



## **The Johns Hopkins Home Safety Study**

### **Executive Summary**

This case study summarizes a presentation at the National Symposium on Model Performance in Fire Prevention in May 2012.

This research utilized proven effective injury countermeasures to reduce home injuries caused by fires, scalds, and carbon monoxide. Using participatory methods, we studied the dissemination of lithium-battery smoke alarms, hot water safety education, and carbon monoxide detectors in predominantly low-income census tracts at high risk in East Baltimore, Maryland. The research built on the ongoing community work of four organizations: CARES Mobile Safety Center, Baltimore City Fire Department, Center for Community HEALTH, Environmental Justice Partnership.

### **Overview**

The aims of the research were to:

- Describe the implementation of a community program promoting adoption of effective injury prevention interventions in low income, urban neighborhoods by completing a) in-depth interviews with community partners and stakeholders and b) a process evaluation of the program
- Determine the diffusion of the program among families in the selected neighborhoods by conducting household surveys in two communities (intervention and comparison) to measure program awareness, participation, knowledge and adoption of the injury prevention interventions

- Determine the maintenance of injury prevention interventions among families who participated in the program by conducting a six-month follow up visit with a cohort of program participants
- Identify the mechanisms through which the program could be scaled-up and institutionalized to address the needs of all high-risk communities throughout the city by conducting key informant interviews with selected policy makers and other leaders.

### **Formative Evaluation (qualitative or quantitative risk assessment)**

We conducted household surveys to assess the need for the program, and found that less than 50% of households had working smoke alarms, demonstrating a high need for innovative strategies to increase protection. We also conducted focus groups with community members and the firefighters responsible for installing smoke alarms. We found that fire department canvassing programs are popular with the community. The program was less popular among fire department personnel who perceived canvassing to be suffering from administrative burdens and lack of training and recognition at the outset of our project.

### **Process Evaluation (analysis of the program's development and early implementation)**

Working closely with the fire department, we were successful in translating these findings into new training for firefighters conducting home visits, new methods of operation that involved senior leadership in the fire service, and a new data collection and management system for the fire department that could enhance the efficiency and targeting of home visiting resources.

We also learned that working in partnership with a variety of stakeholders can enrich the creation, delivery and evaluation of a community program. A successful partnership does, however, require that adequate resources be devoted to maintaining the partnership throughout the life of the project with an emphasis on regular communication among the members.

The community program was an enhanced fire department smoke alarm canvassing program (also called “sweeps” or “home visiting program”). The *standard* fire department program includes installing free 10-year lithium-battery smoke alarms on all levels of a home and providing fire safety education to residents. The *enhanced* program added community promotion by Community Health Workers (CHWs), the CARES Mobile Safety Center, and a dedicated public health safety educator who

reinforced the fire safety message and specifically addressed safe hot water temperatures and the use of carbon monoxide alarms.

We compared the diffusion of the program between 6 census tracts that received the enhanced program and 6 census tracts that received the standard program. A combination of qualitative and quantitative methods was used, including interviews, document reviews, surveys, and home observations.

### **Impact Evaluation (identification of measurable changes that are cognitive gains or behavior changes that reduced risk)**

We achieved increased access to homes as a result of the enhancements that we made to the fire department's standard canvassing program. Compared to 2007 before the project began, the fire department estimated that it accessed 22% of homes visited, whereas we accessed 30% in the enhanced communities (versus 24% in the standard communities) during our 8,080 home visits.

Of the 3,216 residents home at the time of the canvassing, 75% in the enhanced community versus 62% in the standard community agreed to participate in the home visit ( $p < 0.0001$ ). A total of 3,816 10-year, lithium battery smoke alarms were installed, with significantly more installed on average in the enhanced relative to the standard (1.89 vs 1.73,  $p < 0.005$ ).

This is the first such program of its kind to partner CHWs with firefighters to promote home safety. Results demonstrated high levels of awareness of the enhanced program and residents were most likely to identify their source of information about the program as the CHW and the door hang tag that she left at their home in advance of the home visit.

Finally, in follow-up surveys in both the standard and enhanced communities ( $N = 543$ ), we observed high rates of maintained smoke alarms (97.6% and 95.7%, respectively) and safe hot water temperatures (96.9% and 97.5%, respectively). Carbon monoxide alarms were less likely to be in place upon follow up (38.1%).

### **Outcome Evaluation (longer term documentation that supports reduction of injury, death or economic losses)**

A cost-benefit analysis of the enhanced and standard programs is underway.

## **Recommendations for Others**

Working in partnership with relevant stakeholders and conducting formative research in advance of the intervention led to the development and implementation of an effective enhanced canvassing program. Utilization of multiple types of research methods helped to advance the scientific approach to dissemination research. Results, when fully analyzed, may also yield new knowledge about how best to disseminate effective interventions to reduce scald burns and carbon monoxide poisoning among children and families living in high-risk, urban communities.

## **For More Information**

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Source: *Dissemination Research in Child Safety*, Final Report to the Centers for Disease Prevention and Control, National Center for Injury Prevention and Control, Grant #1R18CE001339, September 30, 2007 to September 29, 2011.

To see an expanded version of this case study that was presented at the 2012 National Symposium on Model Performance in Fire Prevention hosted by Vision 2020, click <http://strategicfire.org/page.cfm/go/2012-Model-Performance>.