

2022 Lead and Healthy Homes Technical Studies Grant Award Summaries

Illinois

The Board of Trustees of the University of Illinois will be awarded \$924,410. The University will develop a customizable sensor system that will integrate data from multiple sensors from different manufacturers, a dashboard that provides timely actionable feedback to residents, and data access by professionals authorized by residents. Sensor packages will be customized based on the specific details of the home and the residents and will be able to measure different contaminants in various parts of the home as appropriate. The primary objective of the study is to empower residents to target and effectively manage individual-specific triggers of respiratory ailments associated with poor indoor air quality.

Maryland

National Center for Healthy Housing, Inc. will be awarded \$740,000 to study the indoor air quality benefits of a gas range replacement program. The Center will partner with Lincoln Westmoreland Housing, a community-based organization that provides low-income housing and supportive services, and Yachad, a community-based organization with experience in healthy housing asthma education. The study's main objective is to create evidence-based guidance for housing, health, and environmental programs and policymakers on the benefits of gas range replacement in reducing asthma triggers to improve the health and quality of life of residents who have asthma and other respiratory health issues.

Massachusetts

The President and Fellows of Harvard College will be awarded \$924,984 to test the acceptability and feasibility of an adapted version of their Building Success smokefree implementation toolkit. The adaptation will fully integrate ancillary social and health services into a smokefree implementation framework to meet the needs of Permanent Supportive Housing (PSH) residents. The study will examine indoor air quality, resident exposure to secondhand smoke, and smoking consumption at 12 months post-intervention. The primary objective of this project is to develop evidence-based smokefree policy implementation strategies that meet the special needs of PSH Communities.

New Jersey

The Montclair State University will be awarded \$699,981 to develop a model to simulate and predict the risk of lead exposure and resulting increased blood lead concentrations based on bio-accessible lead concentrations in the environment, and how socioeconomic status, policy / scholarly intervention, and collective community behaviors influence that concentration. The University will use Jersey City, NJ, as its study site for data collection and model validation.

Pennsylvania

The University of Pittsburgh will be awarded \$918,709 to conduct studies and develop a comprehensive home health assessment and care planning tool to deliver home and community-based services (HCBS), such as home modifications, therapy, and personal assistance care. The University will also capture key environmental health and safety hazards information that can be used as an add-on component to current assessment tools for Medicaid HCBS or other home healthcare services. The University also will prepare training materials with partner organizations for dissemination.

Puerto Rico

Puerto Rico Science, Technology & Research Trust will be awarded \$925,000 to conduct a randomized controlled study in the municipality of Ponce in southern Puerto Rico that aims to determine whether the installation of screens in windows and doors of randomized houses leads to a measurable reduction in presence and number of female *Aedes* mosquitoes inside intervention homes compared to control homes. Secondary goals include analyzing information on confirmed Dengue virus, Chikungunya virus, and Zika virus human infection in intervention and control homes, and information on acceptability and cost.

South Dakota

The University of South Dakota will be awarded \$552,381 to investigate the ecological and biological risk of emerging infectious disease transmission by bed bugs using an integrative approach and modern tools. First, high-depth DNA/RNA sequencing will be conducted on a large repository of bed bugs collected from diverse dwellings to determine the frequency with which bacteria and viruses with the potential to cause human disease are found in the insects. Then, the University will study laboratory-reared bed bugs to determine if they are biologically capable of transmitting currently relevant emerging pathogens that circulate in urban settings. The studies will form the first broad, systematic investigation of the associations between bed bugs and infectious disease agents.