

OFFICE OF HEALTHY HOMES AND LEAD HAZARD CONTROL



**OHHLHC Performance Report
End of Fiscal Year Report
FY 2003**

November 2003



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, D.C. 20410-3000

OFFICE OF HEALTHY HOMES
AND LEAD HAZARD CONTROL

November 28, 2003

MEMORANDUM FOR: Office of Healthy Homes and Lead Hazard Control Grantees

FROM: David E. Jacobs, Director

SUBJECT: Fiscal Year 2003 4th Quarter Grant Programs Performance Report

We are pleased to transmit to you the Grant Programs Performance Report for the 4th quarter of fiscal year 2003. This report details accomplishments toward achieving the Office of Healthy Homes and Lead Hazard Control's (OHHLHC) key performance goals. This information has been compiled from grantee quarterly and final reports, as well as Government Technical Representative (GTR) monitoring activities. The report includes activities occurring through September 30, 2003.

These quarterly reports are part of our overall strategy to refocus our collective efforts and attention toward achieving results and sharing successes. This is the third report we have issued and we are continually refining the data and analyses contained herein. In doing so, we hope to provide you with a better understanding of our programs' overall performance as well as individual grantee performance. We also will highlight good performance and areas of concern, with the intent of elevating everyone's performance and ensuring success.

Grant Programs Performance Report: End of Fiscal Year 2003: Office of Healthy Homes and Lead Hazard Control

OFFICE OF LEAD HAZARD CONTROL: LEAD HAZARD REDUCTION SUMMARY

FY2003 Funds.					
2003 Appropriation	Enacted \$176,000,000		FY03 Obligations \$176,000,000		FY03 Outlays \$90,270,091
PROGRAM	FUNDS AVAILABLE	APPLICANTS	FUNDS REQUESTED	GRANTS AWARDED	AVERAGE GRANT \$
Healthy Homes Demonstration	\$5,000,000	58	\$53,113,563	7	\$714,300
Lead Technical Studies	\$3,000,000	11	\$4,321,626	6	\$500,000
Healthy Homes Technical Studies	\$2,000,000	24	\$11,957,999	4	\$500,000
LEAD Outreach	\$2,200,000	19	\$7,974,228	6	\$400,000
LEAD Hazard Control Grants	\$102,984,013	69	\$171,287,837	41	\$2,500,000
LEAD Hazard Reduction Demonstration	\$49,675,000	33	\$103,268,715	20	\$2,300,000
Operation LEAP	\$9,935,000	14	\$20,972,447	7	\$1,400,000
TOTALS	\$174,794,013	228	\$ 372,896,415	91	

OHHLHC Accomplishments

Lead Hazard Control Grant Program. The Lead Hazard Control Grant Program made 9,098 housing units lead safe, over 20 percent greater than our goal of 7,600 units. A review of our production data for the fiscal year indicated that our annual production increased 13 percent from fiscal year 2002 and is the highest production in a fiscal year since the inception of the grant program. Cumulatively, the Lead Hazard Control Grant Program has made 53,342 housing units lead safe and has tested over 87,228 units for the presence of lead-based paint and lead-based paint hazards. The program also helps to make many more units lead-safe through public education, training and other outreach activities.

Healthy Homes Initiative. The Healthy Homes program assessed more than 4,203 units and completed interventions in 1,176 units. Over 424,000 individuals have been reached through Healthy Homes' projects and over 2,600 individuals have been trained in the assessment and mitigation of healthy homes hazards. The Healthy

Homes Program awarded an additional eleven cooperative agreements and two interagency agreements in FY 2003, bringing the cumulative total to 52 cooperative agreements and 9 interagency agreements awarded since the inception of the program and far exceeding the goal of 26 cooperative and interagency agreements.

Lead Safe Housing Rule Compliance Assistance for Multifamily Housing. We exceeded our goal of 100 properties by conducting field work in 127 properties for lead-based paint inspections/risk assessments requested by owners of pre-1960 project-based Section 8 properties receiving significant assistance.

Enforcement. OHHLHC, through its enforcement of the Lead Disclosure Rule, partnered with the Office of General Counsel, Environmental Protection Agency, and the Department of Justice, to complete seven Consent Decrees, which netted \$83,000 in Civil Money Penalties and donations of \$63,000 towards Child Health Improvement Projects. Additionally, 8,300 units will be made "lead safe" due to enforcement of these settlements.

Program Management. The OHHLHC developed benchmark production and expenditure standards to assist in determining the necessary technical assistance needed to improve performance, to assist grantees in establishing quarterly milestones for major tasks and activities, and to track conformance to schedules. The established benchmarks are critical to the grant programs' success because they provide consistency and uniformity for data collection, tracking, reporting, and analysis, and are tied to achieving a grantee's work plan objectives. The OHHLHC developed a Grants Management Desk Guide to assist OHHLHC staff to ensure

the successful implementation of grantee program activities; to promote and ensure grantee productivity and accountability; and to evaluate grantee organizational and project performance. In addition, we developed a Grant Programs Performance Report that details accomplishments toward achieving the Office of Healthy Homes and Lead Hazard Control's (OHHLHC) key performance goals. This information has been compiled from grantee quarterly and final reports, as well as Government Technical Representative (GTR) monitoring activities. These reports are available at: <http://www.hud.gov/offices/lead>

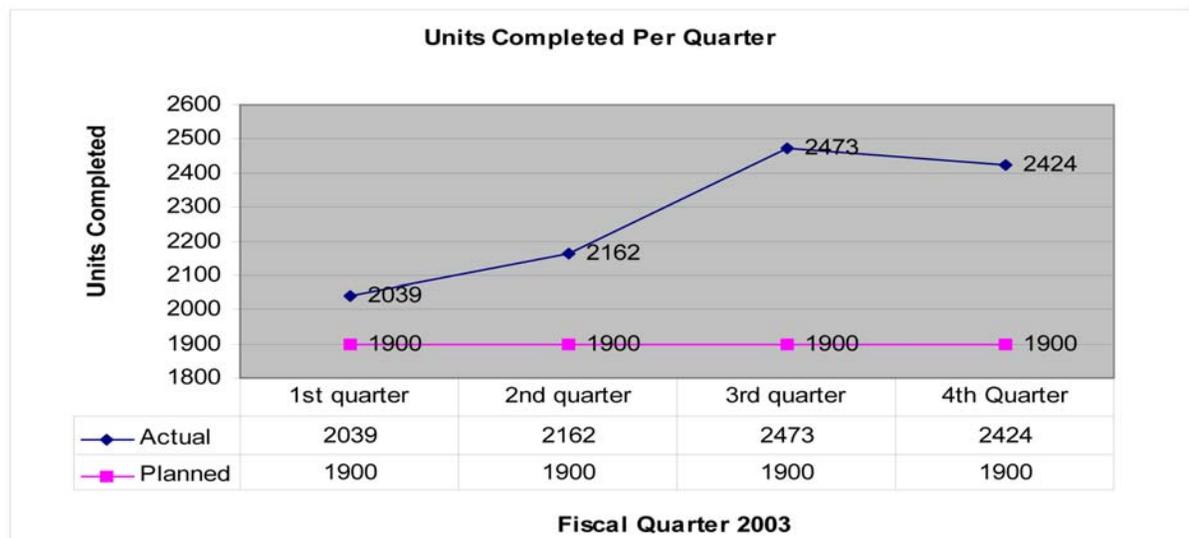
LEAD HAZARD CONTROL GRANT PROGRAM

Results - Goals

For the 4th reporting quarter, 2,424 units were made lead-safe. Since this quarter marked the end of the annual reporting cycle, for fiscal year 2003, the Lead Hazard Control Grant Program made 9,098 housing units lead safe, over 20 percent greater than our goal of 7,600 units. A review of our production data for the fiscal year indicated

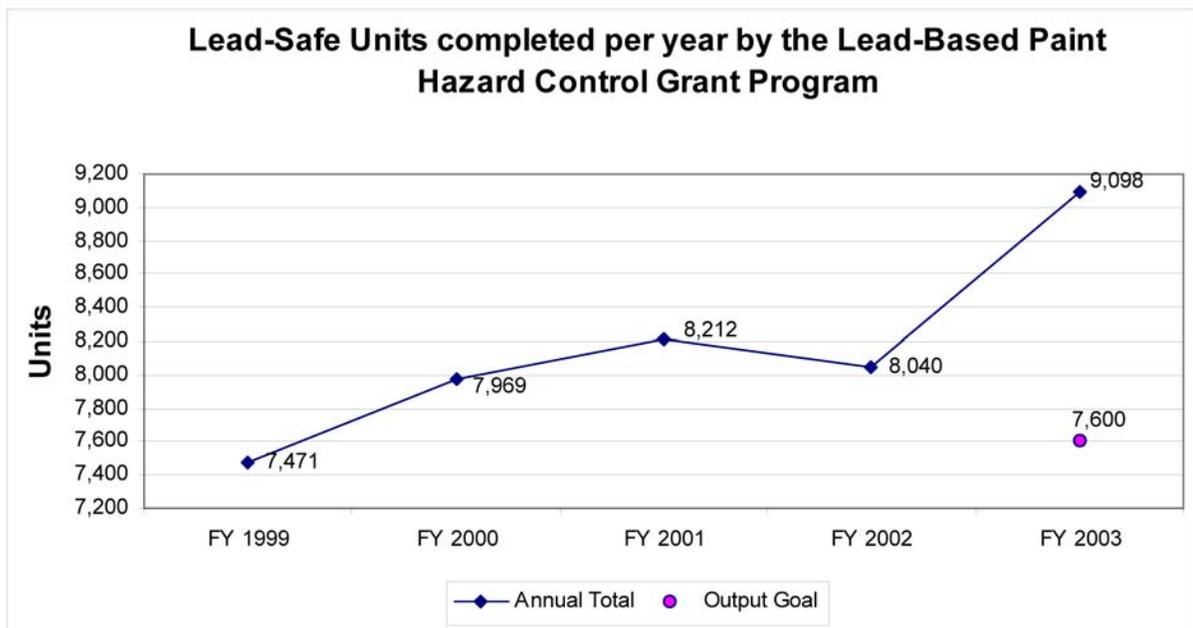
that our annual production increased 13 percent from fiscal year 2002 and is the highest production in a fiscal year since the inception of the grant program, reflecting the fact that appropriations are also the highest levels ever. Cumulatively, the Lead Hazard Control Grant Program has made 53,342 housing units lead safe and has tested over 87,228 units for the presence of lead-based paint and lead-based paint hazards.

QUARTERLY MEASURE



ANNUAL MEASURE

Measure	Fiscal Goal Planned	YTD Actual	Variance	Status
Number of housing units made lead-safe	7,600	9,098	+ 20%	Above goal



Discussion

We continue to implement improved performance standards and provide increased technical assistance. A review of our production data for the fiscal year indicated that our **annual production increased 13 percent** from fiscal year 2002 and is the highest production in a fiscal year since the incep-

tion of the grant program. An assessment of the quarterly data indicates a maturing and refinement in the development and use of our monitoring tools, evaluations, and activities. Nearly 82 percent of grantees are on track to meeting their work plan goals by the end of the calendar year.

An analysis of active grant rounds is provided below.

Grant Round	Fiscal Year	Units in 3-Year Grant Agreement	Percent of Units Completed
8	2000 (start dates ~ 2/1/2001)	7,914	90%
9	2001 (start dates ~ 3/1/2002)	6,616	35%
10	2002 (start dates 2/1/2003)	6,464	6%

- **Specific Lead Hazard Control Grantee Accomplishments**

Detailed grantee status production and expenditure reports for the reporting period January - March 2003 are provided in Attachment A. These reports sort grantees by funding round and by performance and are used to help us determine the necessary technical assistance needed to improve performance and to track planned milestones for major tasks/activities against actual performance. Specific program accomplishments during the fourth quarter of FY 2003 (July 1 - September 30, 2003) include:

- ◆ **National/Local Capacity Building**

Availability of Contractors: The Lead Hazard Control Grant Program has stimulated the creation of a large cadre of competent contractors and trained workers. This quarter alone grantees have trained, or sponsored training of 4,735 individuals. This training ranged from Lead Abatement Worker and Supervisor training courses, refresher training for lead contractor/supervisor license renewal, lead-saferenovator training to contractors and landlords, loan or other incentive programs available to contractors, including grant funds to assist with EPA training and licensing, and medical screening fees, and Lead-Safe Work Practices training for property owners and contractors.

Several grantees have made this mandatory for participants and it has proven to be an incentive for contractors to become eligible to bid on projects.

Local Capacity Building: The Lead Hazard Control Grant Program has created in-house expertise in over 250 justifications across the country. A sample of activities conducted by grantees during the 4th quarter included:

- Salt Lake Valley Community College completed its first section of training on Construction Trade and Environmental Health/Lead Based Paint Training. Twenty-two individuals were enrolled. (Salt Lake County)
- Training is ongoing for Promotoras conducting door-to-door canvassing, to ensure applications are accurate and complete. The Promotoras have been provided with checklists of critical information to be provided to each contact. The lists will be a series of informational bullets specific to tenants, landlords and owner-occupied applicants. This will further ensure that applicants have the required information to make decisions on program participation and will reduce the potential for cancellations. (San Diego Housing Commission)
- The Environmental Health Program Director discussed lead safe work prac-

- tices and the funding made available through the HUD Lead Hazard Control Program with over 100 individuals attending a home ownership class offered by the Hill Development Corporation. This community development corporation sponsors an ongoing class for low and moderate income families to learn how to become homeowners. (New Haven)
- The LSS program co-sponsored the Ohio Lead Conference in Dayton Ohio for 120 participants. The conference was run by the Help End Lead Poisoning organization. Continuing education credits were given to social workers. Other co-sponsors included the Ohio Center for Disease Control, Lead Safe Columbus, and the Montgomery Co. Dept of Community Development. (Springfield, Ohio)
 - The Division of Public Health staff provided free one-day refresher training for 67 certified lead risk assessors who work for public sector housing and health agencies. The training was provided at 4 separate locations around the state. (Wisconsin)
 - LeadSafe Charlotte provided outreach training for the Grier Heights Economic Foundation staff and volunteers for the 2003 Grier Heights Home Coming Event. The Grier Heights volunteers distributed LeadSafe Charlotte packages containing program applications, memo boards, immunizations calendars, and other information to the more than 600 current and former residents of the Grier Heights community who attended the event. (Charlotte)
 - The Institute for Environmental Education, a sub-grantee partner, successfully trained 70 low-income Greater Lowell residents. The certificates included lead worker, lead safe renovator and lead supervisors. The Lead Worker class offered in Spanish had the highest enrollment. (Lowell)
 - Grantee staff assisted a local environmental firm in Phoenix with its supervisor certification training. The grantee presented information on occupant and worker protection, project management, job planning, supervisor communication, job cost estimation, regulatory agencies, the role of consultants, equipment, and abatement and interim control strategies.
 - ◆ **Development of Comprehensive Community Approaches**
 - Collaborative Partnerships:* The Lead Hazard Control Grant Program has stimulated the effective collaboration of local health, housing, and community development agencies as well as local faith-based and community-based organizations and groups of parents of lead poisoned children. Quarterly grantee accomplishments included:
 - The grantee told all mayors and township supervisors in the target areas it will pay for lead inspector certification for two housing code inspectors. The intent is to create housing codes that will address lead hazard issues and create lead safe housing. (St. Clair County)
 - The program has an on-going relationship with the Rental Housing Association of Alameda County (RHANAC) whereby the grantee provides the HUD-approved lead-safe work practices course free to the RHANAC's property owner members and maintenance crews. In turn, RHANAC regularly promotes the course

through its newsletter and flyers. Program staff regularly attends monthly RHANAC meetings, staffing an information table, and making presentations to RHANAC members about keeping properties lead-safe. Information is also provided on Program services as well as state and federal lead regulations, including Title X. (Alameda County)

- The grantee continues its collaborative relationship with the City's Department of Neighborhood Services (DNS) to provide training for landlords. The DNS Landlord Training Program invited the grantee to present a primary prevention/lead-safe maintenance and repair training for a Spanish-speaking audience. (Milwaukee)
- The grantee in partnership with the City's Housing Rehabilitation Program hosted a workshop entitled "Safe and Simple Home Repairs" to instruct and provide homeowners with the assistance and information needed to properly maintain properties. The workshop included hands on demonstrations by rehab and lead certified specialists. (Richmond)
- The program provided a Lead Safe Work Practices training for a local non-profit organization, Rebuilding Together Riverside, which provides volunteer-driven housing rehabilitation for low-income families in Riverside. This workshop trained 6 volunteers and staff to conduct rehabilitation activities in a lead safe manner. (Riverside, CA)
- The City and the Center for Disease Control collaborated to convene a two-day Town Hall meeting to devise strategies to eliminate childhood lead poisoning in the City of Detroit by 2010. The

forum provided a valuable opportunity for agencies dealing with lead issues to network with each other and governmental and non-governmental lead prevention advocates. Guest speakers at the meeting included the Mayor of the City of Detroit, the Chief of the Childhood Lead Poisoning Prevention Branch of the National Center for Environmental Health and consultants from the National Center for Healthy Housing. These experts will provide technical assistance as a comprehensive strategic plan to eradicate childhood lead poisoning in Detroit is developed. The Strategic Plan will address seven critical areas for lead poisoning elimination in Detroit, including universal testing, primary prevention, education and outreach, code enforcement, housing, funding, and legislation. (Detroit)

Public Education/Outreach: Quarterly grantee accomplishments included:

- GIS Mapping capability was used to identify neighborhoods that have the highest concentration of children age 6 and younger and the greatest number of homes built prior to 1978. Staff was assigned to canvass each neighborhood, targeting the neighborhoods at greatest risk. To date, this effort has generated 14 applicants and the canvassing is ongoing. (Rocky Mount City)
- Radio and cable television spots were run over an eight week period on KISS 97.9FM and BOB 102.5 and on Adelphia Media Services on MTV, Lifetime, BET and Nickelodeon. The target audience was families with young children who own homes built before 1978. (Utica)
- The "Storyboard Exhibit," an interactive tool that attracts children and parents,

was set up during school registration for eight city schools that offer pre-K classes. This allowed parents of target age children to learn about lead hazards and the program. (Lynchburg)

- All area superintendents granted permission to the grantee to send home LBP applications with students at school. This has been a very effective method of parent awareness. (Grand Gateway)
- The grantee co-developed the "Pregnant Program" whereby pregnant women who utilize the Health Department's Visiting Nurse Program complete a Lead-Risk Questionnaire. The questionnaire is then forwarded to the Health Educator, who contacts the pregnant individual and explains the process of coming to her home to check for lead to assure she and her unborn child are lead-safe. The majority of these women live in a rental homes, giving the Educator the opportunity to provide the landlord with lead information on how to make the property lead-safe. (St. Louis County)

- The Lead Report is a newsletter designed to provide current information on lead poisoning to the medical community serving Milwaukee. A new issue was developed this quarter and will be sent out to 760 medical providers mid-December, 2003. (Milwaukee)

◆ **Economic Opportunities for Low-Income and Minority Residents**

Economic Opportunities: The Lead Hazard Control Grant Program is creating economic opportunities for low-income residents of target areas all over the country. Quarterly grantee accomplishments include:

- Completing lead-based paint worker training for 1,815 low to very low-income individuals and employed 139 as a result of this training.

For more information, visit the lead hazard control program web site at:
<http://www.hud.gov/offices/lead/lhc/index.cfm>

HEALTHY HOMES GRANT PROGRAM

Results - Goals

To achieve HUD's strategic goal of developing safe and affordable housing, the Healthy Homes Initiative will make operational 26 grants/cooperative agreements for FY 2003. We made a total of 12 Healthy Homes Demonstration and Technical studies grants operational in the second quarter and executed 7 Healthy Homes Demonstration and 4

Healthy Homes Technical Studies grants in the fourth quarter. To date, we have awarded \$39.4 million to 52 grantees in 21 states, positively impacting the lives of tens of thousands of young children. More than 85% of Healthy Homes grantees are achieving work plan objectives within the schedule proposed in their application.

Measure	YTD Planned	YTD Funded	YTD Operational	YTD Reporting Progress	Status
Number of operational grants/cooperative agreements funded by the Healthy Homes Initiative Program	26	52	45	34	Above plan

¹Of the 52 grants that have been funded, 7 grants have been close out.

Discussion

Healthy Homes grant activities continue to identify ways to prevent or reduce the severity of childhood health problems, such as asthma, lead poisoning, and unintentional injuries, related to substandard housing conditions. Healthy Homes demonstration projects develop protocols (e.g., visual assessment, cleaning, interventions), develop instrumental methods, provide educational materials for children and adults, produce websites, and build capacity (training community health workers, interns, residents, and grantee staff) to carry out healthy homes assessments and interventions. Core programmatic elements of the Healthy Homes grants include:

- **Method Development** of assessment tools and intervention protocols to identify and repair housing-related hazards and evaluation of the effectiveness of these protocols;

- **Capacity Building/Training** for “high performance” housing that is energy efficient, durable, sustainable, and healthy and safe for occupants;
- **Assessment** of housing-related health and safety hazards that pose risks to the health of residents, particularly children in low-income families;
- **Interventions** to correct these hazards, together with an evaluation of the effectiveness of these interventions;
- **Education/Outreach** about healthy homes issues to individuals and the general public.

Healthy Homes grantees are successfully performing assessments and interventions, as well as providing Healthy Homes information to residents, property owners and construction professionals. A summary of achievements, and cumulative totals is provided in the table below.

Performance Element	4th Quarter	To Date
No. of Clients Contacted	26,594	61,643
No. of Clients Enrolled	335	2,800
No. of Units Assessed	376	4524 ¹
No. of Interventions Completed	256	1,326
No. of Individuals Trained	654	6,147
No. of Individuals Reached	57,216	444,101

¹This number exceeds “No. of Clients Enrolled” because it reflects projects that carry out assessments prior to enrollment as a criterion for enrollment. In a number of cases, results of the assessment indicate that a unit is not appropriate for enrollment in the project.

Some highlights and outcomes of Healthy Homes Grant Program during the 4th Fiscal Quarter 2003 are presented below:

- **Method Development**

Healthy Homes grantees are developing and validating assessment methods that include resident questionnaires, visual assessment, and environmental assessment (sampling and analytical methodologies).

St. Louis University traveled to Research Triangle Institute, Raleigh, NC and later to the University of Georgia and conferred with scientists who have done work inoculating and harvesting fungi on carpet. Several new methods were adopted for testing, including ASTM D6329, "Static Chamber testing" and AATC 147-1998, "Antibacterial Activity Assessment of Textile Materials: Parallel Streak Method." This grantee acquired supplies to evaluate these approaches for fungal inoculation and performed several experiments on inoculation of fungi into carpet. After trying a number of approaches, the project team successfully grew xerophytic fungi on carpet. The team found that the number of colony forming fungal units was highest for the finest dust fraction. A variety of fungi were isolated from composite dust. These included *Aspergilli*, *Alternaria group*, *Aureobasidium*, *Cladosporium sphaerospermum*, *Eurotium*, *Fusarium*, *Penicillia*, *Wallemia*, yeasts and *Zygomycetes*. The fungal diversity and recovery were highest in samples cultured by direct plating on DG18.

Tests at **St. Louis University** established that benzyl benzoate works effectively as an acaricide when incorporated with a carpet shampoo at levels of 0.5 to 1.0 gram per meter square (g/m^2). Permethrin also shows some efficacy against house dust mites, but was found to be less effective than benzyl benzoate at the level tested

($1.0\text{g}/\text{m}^2$). However the inclusion of the formulating agent butoxy ethanol appears to improve its efficacy. The third chemical tested, etoxazole, did not show a significant increase in efficacy against house dust mites over the control at the level tested ($1.0\text{g}/\text{m}^2$).

Columbia University's Mailman School of Public Health completed the purification of all fungal EPS and raising antibodies to the fungal EPS. However, the first 80 dust samples assayed for *Alternaria* and *Cladosporium* only had one detectable measurement. Because *Alternaria* and *Cladosporium* are ubiquitous, the team decided to re-purify the fungal EPS species and re-immunize rabbits to develop assays which detect the type of *Alternaria* and *Cladosporium* that is more common in housedust samples.

University of Medicine and Dentistry of New Jersey used surface wipe and canister vacuum methods to collect dust for analyses of lead, pesticides and dust mite allergens. The wipe method is the common method used for lead dust and will be used on carpet surfaces for this study. The canister vacuum method was developed by the Environmental and Occupational Health Sciences Institute, and has been shown to generate reliable results.

Harvard's School of Public Health has focused on validating spirometry data. The spirometry instrument requires manual entry of data such as date, height, weight and age, and this information is being compared to intake and outtake data to determine that it is consistent, correct any errors and adjust readings accordingly.

- **Capacity Building/Training**

In Quarter 4 Healthy Homes grantees trained a total of 654 individuals, including owner-

occupants, property owners, remodelers, contractors, enforcement officials, grantees and partner staff. Information about training activities in specific Healthy Homes grant projects is presented below.

The **City of Milwaukee** coordinated with the National Center for Healthy Homes to provide training to the Project Coordinator and the Environmental Health Specialists on the protocol for environmental assessment in the enrolled properties. The team examined protocols for filling out the baseline structural condition form, HH Hazard Checklist, sketch, Environmental Intervention Summary, Lead Dust Wipe Sampling form, and the allergen vacuuming sample form.

Healthy Homes Network is in the process of signing a Memorandum of Understanding with the Housing Authority of Kansas City to open a Resource Center on site, provide general “healthy homes” training as well as specialized training, and recruit residents of public housing, Section 8 housing, welfare-to-work, and self-sufficiency programs to participate in this grant. This grantee continues to work with the Minority Contractors Association (MCA) to develop an apprenticeship program for Full Employment Council graduates.

Harvard has trained Community Healthy Advocates as Integrated Pest Management assistants, and with funding from EPA, has been able to provide four home visits to families and other interested residents to support resident efforts to control pests. With this expanded follow-up, families receive one-on-one education about pest management, home assessments, help with cleaning and organizing, assistance with completing work orders for maintenance, and training on expectations for pest contractors.

Duke University organized and hosted the first Durham County Lead Intervention

Strategic Planning Session. This meeting brought together representatives from organizations working on lead projects in Durham County to create a collaborative and integrated plan for Durham's lead poisoning prevention program. Members from Durham CAN (Congregations, Associations, and Neighborhoods), PEACH (Partnership Effort for the Advancement of Children's Health), the Durham Affordable Housing Coalition, the Durham County Department of Housing and Community Development, and the Durham County Health Department participated in the meeting. The planning session resulted in the creation of a framework for a Durham County lead poisoning prevention action plan, as well as the creation of work groups to research and discuss the logistics of the plan. Dr. Miranda and Jeff Davis, Project Manager, also met with leaders of the Plum Street Community as part of the Durham County Lead Poisoning Prevention Program.

The **City of Phoenix** participated in a Head Start Regional Focus Group hosted by the City of Phoenix, Human Services Department to characterize the strengths and needs of the community and focus on needs of children for Head Start's community needs assessment.

Child Abuse Prevention Council developed an Access database and Excel spreadsheets to be used by the independent evaluator and project staff to accurately track critical grant data. The tracking spreadsheet records training information including: date, location, county, workshop title, trainer name, intended audience, and number of participants (broken down by family resource center staff, home visitors, parents/adult caregivers, and child care providers). Another spreadsheet logs Healthy Home Recording Charts by date received,

agency, county where home visitor works, and number of homes visited. This chart was developed to track long-term outcomes, which are the changes in behavior by parents and guardians when they apply the lessons taught to them by their home visitor or other family support staff. The evaluation gathers this information from home visitors who are actually present in the home and are able to verify that the parents applied the new knowledge about prevention to their own environment.

The **City of Stamford's** Breath of Fresh Air Asthma team received an award from the National Association of County and City Health Officials (NAHCCO) for its innovative Asthma Program. The program was recognized as a "Model Practice," a program, resource, initiative or tool that demonstrates exemplary and replicable qualities in response to local public health need or in support of the practice of local public health.

The **Boston Public Health Commission** (BPHC) will partner with the Asthma Regional Council, a FY 2003 Healthy Homes Demonstration grantee, to provide environmental interventions in 60 additional homes in Boston. BPHC will also provide technical assistance to Vermont to implement a Healthy Homes Program there.

The **Coalition to End Childhood Lead Poisoning** is conducting one-on-one compliance assistance trainings with rental property owners who have properties that are referred to the program. The Program meets with owners to train them on the steps necessary to become fully compliant with federal, state, and local lead laws. Full property owner packets are provided to owners at the time of their compliance assistance training or by mail. The packets include rental property registration forms, Title X Disclosure forms, sample Protect Your Family From

Lead In Your Home and other lead pamphlets, lists of Maryland certified contractors, inspectors and training providers, grant/loan program applications, tax credit brochures, and pamphlets on federal and state laws.

- **Assessment**

Healthy Homes grantees contacted 26,594 clients this quarter, enrolled 335 clients and completed assessments in a total of 376 units. Follow-up assessments and recruitment continued to be challenge for some projects. Grantees implemented new strategies to address these issues. A summary of some of the grantee activities is presented below.

Boston Public Health Commission

(BPHC) collects data through an in depth questionnaire covering lifestyle and behavioral issues related to environmental health, housing concerns and outdoor environmental issues. This is completed at a first visit and is considered baseline information. Also at this first visit, a health management and asthma symptom interview is conducted. This interview is repeated bi-monthly for up to a total of three interviews in the pre-remediation phase.

BPHC sampling has shown that dust collected from the asthmatic's bedroom at follow-up contains significantly less mouse urinary protein (MUP) than the baseline sample in sites where Integrated Pest Management was performed. Dust samples showed no significant reduction in MUP from baseline to follow-up in homes that did not receive IPM services.

The University of Alabama at Birmingham

(UAB) enlisted over 200 families as potential participants in the Healthy Homes Initiative. These families were reached through Healthy Homes presentations at 3 health fairs, one neighborhood fall festival, three churches, and one neighborhood asso-

ciation meeting. The prospect of receiving a home inspection, home education, a hazard reduction kit, and home remediation continue to serve as an incentive for enrollment.

Advanced Energy coordinated with the three participating Habitat for Humanity affiliates to ensure that the design for experimental houses was compatible with Habitat requirements. The objective of this coordination was to ensure that the process did not create scheduling delays and could be easily integrated into the existing construction sequence for each Habitat. The grantee met the challenge by extensive communication - in person and by email - to clarify expectations and understand organizational processes.

Cuyahoga County Board of Development provided in-home education on management of housing-related health issues. Staff delivered and installed allergen barrier pillow and mattress covers, low emission vacuum cleaners, carbon monoxide and smoke detectors.

Advanced Energy met with Habitat family coordinators to clarify the recruiting process and strategize roles. Habitat family coordinators will act as the first contact with potential participants, and will share fact sheets with the homeowners. Then Advanced Energy staff will attend homeowner meetings and present information about the study and sign people up or take names to provide further information

Esperanza Community Housing Corporation is testing blood lead levels for children under six years of age who live in the target census tract. Currently, St. John's is working closely with the Healthy Homes Team to connect each positive case to a household, assess that household for contamination and begin hazard control measures within the household.

Alameda County finds that property owner recruitment continues to be a challenge.

Project staff is streamlining the application process and examining other avenues for recruitment of property owners. For example, staff are meeting with managed care plans (Blue Cross of California & Alameda Alliance for Health) to discuss ways to inform their providers about the Healthy Homes project for their clients with asthma. Staff are exploring the possibility of conducting environmental education presentations to small groups of parents of asthmatic children. It appears that, as a result of delays in initiating environmental/housing interventions, enrolled clients have a tendency to lose interest in the project. Another ongoing challenge is maintaining family contact due to family availability and the high mobility rate of project clientele.

Results of assessments in **Alameda County** show the presence of dust mite allergens in most homes, elevated levels of cat allergens in a few homes, mouse urinary protein allergens in about half of the homes sampled, cockroach allergens in about a third of the homes (usually where housekeeping is substandard) and high levels of mold spores in about a quarter of the homes. Presence of mold spores in dust samples did not necessarily correspond to the units where visible mold was noted. Post-intervention samples showed that allergen levels were generally down after intervention with the exception of mold spores. In some cases the levels of mold spores increased after the intervention.

Northeast Denver Housing Center has been successful in implementing changes to increase our enrollment that include direct solicitation of asthma clients (rather than relying on doctors) and better coordination with sub-grantees, DURA and Sun Power. Project staff continue to recruit through direct marketing by putting ads in select community newspapers and hanging posters

in community locations, through doctor referrals, though work with DURA low-income homeowner rehab program, and through the lead hazard control program.

The **City of Stamford** hired a bi-lingual nurse case/manager to enable the Program to more easily reach the growing Latino community in Stamford. Because of the popularity and success of the program, the project has been inundated with requests for enrollment. To date the grantee finds that the most effective recruitment methods have involved school nurses and referrals from the Stamford Hospital Pediatric Unit. A new problem that the grantee has encountered is the presence of undocumented people from other countries who are living in dwellings unfit for an asthmatic child. An example is a basement dwelling without windows which creates inadequate ventilation for families living in the dwelling.

The **City of Stamford's** epidemiologist collects data and puts it into a database from standardized assessment tools used by the inspector and the nurse/case manager during each intervention. Results of all interventions can therefore be determined with standardized quantifiable measures. Scores are obtained in the following six assessment areas: 1. disease severity 2. degree of control 3. parental knowledge of the disease 4. child's knowledge of the disease 5. adequacy of treatment 6. household environmental trigger score

The **City of Stamford** Health Department has developed an environmental housing inspection form that includes a wide range of indoor air quality related to problems and highlights asthma triggers and risk factors. The City has already trained an in-house back-up housing code inspector in the Healthy Homes inspection protocols and has been able to use him successfully to reduce

the burgeoning backlog of home visits/inspections. This grantee has taken an active approach with Healthy Homes grant funds by combining code enforcement with public protection and building inspection to provide an indoor air quality program that can be a model for any city in the country.

Erie County is encountering major problems gaining entry to do follow up assessments of enrolled units, with rates of 28% access for dwelling unit follow up and 23% for educational follow up.

● **Interventions**

This quarter Healthy Homes grantees performed interventions in 256 units, 113 interventions were for respiratory hazards, 166 for safety hazards, 77 for lead hazards and 96 for other hazards. Specific information about the kinds of interventions that grantees facilitated is provided below.

The **University of Wisconsin** provided home safety interventions. The average number of injury prevention devices given to each family was 26 (range of 3-67), at an average cost of \$108.89 (\$106.44 median cost) per household. Not surprisingly, the main devices given to families included those to prevent access to poisonous substances, electrical outlets, stairways, and areas deemed to be unsafe for children (e.g., outdoors). The injury risk analysis identified these hazards as within the top ten risks to children in the target age group.

The **University of Wisconsin** has begun initial statistical analysis of data pertaining to home injury assessment and prevention. A statistician is generating a composite home hazard score at baseline for each unit assessed. He is also generating a second composite home hazard score at 3-month follow-up for each unit assessed. Scores for units with both visits, baseline and 3-month

follow-up will be compared. The next level will take each home and create individual room scores. The room score at baseline will be compared to the room score at 3 months. The aim of this analysis will determine which room was the greatest beneficiary of our interventions. Then, it can be determined which room was most receptive to safety interventions.

Mount Sinai School of Medicine developed a standard intervention protocol that includes hazard assessment, product distribution, training in the use of non-toxic products and cleaning techniques in order to keep the home safe and asthma trigger free. The protocol usually includes up to 5 intervention visits. At each intervention visit, the community health worker reinforces the importance of asthma trigger removal and the maintenance of safe home environment. There is an assessment and intervention for each type of hazard. An intervention is considered complete when all intervention activities for addressing the hazard are performed.

The **Boston Public Health Commission's** (BPHC) Integrated Pest Management program consists of two visits by professional pest management company for total cost of \$200. A housecleaning element is included that consists of two hours of professional housekeeping services for total cost of \$160.00. This grantee is working with three local CDCs and two for-profit managers of section 8 units, to recruit participants. Thus far about 40 eligible families have been identified and have expressed interest, but have not yet been formally enrolled or consented. The IPM contractor will treat each participating unit one to five times, depending on the level and nature of the infestation. The contractor will also work with property managers and building maintenance to point out structural issues that require remediation. Finally, the CDCs usual

IPM company will work alongside BPHC's contractor in order to learn new IPM assessment and treatment methods. Healthy Homes will conduct resident trainings at each CDC and provide an IPM "kit" to each family, which contains cleaning supplies, traps, and educational materials.

When the **City of Stamford** finds housing code violations such as broken windows, missing/torn screens, defective door locks and holes in the walls or ceilings an order is issued to the owner of the property to correct the violations found by a specific time. If the housing code violations noted were not corrected within the time allotted or the owner has not asked for financial assistance or guidance the case is then referred to the Assistant State's Attorney for prosecution. In this quarter, three owners were contacted by orders or verbal communication to eliminate housing violations found at the time of the inspection. At the close of this quarter two owners replied that the violations cited were corrected.

The **City of Stamford** provides site visit items in year one of their project that include a disposable camera, wool duster, duster brush, 11-foot medium duty tele pole, Hoover HEPA filter vacuum with dirt indicator if needed, Swiffer wet jet with 1 pack of refills, Honeywell HEPA air cleaner if needed, 40 pint dehumidifier if needed. The total cost for the items in this visit range from \$73 to \$305 depending on whether units receive a vacuum cleaner or a Swiffer and an air purifier.

Harvard continues to work with the Boston Housing Authority to implement a ventilation intervention with a subset of families. The grantee is revising the plan to provide heat recovery ventilation systems donated by Braun/Nutone for 7-10 families. Health assessment post-installation will be limited, but the grantee will collect environmental data

to evaluate changes in moisture and air-borne contaminants resulting from the installation.

The **University of Alabama at Birmingham** (UAB) is enrolling homes for its intensive cleaning program. The grantee will randomly group homes in either a “proactive” involvement group or a “passive” involvement group. There will be 50-55 homes assigned to each group. Each participant, regardless of which group they have been assigned, will receive an incentive for their continued involvement in the project. The incentive will be a \$20 gift certificate for the home cleaning and hazard reduction intervention. For each subsequent follow-up visit or phone call, the incentive will be a \$10 gift certificate. During the intervention, cleaning demonstration will involve the application of a protocol established for the Soap and Detergent Association as described in the 2001 brochure entitled “Clean and Healthy--Cleaning to Control Allergies and Asthma.” Also during this visit, a social contract will be developed to include 6 items addressing cleaning and other hazard reduction activities selected from the Home Hazard Checklists given to each family during the initial home inspection. The home cleaning and hazard control intervention will be implemented after the initial home inspection and structural remediation, if required, have been completed; and therefore, will usually constitute the last step (or the only step) in home remediation. It will be conducted at least 3 months prior to the second and final home inspection and follow-up will continue up to 6 months.

Esperanza Community Housing Corporation implemented a vacuum service to help the families that were using brooms to clean their carpets and rugs - making children sick constantly, especially those with asthma. From February 2002 to September 3, 2003 the grantee loaned vacuums to 448 families.

Northeast Denver Housing Center utilizes a five-year forgivable loan to perform interventions. For homeowners, the loan is forgiven at a rate of 20% per year for five years as long as they continue to use the home as their primary residence. For rentals, the loan is forgiven at a rate of 20% per year as long as they keep the unit affordable and prioritize it for families with children. Most owner-occupants and landlords will participate using this financing mechanism. In the cases where landlords refuse to participate, the grantee agrees to do only minor interventions (e.g. install smoke detectors, CO detector, provide a cleaning kit, etc.) or up to \$1000 worth of work.

Northeast Denver Housing Center performed interventions in a home for severe roach infestation. The grantee found several sources of water in the home including leaking plumbing, soggy subfloors in the kitchen and bathroom due to poor installation of vinyl flooring and previous flooding, and soggy shower walls due to poor tiling. Staff also found grease buildup on paneled kitchen walls that were difficult to clean. The grantee repaired leaks, replaced subfloors and flooring, retiled, removed the kitchen paneling and installed a tile splash area, and cleaned the cabinets and replaced six windows, followed by stabilizing and repainting the exterior of the house to control lead hazards.

- **Education/Outreach**

In the 4th quarter, Healthy Homes grantees reached a total of 57,216 individuals in activities that included health fairs, community events, recreational activities, presentations, radio broadcasts, conferences and exhibits. Sustainability of recruitment continues to be an issue for a number of grantees and these grantees have developed innovative strategies to address recruitment issues, as presented below.

Healthy Homes Network (HHN) is collaborating with the Kansas City Missouri Health Department and the Kansas Department of Health and Environment to provide outreach activities to high-risk communities and with the Kansas City Chronic Disease Coalition (KCCDC) to expand both organizations' reach, and to emphasize each other's related messages.

The **City of Philadelphia** has found the HomeSafe bucket of cleaning and safety supplies to be a very successful incentive for enrolling participants into the program. HomeSafe outreach workers participated at one health fair and a pre-school program. In addition, one of the grantee's outreach workers appeared on a local radio station "Power 99" and discussed the HomeSafe program

Mount Sinai School of Medicine participated in The Asthma March and received television coverage on Channel 2 (CBS), NY1 and on the local Spanish Channels. In press conference at City Hall during the week prior to the Asthma March, the East Harlem Asthma Working Group representatives presented a series of policy changes and actions needed to combat asthma and expressed their commitment to work with community leaders and state and city politicians in order to facilitate long term plans and legislation.

Mount Sinai School of Medicine's project manager is participating in an Intensive Introductory Spanish class at New School University. Because half of the grantee's participants are Spanish speaking or bilingual, knowledge of conversational Spanish is anticipated to improve communication and recruitment efforts. Written Spanish skills will be used to translate recruitment materials and to review educational materials.

Mount Sinai found that recruitment efforts were not as successful as anticipated this

quarter because of the seasonal effects of asthma. During the summer the symptoms are less severe and the attacks are more rare. Parents and caregivers are more likely to focus on immediate priorities since their child's asthma episodes are not as severe.

Erie County Department of Health provided a day-long no-cost seminar designed to provide information and assistance to property owners in the City of Buffalo on issues including crime prevention, housing codes, landlord and tenant rights, lead, and community policing. During this event project staff had an exhibit booth and informational table with sign up sheets. Staff briefly presented the Healthy Homes program and to landlords, rental property owners, landlord groups, block club representatives. The program was well received by the 40 attendees and a number of landlords signed up for additional information.

Montana State University provided a comprehensive initial project training/meeting/orientation to Native American representatives from each of the 7 Montana Indian reservations. The majority of the attendees were affiliated with Tribal Health or Extension Service. Project staff presented an overview of asthma and asthma triggers.

The **University of Massachusetts at Lowell** developed an improved Cross-Cultural Home Assessment Protocol (Healthy Homes: Practical Solutions for Healthy Families).

The **Coalition to End Childhood Lead Poisoning** mailed flyers to all health clinics in the program's targeted community to diversify its referral pool and expand its potential client base. The Coalition has found that providing free Safety Kits (and their installation) and free Lead Prevention Cleaning Kits increases client participation. By offering tangible services

and prevention products, the grantee has been successful in convincing reluctant or uncommitted clients to schedule the initial home visit and assessment.

Boston Public Health Commission

(BPHC) is collaborating with a community based organization (CBO), Health Care for All to recruit and train outreach workers. The CBO decided to produce a public service announcement (PSA) regarding Healthy Homes/asthma triggers that will air on a local television station. The PSA will be directed at the Haitian community, and will be filmed in Creole. JP Asthma published their first issue of "JP Asthma View" which is a newsletter for residents in the Jamaica Plain area of Boston. The newsletter targets families and discusses issues including dealing with landlords, tips from doctors, and agency information.

BPHC held **The Boston Asthma Camp** during the week of August 25th at a park in Boston. Twenty-nine children from the City of Boston participated in the week-long day camp. The children learned how to play sports and participate in activities while managing their asthma. The families of the campers joined the children on the Sunday before camp began for a family picnic

Healthy Homes Network (HHN) continues to provide free supplies at outreach events as an effective recruitment effort.

HHN facilitated a series of Healthy Homes Specialist training sessions for community workers. During these sessions, manuals and supplies were distributed to attendees. Sessions included information on Building Science, Healthy Homes 101, the demonstration of cleaning techniques, ventilation and moisture control and alternative cleaning solutions and methods.

Harvard published two technical papers: "The pattern of leaks, moisture and mold in two US public housing developments and associated build-related symptoms," L Kristen Welker-Hood, H. Patricia Hynes, Timothy Heeren, Doug Brugge, John Snell, and Daniel Helmes; and "Central Steam Heating Thermal Comfort Challenges and Solutions At Boston Housing Authority's Franklin Hill Development," John Snell et al.

Harvard has authored two additional technical papers that are in press at the Journal of Public Health Policy, "Where Does the Damp Come From? Investigations into the Indoor Environment and Respiratory Health in Boston Public Housing," H. Patricia Hynes, Doug Brugge, Neal-Dra Osgood, John Snell, Jose Vallarino, John Spengler; and at Science and Engineering Ethics: "A Case Study of Community-Based Participatory Research Ethics: The Healthy Public Housing Initiative." Doug Brugge, Alison Kole.

The Harvard grantee submitted the following manuscript to the Journal of Applied Environmental Science and Public Health: "Does renovation of housing improve environmental conditions and health? Analysis of survey data from two U.S. public housing developments," Doug Brugge, Steven Melly, Andrea Finkelman, Mary Russell, Laura Bradeen, Rosaira Perez, Linda Henson, Timothy Heeren, John Snell, Daniel Helms and H. Patricia Hynes

Duke University's door-to-door recruitment team visited 23 homes in Orange County with a recruitment rate of 4.3%. Community recruitment letters were also sent to neighborhood churches.

Alaska Housing Finance Corporation focused recruitment efforts on radio and newspaper advertisements. The grantee placed 220 spots on three different radio sta-

tions over the period July 25 to August 6, 2003. These were 30-second, paid Public Service Announcements. As a non-profit, the grantee was eligible for 90 bonus spots and incurred costs for only 130 of the 220 spots.

Alaska Housing Finance Corporation sent post cards to all of the applicants on the waiting list for weatherization programs to make them aware of the Healthy Homes program.

The **University of Alabama at Birmingham** reached a total of 227 families through Healthy Homes presentations at 3 health fairs (187 families), one neighborhood fall festival (15 families), three churches (15 families), and one neighborhood association meeting (10 families). In addition, the grantee made one-on-one (1-hr) presentations to 12 new families in the Healthy Homes Initiative and gave home cleaning demonstrations to 3 families.

Esperanza Community Housing Corporation's children's theater project is currently operational in two elementary schools and one local middle school. This season they have had eight performances, and expect to expand greatly throughout the school year. Students appear to take their newfound knowledge home because the clinic is inundated with phone calls following performances. Home visits provided by the Community Health Promoters in cases where there is a positive blood lead test, also provide critical community education and awareness.

Esperanza facilitated a **Healthy Homes Fall Retreat**, where all program partners and individual participants learned about California Senate Bill 460. The law is geared to protect children from lead hazards in their homes before they are poisoned. SB 460 makes "lead hazards" a housing violation under state law and authorizes building departments, code enforcement and health departments to investi-

gate and enforce the law against landlords, just like other housing violations.

Child Abuse Prevention Council completed education and outreach activities for parent and adult caregiver education, child care provider workshops, presentations to civic organizations, community outreach to families through home visits, and distributed printed material.

Child Abuse Prevention Council has found that families take action to reduce asthma triggers and sources of lead based poisoning in their homes, as a result of lessons taught to families by the trained home visitors and family resource center staff. The grantee has found the following methods to be effective in reaching families: delivering curriculum through workshops, providing handouts including flyers and posters, distributing training materials for families, making phone calls, conducting home visits, advertising the agency website, enhancing and utilizing email/mail distribution lists, creating/sending out marketing letters, and e-mailing quarterly newsletters. A comprehensive mailing list has been developed with approximately 300 contacts including Family Resource Center staff and managers, home visitors, and parents in 18 California counties.

Child Abuse Prevention Council initiated projects with staff and trainers to bring effective, multi-lingual education to communities reaching Russian, Spanish, and Hmong families.

Northeast Denver Housing Center, through a grant from Conoco, held an art contest for several elementary schools in the target neighborhood. The grantee presented information about asthma triggers and then asked students to design posters that will be used in a calendar.