HUD'S HEALTHY HOMES DEMONSTRATION GRANTEES: A REVIEW OF EVALUATION CAPACITY, PROGRAM ADMINISTRATION, AND BEST PRACTICES

EXECUTIVE SUMMARY

Prepared for:

U. S. Department of Housing and Urban Development

Office of Lead Hazard Control and Healthy Homes

Contract #C-PHI-01067,

Task Order #006

SEPTEMBER 1, 2015

HUD'S HEALTHY HOMES DEMONSTRATION GRANTEES: A REVIEW OF EVALUATION CAPACITY, PROGRAM ADMINISTRATION, AND BEST PRACTICES

EXECUTIVE SUMMARY

BACKGROUND AND METHODOLOGY

An evaluation of the U.S. Department of Housing and Urban Development, Office of Lead Hazard Control and Healthy Homes' (HUD OLHCHH) grant-funded research and demonstration projects under the Healthy Homes Initiative (HHI) last occurred in 2005-2007 and included both Healthy Homes Demonstration Program (HHD) and Healthy Homes Technical Studies Program grantees. The final report, *An Evaluation of HUD's Healthy Homes Initiative: Current Findings and Outcomes,* by Healthy Housing Solutions, Inc. (Solutions), was completed on March 5, 2007. Since that evaluation, approximately 54 HHD grants have been awarded from FY 2005 through FY 2009.

Objectives of the HHD grants include the following:

1. Carrying out direct remediation where housing-related hazards may contribute to injury and illness, with a specific focus on children;
2. Delivering education and outreach activities to protect children from housing-related hazards; and
3. Building capacity to assure healthy homes projects are sustained.

This report, also completed by Solutions, captures data from HHD grantees not included in the 2005-2007 evaluation as well as more recently-awarded HHD grants. Its purpose is to guide policy development and to facilitate HUD OLHCHH's preparation of guidance documents for future healthy homes efforts. It summarizes data from those grantees that have carried out the greatest number of interventions, collected the most detailed evaluation data on cost, health and housing impacts, and have demonstrated significant capacity-building and sustainable approaches to guide policy development and guidance for future healthy homes efforts. It also supports future efforts to identify evaluation data sets that would be of value to HUD OLHCCHH for additional analyses or meta-evaluation.

Twenty-seven grantees were invited to participate; a total of 25 grantees completed an online questionnaire, which represents a 92% response rate. Data collection occurred from May 1, 2014 – July 15, 2014.

GRANTEE EVALUATION METHODS AND PUBLICATIONS

Grantees that were selected to participate in this evaluation used more rigorous designs and data collection procedures. The majority of these grantees (72%) had their project reviewed by an Institutional Review Board (IRB). Only 20%, however, used a control or comparison group. Grantees had the ability to rate up to eleven items as the strongest or most effective features of their program. Of the 25 responding grantees, 48% rated their evaluation strategies as one of the most effective features.

The vast majority reported using an outcome/effectiveness evaluation design in their research. The most commonly reported Quality Control/ Quality Assurance (QC/QA) procedures were frequent

meetings with staff (96%), monitoring of work in progress (92%), pilot tests of questionnaires before their use in the field (56%), and integrating QC samples into biological or environmental sample testing (52%).

VALIDATED MEASURES MOST COMMONLY USED BY GRANTEES

- **Juniper's Asthma Quality of Life Questionnaire** (adult and children)
- **The Asthma Control Test**
- **American Academy of Pediatrics' Children's Health Survey for Asthma (CHSA) National Heath Information Survey (NHIS)**
- **Clinical COPD Questionnaire,** developed by Thys Van der Molen
- **Medicare Health Outcomes Survey**
- **Behavioral Risk Factor Surveillance System** (BRFSS)
- **National Survey of Lead & Allergens in Housing (NSLAH)**
- **Seattle-King County Dept. of Health's Asthma Program research protocols**
- **Healthy Homes Inspection Manual**
- **EPA Asthma Home Environment Checklist**
- **Pediatric Environmental Home Assessment**

The majority also reported developing or adapting a tool or procedure for use in their program operations. They used a variety of methods to disseminate findings, with the most common being presentations at conferences (60%), presentations to elected officials (52%), and peer-reviewed publications or other strategies (36%). Grantees delivered over 100 presentations at professional conferences, including international, national, regional, state, and local audiences. Eighteen peer-reviewed journal articles were published by this group, with more being considered for publication.

Sixteen grantees also reported the ability to share de-identified raw or cleaned data with HUD OLHCHH.

RECRUITMENT, ENROLLMENT, AND OUTREACH

Most grantees reported that their projects involved recruitment or enrollment of clients (88%) and/or housing units (64%). More than 17,000 clients and over 3,000 housing units were enrolled by grantees. The primary targets for enrollment included families or individuals with or at-risk for asthma and housing units within specific census tracts or geographical boundaries.

INDIVIDUALS TARGETED

The majority of grantees (88%, N=22) reported having targeted individuals for their program. Grantees could specify up to 17 categories of target individuals for enrollment, as well as whether they were primary or secondary targets for recruitment efforts.

The most commonly targeted groups were: 1) low-income families (88%); 2) families or individuals with or at-risk for asthma (84%); and 3) minority families (72%).

HOUSING UNITS TARGETED REPRESENT:

- **3,101 units in total;**
- **1,595 rental units;**
- **776 units built before 1940; and**
- **971 units build between 1940 and 1978.**

HOUSING UNITS TARGETED

Housing units were targeted by 64% (N=16) of the grantees. Grantees could specify up to 15 types of housing targets, and whether they were a primary or a secondary target for recruitment.

The most frequently targeted housing units were: 1) units located in a specific neighborhood or defined geographical boundary (e.g., census tract) (64%); 2) rental units (48%); and 3) single-family units (48%). In addition to the types of housing units specified in the survey, grantees mentioned Section 8 housing, tribal housing, and recruiting from partner programs or individuals with respiratory conditions within the targeted housing units.

INDIVIDUALS TARGETED REPRESENT:

- **4,517 occupants under age 6;**
- **5,434 occupants aged 7 – 17;**
- **6,248 occupants aged 18-64;**
- **187 occupants over age 65; and**
- **6,248 occupants with asthma.**

RECRUITMENT METHODS

Grantees used a variety of methods to recruit clients for their programs. When asked to assess 18 different recruitment methods, grantees reported a mean of 7.8 methods used, with a minimum of five and a maximum of 14 (N=24).

The most frequently used methods of recruitment were: 1) community meetings, health fairs, or community events (96%); 2) referrals from health care providers and mailings or distribution of materials to local organizations (88%, each); and 3) referrals from other organizations (84%). In addition to those methods specified in the survey, grantees also mentioned the use of email blasts from partner websites, contacts with home visiting nurses who worked with asthma patients, information tables in common areas of multi-unit buildings, use of the 211 Call for Help information Line, and random digit dialing recruitment calls. Two programs mentioned word-of-mouth.

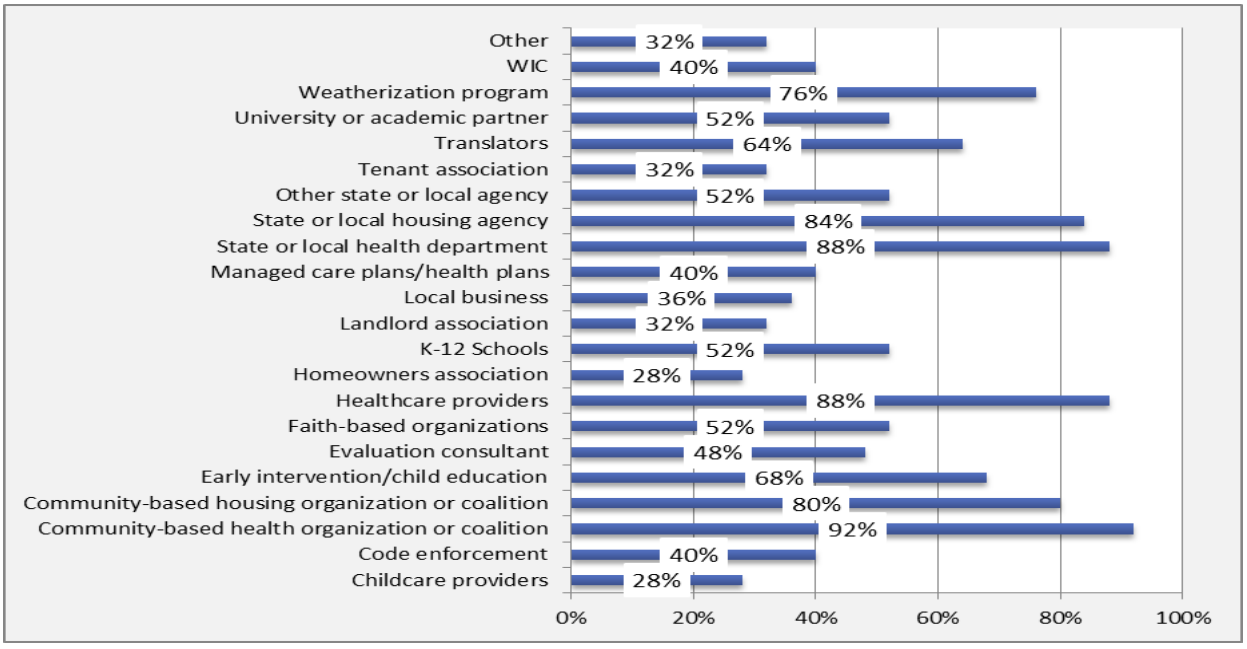
Of the methods used, the four that the majority of grantees rated as very effective were: 1) referrals from health care providers (73% rated as very effective); 2) referrals from other organizations (57%); 3) mailings or distribution of materials to organizations and/or community groups (55%); and 4) community meetings, health fairs, or community events or other methods (50%). (See Chapter 4). Although rarely used, newspaper advertisements were rated as least effective (40%).

The majority of grantees (84%, N=21) reported using incentives to recruit, enroll, or retain clients. On average, grantees reported use of 2.6 incentives, with a minimum of one and a maximum of four (N=21). Of the incentives used, the most common were: 1) products/giveaways (90%); 2) interventions (67%); and 3) gift certificates (52%). The mean value of incentives per household fell between $100 and $499 (43%, N=9). The majority of grantees (80%, N=20) reported the incentives offered were effective both in recruiting and retaining clients (i.e., keeping clients enrolled).

PARTNERSHIP DEVELOPMENT

In many locations, no single agency is responsible for dealing with all healthy homes issues. Therefore, effectively addressing such issues often involved collaboration between several different partner organizations. Almost all of the grantees (96%) formed new partnerships and close to half of the grantees (40%) formed more than six new partnerships. The most common partner organizations were: 1) community-based health organizations and coalitions (92%); 2) health care providers and state and local health departments (88%, each); 3) state and local housing agencies (84%); 4) community-based housing organizations or coalitions (80%); 5) weatherization programs (76%); and 6) early intervention/early education (68%). (See Figure 1.) Many of these organizations served as paid subcontractors as well as partners, with the most common subcontractors being evaluation consultants, translators, and local businesses (e.g., risk assessment services).

FIGURE 1: ORGANIZATIONS ENGAGED AS PARTNER OR SUBCONTRACTORS (N=25)



COMMUNITY EDUCATION AND OUTREACH

In addition to education in the context of interventions, the 25 grantees also reported use of a mean of 4.9 of 10 possible community-wide education and outreach methods, with a range of two to 10. The most common methods used included: participation in health fairs (88%); visits to parent or community groups (84%); and, visits to health care providers (72%). The least frequently used methods included mass transit advertisements or social media (reported by 8% of grantees, respectively).

The following community outreach and education activities were rated as very effective by the grantees: 1) visits to health care providers (67%); 2) visits to parent or community groups (52%); and 3) mailings to community groups (48%). Surprisingly, only 32% of grantees that used participation in health fairs rated this method as very effective. Although less frequently used, broadcast media outreach, Internet ads or postings, and door to door recruitment were rated as very effective (50%, 38%, and 36%, respectively) by the grantees who used these methods.

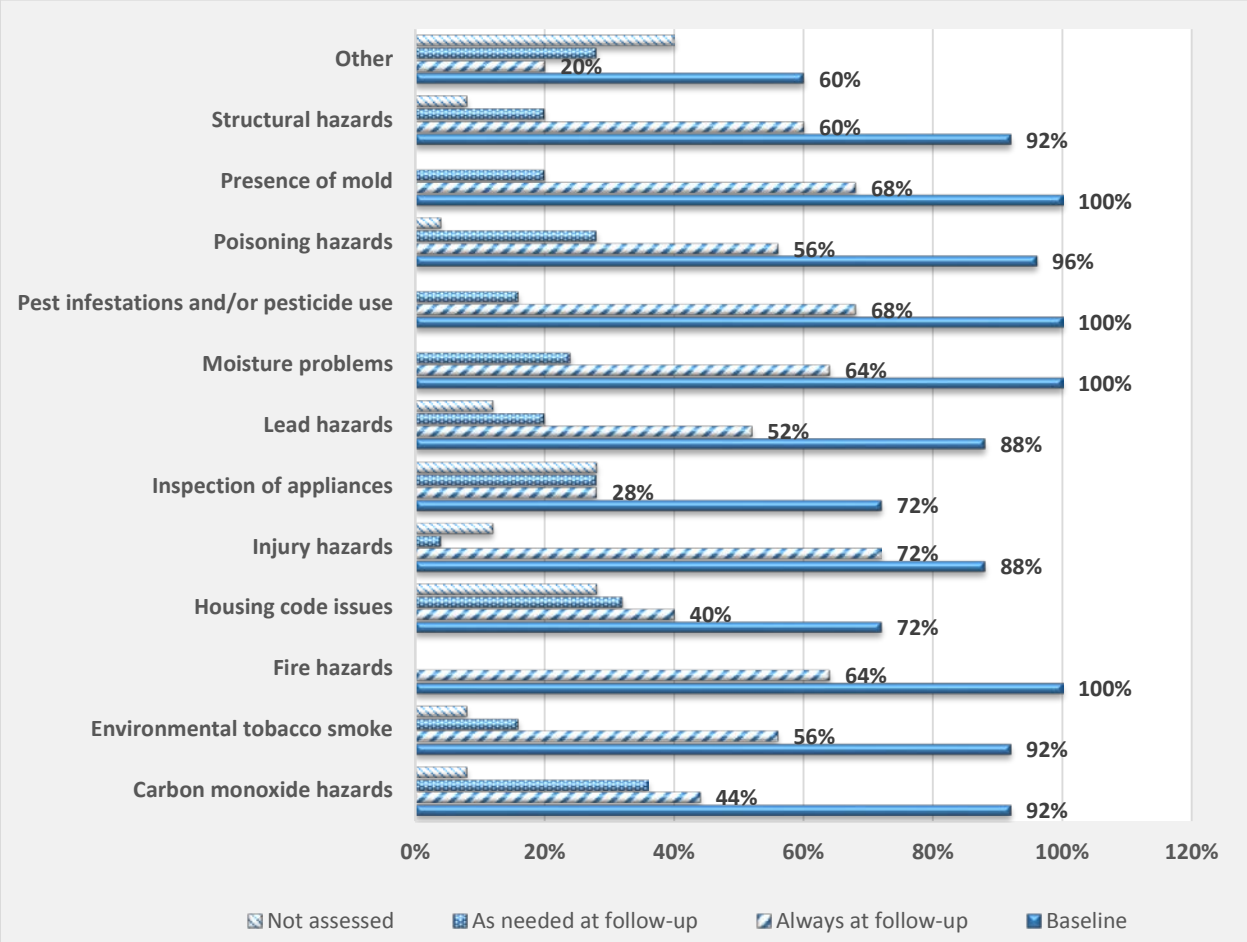
ASSESSMENTS AND INTERVENTION STRATEGIES

Grantees could report on up to four types of assessments: 1) resident surveys, including client demographics, knowledge and behavior, and health conditions; 2) visual assessments of unit conditions; 3) environmental samples taken in the unit; and 4) biological samples taken from individuals. All the grantees (100%) reported conducting resident interviews and visual assessments and 76% reported collecting environmental samples, but only 8% (N=2) reported collecting biological samples. Grantees also indicated whether they conducted these assessments at baseline, and if completed as a follow up to interventions, on an as needed basis or always at the follow up visit.

The most commonly assessed characteristics at baseline were: 1) household characteristics; 2) allergies; 3) asthma); 4) behavioral information; and, 5) health care utilization (100% or N=25 for each of the five characteristics). Other commonly collected data included: 1) resident concerns about housing conditions (96%); 2) self-report of symptoms and other respiratory conditions (92%, for each); 3) housing characteristics and health-related absences from school or work (88%, each); and 4) socioeconomic characteristics and need of additional social or other types of services (84% each). Grantees were least likely to collect information on poisonings at baseline (52%). At follow up, the grantees were more likely to collect information on health conditions, client concerns, and needs for services, and less likely to repeat collection of socioeconomic status, demographics, and housing mobility data.

There were 13 focus areas routinely addressed during the visual assessments. Baseline visual assessments always were completed for the following four focus areas: 1) fire hazards; 2) moisture problems; 3) pest infestations and/or pesticide use; and 4) presence of mold (100%, N=25). Follow-up visual assessments fell into two categories: always at follow-up and as needed at follow-up. Focus areas with the most follow-up visual assessments were: 1) fire hazards (88%); 2) moisture problems (88%); and 3) presence of mold (88%). (See Figure 2.) In addition to these 13 focus areas, at least one grantee reported assessing tap water temperature, radon, dust mite conditions, presence of pets, presence of proper ventilation, and all asthma or chronic respiratory condition triggers present in the home.

FIGURE 2: PERCENT OF GRANTEES COLLECTING HOUSING CONDITION DATA AT BASELINE AND FOLLOW-UP, BY FREQUENCY OF DATA COLLECTION AND CHARACTERISTICS

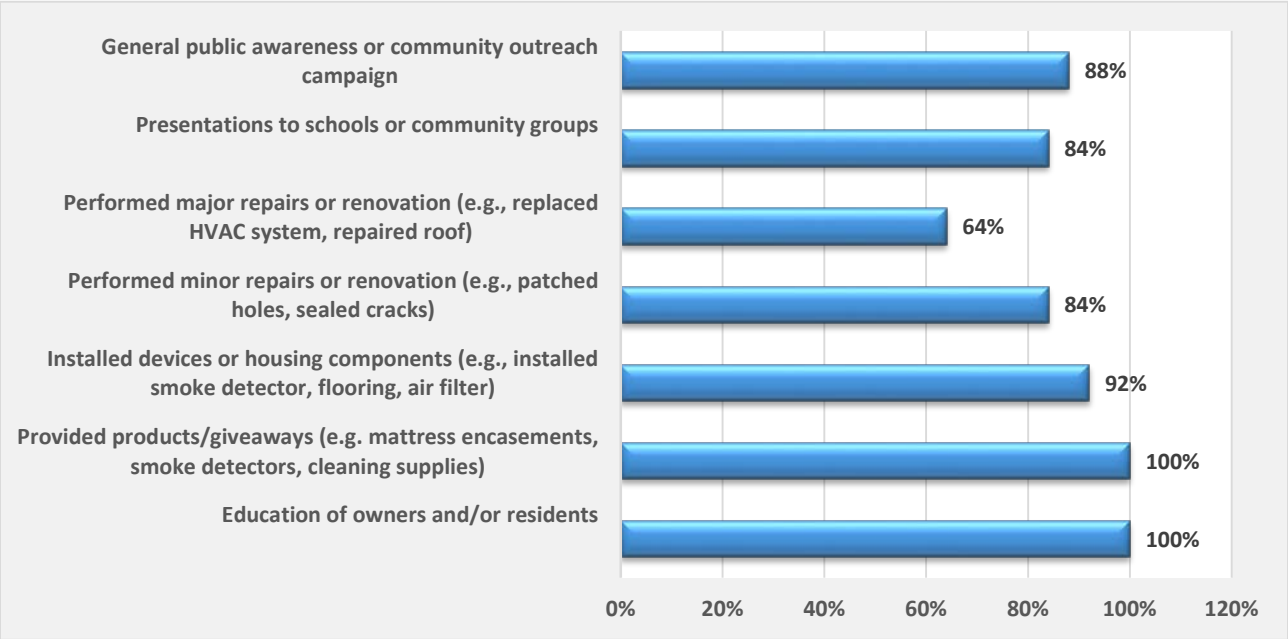


*Note: Percentages do not total 100%. Grantees could independently report whether they conducted the baseline and/or the follow-up assessment.

SUMMARY OF HOUSING INTERVENTIONS AND INTENSITY

Grantees were asked to identify specific activities they routinely conducted as part of their intervention process. As shown in Figure 3, all grantees reported both education and providing products and giveaways as interventions (100%), with installing devices or housing components the second most frequently used intervention (92% of grantees). The vast majority (84%) also performed minor repairs or renovations and a majority (64%) performed major repairs or renovations. Once the work began at a single housing unit, it commonly took within one week (28%) to within one month (24%) to complete all interventions.

FIGURE 3: INTERVENTION STRATEGIES (N=25)



Grantees most frequently characterized their interventions as moderate in intensity. In particular, Integrated Pest Management (IPM), asthma trigger control and education, and mold and moisture control were the most commonly cited interventions within the category of moderate intensity.

TRAINING

Grantees reported training a mean of 6.1 of a possible 10 categories of individuals or groups, with a range of three to 10. The groups most frequently trained were grantee or partner staff (92%), residents/tenants (72%), and property owners and remodelers/contractors (64%, respectively). Code inspectors were the least likely to be trained by grantees (48%). This survey did not ask grantees to estimate how many individuals in total received training.

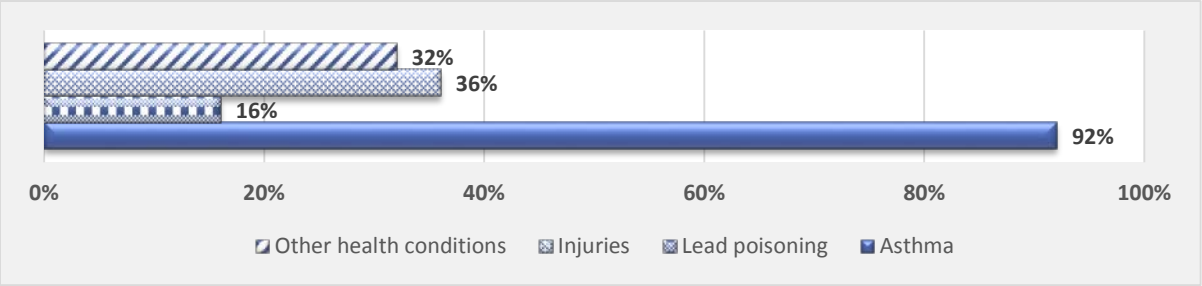
GRANT OUTCOMES

All the housing conditions for which grantees assessed change pre- and post-intervention showed high levels of improvement. The housing conditions where most grantees reported improvement between baseline and follow-up were: 1) mold and moisture (100%, N=21), and other Indoor Air Quality issues (100%, N=12); 2) asthma triggers and pest control/IPM (95% each, N=21); 3) carbon monoxide (94%, N=16) and injury and safety (94%, N=16); and 4) physical comfort (92%, N=12).

Although fewer grantees applied tests of statistical significance to these housing condition changes, those who did tended to find the improvements statistically significant.

Changes in asthma-related health outcomes were most likely to be tracked by grantees (92%). Far fewer grantees reported assessing changes in other health outcomes pre-post intervention. (See Figure 4.)

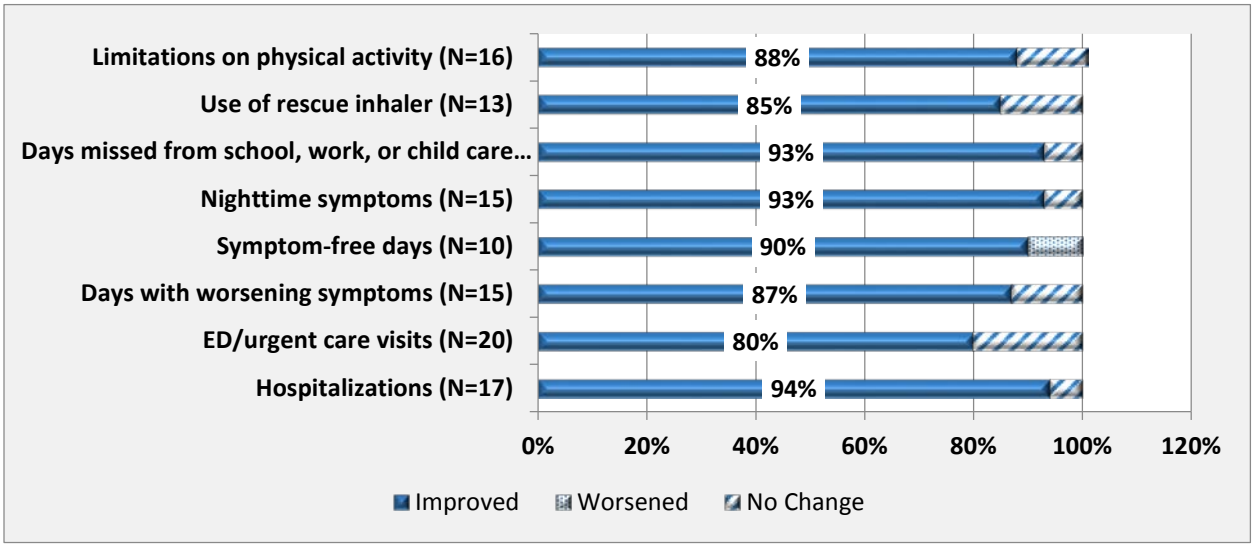
FIGURE 4: PERCENT OF GRANTEES THAT ASSESSED HEALTH OUTCOME MEASURES, PRE-AND POST-INTERVENTION (N=25)*



Of eight specific asthma outcomes, over 80% of the grantees that assessed these symptoms post-intervention reported improvement in each of these indicators. (See Figure 5.) (Appendix 3 illustrates the variety of measures and time frames grantees use to assess change within these eight asthma outcome indicators. It includes information from the survey and also from grantee final reports.)

While many grantees reported improvements in asthma outcomes, fewer provided information on the magnitude of the change, or whether they examined the statistical significance of these changes. Those who did, however, generally reported the changes as statistically significant at the $p<0.05$ level or below. (See Figure 5.)

FIGURE 5: PERCENTAGE OF GRANTEES THAT ASSESSED ASTHMA OUTCOMES, PRE- AND POST-INTERVENTION



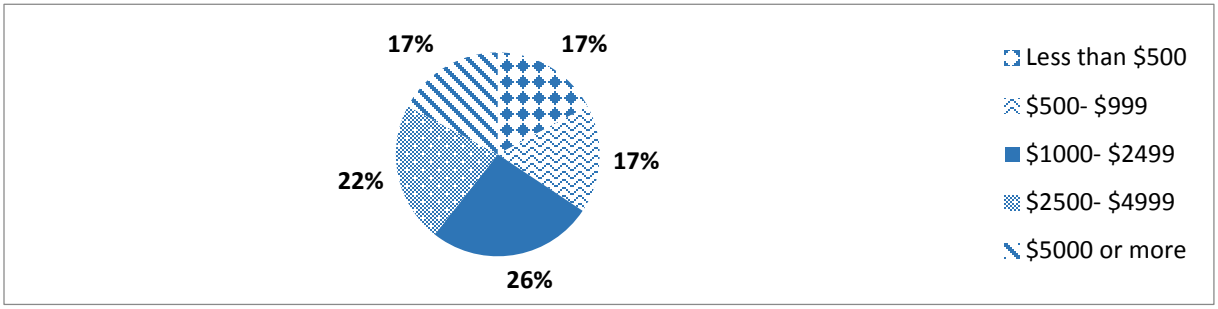
Several grantees (16%, N=4) reported data on health services related to lead poisoning. However, their cumulative impact is striking: a total of 422 children needed blood lead screening, resulting in the identification of 81 with elevated blood lead levels between 5-9 µg/dl or above, 27 with elevated blood lead levels of 10 µg/dl or above, nine in need of case management services, 32 who needed temporary relocation, and two who needed permanent relocation.

In general, grantees reported improvements in health outcomes related to injury prevention, but many of these were not statistically significant, most likely related to insufficient sample sizes. (See Appendix 2, Table 6.B.) Seven grantees reported on other health outcomes, with most focused on some aspect of allergies or other respiratory conditions. Statistically significant improvements were reported by at least one grantee for child and adult physical health.

COSTS

The majority of grantees who could provide information on the mean cost per unit for all interventions spent less than $2,499. (See Figure 6.)

FIGURE 6: ESTIMATED OVERALL COST PER UNIT FOR ALL PHYSICAL INTERVENTION AND CLEARANCE ACTIVITIES, BY GRANTEE (N=23)



*Note that the survey required that average costs be presented as ranges.

Grantees were also encouraged to provide data on the minimum and maximum costs for six specific categories of interventions. Far fewer could provide these data. (Only five grantees reported efforts to assess the cost-effectiveness of the interventions, but their commentary suggests that the interventions selected cost two to four times less that the costs to provide health care services

LESSONS LEARNED AND CONCLUSIONS

OVERALL PROGRAM STRENGTHS AND CHALLENGES

Grantees could rate up to 10 items as the strongest or most effective features of their programs. All rated collaboration and partnerships as one of the most effective features, with educational approaches, ability to identify high-risk population targets, and the housing interventions selected as the next most successful features (80%, 72%, and 60%, respectively). They could rate up to 14 items as challenges, and indicate the severity of that challenge (e.g., not a challenge, sometimes, or frequently a

challenge). Cost constraints represented the most frequently mentioned challenge, with 80% of grantees rating this as sometimes or frequently a challenge, followed by resident fears of landlord repercussions (72%), obtaining consent of the property owner and meeting timeframes (68%, respectively), and getting landlords/owners to do work and getting access to the unit itself (64%, respectively). Activities least likely to be a challenge included relocating residents (80% of grantees rated this as not a challenge), obtaining a timely environmental review (76%), or changes in the target area or population (68%). Fewer grantees (N=22) answered the question of whether they encountered a challenge that they couldn't overcome, with 41% indicating that they faced such situations. The most commonly insurmountable challenges mentioned included running out of funds or inability to spent all the funds awarded, absentee landlords, more interest in the program than they had funds to serve, Davis-Bacon requirements, inconsistent participation by partners or sub-grantees, and housing units that were too deteriorated to serve with program funds.

The majority of the 25 grantees reported a need for additional funding, with 68% reporting a need for more federal funding, and 60% reporting a need for more state, local, or other funding. Grantees' success in obtaining additional funding ranged from 32% (N=8) for local or other funding; 12% (N=3) for state funding, and 20% (N=6) for federal funding.

BEST PRACTICES

Community Education and Outreach: Grantees rated the following strategies as most effective: 1) visits to health care providers (67%); 2) visits to parent or community groups (52%); and 3) mailings to community groups (48%).

Recruitment: Grantees emphasized the need to gain resident trust, address resident fear of landlord repercussions, retain clients, and overcome landlord resistance to participation in grant activities and provided a number of specific strategies.

109,169 individuals were reached through community awareness activities, over and above those reached through recruitment or enrollment efforts.

Partnership Development: Almost all of the grantees (96%) formed new partnerships and close to half of the grantees (40%) formed more than six new partnerships. Recommended strategies to promote effective partnerships include 1) improving the referral process between agencies through use of electronic or faxed referrals and joint case management meetings; 2) conducting joint visits with the partner agency, especially if cultural issues could be barrier; 3) assuring a coordinated delivery of services through performance contracts; and 4) standardizing training across agencies.

Assessment and Interventions: Grantees highlighted the need to collect only the data that the program can use, to plan for delays in program start up when Institutional Review Board reviews are needed, to use electronic tools in the field, and to use tested and validated tools. Building a team of qualified contractors, linking education to observable behavior changes at each home visit, and knowing when to walk away from a project were important take-away messages about planning and executing interventions.

SUSTAINABILITY

Program sustainability involves many concepts. In this survey, grantees discussed whether tools or procedures they developed remain in use, staff received training, organizational changes were made to increase effective service delivery, and additional regulatory or administrative support and funding were needed and obtained. In general, grantees reported considerable success in maintaining components of the infrastructure they developed for healthy homes programs after their grant ended.

At the time of the survey, over 70% of the grantees reported that the tools or procedures that they developed or adapted for their programs were in use by their program or others after the grant ended. Grantees reported a mean of 3.7 tools still in use, with a range of one to 8. Those most commonly in use were the educational materials (85%), visual assessment (78%), training curriculum (77%), and partnerships (74%).

The majority of grantees also reported that they made organizational changes to deliver their services effectively, but 50% reported more changes were needed.

Grantees could report whether they still needed, and whether they had obtained, any of eight legislative or regulatory actions since their grant ended. Of the 25 grantees, 60% reported they did not need additional legislative authority. Fewer reported a need for policy changes (48%, N=12) or a need for additional Memoranda of Understanding between agencies or organizations (44% N=10). Those who reported a need for these authorities had varied success in obtaining them, ranging from 4% (N=1) that obtained legislative authority to 32% (N=8) that executed new MOUs.

CONCLUSIONS

Grantees believed that the HHD grants should be returned to a separate grant category, rather than as an adjunct to the Lead Hazard Control Grants (see Appendix 2, Table 8.A). Among the factors that they cited to support this position were:

1. The need for continuity of healthy homes services. Many communities may not need a lead hazard control program, but do require asthma- and injury-related interventions.
2. The need for continuity of partnerships, materials, and training. The effort to train staff to assist with asthma- and IPM-related interventions is initially costly. Once these staff members are trained, however, they can be deployed in other programs. Without sustained funding, the mechanisms to achieve these partnerships are difficult to build and support. Several grantees observed that their programs closed once grant funding ended.
3. The ability to support requests for Medicaid reimbursement of services. The available funding for healthy homes activities under the Lead Hazard Control grants is not sufficient to show the costs and benefits of medical management and home visiting, as well as efforts to justify inclusion of certain equipment, such as air cleaners, and medical devices.

Their contributions to the overall improvement in housing outcomes, and the benefits to resident health, make a compelling case that this grant funding has been well spent. Among these benefits are:

1. Relatively low-cost interventions;

2. Demonstrated ability to leverage federal funding with other sources, thus building capacity and ensuring that communities' support for healthy homes interventions will grow in the future;
3. Rigorous methodology to demonstrate that housing conditions improved following Healthy Homes-related interventions;
4. Documented improvements in the health of individuals served by the grantees, especially in the area of asthma outcomes. This supports the message that health care costs can be reduced through changes to the home environment; and
5. Eight core asthma outcome measures identified in the survey, as well as the other measurement tools grantees developed, provide the basis for standardizing future performance measures;
6. Clear evidence that grants have contributed to the goals of the Federal Interagency Working Group's *Advancing Healthy Housing: A Strategy for Action.*