

# Considerations for the Design and Implementation of a Lead Hazard Control System

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*“Good policies and constitutions are those that support socially valued ends not only by harnessing selfish preferences, but also by evoking, cultivating and empowering public-spirited motives. This will be particularly important where critical information is non-verifiable so that contracts are incomplete and the reach of governmental fiat is limited.”*

Bowles and Hwang (2008)

Reducing lead hazards in Cleveland’s housing and lead poisoning of children requires a coordinated strategy involving the Cleveland community, government, nonprofit and private sectors. The Lead Safe Cleveland Coalition has brought together all these parties, serving to foster trust, exchange knowledge, and build a consensus of goals.

The main agreed-upon goal is to move towards a system in which all rental homes are lead-safe certified and are able to maintain periodic certification standards. However, while the goal is clear, and the passage of a Lead Safe ordinance<sup>3</sup> by Cleveland City Council creates a legislative mandate, the path from the current reality to this new system can be complex and uncertain.

In this report, we draw from the experiences in other cities and applicable findings in behavioral and experimental economics and public policy, to offer a framework upon which to implement a path towards a

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<sup>2</sup> This report was initially used as a resource to inform the Lead Safe Cleveland Coalition strategy in 2020. Its recommendations continue to be relevant to the current phase of implementation.

<sup>3</sup> Ordinance 747-2019 passed by City Council on July 24, 2019.

sustainable system that will protect our children from lead poisoning. We support the analysis by highlighting experiences of localities that have attempted to develop lead-safe certification systems and, like Cleveland, face high poverty rates, aging housing infrastructure and weak housing markets.

## **LEAD SAFE CLEVELAND COALITION AND ORDINANCE**

In July of 2019, the City of Cleveland City Council passed legislation requiring rental properties constructed before 1978 to obtain lead-safe certification (Ord. 747-2019). This was a landmark accomplishment rooted in the collaborative engagement of grass-root community organizations, local government, foundations, healthcare organizations, tenants and landlords. All stakeholders are represented in the Lead Safe Cleveland Coalition (LSCC), a public-private partnership with over 400 participants that is leading the effort to develop a comprehensive, preventive, and long-term approach to a lead-safe Cleveland.

The ordinance requires that all residential rental units constructed before 1978 provide to the Director of Building and Housing a copy of a clearance examination report or lead risk assessment showing that lead hazards were not identified in the unit. The lead examination must be performed by a clearance technician, lead inspector, or lead risk assessor, which will dominantly be a private contractor. The timeline for certifications will be implemented by zones and are expected to range between March 1, 2021 and March 1, 2023.

In compliance with the ordinance, a sale or lease contract is required to disclose whether the property is under a lead hazard control order. Additionally, a number of entities are established to monitor the lead-safe certification process, implement a screening and testing plan that reaches at-risk children, ensure availability of certified inspectors and contractors, and make sure that all parties involved are engaged in the process.

The infrastructure established by the ordinance provides a platform for a coordinated implementation of a lead-safe system. However, for this system to succeed in drastically reducing the risk of lead poisoning in children, implementation will need to take into consideration the challenges presented by the underlying deep problems of poverty and inequality in Cleveland.

The resources needed to achieve lead-safe certification are expected to be higher for rental units in properties of poor condition. This poses a threat to compliance and success of the strategy, since low-value properties are most likely held by low-income landlords and they certainly house low-income renters. An attempt to enforce the law with little consideration of incentives and dynamics in the market could play out in a number of unintended negative ways. Assuming landlords were to comply with the law, it would still be important to offer a financing mechanism so that the cost of certification is not heavily and immediately transferred to the rental fee, pricing out families most at risk from the lead-safe rental stock. Unintendedly, this would further extend the inequality of experiences and outcomes in the community. Alternatively, some landlords may opt to not comply with the law and may collectively weaken any enforcement mechanisms and future attempts to engage collaboratively in public health efforts.

In order to address these threats, we draw insights from an analysis of the rental market and landlords in Cleveland, from work on social policy and behavioral economics, as well as from the experiences of other localities in their attempt to mitigate lead poisoning.

## THE LANDSCAPE OF RENTAL UNITS AND LANDLORDS IN CLEVELAND

Since implementation of the Lead Safe Certificate is to be rolled out by ZIP code areas, we developed a ZIP code level characterization of the probable rental stock and the landlords that hold them. Table 1 provides selected characteristics for a few ZIP codes. Certainly, the sheer volume of rental properties by ZIP code is a consideration in that this indicates the amount of outreach that will be required to successfully register properties.

This characterization also demonstrates the variability of housing features and can inform the targeting of interventions at a micro-local level. Participation in the Housing Choice Voucher program and the Rental Registry suggests a willingness of landlords to engage with authorities in compliance activities. Tax delinquencies and low property values indicate the relative economic capacity of the landlords in the area. Tax mailing address (a proxy for an owner’s location), tenure of ownership, and ownership by non-individuals all could inform the kinds of tactics needed to engage different kinds of landlords.

ZIP10	Number Cleveland Rental Properties	Any Housing Choice Voucher Use, 2016-2018	Known Rental Registration, 2018	Certified Tax Delinquency (>\$500)	Very Low Value	Tax Mailing Address in County	Properties held by landlord for less than 3 years	Properties associated with corporate landlord
44119	1006	6%	29%	8%	4%	79%	30%	23%
44144	1178	3%	34%	3%	1%	86%	30%	19%
44106	1712	4%	18%	20%	40%	88%	24%	29%
44113	2177	2%	28%	6%	6%	87%	28%	31%
44104	2282	7%	20%	29%	64%	90%	26%	19%
44103	2380	5%	21%	25%	70%	88%	25%	18%
44110	3328	12%	32%	22%	33%	80%	30%	27%
44108	3873	7%	23%	31%	69%	87%	27%	19%
44120	4244	10%	27%	25%	30%	87%	30%	22%
44111	5327	4%	32%	5%	2%	85%	31%	19%
44109	5967	5%	36%	9%	7%	84%	29%	22%

Table 1: Probable Cleveland Rental Property Characteristics for select ZIP-codes, Quarter 3 2018. For a full table of characteristics and ZIP-codes, see the appendix of the accompanying research report: A Profile of Rental Properties and Landlords: Implications

Take for instance, two ZIP codes - 44120 and 44113. They have nearly the same rate of Cleveland rental properties known to be in the rental registry.<sup>4</sup> About seventy percent of the units have been held by their

<sup>4</sup> For each ZIP-code, we focus only on rental properties contained in the City of Cleveland, even though some ZIP codes cover

current (2018) landlord for at least 3 years and close to 90% of properties are associated with a tax mailing address in the county. However, the rates of very low value properties and tax delinquencies is remarkably different, with 44120 fairs considerably worse. This ZIP code also has a smaller share of properties associated with corporate landlords, suggesting that landlords in 44120 will need a stronger intervention in terms of financial incentives and supports for compliance. The fact that 10% of properties were under a Housing Choice Contract voucher (among the highest across ZIP codes) offers an opportunity to engage landlords who already have been willing to collaborate with local housing authorities and go through certification processes.

## HOW DOES BEHAVIORAL ECONOMICS INFORM THE IMPLEMENTATION OF THE LEAD SAFE PROGRAM?

Bowles and Polanía Reyes (2009) surveyed research on experiments that illustrate the effects of incentives on the socially desirable goals they were meant to incent. They document two experiments in which penalties produce contrasting responses in individuals: One example of a so-called “crowding out” effect shows how a tax or penalty leads to an unintended increase in a negative behavior. A child care center in Haifa, Israel sought to reduce tardiness of parents at the end of the day by imposing a fine on late pickups. Contrary to what was expected and desired, the number of late pickups doubled after the fine was applied. In contrast, a “crowding-in” effect seemed to be at play in Ireland in 2002, when a small tax on plastic grocery bags led to a dramatic 94% decline in their use.

The lessons learned from these natural experiments are relevant to the implementation of the Lead Safe Program. Bowles and Polanía Reyes (2009) explain that in the case of Ireland, the tax was introduced following a substantial publicity campaign so that the negative monetary incentive (tax on plastic bags) was accompanied by **a clear message of obligation towards society at large**. On the other hand, the child care center penalty was introduced without any explanation or acknowledgment that the reasons for tardiness could sometimes be beyond the control of parents. The increase in tardy events may be explained by a change in valuation of behaviors by parents due to the penalty. Pro-social considerations of parents towards teachers may have been overshadowed by the thought that parents could now pay to be late.

These contrasting cases illustrate how, under certain circumstances, the threat of sanctions and even the offer of monetary incentives by the principal – in our case perceived as the local government – may induce a shift in the valuation of alternative behaviors by the agent – local landlords – from a focus on social benefits to a focus on self-interested valuations.

Researchers believe that the threat of sanction may convey a *lack of trust and fairness* by the principal towards the agent, resulting in the agent reciprocating with distrust. Thus, the threat of sanctions may prove incapable of inducing the desired behavior in agents. However, researchers also find evidence for **the effectiveness of sanctions stemming from peers of the agent who do not stand to benefit from the agent’s compliance**. The signal conveyed by these peer sanctions is one of *altruism* since they benefit others at a

personal cost. An example more directly related to compliance of the lead ordinance is offered by Jin and Leslie (2003) in a study of restaurant hygiene and safety regulation in Los Angeles County. They report that regulations and inspections by the local health authority alone were not too effective in assuring good-quality hygiene in restaurants. However, in 1998 the Department of Health Services in Los Angeles implemented a requirement that hygiene quality grade cards be displayed in restaurant windows. The authors estimate that this change led to a 20% decrease in the number of people admitted to hospitals with food-related illnesses. Importantly, they find that this improved outcome operates through two channels: restaurants increase compliance with hygiene standards and importantly, consumers use the displayed information to choose where to eat, ‘sanctioning’ restaurants who do not comply with the regulations. In our case, a rental registration system updated and accessible to the community should empower tenants to make informed choices and encourage landlords to seek certification.

Supporting these findings, Madrian (2014) argues that financial incentives work best at motivating behavior change when they are aligned with agent’s own intrinsic motivations, and when they are **designed to be simple and tied to controllable outcomes**.

This research on incentives and their influence on preferences is relevant to the design of mechanisms for enforcement and supports for a successful Lead Safe implementation. Given that more than 80% of landlords in Cleveland are known to hold only one rental property in the city, we can presume that individual landlord preferences are mostly aligned with what is socially desirable, but individuals may have trouble executing those preferences. In these cases, policy interventions that move individuals in the direction of what is both individually and socially optimal can improve outcomes for all parties involved.

Madrian (2014) points to research evidence on the fact that **individuals’ social behavior can be positively influenced by their social context and the behavior of peers**. She cites examples in the areas of civic participation and environmental concern. For instance, voter turnout is higher if citizens think that their neighbors will be informed of their decision to vote. And similarly, when energy consumers are given information on the energy consumption of comparable peers, they reduce their consumption.

Among the key points made by the literature is that **monetary incentives, whether they be positive (grants, loans) or negative (fines) may not be effective on their own and could potentially be counterproductive**. Positive incentives without a strong communication and collaboration platform may shift the intrinsic motivation of some agents away from the social good, making it more dependent on the size of the incentive or penalty. Penalties by local authorities may serve to corrode levels of trust and thus, the sustainability of the system going forward. However, empowering peers and tenants to monitor compliance can be an effective tool over the long run, as landlords may be motivated by a sense that the community will be aware of their behaviors.

A final point to consider involves the **clarity of message and ease of the compliance process**. Madrian (2014) states that incentives are less effective if the structure of the incentive is complicated and when those expected to comply are less likely to understand or see the resulting outcomes of the intervention.

This raises the importance of engaging all parties as collaborators in an effort to give children a fair chance at developing to their full potential. The following section provides examples of these behaviorally-informed features applied to three lead mitigation initiatives.

## BEHAVIORALLY INFORMED FEATURES OF LEAD MITIGATION INTERVENTIONS

The findings from the behavioral economics literature applicable to a lead safe program can be summarized in the following five recommendations:

R1. **Message:** Convey a clear message of joint obligation towards society at large.

R2. **Simplify:** Certification should entail simple procedures and strong customer service supports.

R3. **Empower:** Engage tenants and the community to monitor lead certification in order to build a strong system of peer monitoring, peer engagement and community sanctioning.

R4. **Target:** Provide targeted incentives leveraging positive peer and crowding-in effects. Financial assistance to landlords and tenants should be designed factoring in the conditions of the micro-local housing market and in a way that disrupts the geographic patterns of housing distress and segregation.

R5. **Balance:** Investments in enforcement should be balanced with investments in community engagement and customer service. Penalties that constitute non-credible threats are costly and ineffective.

How well do previously enacted lead safe programs align with the main recommendations derived from the behavioral economics literature and what lessons we can draw from their experiences? We explore three lead mitigation programs in the cities of Rochester, NY and Detroit, MI, as well as the state of Rhode Island, and for each program, we point to illustrations of recommendations R1-R5.<sup>5</sup>

Like Cleveland, OH, each of these regions faces the challenges of old industrial cities with a weak housing market and concentrated poverty marked by systemic racial inequality. Each locality has tracked to some extent the data associated with their program, with more formal evaluations performed for the Rhode Island and Rochester programs, allowing us to learn from their experiences.

All three programs were based on statutory law that required some form of lead-safe certification for rental properties built before 1978. Though the mandate and goals are similar for all programs, the implementation mechanisms and context at baseline differ.

Table 2 provides key city-level statistics for our study sites and for Providence city, the urban core most impacted by the Rhode Island law.<sup>6</sup> We see that over a third of Cleveland's population is below the poverty line, with a rate only somewhat lower than Detroit's. The markedly lower value of owner-occupied homes in Detroit and Cleveland reflect their weaker housing markets and higher levels of disrepair as compared to

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<sup>5</sup> We conducted a literature review on each of these efforts, scanned news articles, performed a site visit to Rochester and held

<sup>6</sup> According to Aizer et al. (2018), 81% of homes in Providence County were built before 1978 compared to 68% for the rest of

Select Census QuickFacts Statistics, 2014-2018	Detroit city, MI	Cleveland city, OH	Rochester city, NY	Providence city, RI
Median value of owner-occupied housing units	\$45,700	\$68,500	\$82,000	\$192,100
Median gross rent	\$798	\$700	\$831	\$972
Owner-occupied housing unit rate	47.40%	41.30%	36.30%	35.10%
Poverty rate	36.40%	34.60%	32.60%	26.00%
Households with a broadband Internet subscription	59.30%	65.80%	72.70%	75.90%

Table 2. City-level statistics for our study sites and for Providence city, the urban core most impacted by the Rhode Island

Rochester and Providence. And the lower rates of broadband internet connectivity suggest higher challenges to learn about the law, to find resources to ease compliance, and to develop effective peer-monitoring systems.

Because each locality implemented or amended their lead safe related laws at different time periods, the data in Table 2 is not meant to offer a comparison of contexts at the time of implementation. However, it does underscore the relevance of learning from cities like Detroit that have encountered more sobering challenges to implementation than those faced by Rochester and Rhode Island.

## RHODE ISLAND

In 1997, the state of Rhode Island instituted two lead mitigation programs. One program was reactive in the sense that if a child was found to have elevated lead levels, the owner of the child’s home was required to mitigate lead hazards and pass an inspection or face prosecution by the state Attorney General. The second program was more preventive in nature as it required all landlords of rental homes built before 1978 to obtain a lead-safe certificate in order to rent regardless of whether an elevated lead level had been reported. According to Aizer et al. (2018) the lead safety standards of this certification program were considerably lower [R2] than those of the reactive program.

Aizer et al. (2018) state that implementation of the second program more often applied carrot than stick incentives. Efforts were targeted to the most affected areas [R4] and landlords were offered forgivable loans and training [R5], with a clear message on the importance of lead mitigation [R1]. Regarding enforcement, they state: “Few resources were devoted to enforcement and though noncompliance was illegal, landlords were typically not penalized for noncompliance. However, landlords who did not have a lead-safe certificate could be sued in civil court if children living in their homes were found to have elevated lead levels.” [R5]

Compliance with the law was impressive, with certificates increasing from 333 in 1997 to over 47,700 in 2010. Relative to children born in 1990, children born in 2004 saw a decline of 3.2 micrograms per deciliter

in their average blood lead level. Notably, the black-white racial gap declined from 3.6 µg/dl in the 1990 cohort to 0.8 µg/dl in the 2004 cohort (Aizer and Currie, 2019). Furthermore, the effects of the program on the rental market in Rhode Island seemed to be positive.

Another study focusing on state-level lead mitigation laws finds that on average, these mandates acted as a tax on homeowners with no evidence of effectively inducing remediation (Gazze, 2020). Unintendedly, the mandates reduced home values by 7 percent on average. However, Gazze (2020) finds the state of Rhode Island to be the only exception, where the legislation had a positive effect on home values. Together with the findings in Aizer et al. (2018) results suggest that these market value increases were not due to gentrification, but rather, due to the improved quality of homes and thus, a positive response to the regulation.

To date, Rhode Island offers an easily accessible online Lead Mitigation Certificate Search Tool encouraging tenants and prospective tenants to check if a unit is certified and allowing them to search for certified units [R3].<sup>7</sup>

## ROCHESTER, NY

In 2005 the city of Rochester, New York adopted a comprehensive rental housing lead law geared to controlling lead hazards in a cost-effective manner and thus prevent children from lead exposure (Korfmacher, 2008). The passage of the law was a milestone for the Coalition to Prevent Lead Poisoning, an effort rooted in community advocacy and engagement. The law amended the city's housing code concerning rental properties built before 1978. Due to this amendment, a certificate of occupancy required passing a visual inspection for deteriorated paint and an additional dust-wipe test if the house was located in a high-risk area as determined by a high rate of positive lead tests.

Rochester's Lead Coalition was guided by this clear message [R1]: *"The Coalition to Prevent Lead Poisoning consists of individuals and organizations dedicated to ending childhood lead poisoning in Monroe County by 2010. We are public agencies and private landlords, university researchers and parents, and much more. Our goal is ambitious but attainable. This is a fight we can win."*<sup>8</sup>

In order to foster compliance at low cost, the program allowed for interim controls, such as repainting [R2], and offered training for landlords and workers [R5]. Furthermore, City Council passed additional resolutions to prioritize inspections in target areas [R4], educate the public, and establish a city-zen advisory group to inform implementation (Korfmacher, Ayoob and Morley, 2012) [R3]. Council also asked to receive annual reports on the progress of implementation including inspections and costs, and annual updates on high-risk target area designations based on Department of Health testing data (Korfmacher and Hanley, 2013).

An evaluation of the program provides strong evidence of compliance, even in high-risk areas, where higher

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<sup>7</sup> Tools accessible at <https://www.ri.gov/HRC/search/> and <https://www.rihousing.com/renters/>

<sup>8</sup> Local approaches to reducing lead in rental housing Katrina Smith Korfmacher, PhD Assoc. Prof. of Environmental Medicine University of Rochester. Presentation at the Federal Reserve Bank of Cleveland, November 2016.



rates of poverty and disrepair increased barriers to compliance. Korfmacher, Ayoob and Morley (2012) find that 4 years after implementation, nearly all pre-1978 rental properties had been inspected. Of them, 94% had passed the interior visual inspections and of those inspected in high-risk areas, 89% had passed the dust wipe test. As the authors report, it is possible that inspections were not detecting all lead hazards, thus the importance of monitoring lead levels in children. However, the high pass rates seem to be reflective of a collective effort in which landlords were complying with inspections and repairs with no unintended disruptions to the housing market.

To date, Rochester offers extensive customer support for landlords seeking certification and for tenants seeking housing units or concerned about lead in their units [R5]. Citizens can communicate with the supervisors of inspectors and mediate disagreements with ease. The City sends out a satisfaction survey with every engagement. Inspectors and other housing department staff receive training in customer service delivery with a public service focus.<sup>9</sup>

## **Detroit, MI**

At the end of 2017, Detroit amended its rental housing code with the hope of increasing compliance with rental registration, lead inspection and clearance, as specified in a 2010 ordinance. As part of this effort, fines on non-complying landlords were increased ten-fold and fines could be accrued daily if non-compliance persisted (Barry and Moorman Attorneys, 2018). The City designed a rollout plan that would inspect properties by ZIP-code zones between 2018 and 2020. The expectation was that within six months after the inspection schedule was set for a zone, all rental properties should have been brought up to code and have a certificate of compliance.

By August 2018, the Buildings, Safety Engineering and Environmental Department (BSEED) had issued over 1000 citations in the first ZIP-code zone designated for inspections (Nagl, 2018). At the same time, the City was holding information fairs to help renters set up escrow accounts to deposit rent if landlords did not comply with certification.

The City revamped their communication channels, updating the BSEED website with inspection schedules by zone, resources for lead work and inspections, and a search tool to check if a rental was compliant. However, the numerous news articles on the topic highlight the harsh penalties and high costs of inspections and compliance amid Detroit's deteriorated housing stock. In that sense, the "sticks" incentive message seems to dominate any potential "carrot" incentive message.

While there has been no formal evaluation of these recent efforts in Detroit, it is clear that they have not reached the desired goals. By January 2019, only 10% of rentals in the targeted ZIP-codes had achieved clearance (MacDonald, 2019). Compliance rates remain low, and the slight increase in rates observed in 2019 seems to be driven by a decrease in registrations (as the rate of lead clearance certificates are

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<sup>9</sup> Information gathered by April Urban, Poverty Center, during the Cleveland Lead Safe Coalition visit to Rochester, November,

calculated as a percent of all registered units). According to local news (WXYZ Detroit, January 2020), the number of registered rentals has dropped by nearly 10 percent between February and December of 2019.

Overall, the implementation seems to have sent a message of penalizing noncompliant landlords into compliance, with less attention on supporting landlords wishing to comply [R1]. BSEED's efforts to simplify the certification process [R2] may constitute an improvement from past processes. And events to help tenants open escrow accounts and use a search engine tool to verify certification can be understood as an effort to empower and engage citizens [R3]. It would be important to monitor customer satisfaction with the certification process as done in Rochester and use the information to invest in communication [R1] and a rebalancing of incentives [R5].

In order to reduce the unintended negative impacts of the program on tenants and small landlords, Akers et al. (2020) suggests re-focusing enforcement to target landlords with ten or more single family residential rental units, who based on their analysis, seem to have the greatest footprint on children's exposure to lead [R4].

## **Concluding Thoughts**

Planning for a successful Lead Safe program demands time to learn, engage, listen to all parties involved and adjust. In contrast to the pace of this planning, our world is having to quickly respond to a pandemic that in only a few months has brought on a health and economic crisis with disproportionate impacts to vulnerable communities.

Unintendedly, the crisis offers us an opportunity to learn from interventions that, similar to the lead safe initiative, demand collective action. Government measures to reduce the spread of COVID-19 require that individuals adhere to behaviors that are costly to them, such as mask wearing and long-term social distancing. Collecting data from this context, researchers have had the opportunity to examine the effectiveness of different messaging strategies on compliance. They find that messages framed from a cooperative, pro-social point of view are more effective than those that highlight self-interest only (Jordan et al., 2020).

A strong, sustainable response to the lead crisis affecting our children and communities will also demand continued collective action with a consistent message and supports that evoke, cultivate and empower public-spirited motives. By learning from the successes and failures of past interventions and the insights offered by behavioral economics, we will be better positioned to implement an effective Lead Safe program.

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