

DASH PROJECT PROFILE

Childhood Lead Paint Hazard Data Sharing

Chicago, IL



“We can effectively do early blood lead testing and interventions through the decision support tool in electronic health records. We’re using data-driven approaches to move towards prevention.”

PROJECT SNAPSHOT

Target Population	Children in CDPH programs and the 4 pilot FQHCs who are at risk of lead paint exposure
Health Objective	Prevent lead poisoning among children at risk
Geographic Scale	High risk homes built before 1978
Sectors	Public health, clinical health care, housing, schools, academia, information technology
Data Types	Service (EHRs, case management), surveillance, personal demographic, geographic
Data Integration	Connect multi-sector data in the City’s database, operationalize predictive model
Project Expertise	Organizational development, system transformation, fiscal management, program implementation, data science, applied public health practice, and innovation

OVERVIEW

The Chicago Department of Public Health (CDPH) with its partner at the University of Chicago’s Center for Data Science and Public Policy created a predictive model that helps identify young children at risk of being lead poisoned in homes with lead paint. The model provides an opportunity to prevent lead paint exposure through proactive home lead inspections and blood testing at an earlier age. The predictive model combines data from multiple sectors including public health, census, buildings and the county assessor’s office to create real-time interfaces that identify where at-risk children live. CDPH housing inspectors will be alerted to inspect the homes of at-risk children for lead paint hazards either through an application or by physicians at community health centers through electronic health records (EHR).

PROJECT APPROACH

The Childhood Lead Hazard Data Sharing Across Sectors project will:

- **Use a predictive model to identify at-risk children:** The model provides a list of high priority houses for inspectors to visit and examine for potential lead paint hazards.
- **Create real-time interfaces to expedite data sharing:** Relevant data will be integrated with children’s electronic health records and housing inspector applications to identify at-risk children for testing and inspection requests, respectively.
- **Post the code on an open-sourced hub:** The programming code will be made publicly available so that the model can be vetted, reproduced, and replicated by others.

LEAD AGENCY

The **Chicago Department of Public Health (CDPH)** works with community partners to promote health, prevent disease, reduce environmental hazards and ensure access to health care for all Chicagoans. CDPH convenes partners, facilitates data sharing, and provides epidemiological and informatics support and content expertise. Home inspectors from the department's Lead Program will also receive a list of high priority homes for inspection and mitigation efforts.

PARTNERS/COLLABORATORS

Alliance of Chicago, a community health center network, is a technology integrator for the clinical participants and engaging health care providers in target communities. They are identifying and training a pilot set of health centers to test and implement a clinical decision support tool that provides actionable information about a child's risk at the point of care through an EHR linked to the city's database.

Chicago Department of Innovation and Technology (DoIT) hosts the model, assists with data integration, database infrastructure design, and project development and implementation.

Chicago Public Schools (CPS) collects healthcare provider's student lead risk assessment and student blood level screenings prior to admission in conjunction with required physical examinations.

University of Chicago's Center for Data Science and Public Policy (DSaPP) is leading the effort to validate the existing predictive model, integrate additional EHR datasets from Alliance to create the EHR alert that flags at-risk children and expectant mothers.

Public Health Institute of Metropolitan Chicago (PHIMC) enhances the capacity of public health and healthcare systems to promote health equity and access to services. For this project, PHIMC provides contract management.

ANTICIPATED IMPACT

Integrating lead risk scores with EHRs will push prevention measures upstream to the patient level, helping more children get tested at an earlier age as well as expectant mothers. Greater understanding of the hot spots of child lead poisoning risk will help CDPH employ data-driven strategies to mitigate lead paint in Chicago homes in real-time. Ultimately, the project aims to prevent lead poisoning among children and improve efforts to educate at-risk families.

USE CASE SUMMARY

USE CASE	ACTOR	SYSTEM	OUTCOME
<ul style="list-style-type: none">• Identification of at-risk children for intervention by providers and the health department• Clinical decision support• Risk Assessments and Planning	<ul style="list-style-type: none">• Community Clinic Healthcare Providers• Public Health Departments• Public Schools	<ul style="list-style-type: none">• Real-time interface between datasets	<ul style="list-style-type: none">• Homes for high risk children inspected for lead paint and mitigated• High risk pediatric patients referred for blood testing and inspections• Share non-identifiable aggregated data

ABOUT DASH

The Chicago Department of Public Health is a grantee of Data Across Sectors for Health (DASH) — a national program of the Robert Wood Johnson Foundation, with direction and technical assistance provided by the Illinois Public Health Institute in partnership with the Michigan Public Health Institute. DASH aims to identify barriers, opportunities, promising practices and indicators of progress for multi-sector collaborations to connect information systems and share data for community health improvement. DASH is a partner of All In: Data for Community Health, a national network of projects with the common goal of improving multi-sector data sharing and collaboration.