A number of funders, particularly United Way, were attracted to CPLP's efforts to promote lasting community benefits through systems change.

Group Structure and Decision-Making Processes CPLP's structure and decision-making processes changed over time from a robust group of seven committees and a decision-making board to a more informal coordinating organization led by a small executive committee. CPLP's approach to consensus-building both internally and externally made it an effective policy advocate despite its limited financial resources. Even when CPLP set aside its original bylaws, the organization maintained clear processes for obtaining consensus and approval for actions taken on behalf of the organization.

Although CPLP had strong involvement by government staff, none held a decision-making role. This reflected both government and community members' recognition that CPLP would advocate for policy change that would affect their agencies. As former school principal Spezio recalled, the county health director visited a CPLP meeting and "as he was leaving, he said, 'it's very difficult for me to change this from the inside. Bureaucracies need external pushes. Keep pushing me.' … That was courageous of him!" (Spezio 2017). This balance between collaboration and advocacy was an ongoing dynamic in CPLP's approach.

CPLP never had independent status as a not-for-profit organization; instead, it operated under the auspices of a series of host agencies. Nonetheless, the CPLP Board maintained primary responsibility for fund-raising, staff decisions, strategy, and activities. During each transition to a new fiscal agent, the CPLP Board members considered carefully whether the host agency would try to control the initiative's activities and received clear assurances of their independence. Despite these changes, CPLP was able to sustain a functional decision process and committee structure over nearly twenty years.

Collaborative Outputs and Outcomes

CPLP's activities contributed to systems changes in the Rochester community and beyond. The CPLP's primary outputs were its information materials, presentations, and communications. Its applied analyses, research

summaries, and policy proposals also informed the policy process. Another "output" of the organization was the multiple opportunities it created to engage stakeholders, ranging from committee meetings to the Community Lead Summit.

The most visible outcome of these efforts was the passage of the Rochester lead law. The accompanying commitment by Monroe County to inspect homes of families receiving public housing assistance through the Quality Housing Inspections program was also important. The increased community awareness of the lead problem, incorporation of lead prevention into multiple organizations' activities, and the ongoing collaboration between city and county governments around housing, health, and children's well-being were less tangible but important outcomes.

To what extent CPLP's efforts contributed to the decline in lead poisoning rates in the City of Rochester cannot be definitively determined. Lead poisoning rates have been consistently decreasing throughout the country, even in cities without lead laws. Other factors, including changes in the housing market, demolition of high-risk housing, community education, and ongoing public health programs have contributed to this trend. Furthermore, lead is a multimedia toxicant that may be present in soil, dust, water, or consumer products, so changes in housing alone are unlikely to fully explain trends in population blood lead levels. However, inspection data, program evaluations, and reports by key informants suggest that CPLP's efforts significantly helped Rochester reduce childhood lead poisoning more rapidly than other similar cities. Finally, CPLP actively disseminated lessons learned from its experiences and advised other localities on how to address lead, contributing to national lead poisoning prevention efforts.

Conclusions

Despite CPLP's significant progress, it is important to remember that the local law that is the lynchpin of Rochester's housing-based system does not require full removal of lead and therefore relies on regular inspections and constant community vigilance. If the ongoing inspections and educational efforts were to cease, lead hazards could increase. The economic pressures on property owners, decreasing budgets of local governments, and continued declines in the number of lead-poisoned children could reduce the

sense of social urgency around childhood lead poisoning over time. There may be future pressures to weaken these local lead programs. To the extent that CPLP's educational efforts, the city's integration of lead into ongoing inspections, and the county's commitment to help fund these inspections continue, these accomplishments may be considered sustainable. Since they do not rely on removing all lead from buildings, however, in a physical sense these reductions in environmental health risk are not permanent. Nonetheless, the continuity of Rochester's lead inspection program despite the city's fiscal hardships suggests that it is a durable change in practice.

As innovative and unique as the Rochester experience may appear, the story of CPLP has been played out in similar fashion multiple times, notably in New York City, decades before passage of Rochester's law (Freudenberg and Golub 1987; Pueschel and Fadden 1975). Efforts elsewhere resulted in very different systems to address lead (Korfmacher and Hanley 2013). Thus, the particulars of lead laws are not necessarily transferable from place to place. At the same time, experiences like that of Benton Harbor where local lead policy efforts have been passed but not effectively implemented suggest that developing community support for the policy may be as important as the specific approach adopted (Laker, Ruderman, and Purcell 2016).

Looking back at CPLP's history, former county health director Dr. Andrew Doniger said, "It was such a wonderful sequence of events that it's hard to be critical in any way" (Doniger 2017). What made this successful process possible in Rochester? A combination of community context, leadership, and resources all contributed. The question of what might promote similar conditions in other communities is further explored in chapter 8.