Childhood Lead Poisoning Prevention: Environmental, Jurisdictional, Sociological, and Public Health Considerations

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Project summary

Scott County has a large stock of housing constructed before 1978, when lead paint was banned in the United States. Lead paint is the primary risk factor for childhood lead poisoning. Despite prior efforts to remediate lead paint contaminated housing, much work remains to be done. Due to the loss of the Department of Housing and Urban Development lead remediation grant formerly held by the City of Davenport, innovative, cross-jurisdictional methods must be employed to ensure that this threat to the health of children is eliminated.

Project Description

Lead poisoning occurs when lead builds up in the body, often over a period of months or years. Even small amounts of lead can cause serious health problems. Children under the age of 6 are especially vulnerable to lead poisoning, which can severely affect mental and physical development. At very high levels, lead poisoning can be fatal.

Lead-based paint and lead-contaminated dust in older buildings are the most common sources of lead poisoning in children. Other sources include contaminated air, water and soil. Lead paint was banned in the United States in 1978. Housing built before 1978 may contain lead paint, and present a hazard to those residing in the structures.

In Scott County, an moving average of 50 children have a blood lead level greater than 5 micrograms per deciliter of blood, the level at which the Centers for Disease Control recommends public health interventions.

Iowa’s children are most commonly poisoned by lead based paint found in homes built before 1950. The national average of pre-1950 homes is 22.3%. Scott County’s pre-1950 housing stock is 30%. It rises to 77% in the census tracts 106 through 112 in the City of Davenport. Iowa ranks fifth among the states in the percentage of housing built before 1950 and third in percentage of housing built before 1940.

Studies show that the number of lead poisoned children is highest in areas of older housing with higher rates of poverty. Scott County’s poverty level of 7.7% exceeds the state average, and the incidence of lead poisoning at 2.2% is more than double the national average of 1.0%. The incidence of lead poisoning in the census tracts 106 through 112 in the City of Davenport reaches 3.8%, nearly quadruple the national average.
Approximately 81% of the housing in Scott County was built prior to 1978 and over 30% was built prior to 1950. In census tracts 106 through 112 in the City of Davenport, this rises to 96% and 77%, respectively. The housing stock is a strong indicator for the presence of lead hazards, and Davenport estimates that over 2,000 housing units in the target area are in substandard condition needing substantial repairs.

In 2007 and 2011, the City of Davenport received a lead remediation grant from the US Department of Housing and Urban Development, through which lead-contaminated housing in which children 6 or younger resided could be remediated. Approximately 300 houses were made lead safe during these grant cycles. However, there remains a significant stock of housing built before 1978 that presents a clear and present danger to the health of Scott County’s children.

Since the conclusion of the HUD grant cycle in September 2014, the City of Davenport has no stated plans to apply for future grant cycle funding. The lack of funding will hamper efforts to remediate lead contaminated housing in Scott County, and perpetuate the problem of lead poisoning of children in the county.

We propose a SWLI project that effects hazard control of contaminated properties before children are poisoned. Traditional efforts have focused on properties occupied by children as a method to reduce lead poisoning. This is certainly a necessary element of any effective lead remediation program, but it falls short of the goal due to the nature of the problem. The population at risk is mobile, changing residences often, thus presenting a moving target for remediation. In multi-unit housing only the unit(s) occupied by children identified as being at risk are remediated, leaving the remainder of the units as hazards to future occupants.

In order to eliminate this threat to the children of Scott County, a systematic, collaborative effort must seek to remediate all housing contaminated by lead. This effort will not be without its challenges. The primary hurdle will be to bring all governments in Scott County together in a coalition, with a common goal, and maintain the commitment to eliminate the problem. Although Davenport has a large affected housing stock, Bettendorf and smaller municipalities also have a significant number of structures built before 1978, as do unincorporated areas of Scott County.

In some cases, municipal ordinances must be amended to remove obstacles to success. Historic district restrictions often prohibit the most effective and economical methods of remediation, making projects infeasible. Ordinances that restrict replacement of lead contaminated components must allow exceptions for health and safety issues related to lead paint.

To begin the work of the coalition, housing in Scott County that is likely to be contaminated by lead must first be identified. Identification of structures built before 1978 will provide a baseline from which to work. Projection of this data on a GIS layer would be ideal. Additional information allowing an accurate inventory would include: structures previously remediated by prior projects, building permits issued including work that may have effected remediation, historic district restrictions applicable to structures, and active and prior lead poisoning cases.

Once the scale of the problem has been identified, a method for funding remediation projects must be developed. Prior efforts have relied on grant dollars from the US Department of Housing and Urban Development acquired by the City of Davenport. However, in the most recent award, significant problems with the administration of the grant led to suspension for a period, and failure to remediate
the assigned number of properties. The grant administrator consulted with HUD regarding an extension of the grant period to allow more properties to be remediated, but no extension was granted. HUD rules make prior grantees with “red status” in recent quarters ineligible for future grant cycle applications.

Other methods of funding could be employed by the coalition. Application by the coalition for the HUD grant might be one possibility. Agreements to abate some portion of property taxes to defray a portion of the expense of remediation could induce property owners to participate. Direct loans at no interest, to be amortized through property tax, have been discussed. Fundraising efforts could provide additional dollars, although the scale of the problem may limit the usefulness of this method.

Re-motivation of partners may be necessary to ensure success. Anecdotal accounts indicate that the low number of properties remediated in the recent grant cycle, a sluggish payment stream, differences in licensing requirements between Iowa and Illinois, and poor communication among the partners may have led to disillusionment by the agencies that perform the remediation work.

Additional outreach efforts beyond advertisement of availability of remediation services will be necessary to achieve a significant reduction in hazard. Applications for remediation of properties increased with advertising campaigns, but did not produce the number of applications necessary to achieve the number of projects funded by the most recent grant. With an accurate inventory of affected properties, direct outreach could produce more interest in remediation.

Buy-in from owners of identified properties is a necessary element of the process. Single occupancy owners often lack the resources to properly remediate. When a child with an elevated blood level is involved, coercive measures may be required. If no resolution is achievable in the short term, the child must be removed from the property, causing familial disruption. When rental property is involved, legal action can be required to effect a resolution if the owner is non-compliant. This consumes time and resources of both SCHD and the owner of record. Property owners are increasingly using “rent to own” strategies, in which the agreement between the occupant and deed holder obfuscate the ownership status of the property, making it difficult to identify the proper avenue of action to achieve a resolution.

The project would develop strategies to address the aforementioned issues and challenges, create a coalition among stakeholders, identify funding sources and strategies, re-engage partners effecting remediation, and perform outreach to achieve buy-in and cooperation from owners of record of identified properties.

**Project Relevance and Priority**

The Scott County Strategic Plan for 2015-2016 contains an agenda item related to lead paint remediation (Goal 3.2.4: see Appendix 1). SCHD has worked with COD for many years on lead remediation issues, participating in the COD HUD grant activities, providing in-kind and direct financial support. With the loss of the COD HUD grant, SCHD began to discuss with SC administration how to continue lead remediation activities with that loss of funding.

Scott County administration is supportive of working with Augustana College to develop a framework to renew efforts to remediate lead paint contaminated properties in the county, including municipalities. Possible avenues being discussed are county/coalition submission of a HUD application for funding, tax abatement policies, and direct loans with amortization through tax premiums.
Anticipated Outcomes and Deliverables

PHASE 1 (2016-2017 Academic Year)

Overall Project Lead: Edward Rivers, SCHD

Building Block Strategy #1

1) Using a representative sample of pre-1978/1950 structures already identified by Scott County (approximately 17,000 structures both single and multi-family dwellings), conduct an assessment to gain a better understanding of the scale of the remediation problem. The assessment could include the following:
   a) Design a stratified sampling protocol to ensure a representative sample for the following surveys and assessments.
      - MATH 478 Applied Math Seminar. Students work in small groups with permission of instructor to pursue an approved applied math problem.
      OR
      - SOC 419 Survey Research Methods or COMM 380 Quantitative Tools for Communication Research. Students investigate social science research including study and sampling design and research ethics.
   b) Research into history of a representative samples of structures (parcel-level) to assess and quantify the number of potential structures with applicable historic district restrictions.
      - HIST 320 Public History. Explores the principles for the collection, organization, preservation, and presentation of material culture and historical records in archives, public agencies, etc.
   c) Compile available data available from state and local governments (evidence of previous remediation under previous grants; building permits for construction that may have resulted in remediation; visual observations indicating renovation.) Using such proxy data, estimate the number of potential structures that may have already been remediated.
      - One of public health courses (PUBH). Not sure which one at this stage. PUBH 380 Special Topics would be a great course for this portion of the project, but it is not offered every year.
   d) Use existing Census Bureau and other data related to the potential structures to estimate the likelihood of the residents satisfying HUD income restrictions.
• **PUBH 350 Health Behavior and Health Promotion.** Highlights the role of behavior in reducing the burdens of diseases from preventable health conditions and improving health and wellness among communities and populations.

• **GEOG 374. GIS for Social Sciences/Business.** Study of the use of GIS technologies to address public health and environmental problems.

**e)** Conduct visual surveys and door-to-door and/or mail surveys of owners of potential structures to gain additional applicable information and to the extent possible, rapid lead contamination assessment of willing residents. The goals would be to ground-truth and evaluate the use of “proxies” (see above) and to refine estimates of the number of potential structures in need of remediation.

• **GEOG 325 Urban & Transportation Systems.** Study of spatial organization of urban areas and housing and neighborhood space

OR

• **ENVR 100 (Introduction to the key concepts and processes of social-ecological systems)** or **ENVR 30 (special topics capstone course where students complete a substantial project-based learning experience to help a local community address a sustainability issue)**

OR

• **GEOG 423 Urban and Regional Planning.** Introduction to urban planning including aspects such as housing.

• **SOC 419/420 Senior Inquiry Sequence of Courses.** Design, administer, and interpret findings of any related surveys.

**f)** Using Arc-GIS technology, create a geo-database showing all applicable information and using spatial interpolation to estimate the number of contaminated structures and identify areas with greatest need for intervention that takes into account differences in vulnerability among populations.

• **GEOG 373 & 374. GIS for Natural and Social Sciences/Business.** Study of the use of GIS technologies to address natural resource, public health, and environmental problems.

• **GEOG 475 Advanced GIS.** Conduct spatial interpolation and identify hot spots as high priority remediation areas because of high vulnerability and low adaptive capacity.

**Project Leads: Tim Dougherty, SCHD; Sunny Shang, Scott County GIS.**
Building Block Strategy #2

2) Create an initial registry of lead-safe housing using Arc-GIS technology and available data on certified “lead-safe” structures. Create spatial geo-database that is accessible via the County website that can be readily updated (GEOG 373 & 374)
   a) Research and evaluate the strategies that other municipalities have taken to develop such initial registries
      • POLS 331 Public Administration, Examines how government actually implements public policy. This class considers different strategies that have been used to maximize government efficiency and decrease corruption; we will analyze the advantages and disadvantages of these and ask how we can make government work better in the 21st century.
   b) Using available data, create an initial database for the registry
      • SOC 206 Contemporary Social Issues, Studies contemporary social issues and possible social policy interventions
      • One of public health courses (PUBH). Not sure which one at this stage.

Project Leads: Tim Dougherty, SCHD; Sunny Shang, Scott County GIS

3) Study, design, and implement (to the extent possible) a health communication campaign about the importance of lead paint remediation to public health; targeted to key institutional stakeholders and owners of identified structures.
   a) COMM 410 Public Health Communication Campaigns. Focuses on the purpose, design, implementation, and evaluation of public health communication campaigns—promotional messages or interventions aimed at health behavior education or change. Students gain an overview of relevant theory and research and the opportunity to study, design, implement, and evaluate a student-produced health communication campaign about a selected public health issue.

Project Lead: Tiffany Tjepkes, SCHD

4) Conduct an assessment to identify the key reasons the past HUD grant failed and formulate strategies to minimize and/or eliminate such risks in future efforts (two key target groups of stakeholders: (1) participating contractors and subcontractors (assess perceptions of obstacles and challenges); (2) City of Davenport officials and staff (assess perceptions of obstacles to administering HUD grant); and owners of structures that were remediated (assess perceptions of what went well and what could be improved).
   a) Conduct interviews and surveys with key institutional stakeholders significantly involved in last HUD grant administration and previous remediation campaigns
      • HIST 200 Introduction to Historical Research. Study of methods of conducting historical research including conducting oral histories.
• ANTH 419 Ethnographic Field Methods. Examination of ethnographic methodologies, including participant-observation and interviewing.

• COMM 382 Qualitative Interviewing for Research. Practical application to qualitative interview methods via data collection and analysis.

• SOC 419/420 Senior Inquiry Sequence could conduct a survey of stakeholders participating in previous HUD grant.

Project Leads: Edward Rivers, SCHD; Eric Bradley, SCHD

Building Block Strategy #3

5) Develop a “Toxics Tour” to highlight unhealthy conditions to key community stakeholders.

• COMM 453/COMM 454 Senior Inquiry Sequence Civic Engagement Action Plan and Project. Students volunteer with agency and design and implement an action plan. I think this could occur at the end of the 2016-2017 academic year and culminate with an actual tour (wrap-up of all related projects). This could be the forum to launch Phase 2.

Project Lead: Edward Rivers, SCHD; Eric Bradley, SCHD

Miscellaneous

6) Identify and evaluate the advantages and disadvantages of alternative funding strategies [building block strategies #7 (grants), # 8 (revolving funds), and #9 (tax credits)] that comparable local governments have used to encourage remediation of lead in single occupancy residences and multi-unit housing

• ACCT 452 Government Accounting. Assess the short-term revenue and expenditure implications for the county of alternative funding strategies.

• BUSN 331 Finance. Assess the long-term case flow implications for the county of alternative funding strategies.

• POLS 331 Public Administration. investigates different strategies that governments use to achieve their objectives most efficiently in the 21st century.

• PUBH 350 Health Behavior & Health Promotion. Study of role of health behavior in reducing burden of diseases from preventable health conditions and improving health and wellness among communities and populations. Examines community organizing as a tool for empowering communities to promote healthy behaviors.

Project Leads: Edward Rivers, SCHD; Eric Bradley, SCHD; David Farmer, Scott County Budget Manager

Resources

Resources currently identified:

Direct contribution by Scott County of $####.## for expenses.
In-kind: inspections, grant writing, technical support, case management.

**Other Partners (Prior participants in remediation program)**

City of Davenport  
City of Bettendorf  
Municipalities within Scott County  
Interfaith Housing  
Mississippi Valley Neighborhood Housing Services  
United Neighbors, Inc.  
Iowa State University Extension
Appendix 1

SCOTT COUNTY MISSION STATEMENT

We Serve Our Citizens with

P rofessionalism  Doing It Right
R esponsiveness  Doing It Now
I nvolvelement  Doing It Together
D edication  Doing It With Commitment
E xcellence  Doing It Well

SCOTT COUNTY MISSION STATEMENT

Scott County is dedicated to protecting, strengthening and enriching our community by delivering quality services and providing leadership with PRIDE.

GOALS
2015 – 2016

✦ Extend our Resources
✦ Improve Communication
✦ Foster Healthy Communities

2015-2016 GOALS AND OBJECTIVES

1. Extend Our Resources

1.1 Continue to implement facilities space and leverage additional programmatic opportunities
1.2. Implement Fleet Management Plan and resulting synergies
1.3. Continue to pursue shared service initiatives and cost recovery opportunities through collaboration with external partners
1.4 Continue involvement with regional economic development initiatives including start-up programs like the manufacturing hub
1.5 Lead effort to create forums for collaboration with small communities for economic development and for improved technology capabilities
1.6 Align our programs and services with the Regional Vision
1.7 Implement Electronic Data Management through departmental collaboration

2. Improve Communication

2.1 External Communications

2.1.1 Complete Website Redesign project in FY15
2.1.2 Publish first Popular Annual Financial Report for FY16

2.2 Internal Communications

2.2.1 Continue to educate internally on PRIDE, Mission Statement, Goals and Regional Vision

2.3 Legislative Communication

2.3.1 Continue to identify and prioritize legislative issues and work through the Urban County Coalition
2.3.2 Engage our state and federal legislators in county and regional issues

3. Foster Healthy Communities

3.1 Promote Mental Health

3.1.1 Implementing crisis stabilization continuum services
3.1.2 Explore Pilot Project for behavioral transportation carousel
3.1.3 Collaborate with senior service providers and state agencies in outreach services

3.2 Support Health and Wellness

3.2.1 Advance Be Healthy Quad Cities policy initiatives including trail connectivity
3.2.2 Redesign employee wellness programs to gain greater participation
3.2.3 Evaluate EMS study recommendations for implementation feasibility
3.2.4 Study lead abatement issues and develop strategies for reduction in children
3.2.5 Expand juvenile detention services programs to reduce detention admissions
3.2.6 Assist communities to understand and generate opportunities of Lost Grove Lake