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Are Local Laws the Key to Ending Childhood Lead Poisoning?

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Abstract

Although lead paint was banned by federal law in 1978, it continues to poison children living in homes built before that time. The lifelong effects of childhood exposure to even small amounts of lead are well established by medical research and include learning and behavior problems, hypertension, osteoporosis, and kidney disease. Federal and state laws have reduced rates of lead poisoning significantly in the past three decades. However, pockets of high rates of lead poisoning remain, primarily in low-income urban neighborhoods with older housing stock. Recently, several municipalities have passed local lead laws in an attempt to reduce lead hazards in these remaining areas. There has been no systematic attempt to compare the design and effectiveness of these local policies. To address this gap, we conducted comparative case studies of eight innovative lead laws promulgated since 2010. The laws used a wide variety of legal structures and tools, although certain elements were common. The impact of the policies was intertwined with local housing, economic, and legal environments. While data do not yet exist to systematically evaluate the impact on lead poisoning rates, our analysis suggests that local laws hold great promise for reducing lead hazards in children's homes.

Introduction

Lead poisoning remains a significant environmental health threat, particularly for low-income and minority children (Landrigan et al. 2002, Gould 2009). Nationally, lead poisoning rates in the United States have dropped dramatically over the past three decades. Federal policies banning lead from gasoline (1976) and residential paint (1978) are widely credited for the rapid decline in blood lead levels since that time (Levin et al. 2008). However, high rates of childhood lead poisoning continue to plague many communities. Lead poisoning is most common in communities with a high proportion of low-income children who live in rental housing built prior to the 1978 federal ban on lead in residential paint (ibid.). Local housing policy tools, and particularly adoption of local laws, may be the key to addressing these remaining pockets of high lead poisoning rates. This article analyzes eight recent local lead laws aimed at reducing lead hazards in housing. The goal of this analysis is to inform future local policy innovations that can effectively reduce childhood lead poisoning.

The federal law that mandated removing lead from gasoline drastically reduced the lead being released into the environment, and exposure to lead-contaminated roadside soil declined as it was covered by deposition, vegetation, or paving. Similarly, prohibiting lead in residential paint effectively eliminated new paint as a source of lead in children's home environments. However, banning lead in new residential paint did not eliminate risks from existing leaded paint in older homes. Two decades later Congress attempted to ameliorate the continuing hazards posed by that housing when it passed the Residential Lead-Based

Paint Hazard Reduction Act of 1992 (42 U.S.C. §§4851-56). Recognizing that it was not economically feasible to require removal of all existing lead paint, the federal government implemented additional measures to reduce risks. For example, federal disclosure rules require sellers and landlords of housing built before 1978 to provide information about known lead-based paint and lead hazards to their prospective purchasers or tenants. (See 42 U.S.C. §4852d, commonly known as the “Disclosure Rule,” and implementing regulations at 40 C.F.R. §§745.100-119.) Additionally, between 1999 and 2004, the US Department of Housing and Urban Development (HUD) phased in lead safety requirements for federally assisted housing—both federally owned and federally assisted private housing (section 8 and housing choice voucher programs). (See 24 C.F.R. Part 35, Subparts D, H, I, L, and M.) The 1992 act also addressed reports of lead risks in federally assisted housing and grant programs, with the implementing regulations reducing lead hazards in most public housing to the point that, by 2000, government-assisted housing was already significantly safer than non-assisted low-income housing (Jacobs et al. 2002). Further, federal grants for rehabilitating pre-1978 housing require lead hazard controls.

Since 1993 the HUD Office of Healthy Homes and Lead Hazard Control, has spent a total of over \$1.5 billion on grant programs targeted at reducing lead hazards in privately owned housing through its Lead-based Paint Hazard Control (LHC) and the Lead Hazard Reduction Demonstration (LHFD) programs (Peter J. Ashley, Policy and Standards Division, US Department of Housing and Urban Development, pers. comm., April 14, 2012). Although a significant investment, these HUD lead hazard elimination grants have reached only a fraction of the 38 million older housing units that are estimated to contain lead paint and 24 million units estimated to have actual lead paint hazards (Jacobs et al. 2002). Most recently, the federal Environmental Protection Agency’s Renovation, Repair, and Painting (RRP) rule, which went into effect in April 2010, set training requirements, standards, and enforcement mechanisms for renovations that disturb paint in pre-1978 buildings. (See 40 C.F.R. §§745.80-92.) The RRP rule provides important protections for residents by requiring lead-safe work practices. In homes with lead paint, failure to follow lead-safe work practices can easily generate high levels of lead in dust and create hazards where there previously were none.

At the state level, legislatures have also adopted a variety of policy approaches, but most are based on secondary prevention, that is, identifying children with elevated blood lead levels through blood lead screening programs and then seeking to locate and remove the hazards that created the exposure. Unfortunately, secondary prevention does not protect children from the permanent injuries caused by lead poisoning. As medical research has clearly established, lead poisoning cannot be treated, and lead can cause long-term health, behavioral, and learning problems before it is detected by blood lead screening programs (Brown and Meehan 2004, 8–9, Lanphear et al. 2005). For this reason, our study focused on housing-based primary prevention policies—laws that aim to identify and fix lead hazards before children become poisoned. Several states, notably Maryland, Massachusetts, and Rhode Island, adopted primary prevention approaches that require lead hazard inspections and controls before children become lead poisoned (Brown et al. 2001, Mares 2003, Breysse et al. 2007). With these few exceptions, state and federal laws do not protect children from lead hazards in privately owned housing not subsidized through government programs.

In most areas with high rates of lead poisoning, geographic analysis and health department analyses continue to point to housing-based sources of lead in deteriorated paint, dust, and soil as the primary source of exposure for children. Non-housing sources, including ethnic products, consumer products, contaminated soil, and water continue to be sources of lead exposure for some children (Levin et al. 2008). In some areas, unsafe renovations in pre-1978 housing may account for a significant proportion of elevations. A recent study

found that 14 percent of lead cases in the state of New York were related to renovations that disturbed lead paint (Franko et al. 2009). Thus privately owned low-income rental housing built before 1978 is not regulated by most federal and state lead laws and thus poses the greatest lead risk to children in the United States.

Local laws have the potential to address lead hazards in privately owned pre-1978 housing in ways not addressed by state or federal laws. First, municipalities generally have the authority to address lead hazards in private housing through their code enforcement or public health laws. Under the laws in most states, local municipalities have some degree of “home rule” authority ensured under their state constitutions (Sellers 2010). Typically, home rule authority allows municipalities (counties, cities, towns, and villages) to regulate housing, land use, public safety, health, and sanitation. Home rule provides flexibility to appropriately address housing conditions, economics, and population demographics that often vary widely across a state. Second, municipalities can be more responsive to the particular needs and conditions of the community. They are well positioned to design practical, targeted, and cost-effective approaches appropriate to their locality. Third, a local law can typically be amended more readily than state law, and certainly more easily than federal law, when legal, economic, or environmental conditions change.

Recognizing the potential of local policy to fill gaps left by federal and state lead legislation, several municipalities have recently passed or significantly updated local lead laws. However, there has been no systematic analysis of approaches adopted by these recent laws or of their effectiveness in preventing lead poisoning. This article begins to fill this gap in knowledge by examining the structure and design of eight recently adopted local lead laws. Our conceptual framework for how local laws can reduce lead hazards recognizes that lead hazards are related to how owners maintain houses that contain lead paint. Many of the 38 million American homes that contain lead paint do not pose lead hazards to children (Jacobs et al. 2002). Lead safety is largely a function of maintenance: intact lead paint is typically not hazardous unless it is disturbed by deterioration, friction, or renovation that releases lead dust into the environment. Conversely, homes with deteriorated paint, dust from lead-painted friction surfaces (particularly windows), and bare soil are more likely to have lead hazards that expose children to lead. The goal of most local laws is to influence property owners’ maintenance decisions to increase lead safety in high lead-risk housing. We focus on rental housing, both because rental housing is more likely to contain lead hazards than owner-occupied housing, because municipalities have a greater ability to regulate rental housing, and because (as a result) most local lead laws target rental housing. Many contextual factors affect the extent to which rental properties are maintained free of lead hazards (see figure 1).

Thus, to compare, contrast, and analyze the effectiveness of varied local lead laws, we needed to examine the larger context surrounding these laws. The impact of a local law depends on the context in which it is implemented, as well as variables imposed by variations in date of adoption and implementation structures (Tremper, Thomas, and Wagenaar 2010). Tremper, Thomas, and Wagenaar (2010) recommend that analyses of the legal framework in which public health laws operate take into account the complexity and indeterminacy of the law and couple it with a thorough understanding of the variations in the sources and the hierarchy of those laws. These factors are particularly critical in attempting a cross-jurisdictional analysis. Our conceptual framework includes factors that may mediate how a local lead law influences property owners’ property maintenance behaviors. In addition to the state, federal, and case law context, these factors include the housing market, community/owner awareness of lead hazards, and resources for implementation.

Using this framework, we conducted a comparative analysis of eight recently adopted local lead laws. These case studies address the legal structure of each law and the context in which each is implemented. Although it was beyond the scope of our study to evaluate of the impact of each law on lead poisoning rates, we analyze the potential strengths and weaknesses of the various approaches. Based on this analysis, we present a series of recommendations for municipalities considering adopting or revising local lead laws in the future.

Methods

To select case studies that represented a diverse range of approaches, we first compiled a list of local housing-based lead laws passed or significantly revised by municipalities since 2000. The most recent code included in our study was passed in December 2011 (Philadelphia). We initially considered including older laws, but decided to focus on newer laws for three reasons. First, the majority of older laws we screened, including Buffalo, New York (1995), Harrisburg, Pennsylvania (1992), Los Angeles, California (1980), and Long Beach, California (1995), were not proactive primary prevention laws. Many were limited to secondary prevention activities or simply added lead hazards to building codes without any additional requirement to proactively inspect housing. Second, to maximize the comparability of cases, we wanted to focus on laws passed within the same legal, environmental, and technical context faced by cities considering lead laws. In particular, these more recent laws were designed to fill gaps after the major federal lead programs had been implemented. They also all benefited from recent research establishing the effectiveness of interim controls and were enacted in an environment of low population-wide rates of EBL and remaining “hot spots” of high EBL rates. Third, we found numerous examples of cities that had older lead laws “on the books,” but which are no longer implemented, suggesting that they had limited success and are not likely to be useful models for informing future policy. One exception was the St. Louis, Missouri, code, amended in 1993 and 1999 to include housing “conservation districts” in which housing inspections are required prior to initial occupancy or turnover of units and which would include lead paint hazards (see City Ordinance 62887). We did not review the St. Louis code, given our focus on more recent initiatives.

We identified the universe of post-2000 local primary prevention laws based on prior collections of local lead laws, literature reviews, the authors’ involvement in national lead-poisoning prevention and housing organizations, and the Leadnet listserv, a national forum for lead professionals moderated by the National Center for Healthy Housing (n.d.). The most recent law we considered (Philadelphia) was passed in December 2011. This yielded a universe of nineteen local laws (table 1). Several well-known local lead initiatives were excluded from this universe because they did not meet our criteria for a “municipal lead law.” For example, Providence, Rhode Island, has a strong local lead program, but since it relies on enforcing provisions of state law, with no separate city law, it was not included.

To select cases for more in-depth analysis, we carried out an overview of each of nineteen identified lead laws to produce a brief description of how it was structured (table 1). The majority of these lead laws focus primarily or exclusively on rental units. Several were found to be essentially secondary prevention statutes guiding how to address lead paint hazards in the homes of children with elevated blood lead levels (Charleston, South Carolina; Cincinnati, Ohio; Milwaukee, Wisconsin; New Bern, North Carolina; and Youngstown, Ohio). New Orleans’s statute was found to be limited to requiring lead-safe work practices. Our initial screening revealed that the Utica, New York, program, while demonstrating innovative initiatives, did not involve adopting a local housing law per se. We determined that the Benton Harbor, Michigan, code was largely based on the Rochester,

New York, code and therefore would not add additional insights; in addition, because of the emergency 2010 fiscal takeover of city government by the state, it was not being actively implemented. We excluded the Grand Rapids, Michigan, housing code, since it was being revised. Amendments to that housing code effective in July 2012 prohibit loose paint particles and bare soil, require adherence to the Environmental Protection Agency (EPA) lead-safe renovation regulation, and require registration and periodic inspection of all rental properties (including single-family dwellings). Implementation of this code merits future study. We excluded New York City's law because the city's size, economic, housing, and legal environments are so unique that it has limited applicability to other municipalities (Freudenberg and Golub 1987, 387–401). Rather than conduct a separate case study, San Francisco's approach and the important overlay of how state laws affect local initiatives is briefly described by way of contrast in the San Diego case study. The remaining eight local laws represented a range of legal and environmental contexts, new innovations, and proactive approaches to local primary prevention. These were Burlington, Vermont; Chicago, Illinois; Cleveland, Ohio; Detroit, Michigan; Philadelphia, Pennsylvania; Rochester, New York; San Diego, California; and Washington, DC. These cities are diverse in terms of geography, population size, and race/ethnicity (table 2). Our analysis of these case studies relied primarily on the text of local and relevant state laws. We also collected information using publicly available data from the Centers for Disease Control and US Census Bureau. We used Westlaw to identify relevant judicial case law. In addition, the authors had direct knowledge of the development and implementation of several of these laws because of their roles as participant observers in national organizations, conferences, and online forums that support local lead initiatives.

These multiple sources of information were integrated narrative case study descriptions of three to five pages. These descriptions were sent to key informants in each case study city to check for accuracy and completeness. We then developed frameworks for describing each law that allowed us to compare and contrast the approaches used in each case study. Finally, we compiled short case study summaries to highlight the innovations, lessons, challenges, and opportunities exemplified by each case. These summaries were fact-checked by at least one city staff member and, in most cases, nongovernmental stakeholders from each city, as well as several national local lead policy experts.

Local Lead Laws: Context, Structure, and Implementation

Based on our conceptual framework (figure 1) and experiences evaluating the Rochester lead law, we identified contextual variables, structural features, and types of implementation resources that could be used to describe, compare, and contrast each law in depth. Contextual variables important to understanding the design, implementation, and impact of local lead laws include EBL rates, demographics (total population, race, etc.), and housing market characteristics (tables 2 and 3). Although the eight laws we examined took varied approaches to lead-poisoning prevention, they all addressed several fundamental issues in structuring their laws. These issues include what housing to target, what factors “trigger” an inspection, what kind of inspection for lead hazards is required, how lead hazards are identified, and standards for mitigating hazards (table 4). They also vary according to the resources available for implementation, including inspection, enforcement, and evaluation systems (table 5). These various dimensions of the case studies are summarized below to provide a framework for the subsequent discussion of the case studies.

Contextual Variables

One important contextual variable is the local incidence of children with elevated blood lead (EBL = blood lead level $\geq 10 \mu\text{g/dL}$). The Centers for Disease Control report the case rates for children with EBL by county.

Table 2 presents the EBL rates for 2006, the most recent year for which data are available for the counties in which the eight case studies are located. The nationwide EBL rate was 1.3 percent in 2006, and the blood lead testing rate (the number of children tested for blood lead divided by the total number of children under seventy-two months of age) was 14.6 percent (Centers for Disease Control and Prevention 2012a. All but San Diego and possibly Burlington (local data not available) had EBL rates higher than national rates of EBL in 2006 (Centers for Disease Control and Prevention n.d. 2012b This is not surprising, because local laws are often initiated in response to community concerns about high EBL rates. County-wide EBL rates cannot be used to empirically judge which cities have more lead hazards because of variations in geographic concentrations of EBL, blood lead testing rates, and other factors. National blood lead testing rates were higher than the national testing rate in most of the case study areas; additionally, testing rates are likely much higher in known “high risk” areas (typically low-income urban areas) within each of these counties.

Because of these confounding factors, it is also important to consider housing-based risk factors. American Community Survey data on housing characteristics correlated with lead hazards (e.g., age of housing and rental status) are reported in table 3) (Jacobs et al. 2002, A599–A606). In all the cities except San Diego, more than two-thirds of the housing was built before 1970, and citywide rental rates ranged from 45 percent to nearly 60 percent. The varied size of the case study cities may correlate with technical, financial, and staff resources for inspection, enforcement, and evaluation. Data on median owner-occupied housing value and median rental rates are also reported in table 3 as indicators of the housing market context. It may be more difficult for property owners to maintain lead-safe units in areas where rental incomes and housing values are low. For example, since full lead abatement costs approximately the same amount anywhere in the country, it may be more challenging for a landlord in Cleveland to make this investment than in San Diego, where the median gross rent (\$1,259) is double that in Cleveland (\$628).

Our next step was to develop a framework for comparing the structure of the laws in each of the case study cities. We developed a list of key characteristics of a local lead law based on our past experience with design and evaluation of the Rochester law and feedback from national experts (Korfmacher, Ayoob, and Morley 2012, 309–15). These key characteristics included target housing (what is the category of housing affected by the law, typically by age or tenure); trigger for inspections (what situations lead to an inspection); and inspection type (visual, dust wipe, full risk assessment, etc.). Table 4 used these characteristics to describe the legal “structure” of each local law selected for in-depth case study.

We developed another framework to compare the approaches to and resources for implementation, enforcement, and evaluation, which are key to the actual impact of a law on behavior (deLeon and deLeon 2002, 467; Mazmanian and Sabatier 1989). Table 5 shows how each local code addressed structures and resources available for implementing each law. In-depth analysis of the political and community dynamics giving rise to and surrounding implementation of each law was beyond the scope of this study. Information we were obtained while fact checking case study summaries was integrated into the case study descriptions.

As portrayed in figure 1, the impact of local laws on landlord behavior is mediated by the relevant local legal environment. These factors include case law, ongoing litigation, other local laws, and interactions with state and federal laws. For each local law, we reviewed the relevant state law provisions and references to federal lead laws (table 6). We did a jurisdiction by jurisdiction Westlaw search using traditional legal research techniques to determine what case law in that city or state might affect implementation of the local law. This information allowed us to analyze how implementation of the local lead law interacts

with controlling law, local and state government agencies, and relevant state and federal laws. It is important to recognize that these interactions may change over time, as case law evolves and new laws are passed at higher levels of government. For example, final implementation of the RRP rule by the EPA changed the implementation environment for local lead-safe work practice requirements. Another key dynamic is the interaction between public health agencies (responsible for responding to children with EBL) and housing/code enforcement agencies (responsible for regulating housing that may contain lead hazards). The housing market in each city also affects implementation. For example, a housing market downturn may change the law's effect is on property owners' maintenance decisions.

Structure of the Laws

Table 4 summarizes key structural elements of each law. All the laws target pre-1978 rental housing, although a few extend to owner-occupied housing.¹ For example, the law in Washington, DC, provides for inspection of foster homes (both rental and owner-occupied) prior to placement of a child under age six. Several of the laws include a secondary prevention system of response for cases of EBL that applies to both rental and owner-occupied housing. In other cities, this secondary prevention function is carried out by a different agency (usually a health department) or under separate (usually state) law, and is not addressed here. Within the universe of pre-1978 rental housing, several laws have geographic targeting (San Diego) or phased-in (Washington, DC) provisions that narrow the initial focus. Philadelphia and Washington, DC, limit proactive inspections to pre-1978 rental units with high-risk residents (young children and/or pregnant women).

The timing of proactive inspections is one of the most varied aspects of these local laws. Triggers include the presence of an EBL child (enhanced secondary prevention), annual or periodic inspections, and obligations to inspect at unit turnover. These variations are applied in different ways. For example, several cities use multiple triggers, and different triggers may initiate different kinds of inspections. Detroit requires an annual risk assessment. Burlington requires landlords to annually certify that the unit has been visually inspected between the city's periodic inspections (generally every three years). Burlington, Rochester, and Washington, DC, added lead inspections to existing requirements for periodic inspections (between every three and six years). These are usually carried out in connection with some form of "certificate of occupancy" at initial issuance and subsequent "certificates of compliance" upon periodically required renewal inspections, typically for certain types of rental units. Burlington, San Diego, Philadelphia, and Washington, DC, each require some form of inspection at unit turnover. In the case of Philadelphia, however, the inspection requirement is triggered only if a child six years or under will reside in the unit. In Washington, DC, the requirement to inspect applies if either a child under age seven or a pregnant woman will reside there. Many of the laws have additional trigger provisions for inspection on demand (usually by request of a tenant, as in Washington, DC); identification by city inspectors as high-risk unit; or the presence of an EBL child. In addition to its secondary prevention program, Cleveland relies on incentivizing voluntary third-party inspections for primary prevention.

The eight local lead laws utilize a wide range of lead inspection tools incorporating procedures developed by federal agencies, as well as innovative variants on existing inspection protocols. Several laws rely on visual inspections for deteriorated paint (Burlington, Rochester, and San Diego), but in most cases these are augmented with more stringent inspections if hazards are found or suspected, in targeted areas, or in the case of an

¹The federal ban on lead-based paint for residential usage went into effect on March 1, 1978. Most lead paint laws therefore target "pre-1978" buildings. San Diego, however, defines target housing as "pre-1979," and Philadelphia is even more precise, using the cutoff date of March 1, 1978.

EBL child. Three cities have adopted some version of the “visual plus dust wipe” protocols similar to the EPA’s clearance testing protocol: Philadelphia, Rochester, and Washington, DC. Three more—Chicago, Cleveland, and Detroit—rely on a full EPA risk assessment or similarly comprehensive inspection for lead hazards and their sources. Choosing the type of lead assessment has significant cost implications. Visual inspections usually take less than an hour; standard training consists of a free online module that takes approximately one hour to complete. Inspections (visual inspections plus dust wipes) based on clearance testing protocols may be carried out by lead-sampling technicians (one-day training plus certification exam) and cost around \$150–\$200. Full lead-based paint inspections and risk assessments (around \$500–\$800 per unit) must be carried out by certified risk assessors (five-day training plus certification exam). As in Philadelphia, local ordinances have the flexibility to authorize differing certification standards; however, such local standards apply only to the locally established requirements and do not insulate a property owner from the obligation to comply with separate state or federal standards.

Finally, most of the lead laws we examined have some provision requiring lead-safe work practices (or, in the case of Chicago, banning certain hazardous practices), but were passed prior to the April 2010 implementation of the RRP rule. Although the RRP rule establishes uniform requirements for training and work standards, the EPA’s capacity to enforce the rule is limited. Therefore, many of these local provisions will remain useful for local enforcement of lead-safe work practices. (See 40 C.F.R. §§745.80–92.) Interestingly, very few of these laws set forth clear standards for how hazards are to be addressed (e.g., whether full abatement or interim controls must be used to treat identified hazards). The exception is if the inspections are carried out in connection with an EBL child (e.g., Chicago) or in response to a risk assessment (Cleveland, Detroit), in which case full hazard abatement by EPA-certified workers is often required by local or state laws.

Implementation Resources

Table 5 summarizes some of the key resources needed to effectively implement a local law: inspection resources (trained staff and adequate funding), enforcement tools, and evaluation systems. Most of the systems utilize city inspectors in some capacity; however, some rely on a combination of voluntary (owner) inspections, private inspectors, and city staff. For example, Burlington requires landlords to certify annually that they have conducted a visual inspection, and city inspectors conduct visual inspections as part of the “certificate of compliance” with the minimum housing requirements. In Rochester, city inspectors conduct initial inspections, but clearances by private lead-sampling technicians or risk assessors are required after identified hazards are remediated. Certified private-sector personnel also conduct periodic or event-triggered (e.g., at unit turnover) inspections in Detroit, San Diego, Washington, DC, and Philadelphia. In Philadelphia, landlords must additionally certify compliance with the law when applying for a new or renewed rental license, and Burlington requires a similar periodic certification by the owner of compliance with local requirements.

A range of enforcement tools is used in most of the laws, generally based on the city’s existing authority. For example, San Diego makes use of its existing authority to assess significant fines for code violations (up to \$2,500 per day per incident), which creates a compelling incentive to comply with its lead-poisoning prevention program. Since fines can be assessed administratively, this approach can obviate the need to seek judicial enforcement, that is, in a forum in which a court has the authority to directly order compliance. Although Cleveland’s approach includes the incentive of reduced liability that is provided by its voluntary lead-safe certification, it may still issue penalties against landlords who fail to comply with a citation arising from an EBL case. The Cleveland law specifies that penalties collected in such cases be contributed to a designated fund for lead-poisoning prevention, intended to subsidize administration and enforcement efforts.

(§3742.51); however, the fund has not yet been created (Kimalon Meriweather, Lead Safe Living—Healthy Homes Program, Cleveland Department of Public Health, pers. comm., September 10, 2012). Any funds captured as a result of fines from noncompliant property owners goes to the city of Cleveland's general fund. The experience in Washington, DC, illustrates how the effectiveness of such designated funding approaches may nonetheless be limited by the local budget adoption process.

Very few of the cities we studied had systematic evaluation plans built into their lead laws. Accompanying resolutions to Rochester's law require city staff to produce annual reports to city council on the progress (number of inspections completed, costs, and results) of implementation and to obtain EBL data from the county health department that is used to revise its high-risk target area designations. The Washington, DC, law calls for a report to be produced prior to embarking on the third phase of implementation. It was beyond the scope of this study to identify all community, government, and academic evaluation efforts unless they were explicitly referenced in the text of the law. Anecdotal reports indicated that such efforts do exist. For example, Chicago has produced periodic reports on its program but does not have annual public reporting requirements. Similarly, although not explicitly required in the local law, the Philadelphia Fair Housing Commission plans to monitor complaints following implementation (Nan Feyler, City of Philadelphia Department of Public Health, pers. comm., September 18, 2012). However, the city staff who fact-checked the case summaries confirmed that little or no evaluation was being conducted in most cities. Further research into evaluation models and practices as implementation of these laws progresses might be valuable.

Case Studies

Burlington, VT: The lead-poisoning prevention effort in Burlington, Vermont, illustrates how a local law can address a significant shortfall in the effectiveness of a state law (Code of Ordinances, ch. 18, art. 3, §112 [2009]). The state of Vermont passed a lead-poisoning prevention law in 1993, substantially amended in 1995, which was intended to reduce lead poisoning. The state law never realized its potential because of implementation challenges (18 Vermont Statutes Annotated [VSA] §§1751–1767). As amended in 1995, the state law included several innovative elements applicable to target housing (most pre-1978 rental units). It required that owners comply with essential maintenance practices (EMP). EMP include a requirement that painted windows have window well inserts; that the landlord conduct an annual visual inspection; that deteriorated paint be addressed using lead-safe work practices; that common areas be cleaned annually and units be cleaned at tenant turnover; and that notice be posted in units advising tenants to report deteriorated paint to the property owner. Moreover, 18 VSA §1759(b) requires that the owner file an annual certification of compliance with the EMP obligations including the address of the unit, date of completion, names of persons performing the tasks. Finally, the certification of EMP compliance must be sent to the Vermont Department of Health, tenants, and the owner's insurance carrier. The state law, 18 VSA §1758(b), provides the framework for a state housing registry of lead-free or lead-safe units. Thus, on its face, the Vermont state law would appear to be an aggressive and potentially effective law.

Burlington officials, however, were frustrated that the state law for the most part remained unenforced (Jeff Tanguay, Burlington Lead Program, Community and Economic Development Office, pers. comm., March 9, 2012). For example, the state housing registry was subject to appropriations that never materialized. The fact that the state lacked a mechanism to identify owners subject to the law posed a barrier to enforcement. Most significantly, municipalities were not authorized to enforce the state lead-poisoning law. With respect to the alternative possibility of enforcement by affected tenants, although 18

VSA §1761(b) authorized a civil action by “any person who suffers an injury proximately caused” by an owner’s breach of the duty of reasonable care created by the statute, it did not authorize a civil action by an uninjured person to compel compliance. In addition, the state law insulated owners from liability under common law or statutory “warranty of habitability” for “injury or other relief” when a landlord is in compliance with the EMP requirements and abatement orders. However, the state’s failure to bring enforcement actions undermined the leverage of that provision.

To address these shortcomings, the city of Burlington adopted a local lead ordinance in 2009 (implemented in 2010). Under the local law, §18-112 of the Burlington Code of Ordinances, city inspectors, including two health officers operating through the city codes inspection process, were able to inspect housing for lead hazards and ensure compliance with EMP requirements paralleling those of the state law. The law included annual visual inspections and specialized cleaning requirements for “target rental housing.” City inspectors are authorized to gain access to units by virtue of an existing local requirement for periodic inspections to be carried out in conjunction with the issuance of certificates of compliance for rental units. The periodic inspection requirements established in Burlington §§18-16, 18-18, and 18-19 require inspections in rental properties in most cases every three years (five years if the unit is a single- or two-room unit in a building in which the owner also resides, or if the building is new or substantially renovated), and more frequently (every two years) if there has been a history of serious violations as enumerated in the ordinance. The local rental housing registry, in addition, provided the mechanism lacking at the state level to ensure compliance with the owner’s obligations under not only the local law (Burlington §18-112[h]) but also the state law certification requirement, 18 VSA §1759(b), to annually certify that he or she has conducted a visual inspection and complied with specialized cleaning and lead-safe work practices applicable to target rental housing. Finally, the Burlington local law also addresses a gap in the protections intended by the EPA’s RRP rule, 40 C.F.R. §§745.80-92 (2012). The Burlington local law, adopted in 2009, was drafted with a view toward the final implementation of the RRP rule in April 2010. Because Burlington anticipated that the EPA would lack the resources to monitor compliance with the RRP rule, it included a provision that requires affected property owners to provide documentation that they are in compliance with the EPA certification requirements throughout the building permit process, thus using their local law to increase the effectiveness of a federal rule.

Chicago: Chicago’s lead-poisoning prevention law, chapters 7–4 of the Municipal Code of Chicago, was enacted in 1993 and strengthened in 2006 (Municipal Code, title 7, ch. 7–4, §7-4-020 [2006]). It provides the city with considerable flexibility for gaining access to buildings likely to contain lead hazards and in that regard offers potential as a primary prevention tool to increase the numbers of units inspected before a child has been poisoned by lead. The city has clear authority under state law to adopt such an ordinance (410 Illinois Compiled Statutes [ILCS] §45-15). That provision, §15 of the Illinois Lead Poisoning Prevention Act, specifically preserves for Illinois municipalities the right to establish lead-poisoning control and prevention laws with higher standards than those established in the state law. Such an authorizing provision is helpful to drafters of local ordinances in that it protects local ordinances from challenges based on the concept of preemption, namely, that the state has foreclosed local action by state action that addresses the subject comprehensively.

While the Chicago ordinance does not create a mechanism to periodically inspect buildings, it does provide city health officials with broad authority to gain access to virtually any building likely to contain a lead hazard. In addition, the local law incorporates specific provisions on increasing public awareness of lead hazards and also includes a provision for

tenants to request inspections of their own units once a landlord has posted notice that a lead hazard has been found in another unit in the building (Chicago Municipal Code §7-4-105). This provision strengthens the state regulation that requires the city to inspect an apartment upon request of the tenant when a child under age six or a pregnant woman resides there. The city must also conduct an inspection if a child under age three has a confirmed blood lead level over 10 µg/dL, or regardless of age if the child tests at or above 20 µg/dL or has three successive tests at levels of 15 to 19 µg/dL, or upon physician request for any child with a blood lead level at or above 10 µg/dL (see 77 Ill. Admin. Code 845.85[a][1]). The combination of these measures, while still a variation of what are essentially secondary prevention strategies, gives the city increased access to housing units likely to contain lead hazards.

Chicago is uniquely poised to use secondary prevention as a preventive strategy because of the low threshold it sets for declaring a child lead poisoned. The city Health Department's implementing regulations, "Control and Mitigation of Lead Bearing Substances," does define lead poisoning, in §1(l), as "a confirmed level of lead in human blood greater than 5 µg/dL." At the time, this level was lower than the 10 µg/dL "level of concern" (now called the "reference standard") used by the Centers for Disease Prevention and Control. While confirmed blood lead tests at that level do not by themselves trigger an obligation for the city to inspect under either the state or local law, it may nonetheless facilitate entry. Adopting blood lead levels of 5 µg/dL as "lead poisoning" increases the number of units for which that assertion is available to support a probable cause application for a judicial warrant to gain entry if necessary, and may either directly or by analogy support an application for a warrant based on the state law provision authorizing warrants in lead-poisoning cases. That law, 45 ILCS 45/8.2, provides that "a court may issue a warrant upon a showing that a victim of lead poisoning resides or has recently resided in the building." Moreover, the local standard is likely to be interpreted to be consistent with the basic requirements for issuance of warrants indicated by the US Supreme Court in *Camara v. Municipal Court*, 387 U.S. 523 (1967). The potential effectiveness of this provision is amplified by the fact that Illinois state law requires most children in Chicago to have their blood tested for lead. The state lead law requires all children between six months and six years of age to be tested if they live in zip codes at "high risk" for lead poisoning. Under the state criteria, all the zip codes in Chicago are defined as high risk.

Apart from the request mechanisms and the provisions tied to elevated blood lead levels, the key provision that authorizes the broad authority for an inspection is §7-4-090. That section permits an authorized city official to gain access to "child care facilities, schools, dwellings and residential buildings," to ensure "that all surfaces accessible to children are intact and in good repair" or simply to determine whether they contain lead. Coupled with the clear obligation created in the local law for owners to maintain their premises free of lead hazards (§7-4-030), the city is positioned to prioritize unit inspections commensurate with their available resources. That section additionally authorizes the city to examine soil around such buildings and to inspect commercial establishments. It has been implemented pursuant to local regulations to not only gain access to "common areas" when a hazard is found in a single unit, as would be authorized under the general state law, but to gain access to other units in the same building as well. This is a good example of how local laws have been adapted to local housing conditions. Inspecting additional units in buildings where an EBL child lives has a greater potential to leverage primary prevention in a city like Chicago, where large pre-1978 apartment buildings are more common than in rental markets dominated by one-to-five-unit buildings. Thus the local ordinance gives local health officials considerable latitude to use EBL or any other indicator they may deem relevant to conduct inspections. This broad authority permits the city to conduct targeted primary prevention inspections to maximize the effectiveness of their available resources. There is a trade-off,

however, in that the flexibility provided by this local law, through its failure to include specific mandatory inspection requirements and criteria, may come at the expense of being able to ensure that a sufficient number of inspections will be conducted in times of tightening resources.

Cleveland: Cleveland's lead poisoning prevention local law, which includes chapter 240 and portions of chapter 365 of the Cleveland City Code, was initially adopted in 2004 (Code of Ordinances, pt. 2, title 1, ch. 240 and 365 [2009]). It was revised in 2006 to include provisions related to disclosure of hazards (§240.06), certifications available to landlords after voluntary lead inspections (§240.08), and provisions establishing misdemeanor penalties (§240.99). The Cleveland law incorporates references to the State of Ohio's Lead Abatement law, chapter 3742 of the Ohio Revised Code (ORC) (adopted in 2003 and strengthened in 2005). That state law establishes standards for essential maintenance practices and requirements for use of lead-safe work practices (ORC §§3742.42–46). Neither the state nor local law requires periodic inspection of properties in the absence of a child with an elevated blood lead level and thus relies instead on a system of "secondary prevention" (Cleveland City Code §240.04).

However, the Cleveland law operates in conjunction with a general certificate of occupancy provision that requires that an owner obtain a "certificate of rental registration" under chapter 365. The certificate is to be renewed annually and requires that the city's director of buildings and housing must find "that a building or other structure is in compliance with the provisions of this Code and all other applicable laws, ordinances, rules and regulations," which includes the provisions of chapter 240, and specifically §240.02 defining lead paint hazards as a "nuisance." Pursuant to §240.09, an owner may be required to remove a nuisance that has been identified by the commissioner of environment, the director of building and housing, or "any authorized city officer or employee." So while the Cleveland law does not create a true primary prevention system, it has the potential to carry out primary prevention inspections for lead paint hazards before a child is poisoned. Unfortunately, local advocates report that there is little compliance with the requirements for issuance of certificates of rental registration, particularly with respect to proactive inspections (Michael Piepsny, Cleveland Tenants Organization and Stuart Greenberg, Executive Director, Environmental Health Watch, telephone interview, May 25, 2011). Instead, the inspection process is primarily complaint driven. The local law is innovative, in several respects. It authorizes voluntary "lead maintenance" and "lead-based paint free" certifications that provide reduced liability to landlords as an incentive to maintain their properties in a lead-safe manner. These certifications were to be issued by the City of Cleveland Department of Public Health based on a risk assessment performed by a certified risk assessor at the owners' expense (§240.08 [c] and [d]).

However, the city has not issued any voluntary lead-safe/lead-based paint free certificates since the program's inception (Kimalon Meriwether, City of Cleveland, e-mail, September 12, 2012). This may indicate that landlords believe their risk of liability does not justify the cost and effort to obtain a certificate (*ibid.*). A risk assessment typically costs \$400 or more for a single-family house. In a housing market like Cleveland's (see table 3), this may be a prohibitively high cost.

The local law is also innovative in that §240.06(b)(3)–(5) provide an expanded right of private enforcement if an owner fails to comply with disclosure requirements. The disclosure provisions are similar to those of the state and federal law. However, their inclusion in the local law may increase awareness and facilitate enforcement in local court. Under the federal law, 42 U.S.C. 4852d(b)(3), tenants can directly sue for failure to comply with disclosure requirements. Cleveland adds to the federal law by specifically providing for

an award of court costs, attorney fees, and expert witness fees if the tenant or purchaser prevails. In addition, it authorizes any “*non-profit health or housing organization*” to bring an action on behalf of the aggrieved tenant or purchaser and to recover *its own costs* for time and resources expended to investigate and prosecute the legal action. Although this provision is limited to disclosure violations, there is also a separate more general provision in the Cleveland ordinance that authorizes “any person damaged by a nuisance caused by a violation of this chapter to bring a legal action to correct condition constituting the nuisance” (i.e., the lead hazard). Based on our review of local case law, these provisions appear to be little used. Even in the absence of litigation, however, such private right of action provisions may well influence landlords’ behaviors because of the possibility of being sued if they fail to comply with the disclosure or property maintenance requirements.

Given that the leverage of Cleveland’s local law depends on the perceived liability of owners for lead poisoning, it is important to consider Ohio case law defining the limitations on that liability. For example, in a case arising out of Toledo, the landlord argued, and the appellate court agreed, that since the unit had passed the local public housing authority’s section 8 inspection (which includes lead), it could not thereafter be argued that the landlord “should have known” that a lead-based paint hazard existed on the property (*Patterson v. Ahmed*, 2010 WL 3449257, 2010-Ohio-4160 [Ohio App. 6th Dist. 2010]). This ruling could affect thousands of section 8 units in Cleveland and reduce the incentives for property owners to maintain lead-safe units. This suggests the local law might be enhanced by amendments to ensure that an owner is not unintentionally *insulated* from liability for lead hazards by virtue of the unit having been inspected through the Section 8 program. The local law might expressly provide, for example, that inspections carried out by third parties shall not be construed to abrogate or reduce the landlord’s obligation to maintain the property free of lead hazards. This example shows how local laws could address gaps created by evolving case law that threaten to reduce tenant protections.

Local advocates in Cleveland have discussed a parallel strategy to make better use of a 2006 state law. That law might be coupled with local efforts to improve compliance with the federal lead hazard disclosure law (commonly referred to as “§1018”) and the remediation of hazards. Already being used in Mahoning County as part of an aggressive special prosecution initiative, the state law has the potential to be extremely effective. It allows any person, including the officers of health departments or other enforcement agencies, to record an affidavit to property titles with respect to “any condition or event that may create or terminate an estate or interest” (see Ohio Rev. Code §5301.252). The existence of an outstanding lead hazard may constitute such a condition, and particularly so if a local law provided a remedy such as receivership, lien on the property, or other impediment to title. Title companies and mortgage lenders will review such affidavits when performing title searches in conjunction with the sale of real property. To the extent that such an affidavit will be viewed as creating a cloud on title, this provision may provide considerable leverage to compel abatement of hazards.

Detroit: Detroit’s local lead-poisoning prevention law might be considered the “Cadillac” of primary prevention models (Detroit Property Maintenance Code, Detroit Code of Ordinances, pt. 3, ch. 9, art. 1, and ch. 24, art. 10). The Detroit code requires that owners of all rental units register their properties annually and within ninety days of sale (Detroit Property Maintenance Code §9-1-81). More specifically on point, as amended in 2009 by ordinance no. 29-09, owners of pre- 1978 rental units must provide a “lead clearance report” (Detroit Property Maintenance Code §9-1-82[d]). The clearance report requirement, described in §9-1-92, specifies that the clearance report must contain both a “lead inspection report” by a certified inspector or assessor *and* a “lead assessment report” by a certified risk assessor. As noted above, risk assessments typically cost over \$400, although preliminary

information indicates that the cost for the combined inspection/assessments is dropping as the private inspection industry develops (Steven Leggat, Property Maintenance Division, Buildings, Safety Engineering and Environmental Department, City of Detroit, pers. comm., March 13, 2012). In subsequent years, only a risk assessment report is required. This approach spares the city the staffing requirements, expense, and logistical burdens of conducting inspections. The Detroit law provides a thoughtful example of an inspection protocol that takes into account the various techniques used to address lead hazards. Under §9-1-83, an annual inspection must be performed where interim controls have been used. But where hazards have been fully abated, the clearance report is valid for three years. Finally, if the owner fully removes the lead paint in compliance with the standards of the Michigan Lead Abatement Act (Michigan Comp. Laws §333.5451 et seq.), no further lead clearance report is required.

The Detroit law is ambitious both in its scale and in the rigorous standards it requires for inspections and clearances. The availability of an administrative enforcement bureau may permit a volume of enforcement cases that could not be accommodated using a judicial enforcement model, and this bureau's effectiveness was enhanced by the city's authority to assess per day, per violation fines. Because these cumulative fines increase in amount with each adjudication of noncompliance, fines can mount quickly. Moreover, the city refers these fines to private collection agencies. Securing personal judgments against owners has provided the city with substantial leverage, partly because of the effect an outstanding judgment can have on individual credit reporting.

The City of Detroit is developing electronic-reporting and record-keeping mechanisms to streamline enforcement. Neither the Detroit Property Maintenance Code (ch. 9, art. 1) nor the separate Lead Poisoning Testing and Prevention article of the Detroit Code of Ordinances (ch. 24, art. 10) appear to authorize a private right of enforcement by tenants. That omission may be particularly important in light of a federal appellate decision from the Court of Appeals for the Sixth Circuit, *Johnson v. City of Detroit*, 446 F.3d 614 (6th Cir. 2006). The plaintiff in *Johnson* sued the city for failing to provide a lead-safe unit through the federal Section 8 housing program that the city administered. Following the trend of recent federal private right of action cases, the court held that neither the federal assisted housing law nor the federal Lead-Based Paint Poisoning Prevention Act (which includes the Residential Lead-Based Paint Hazard Reduction Act of 1992) provided a direct cause of action under either the implementing regulations or under the statutes themselves to compel the remediation of a lead hazard (*Johnson*, at 625).

Similarly, the court held that this lack of enforceability could not be remedied by asserting a claim under 42 U.S.C. §1983, the federal civil rights statute available when civil rights are breached as a consequence of state action (*Johnson*, at 626). While the *Johnson* case did involve a subsidized tenancy, the court's ruling with respect to the federal Lead-Based Paint Poisoning Prevention Act may impose a potentially broader litigation obstacle. Given the trends with respect to courts being reluctant to find private rights of action, drafters of local laws who wish to enhance the protections of those laws might well consider including an express private right of action to preclude a limitation being imposed by a state court similar to the federal trend.

Philadelphia: The most recent law considered here, Philadelphia's Lead Paint Disclosure and Certification Law, was adopted in December 2011 and went into effect in December 2012 (Philadelphia Code, title 6, ch. 6, §6-800 [2011]). Although the ordinance imposes significant new affirmative obligations on property owners, the time frame provided for implementation allows for education of the community about the new obligations created by the law. The implementation time frame also accommodates the need to prepare essential

forms and records, and allows the private sector (both landlords and certified private inspectors and assessors) to “gear up” for the new requirements.

Philadelphia, like numerous other jurisdictions, had previously adopted a “disclosure” law offering protections very similar to those of §1018 of the federal Residential Lead-Based Paint Hazard Reduction Act of 1992. The 2011 amendments to the Philadelphia law significantly advance primary prevention by adding to those disclosure requirements new inspection and certification obligations with which landlords must comply. The certification requirement applies when a unit of “target housing” is leased. Target housing includes rental housing where a child aged six or under lives (with several exclusions). Under the new Philadelphia law, landlords of target housing are obligated to provide the tenant and the city’s health department with a certification from a “certified lead inspector.” A certified lead inspector is defined in the ordinance to include a person certified by the Philadelphia Department of Health or by the state as an “inspector-risk assessor” under the state certification regulations, or has been certified by the EPA as a lead-dust sampling technician. While there is no express provision that any hazard identified must be cleared by an EPA or state-certified risk assessor or inspector, under §6-803 (3)(b) any corrective actions must be performed in compliance with applicable laws. Accordingly, in most cases when a hazard abatement order has been issued, even pursuant to a local law, clearance by a certified assessor or inspector will be required under federal law.

Under §6-803(3)(a) a landlord must certify that the rental property is lead free or lead safe as defined in §6-802(8) and (9) of the ordinance. Under §6-802(13) a “valid certification” that a property is lead free may be based on an inspection conducted any time prior to the date of the lease, and a lead-safe certification must be based on an inspection conducted no more than twenty-four months prior to the date of the lease. Under §6- 803(3)(b) a certification that a rental property is lead safe must state that the certified lead inspector has determined that the housing was free of any deteriorated paint, that interior dust samples were collected in compliance with EPA regulations (referencing 40 C.F.R. §745.227), and that the samples were found not to contain lead-contaminated dust under the standards defined in the ordinance (Philadelphia Code §6-802[6]).

Philadelphia adopted a pragmatic approach in its attempt to address the concerns of both lead-poisoning prevention advocates and the business interests that will be affected. Specific measures to influence owner behaviors include significant penalties for noncompliance. Additionally, the law includes some practical measures that are likely to increase awareness and effectiveness of the intended protections. Finally, the law includes quality control initiatives by authorizing audits by the city. The law excludes not only public housing units but also private housing assisted under the federal section 8 Housing Choice Voucher program. That housing, however, is already subject to a visual inspection requirement for covered households. Philadelphia also excludes various types of student housing.

As noted above, the ordinance limits the definition of “target housing” to units rented to households with a child age six or under. Other jurisdictions, like Washington, DC, and New York City, have adopted similar limitations. See, for example, the Administrative Code of the City of New York, §27-2056.18. While there is a clear logic to such exclusions, and while they reduce the scale of implementation and enforcement, it will be important to assess whether children continue to be poisoned by lead hazards in noncovered units (e.g., in grandparents’ or friends’ homes).

In addition, the limitation to homes of young children raises fair housing concerns. Imposing more rigid maintenance requirements on units with children may increase reluctance by landlords to rent to such households. Such discrimination would constitute a violation of the

federal Fair Housing Act's prohibition against discrimination against families with children ("familial status") according to guidance issued in November 2000, by HUD, the agency responsible for interpreting the Fair Housing Act. In 2011 HUD issued charges of unlawful discrimination on that basis in two cases in Springfield, Massachusetts. The Philadelphia Fair Housing Commission plans to monitor the number of complaints of housing discrimination against families with children to determine if there is an increase with enactment of this law, but that will only measure increases in reported instances of discrimination. Given that courts have yet to rule on the applicability of the federal familial status protections in this regard, there is some uncertainty about interpreting these fair housing protections. Drafters of local laws should consider including express language with specific procedures to protect these families from both overt and subtle forms of discrimination and, in doing so, be sure to extend the protections to all households with children and not just to those within the more restrictive definition of a "family" set out in the federal Fair Housing Act.

Several enforcement strategies are embodied in the Philadelphia law. The ordinance incorporates a private right of action for a tenant to go to court to require a noncomplying landlord to provide the required inspections and certification. The formidable range of potential penalties may also influence landlord compliance decisions and behaviors. The amendment to §6-811 increased fines from a maximum of \$300 to \$2,000 per offense, with each day of noncompliance treated as a new offense. The separate remedies provision, §6-809, includes additional sanctions. Under §6-809(4), when a landlord fails to provide the required certification, that landlord is denied the right to collect rent for the period of noncompliance. To facilitate the private right of action, the ordinance provides that the tenant may be awarded not only the costs incurred for obtaining an inspection and remediation of hazards but also damages for harm, exemplary damages of \$2,000, abatement of rent, and attorneys' fees and costs. The later provision may incentivize private attorneys to accept these cases and thus enhance the likelihood they will be initiated. Future evaluations of the Philadelphia Disclosure and Certification law should assess the "value added" by incorporating these aggressive remedy and penalty provisions, particularly in contrast to similar ordinances, like the Burlington ordinance, which depends on the city's existing civil offense provision (maximum \$75 fine) (Burlington Code §18-31).

Finally, the judicial system in which the Philadelphia law will be enforced may add to the likelihood of its success. In November 2002 Philadelphia established a "lead court" under the impetus of the Lead Abatement Strike Team Program of the Philadelphia Department of Public Health. The Lead Court is a part of the Philadelphia court system to which lead hazard enforcement cases are assigned. However, the city has not yet determined whether cases generated by this new lead law will go to the special lead court. Specialized courts have long been recognized for the advantages they can bring to increasing the effectiveness of judicial enforcement by offering greater expertise in technical areas as well as opportunities for more efficient case management and scheduling (Scott 1981).

Rochester, NY: In 2002 the Rochester community came together to address its lead-poisoning crisis and developed a carefully crafted local law. Passed in December 2005, the new local law went into effect in July 2006 (Municipal Code, pt. 2, ch. 90, art. 3, §§90-50 to 90-69). The law was the culmination of a grassroots community effort formed in response to community concerns about high rates of children with lead poisoning. These rates were highlighted in a 2002 needs assessment report by the Center for Governmental Research (Boyce and Hood 2002). That report included detailed neighborhood maps showing that, despite national and statewide trends in the reduction of lead poisoning, some Rochester neighborhoods had lead-poisoning rates with over one-third of the children aged six or under

tested having blood lead levels above 10 µg/dl. As of 2000, nearly 1,300 children aged six and younger in Rochester had elevated blood lead levels.

The Rochester law addressed this problem by adding a lead hazard inspection to the routine housing inspections already being carried out in connection with the city's certificate of occupancy inspections for rental housing. Under state law, certificate of occupancy inspections must be carried out every three years for buildings with three or more rental units, and Rochester had locally established a requirement to inspect every six years in one- and two-unit rental buildings. Prior to the adoption of the local lead law, there was neither a state nor local requirement that these certificate of occupancy inspections include an examination for lead paint hazards. In fact, there was no authority to cite for lead paint hazards per se if they were known. The state's Uniform Fire Prevention and Building Code, article 18 of the Executive Law, requires municipalities to enforce a state Property Maintenance Code, but that code (based on the International Code Council's model uniform property maintenance code) contained no prohibitions against lead paint hazards. Although deteriorated paint was prohibited, it was seldom cited by city inspectors and was not presumed to pose a lead hazard. Rochester had already taken advantage of an option under the state law to adopt a "More Restrictive Local Standard," but as with the state property maintenance code, until the 2005 law was adopted, the Rochester code contained no specific prohibition against lead paint hazards.

In fact, the only prohibition against lead paint hazards at that time came from the state Public Health Law, which prohibits "conditions conducive to lead paint hazards" (see New York Public Health Law, §1370). The New York State courts have held, however, that occupants of building with lead hazards have no private right of action to enforce the state's Public Health Law (see *Chapman v. Silber*, 97 NY 2d 9 [2001]). In the absence of primary prevention inspections by the county health departments, there were no inspections for lead hazards until a child had already been poisoned.

Perhaps the most intriguing distinction of Rochester's local lead-poisoning prevention law is that it uses county health department data on the location of children with elevated blood lead levels at the census- block group level to establish and periodically revise geographic designations of "high risk" areas within the city. Housing in those areas are subjected to a higher inspection protocol that, in addition to the routine visual inspection for lead paint hazards (deteriorated paint or bare soil near the house), requires the use of dust wipes if the visual inspection finds no deteriorated paint. While this approach may appear counterintuitive (dust wipes are required only if there is *no* deteriorated paint), it is based on the presumption provided under the ordinance that all pre-1978 units contain lead-based paint. Accordingly, if deteriorated paint is observed in the inspection of a pre-1978, unit there is no reason to conduct a dust wipe to check for lead: a hazard is presumed. Consequently, the city issues a compliance notice requiring the owner to obtain a lead clearance by a certified risk assessor. If no deteriorated paint is observed in a unit in the high-risk areas, the dust wipe protocol is initiated. If lead is found by the dust wipes, a compliance notice is issued. This procedure reduces the costs of citywide inspections, yet ensures an added degree of protection in the high-risk areas. The local law specifically incorporates particular federal definitions, standards, and procedures to facilitate implementation, with variations appropriate to the ordinance's particular purposes.

The Rochester law included two triggers for inspection in addition to the certificate of occupancy/compliance inspections. The 2002 CGR report had found that a large percentage of the children who were poisoned were recipients of public assistance. After carrying out a pilot study in which nearly all thirty public assistance households' homes were found to contain deteriorated paint, the County of Monroe agreed to include the city examination for

lead paint hazards in the pre-occupancy inspections being carried out under a contract with the city for participants in its Quality Home Inspection (QHI) program. This mechanism greatly enhanced the city's ability to get into one- and two-unit buildings. In 2010, however, the county ended the QHI program.

In addition to the certificate of occupancy and QHI inspection, the third point of entry was to authorize occupants to request inspections ("complaints"). This simple element, readily duplicable in other jurisdictions, fills a basic gap in the primary prevention mission. While many communities conduct ongoing awareness campaigns on lead paint hazards, they have limited primary prevention potential unless tenants have the ability to get their homes inspected.

The Rochester lead law is widely credited with having made a significant contribution in the reduction of children with elevated blood lead levels. By 2011 the number of children reported with EBLs over 10µg/dL in the county had dropped to 222. A city council resolution accompanying the lead law required the city inspection department to annually report inspection data. This is one of the only specific requirements for evaluation we found in the laws studied. Based partly on the availability of this inspection data, a detailed evaluation of the effectiveness of the law more fully describing its provisions was recently published (Korfmacher, Ayoob, and Morley 2012: 309–15). The Rochester model accepts as its premise the critical need to gain entry to the highest-risk housing. This is the rationale for targeting rental housing over owner occupied, and for establishing a higher standard for inspection within a geographically designated high-risk area. Carrying out this streamlined inspection system, the City of Rochester carried out more than fifty thousand lead inspections during its first four years of implementation; city records indicate that nearly every eligible unit was inspected at least once during this period.

San Diego: The state of California has created a complex framework of statutes and regulations that divides authority and delegates the responsibility to protect children from lead poisoning among a variety of agencies and levels of government. Within this framework, in 2008 the City of San Diego adopted a local law that makes a significant contribution to the effort to advance primary prevention (Municipal Code, ch. 5, art. 4, div. 10, §§54.1001–54.1015 [2008]). The San Diego law requires proactive inspections for lead hazards, either by the city or owners, for all pre-1979 rental units. The law also requires owners who have been sent compliance orders by the city to obtain their own lead hazard clearances, thus reducing the cost to the municipality of implementation and leveraging an already existing pool of available private risk assessors. In addition to these provisions, the San Diego ordinance authorizes "administrative abatement" that provides a streamlined administrative enforcement authority allowing the city to assess substantial fines that encourage compliance. The ordinance also provides for "judicial abatement" when the powers of a court may be necessary to obtain compliance, and "summary abatement" permitting the city to step in to immediately remove an imminent hazard (see §54.1007[d], [e], [f]). Finally, the local law provides for inspections upon request and requires lead-safe work practices in all remediation efforts or activities that disturb paint in pre-1979 units that is presumed to contain lead.

Although not described in the law itself, the city agency that enforces the law has undertaken an aggressive approach to identifying housing likely to contain interior lead hazards. It does so by exercising its authority to issue compliance notices to owners of properties with exterior paint violations, using the age of the housing and other demographics to conduct exterior visual inspections in areas most likely to contain lead paint hazards.

The city's Environmental Services Department (housed in the Energy, Sustainability, and Environmental Protection Division) is responsible for enforcing the city's 2008 law. Like other cities in California, San Diego has several separate departments with relevant roles: housing (whose responsibilities cover zoning, and most property maintenance); buildings (which issues permits for construction, rehabilitation, etc.); and the Environmental Services Department, whose Lead Safety and Healthy Homes Program enforces the city's Lead Hazard Prevention Ordinance. In addition, the county health department also has jurisdiction. Although a few California cities have their own health departments, including Berkeley, Long Beach, Pasadena, and San Francisco, the City of San Diego does not. Under California Health and Safety Code (Cal. Health and Safety Code) §105256, each of these agencies would have authority to enforce the state law mandate under Cal. Health and Safety Code section 17961 that every municipality must enforce the state law prohibitions against lead hazards established in Cal. Health and Safety Code §1417920.10.

California may indeed need flexibility to authorize such a wide variety of enforcement mechanisms given the great variations in the size and characteristics of its municipalities. But while the availability of a state law mandate to enforce prohibitions against lead paint hazards gives every municipality the responsibility to address lead hazards even in the absence of its own local laws, unless there is a clear understanding of *which agency* has what responsibility, the danger is present that each will defer to another. Cal. Health and Safety Code §17961(a) provides that when a municipality (described as a "city, county, or city and county") has a health or building department authorized under §101275 of that law, that building or health department "shall enforce" the state's rules and regulations as well as other applicable maintenance and sanitation codes.

The state law framework also creates the need to ensure an efficient allocation of responsibilities. In 2003 Senate Bill 460 was passed modifying the California Civil Code and the Cal. Health and Safety Code to provide specific authority for local jurisdictions to address lead paint hazards. That legislation included Cal. Health and Safety Code §17961(b), which makes clear that in addition to activities carried out by housing and building departments, local health and environmental agencies also have authority to address lead hazards—but with the proviso that they "shall coordinate enforcement activities with other interested departments and agencies in order to avoid unnecessary duplication." That legislation, in addition to establishing the interagency cooperation requirements, provided the specific authority for San Diego to adopt its local law. The language of the California statute provides a model for how state laws can be used to encourage the adoption of local laws that are appropriate to different environments and, in addition, provides an explicit recognition that in doing so coordination issues must be addressed.

The critical question of delegation of responsibilities is not new. San Francisco addressed the question of coordination of interagency activities over two decades ago in its city/county health code (San Francisco is both a city and a county under state law). That local law requires the health director to implement a comprehensive plan to prevent lead poisoning and includes the responsibility to develop interagency agreements (San Francisco Health Code §1605[a]). The director must coordinate an interdepartmental task force with representatives from multiple city departments, including public works, building inspection, city planning, social services, and the mayor's office, among others (San Francisco Health Code §1606[a]). Even though the California state law since 2003 specifically authorizes a variety of local departments to address the identification and remediation of lead hazards, and now requires cooperative agreements when a health or environmental agency assumes that responsibility, a provision such as that provided in the San Francisco law may nevertheless provide a useful model to promote effective coordination.

San Diego's §54.1001(h) of the local ordinance acknowledges as a "finding" the express authority provided under the 2003 state law amendments for the city to adopt and enforce provisions to correct and prevent lead hazards. San Diego's §54.1002 establishes the "City Environmental Services Department and/or the Neighborhood Code Compliance Department" as the relevant local department. Pursuant to §54.1012, the director of either department, or a designee, is authorized to enforce the Lead Hazard Prevention and Control Ordinance. Cal. Health and Safety Code §17961(b) of the state law thus requires the environmental agency to coordinate its enforcement activities with the other affected departments. The mechanism used by San Diego law to carry out its "primary prevention" mission is to require, in §54.1009, that for all pre-1979 rental units the "responsible person" (i.e., the landlord) must conduct a visual inspection for deteriorated paint each time a tenant vacates the dwelling and prior to reoccupancy. Inspection, testing, and correction records must be maintained for three years and made available to the city on request. An inspection by a certified lead assessor or inspector is not required.

San Diego §54.1012 authorizes the city to conduct interior and exterior inspections for lead hazards, and although there are no proactive inspections by city personnel, an inspection is provided if a tenant or other person files a complaint (San Diego §54.1012[b][1]). The city also conducts an inspection when the basis for conducting one is apparent, such as if there is visible deteriorated paint on the building's exterior. From the point of view of possible tort liability in a private civil lawsuit, the fact that a landlord is required to conduct a visual inspection would likely preclude owners from later asserting that they were unaware of deteriorated paint conditions or at least that they had no ability or obligation to observe the condition of the housing. This threat of liability may help increase compliance. Under existing municipal law, San Diego can assess substantial fines—\$2,500 per day, per violation—to be imposed administratively, up to a maximum of \$250,000. Initial data from San Diego suggest that the law is making progress in identifying and addressing lead hazards in housing. From July 1, 2008, to December 31, 2011, the City of San Diego had 404 active lead enforcement cases affecting 963 residential units. Of these, 317 cases affecting 649 units were identified with lead hazards, and 285 cases affecting 598 units obtained clearance. There were 33 cases affecting 57 units active on December 31, 2011 (Alan Johanns, Lead Safety and Healthy Homes, City of San Diego, pers. comm., April 7, 2012).

Washington, DC: In 2009 the District of Columbia responded to community concerns about high rates of children with lead poisoning by adopting a local law, the Lead Hazard Prevention and Elimination Act, DC Official Code §8-231.01-19, amended in 2010. As of this writing, the regulations implementing the amended lead law have not been finalized; this section describes the currently proposed regulations.² The district's local law offers significant primary prevention advances. The district will provide inspections when tenants report concerns of possible lead paint hazards or unsafe work practices (§8-231.03[b]; "based upon request of a tenant or ... on other information"). Also, as in San Diego, the district will identify buildings likely to contain lead hazards by starting with exterior drive-by inspections looking for deteriorating paint conditions (§8-231.03[b]; "reasonable belief ... based on other information"). Once a hazard has been identified, the district will send a compliance notice and order that requires the landlord to apply for a permit if abatement is required, mandates the use of trained workers and lead safe work practices, and advises the owner of relocation obligations for tenants (§8-231.03[d]). While many local laws refer to

²Despite having been adopted three years ago, the district's local law has not yet been fully implemented. The law was amended in 2010 and the implementing regulations that are required under the district's administrative procedures were not published for comment until 2011 and are still in the review and revision stage. Responsive revisions may trigger an obligation for an additional round of comments prior to finalizing the regulations.

relocation as an option or even a requirement, it is not clear that many municipalities assist in relocation or enforce relocation obligations. The DC Department of the Environment, however, frequently uses its authority to assist tenants in relocating whenever the totality of the circumstances suggest an unacceptable risk to tenant safety if they were to remain in place during hazard abatement. In that regard, the district appears to understand the necessity of protecting tenants. Ultimately, the owner must produce a clearance report from a certified private risk assessor. If interim controls have been used, the district may require additional periodic reports (§8-231.03[d][4]).

Perhaps the most proactive feature of the district's law is that it authorizes tenants in households with, or regularly visited by, a pregnant woman or a child under age six to require a private clearance report prior to taking occupancy, and at any time during their tenancy (§8-231.04[c]). The law staggers implementation in two phases. One year after the lead regulations enter into effect, the lead program is required to produce a progress report and a feasibility analysis reviewing the district's capacity to expand the requirement to inspect at unit turnover to all pre-1950 homes (§8-231.04[g]).

The local law imposes a slightly higher disclosure obligation on landlords than the national law. This provision narrows a loophole in the national disclosure law, §1018 of the Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. §4852d. That provision essentially allows landlords to simply say they do not know whether a property has hazards. The district's law adds a somewhat tougher standard, namely, that the landlord shall "disclose to tenants information *reasonably known* to the owner" (§8-231.04[a]; emphasis added). This local disclosure obligation is additionally enhanced by a separate provision of the district law that creates the duty to maintain the premises free of lead-based paint hazards (§8-231.02[a]). A landlord subject to this higher duty to maintain presumably will be held to a higher standard with respect to what he or she then should "reasonably" know. The law also expanded the definition of a hazard to include "deteriorated lead-based paint or presumed lead-based paint" and "lead-based paint or presumed lead-based paint that is disturbed without containment." Paint in a pre-1978 structure is defined as presumed lead-based paint. One final disclosure requirement in the district's law mandates that owners must notify tenants of the discovered presence of lead-based paint in their unit within ten days of such discovery (§16 8-231.04[f]).

In addition to the heightened disclosure requirements, the district's law requires that landlords provide their tenants with a tenant rights form developed by the district lead program, informing all tenants in pre-1978 housing of their rights under the law. This requirement is triggered "whenever the tenant executes or renews a lease for the unit and whenever the owner provides notice of a rent increase" (§8-231.04[e]). Pursuant to regulations implementing a separate provision of the district's law, §8-231.06(b)(4), the district will similarly require that tenants be advised of the critical protections applicable when any lead-related work will be carried out in the unit. The concept that tenants be clearly advised of their additional rights under a local law provides that information at time when it is most relevant (as opposed to information provided in a general public education campaign), and when it will do the greatest good (i.e., at the outset of the tenancy and before a child is exposed to a lead hazard). Moreover, a simple notification provision such as this makes a tenant a partner in the municipality's enforcement scheme—essentially another set of "eyes" for the municipality. Finally, the fact that a landlord becomes aware that the tenant will know his or her rights almost certainly facilitates compliance with maintenance obligations.

Discussion

By comparing the approaches and experiences of these eight case studies, several lessons emerge for those contemplating designing, implementing, or evaluating local lead laws. The ability to generalize these lessons is limited by the usual caveats about extrapolating from case studies. Although we endeavored to identify diverse laws for the case studies, they do not represent the universe of experience with local lead laws. There may be additional local housing-based primary prevention laws of which we were not aware. In addition, our analysis was based primarily on document analysis with limited interaction with local stakeholders. In-depth work with local stakeholders would yield additional insights into the impacts of each law's impact. There is limited publicly available data on the impacts of these laws on the local housing market (number of inspections, passing rate, costs, and units remediated data), implementation systems (cost of administration, numbers of citations, enforcement actions), and, most importantly, on exposure of children to housing-based lead hazards (trends in inspection outcomes, EBL rates). In part, this lack of information may be due to how recently many of the laws we studied were implemented; however, few cities appear to have a system in place for collecting, analyzing, and reporting such data in the future.

Subject to these limitations, this analysis suggests that local lead laws are diverse but that most of the laws rely on a finite set of tools and approaches. In designing a local lead law, it is critical to think about how these various tools fit together in a "system" that is locally appropriate, effective, and sustainable. Our analysis suggests that prior to passing a new law it is critical to assess the local environment to inform policy choices, including:

1. Physical environment (geographic targeting): To what extent are lead hazards dispersed throughout the city versus clustered in neighborhoods that can be geographically targeted for implementation? What is the appropriate target housing?

Example: If EBL or housing data show that most lead poisoning occurs in one section of a city, the lead law could target that area. If EBL cases are more dispersed, it might be more appropriate to target all rental housing, or all units occupied by children.

2. Health status and systems: What percentage of high-risk children receive blood lead tests? What percentage of these have EBL?

Example: If EBL testing rates are low, it may not be prudent to rely on past EBL data for geographic targeting.

3. Public awareness (by residents, landlords, and community leaders) of the connection between lead poisoning and health, educational, and social outcomes.

Example: In communities with high lead awareness, relying on provisions like self-referral (complaint by tenant) or voluntary certification by landlords is more likely to succeed.

4. Economy/housing market (rental revenues, vacancy rates, foreclosures, etc.): Are there any financial assistance programs available to subsidize needed repairs?

Example: If the housing market is strong or financial resources are widely available, a local law might require full abatement requirements. If not, the more economical approach of interim controls plus ongoing monitoring of maintenance practices may be more realistic.

5. State legal environment: Does the locality have the authority to implement a local lead law? Does state law have provisions (such as the power to enact stronger provisions in designated high-risk areas) that can serve as a framework for local action?

Example: Depending on the jurisdiction, authority for local actions varies from being specifically authorized, to being preempted or limited, and in some cases is permitted but may require approval. This may limit the targeting options available to local policy makers.

6. Case law: What are the relevant court rulings and settlements related to lead hazards, duty to maintain properties, inspections, and landlord liability?

Example: Recent local cases in which damages are assessed against landlords may affect landlords' perceptions of their legal liability for lead poisoning (and thus their economic incentive to maintain lead safety, independent of a local leadlaw). In such situations, voluntary certification or compliance is more likely to be effective than when liability is limited.

7. Implementation resources: What is the public (city inspectors) and private (number of certified risk assessors and sampling technicians) capacity for conducting proactive inspections? Are property owners and maintenance staff trained and certified renovators? What enforcement tools currently exist that the city could access for this policy (fines, lead court, etc.)? Is there adequate funding for enforcement? Example: We identified several cases in which implementation was limited by insufficient city resources to inspect and enforce the law. If a law relies on private inspectors, sufficient time and resources must be allocated to develop technical capacity to conduct required inspections.8. Political climate: Are there supporters inside and outside government to champion the law? Who will be against the law (e.g., landlord groups) and how powerful are they? Is it possible to address the opposition's key concerns while still enacting a viable law?

Example: Strong political and community support for lead-poisoning prevention makes it more likely that a local law will be passed and effectively implemented.

The answers to these questions vary from one community to another. It is important to understand the local environment in order to design a local lead law that is appropriate to these conditions and complements existing state and federal laws. Some of the shortcomings evident in the case studies might have been avoided by a better understanding of the environmental context when designing these laws. In Cleveland, for instance, it seems that landlords' perceived risk of liability was not strong enough to incentivize voluntary lead-safety certifications as envisioned in the law's original design. As the diversity of approaches in our case studies shows, there are ways lead laws can be adapted to these varied conditions.

Locally appropriate lead laws must take into account the resources, responsibilities, and relationships between local agencies. The relationship between health and housing agencies is particularly important. Local lead laws must contain both a clear recognition of the responsibilities of each agency and a designation of ultimate responsibility for implementation.

It is also essential to recognize that the various tools used by different cities are interdependent and must be logically combined. For example, if complete removal of all lead-based paint is required, annual reinspection may not be necessary. More critically, if interim controls are allowed, there must be a system for regular monitoring of maintenance

and lead hazards. It is also important to continue to promote blood lead testing and mapping the geographic distribution of EBLs over time to track progress, identify potential opportunities for improvement of the law, and target enforcement of the law. Cities should plan to monitor for unintended negative effects (e.g., in Rochester, reporting of EBL rates was required to make sure that the law did not set off a rash of renovation without lead-safe practices, causing a spike in EBL rates). Collecting these kinds of data may provide a basis for later adjustments of implementation strategies. For example, when EBL rates in a neighborhood decline below a certain threshold, that area might be removed from targeted enforcement.

Monitoring implementation of the law is important for two reasons. First, because these legal approaches are novel, it is unlikely that implementation will proceed exactly as envisioned. Second, environmental factors may change once the system has been designed and implemented, either as a function of or independent of the local law. For example, the recent foreclosure crisis has increased the relevance of the “disclosure loophole,” in which knowledge of lead hazards is not required to be transmitted through foreclosure proceedings. Neighborhood revitalization or decline may affect the distribution of high rates of EBL children. Changes in blood lead testing rates may change the program’s ability to identify children at risk based on blood lead levels. New state or federal laws may affect implementation of the local law, as in the case of the RRP, 40 C.F.R. part §§745.80-92, which established a national standard for lead-safe work practices. Case law is constantly evolving and may affect many aspects of local law implementation, from landlords’ exposure to liability to inspectors’ right of entry.

Particular kinds of monitoring are important based on the features of each lead law. For example, where laws target the housing of children, it is critical to monitor impacts on families’ ability to find housing. Targeting laws to protect current child occupants may appear to be an efficient way to prioritize limited resources, but may trigger discrimination against families with children that would be unlawful (such as when a property manager turns away a family rather than comply). In addition to directly administering lead hazard elimination programs, HUD is also the federal agency with responsibility for enforcing title 8 of the Civil Rights Act of 1968, the Fair Housing Act, 42 U.S.C. §§3604–19. As amended in 1988, that law prohibits discrimination based on “familial status,” which prohibits landlords from refusing to rent to a household because of the presence of a child in the family under age eighteen. The restrictive definition of a family under the Fair Housing Act, however, does not cover unrelated children other than foster children. HUD has previously interpreted that provision to conclude that if a landlord refused to rent to a family with a child under age six for fear that the child may become poisoned by lead, or because of the more rigorous inspection standards that might apply, that refusal would constitute a violation of the Fair Housing Act Amendments of 1988. HUD issued guidance to its local Fair Housing and Equal Opportunity (FHEO) offices explaining the importance of fair housing protection in connection with the implementation of HUD’s final rules, “Lead Hazards in Federally Owned Housing and Housing Receiving Federal Assistance” (24 C.F.R. part 35).³ Consideration should be given in the drafting of any local law to include specific language to make it unlawful for a landlord to deny rental on the basis of the presence of children, clearly extending that protection to *all* households with children and providing a direct cause of action for violations.

³See memo from Eva Plaza, assistant secretary for FHEO, dated November 27, 2000, <http://portal.hud.gov/hudportal/documents/huddoc?id=fheoleadbased.PDF>, and additional HUD guidance at: http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_12352.pdf.

Finally, implementation resources may change over time. In a time of shrinking municipal budgets, political will to implement lead laws may decline. Both Chicago and Rochester faced shrinking budgets that affected the scope and strength of implementation, as non-mandated inspections were reduced. Absent dedicated leadership and active community support, even the strongest lead laws are vulnerable to erosion because of lack of sufficient implementation resources.

These potential changes over time underscore the need for a strong system of multidisciplinary data collection, analysis, and reporting. With the exception of Rochester and Washington, DC, none of the laws we studied directly requires annual reports and evaluation of the local law. Nonetheless, many of the laws were amended within five years of their initial passage, suggesting that ongoing adaptation of the law to new conditions is common. Having a strong foundation on which to base such changes is essential to preventing childhood lead poisoning in the future.

Conclusion

Lead-poisoning prevention may be one of the most complex issue areas in which municipalities—particularly smaller cities—are innovating new policies. Because lead is a “health problem with a housing solution,” it often requires new partnerships between health and housing agencies. Local lead laws operate in a complex legal environment of case, state, and federal law—understanding this setting and the roles of agencies at multiple levels of government can be daunting. Additionally, technical knowledge about cost-effective ways to inspect for, address, and monitor lead hazards is constantly evolving as the result of ongoing research and practical experience. Thus designing and implementing a cost-effective, up-to-date, technically sound lead law presents many challenges to local policy makers.

As one member of Rochester’s city council said, “Lead was the first policy in which we recognized that our staff did not hold the needed expertise, and we had to partner with outside agencies, community groups, and academic institutions to design a smart policy. After that, we used that approach with many new policies.” This insight suggests that local policy makers may need assistance to identify key features of their local physical, economic, and legal environment, to adapt tools from other areas, and to provide for a robust system of ongoing evaluation.

Many municipalities are considering developing local laws to target the continued problems of childhood lead poisoning in their communities. The case studies we reviewed indicate a diversity of approaches and show the importance of tailoring local laws to local legal, housing, economic, and institutional contexts. Continued monitoring of implementation practices, impacts on target housing, and rates of lead poisoning in these communities will help inform the continued evolution of local approaches to eliminating lead poisoning.

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Figure 1.

TABLE 1

Lead laws identified in initial screening

Location	Law/Date	Law	Summary	Case study?
Benton Harbor, MI	2009	Municipal Code of City of Benton Harbor, specifically Title 7 (Health and Safety) and 13 (Buildings and Construction); Sec. 11-171 Lead Based Paint Abatement.	Code nearly identical to Rochester, NY; not enforced due to emergency fiscal management takeover of Benton Harbor by state in 2010.	no
Burlington, VT	2009	Burlington, VT Code of Ordinances, Ch. 18, Art. III, section 112.	Rebuttable presumption that older housing has lead paint. A combination of monitoring mechanisms, due diligence inspections, enhanced disclosure requirements, and lead safe work practices are used to tie-in to existing state law framework of housing registration and Certificate of Occupancy requirements.	yes
Charleston, SC	2010	Chapter 7, Article IV, Division 3 of the Charleston City Code, §7.117	City building code prohibition requires removal of lead paint on exposed surfaces but only after a finding by the Board of Health, and not through any proactive inspection mechanism.	no
Chicago, IL	2008	Chicago Municipal Code 421-Chi 7-4; 2008	Ordinance provides city with broad authority to enter and inspect and supplements state law provisions allowing tenants to request inspections with additional authority and outreach to encourage them to do so. The city regulations define a low blood elevation (any level over 5 µg/dL) as lead poisoning, but does not mandate inspections at that level.	yes
Cincinnati, OH	2005	Cincinnati Code §00053-15(C).	Requires removal or re-covering of loose and flaking paint containing lead in excess of .5%. If identified as the probable source of lead absorption or poisoning in a human being, the paint must be removed, covered, or made inaccessible to small children.	no
Cleveland, OH	2004, amnd 2010	Cleveland City Code Part II, Title I, 240.01-.99.	Incentive-based voluntary approach; adds private right of action with penalties and fees.	yes
Detroit, MI	2006, amnd 2010	Detroit Code of Ordinances; Part III; Chapter 9; Article 1; Division 1 and Division 3, Subdivision B --Lead Clearance Chapter 24; Article 10; Divisions 1, 2, and 3.	Works with state law. Owners of rental units must obtain inspection for required annual registration including lead clearance.	yes
Grand Rapids, MI	Ord. No. 2005-56, June 2005, amending Chap. 140 in its entirety.	Code of Ordinances; Pt. 2; Tit. VIII, Ch. 140, Art. 8, §8.587;	Section 8.587 of Chapter 140 (the Housing Code) prohibits loose paint particles, sets limits on bare soil, and requires LSWP for pre-1978 units. Paint and soil prohibitions work with regular certificate of compliance provisions and periodic inspection requirements set out separately in Article 7 of the Code.	no
Milwaukee, WI	1998, amnd 2009	Chapter 66, Toxic and Hazardous Substances, Subchapter 2, Lead Poisoning Prevention and Control, (§§66-20 to 66-29)	Secondary prevention and for a time for certain grant-funded primary prevention activities.	no

Location	Law/Date	Law	Summary	Case study?
			LSWP required (state certification, permit).	
New Bern, NC	2000	New Bern Municipal Code, Chapter 38 Housing; Section 38-1(j) & (l); Chapter 10 Buildings and Building Regulations, Section 10-33.	Secondary prevention inspection by Health Dept; referral to city for enforcement; permit required for abatement. Health Dept does clearance with visual and dust wipes (same as HUD standards).	no
New Orleans, LA	2010	New Orleans Code of Ordinances, Part II, Chapter 82, Article 8, Lead Paint Poisoning	Lead safe work practices (including notices) only	no
New York City, NY	Current law 2004	Local Law 1 – Administrative Code of the City of NY, Article 14, §§27-2056.1 to 27-2056.19 (2004).	Building code agency, HPD, checks for lead hazards on all routine inspections and must check for presence of a child; complaint inspections use XRF for testing; owner has obligation for visual inspection annually and at turnover if child is present. Scale and scope limits direct application as model.	no
Philadelphia, PA	Adopt. Dec. 2011, eff. Dec. 2012.	Phil. Code; Title 6 (Health Code); Chapter 6-800 –Lead Paint Disclosure and Certification.	Requires regular visual clearance and lead dust wipe clearances by certified personnel.	yes
Rochester, NY	2005, eff. July 2006	Rochester, NY. Municipal Code, Part II, Chapter 90, Article III, §§ 90-50 to 90-69 (2011).	Requires visual inspection as part of Certificate of Occupancy inspections of rental property; dust wipes required in high risk units that pass visual inspections; lead safe work practices	Yes
San Diego, CA	2002, amnd 2008	Lead Hazard Prevention and Control Ordinance; San Diego Mun. Code 4-10: §§ 54.1001-1015; 2008	Landlords must conduct a visual inspection and correction of presumed lead hazards at unit turnover. City may require inspection and remediation of any structure – rental or owner-occupied –with a lead hazard (based on presumption of lead-based paint in pre-1979 housing.	yes
San Francisco, CA	Health Code 1992, 1996, and amendments thereafter; Building Code 2004	“Comprehensive Environmental Lead Poisoning Investigation, Management and Enforcement”; S.F. Health Code Art. 26), §§1601 et seq; and Article 11, §§580-596. S.F. Building Code Art. 36, §3407 et seq;	Environmental investigations for EBL child, requires city to identify “Priority Areas” for inspections, establishes designated funding of program through fines, etc.; lead safe work practices. Similar context to/addressed in San Diego section	no
Youngstown OH	Since 2005 -- Local enforcement of state law: ORC 3767.41 and title laws ORC 5301.252	“Lead Hazard Court”	County Health Dept. uses Special Prosecutor to enforce state law “anti-blight” provisions re EBL child when owner fails to comply. Enhances federal disclosure law by attaching affidavits to deeds.	no
Utica, NY	2009–10	Rental Occupancy Permit Joint Inspection Agreement (non-statutory)	County Health Department coordinates with City Building and Fire inspectors for joint inspections under the authority of the existing city Rental Occupancy Permit requirements. City and county entered the agreement in conjunction with the state Childhood Lead Poisoning Primary Prevention Program (CLPPPP) in order to gain access to rental properties. Not a law; also had one from NY	no

Location	Law/Date	Law	Summary	Case study?
Washington, DC	amnd 2010	D.C. Official Code, Title 8, Subtitle A, Chapter 2A, Lead Hazard Prevention and Elimination. (DC Code 8-231.01-19)	District has broad discretion to inspect (e.g. outside paint peeling). Periodic reports are required where interim controls were used. Inspections on request by tenants if paint is deteriorated.	yes

TABLE 2

Case study demographic context

Location	Total population *	% Black or African American **, **	Hispanic or Latino (of any race) *	BLL Screening Rate ****	% EBL ****
Burlington, VT	41,935	3.8%	1.6%	N/A	1.0–1.5%
Chicago, IL	2,703,466	34.7%	27.9%	6.4%	10.1%
Cleveland, OH	409,221	54.5%	9.2%	21.7%	6.1%
Detroit, MI	759,340	84.0%	6.4%	29.2%	3.4%
Philadelphia, PA	1,504,950	45.4%	11.6%	26.3%	3.3%
Rochester, NY	211,977	43.1%	15.2%	22.8%	3.4%
San Diego, CA	1,282,800	7.8%	27.9%	9.0% [†]	0.5% [†]
Washington, DC	584,400	54.0%	8.8%	N/A	1.8%

* 2006–2010 American Community Survey 5-Year Estimates

** From the “race alone or in combination with other races” ACS category.

*** From CDC Lead Surveillance Data (County-level Summary Data, 2006); accessed March 13, 2012 from <http://www.cdc.gov/nceh/lead/data/state.htm>. Estimates for Burlington are based on the state trends (1997–2006) report.[†] 2007 data were used for San Diego because this city reported extremely low screening rates in San 2006 (0.1%), resulting in a reported EBL case rate of 47.7%.

TABLE 3

Case study housing context*

Location	Total housing units*	Median Housing Value (owner-occupied)*	% Pre-1970 units*	% Renter-occupied housing units*	Median gross rent*
Burlington, VT	17,713	\$253,300	68.8%	59.8%	\$908
Chicago, IL	1,197,741	\$269,200	78.0%	52.2%	\$885
Cleveland, OH	216,561	\$86,700	87.7%	52.9%	\$628
Detroit, MI	365,058	\$80,400	90.4%	45.5%	\$747
Philadelphia, PA	668,944	\$135,200	84.6%	44.7%	\$819
Rochester, NY	102,651	\$73,600	86.1%	58.3%	\$714
San Diego, CA	514,841	\$503,700	38.7%	50.5%	\$1,259
Washington, DC	293,492	\$443,300	79.3%	56.5%	\$1,063

* From Selected Housing Characteristics: 2006–2010 American Community Survey 5-Year Estimates

TABLE 4

Key structural components of selected case studies

Location	“Trigger” for inspections	Type of inspection	Target housing	Repair standards
Burlington VT	Expiration of Certificate of Occupancy, tenant complaint or observation by staff; annual certification by landlord between city inspections and at unit turnover	City inspection: visual Landlord certification: visual	All pre-1978 rentals units.	Lead safe work practice provisions linked to RRP (must show RRP certification to get permit); no specified repair standards
Chicago IL	Ordinance and implementing regulations provide broad discretion to periodically revise protocols commensurate with resources.	Risk assessment by health department.	Dwellings, all residential buildings, schools and child care facilities. § 7-4-030.	Rules and regulations list prohibited methods, requires mitigation plan; for abatement and RRP, federal rules still apply. Work must be performed in accordance with state standards. 77 Ill. Admin. Code 845.105
Cleveland OH	Voluntary certification program requires inspection by private certified private risk assessor; EBL child triggers inspection by Div. of Environment.	Risk assessment needed to obtain certification for EBL children.	Pre-1978 rental housing for voluntary certifications; Disclosure provisions apply to sales of all pre-1978 buildings; hazard abatement may be required as a “nuisance,” in any property with EBL child.	Local law requires permits for work disturbing paint on all “target housing” (most pre-1978 units);
Detroit MI	Proactive yearly inspection (every 3 years if abatement was used on all identified hazards). No inspection if fully abated or certified lead free.	Lead inspection or risk assessment	Registration requirement applies to pre-1978 rental units.	§ 9-1-93 requires hazard abatement to comply with state law, Mich. Comp. Laws 333.5451 et seq.
Philadelphia PA	Requires lead safe or lead free certification prior to rental. Certifications are good for 24 months.	EPA clearance standards (visual plus dust wipes)	Pre-1978 units, but only if child 6 years or under; Section 8 Voucher and public housing units and student housing exempt.	None (passed after RRP)
Rochester NY	Certificate of Occupancy (3 years for multiple dwellings; now 6 years for 1 and 2 unit bldgs); and on request by tenant.	Trained city lead inspectors identify hazards and require clearance. Dust wipes used in high-risk areas if no deteriorated paint is found.	Pre-1978 rental housing.	Clearance by private risk assessor. Requires lead safe work practices.
San Diego CA	Complaints; observed exterior conditions; proactive policies to identify housing likely to contain hazards	City inspectors conduct limited risk assessment. Issuance of judicial warrant is authorized to gain inspections if needed.	Pre-1979 rental housing units.	Hazard abatement and clearance
Washington DC	District Government inspects “upon reasonable belief” that a lead hazard is present, at unit turnover when a pregnant woman or child under 6 is involved, and upon written request by tenant. Proactive inspection of rentals by code enforcement officials every 4 years and of all foster homes for children under 6	Proactive, foster care, and response to complaints: visual plus dust and/or soil testing. For EBL cases: risk assessment.	<ol style="list-style-type: none"> 1 All pre-1978 rental and owner-occupied units, with phased-in implementation 2 “lead hotspots” for proactive inspections, based on historic EBL data and on current EBL cases, 3 Foster care home applicants 	Permit required for abatement activities, lead-safe work practices training required for interim controls; owner must certify that worker is EPA trained and used lead safe work practices. §§ 8-231.11 and 8-231.03d

Location	“Trigger” for inspections	Type of inspection	Target housing	Repair standards
			involving child under age 6 yrs.	

TABLE 5

Implementation Resources

Location	Inspection	Enforcement	Evaluation
Burlington VT	Landlords inspect own units, but the city's code enforcement office is responsible for checking certificates. City inspectors conduct Certificate of Occupancy inspections	Failure to comply with lead safe work practices may result in a \$500 fine and/or stop work order. Under certification provisions, city may suspend a certificate of compliance, obtain search warrants, and investigate complaints. Violating minimum housing standards is a civil offense, with a fine up to \$75, for noncompliance.	The landlord must keep records of assessments and repairs. No public reporting of inspections (number/outcome) to date.
Chicago IL	City health inspectors conduct inspections	Inspection warrants; rent withholding; fines; incarceration; emergency injunctions authorized. Private right of action for tenants or other aggrieved persons.	No public reporting on inspection program (except as required by CDC), although maps and reports were issued in past
Cleveland OH	Private risk assessors for voluntary certification; City inspectors if EBL	Misdemeanors; cumulative penalties; private right of action with treble damages; and attorney fees.	No public reporting on inspection program to date
Detroit MI	Private risk assessors for voluntary certification; city inspections upon complaint.	Detroit relies on the County prosecutor to enforce state law that provides penalties for non-compliance.	No public reporting on inspection program to date; plans for lead safe housing registry
Philadelphia PA	EPA Certified dust wipe sampling technicians, or PA Certified inspector-risk assessor conduct visual clearance and dust wipe clearance	Fines, rent withholding, private right of action costs, damages, attorney's fees	New provisions do not commence until December 2012.
Rochester NY	City inspectors conduct inspections; private clearance firms clear hazards	Utilizes city's administrative code enforcement system (fines); and now exploring potential for pursuing judicial enforcement in appropriate cases and eventual establishment of a housing court.	Annual report to City Council on number of inspections, passage rate, and program cost. By concurrent resolution, County Dept of Health must annually report to city the cumulative number of EBL children and properties identified with lead hazards by census block group.
San Diego CA	Proactive, but only a visual inspection by landlord; city inspections if complaint, EBL, or other probable cause.	Provides for 1) administrative abatement (routine); 2) summary abatement (emergencies); 3) judicial abatement (recalcitrant violators). Civil and criminal penalties, including fines up to \$250,000.	No public reporting on inspection program to date.
Washington DC	City inspectors; cost reimbursed by property owner	Lead program inspectors and code enforcement inspectors jointly enforce lead law, but full implementation to occur only when lead regulations are issued, expected in Summer 2012.	No public reporting on inspection program to date; has not yet reached full implementation.