Developing a **Healthy Homes** Program

National Center for Environmental Health
Division of Emergency and Environmental Health Services

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Centers for Disease Control and Prevention

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Healthy Homes and Lead Poisoning Prevention Branch

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BACKGROUND

Introduction

The Centers for Disease Control and Prevention (CDC) Healthy Homes and Lead Poisoning Prevention Branch (HHLPPB) recognizes the need to address housing related issues, including lead exposure, in a more comprehensive manner.

The HHLPPB also recognizes a need to provide guidance to an increasing number of state, tribal, territorial, and local Childhood Lead Poisoning Prevention Programs (CLPPPs) as they expand into Healthy Homes programs. This guidance seeks to assist CLPPPs—and other agencies involved in health or housing issues—in developing a comprehensive Healthy Homes program.

Overview of Health and Housing: Context for Transition

Florence Nightingale once said that "The connection between the health and the dwelling of the population is one of the most important that exists." Although it is clear that the health of the family depends on having homes that are safe and free from hazards, much work remains to clarify these connections. Some 38 million US homes have lead-based paint hazards that can lead to childhood lead poisoning.[1] In addition, injuries, respiratory diseases such as asthma, and quality of life issues have been linked to the conditions present in approximately 6 million housing units nationwide.[2, 3] Homes with moderate or severe physical problems place residents at increased risk for fire, electrical injuries, falls, rodent bites, and other illnesses or injuries.[2, 4] Additional issues of concern include exposure to pesticide residues, indoor toxicants, tobacco smoke, and combustion gases. The burning of oil, gas, and kerosene can release a variety of combustion products, such as carbon monoxide. With proper education, home maintenance equipment, or testing, many of these home-related issues can be reduced or eliminated.

Healthy Homes and Lead Poisoning Prevention

Healthy People 2020 is a national health agenda that envisions a society in which all people live long and healthy lives. A Healthy Homes program addresses Goal Two of that agenda: achieve health equity and eliminate health disparities. Healthy Homes also addresses eight proposed Healthy People 2020 Environmental Health objectives:

- Reduction of the proportion of occupied housing units that have moderate or severe physical problems,
- Reduce blood lead levels in children,
- Reduce indoor allergen levels,
- Increase the proportion of persons living in homes at risk that have an operating radon mitigation system,
- Increase the number of new homes constructed with radon-reducing features, especially in high-radon-potential areas,
- Increase the proportion of persons living in pre-1978 housing that has been tested for the presence of lead-based paint hazards,
- Decrease the number of U.S. homes that have lead-based paint or related hazards, and
- Increase the number of Territories, Tribes, States, and the District of Columbia that monitor diseases or conditions that can be caused by exposure to environmental hazards.[5]

The Surgeon General's *Call to Action to Promote Healthy Homes* outlines a comprehensive and coordinated Healthy Homes approach. This approach seeks to reduce disparities in the availability of healthy, safe, affordable, accessible, and environmentally friendly homes. The *Call to Action* declares, "A healthy home should be sited, designed, built, renovated, and maintained in ways that support the health of residents." Healthy home features include

- How the home is constructed, designed, and maintained;
- Physical characteristics;
- Presence of safety devices;
- Quality of indoor air and water;
- Presence or absence of certain chemicals;
- Individual resident behavior; and
- Community characteristics.[6–8]

Presidential Executive Order 12898 for Environmental Justice addresses health and housing disparities among minority, low-income, and tribal populations.[6] The Order refers to the right of all persons to live in a healthy home and in an environment free of hazards. Environmental

Justice supports the Healthy People 2020 national agenda by promoting a healthy quality of life and elimination of health/housing inequities for disparate populations. Institutionalizing environmental justice and implementing recommendations from the Surgeon General's *Call to Action* are essential steps in eliminating health and housing disparities.

CDC's Healthy Homes Initiative

CDC's Healthy Homes Initiative is a coordinated, comprehensive, and holistic approach to preventing diseases and injuries that result from housing-related hazards and deficiencies.[9] The Healthy Homes Initiative seeks to

- Broaden the scope of single-issue public health programs—such as childhood lead poisoning prevention and asthma programs—to address multiple housing deficiencies that affect health and safety.
- Build capacity and competency among environmental public health practitioners, public health nurses, housing specialists, managers, and others who work in the community to develop and manage comprehensive and effective Healthy Homes programs.
- Promote, develop, and implement cross-disciplinary activities at the federal, state, tribal, territorial, and community levels to address the problem of unhealthy and unsafe homes through surveillance, research, and comprehensive prevention programs.
- Facilitate the collection of local data and monitor progress toward reducing or eliminating housing deficiencies and hazards.
- Expand collaborations with the U.S. Department of Housing and Urban Development (HUD), U.S. Environmental Protection Agency (EPA), national associations and organizations, academia, community-based organizations, and others, including the American Public Health Association, National Environmental Health Association, and the World Health Organization.
- Promote research to determine causal relations between substandard housing and adverse health effects.
- Develop guidelines to assess, reduce, and eliminate health and safety risks.
- Identify and implement low-cost, reliable, and practical methods to reduce health and safety risks in substandard housing.

ASSESSMENT

An essential first step to developing a successful Healthy Homes program is a comprehensive needs assessment. Established programs can also benefit from such an assessment to assist with focusing program goals and efforts. A needs assessment involves collecting and analyzing data to understand community demographics, to identify the health/housing needs of the community, and to examine program/partner capabilities.

When developing a Healthy Homes program, the comprehensive needs assessment should at a minimum address

- Community Analysis. Examine data to determine community demographics and health/housing issues.
- Training and Education. Identify training needs for staff and partners to build a sustainable program.
- Policy. Review housing, sanitation, and habitation statues or codes, and enforcement authorities within the jurisdiction of the program.
- Program Experience. Examine organizational capacity and assess personnel knowledge, skills, and experience.
- Partnerships. Examine effectiveness of existing partnerships, identify new partners for collaborative efforts, and develop a monitoring process when making referrals.
- Program Evaluation. Evaluate performance by examining the processes and effects of current activities on the overall goals and objectives of your program.
- Surveillance. Determine efficacy of surveillance efforts in conducting an ongoing, systematic examination of community needs.

Use information collected for the needs assessment to develop a strategic plan. This plan will serve as a roadmap to assist programs in

- Addressing weaknesses identified in the needs assessment,
- Prioritizing the most relevant issues, and
- Implementing an effective healthy homes program.

ASSESSMENT COMPONENTS

Community Analysis

When developing a Healthy Homes program, managers and staff should understand their communities' demographics, health issues, and housing needs. Whenever possible, programs should use available data to identify health and housing hazards within the community; this may also require using data from partner organizations.

After a review of the findings, programs may identify geographic areas and populations within the community to target for intervention. Further data collection may involve engaging the community by holding community meetings or using focus groups to understand health and housing needs from a different perspective.

Training and Education

Programs should properly train personnel and partners to address housing and health-related concerns. Managers and staff should attend appropriate training courses to build capacity within the organization and community.

Different levels of training may be required for administrative, field, medical, or housing staff. A train-the-trainer program may be necessary to build capacity and ensure that key personnel within the community receive training. The two CDC-recommended training centers are the CDC Healthy Homes/Lead Poisoning Prevention National Training Center and the National Healthy Homes Training Center and Network (NHHTC&N).[10]

The National Healthy Homes Training Center & Network offers several courses:

- Essentials for Healthy Homes Practitioners. For health and housing professionals seeking a solid understanding of Healthy Homes programs and principles. The course helps prepare students for the Healthy Homes Specialist Credential exam.
- Launching a Healthy Homes Initiative. For health and housing professionals, policymakers, and advocates seeking to develop a Healthy Homes initiative in their community.
- Building Healthy Homes. For designers, architects, and contractors seeking to understand building science and construction methods involving Healthy Homes.

- Pediatric Environmental Home Assessment (online training). For nurses and other practitioners who do home visits and who seek to better assess their client's homes for healthy home problems and make referrals for assistance.
- Community Health Workers. For persons who work as health advocates in their communities. Those who complete this course will train Community Health Workers to 1) provide one-on-one and large-group education on Healthy Homes topics, 2) provide general advice about specific Healthy Homes problems, and 3) recommend Healthy Homes approaches for families, property owners, and other community members.

The CDC Healthy Homes/Lead Poisoning Prevention Training Center offers four training tracks for new program personnel. These tracks provide instruction about lead poisoning prevention and healthy homes activities. They also provide core subject overviews as well as specialized training in Program Management, Data Management and Surveillance, Case Management, and Primary Prevention.[11]

Specific issues within a community may require additional training (e.g., Integrated Pest Management, Radon, Asthma). Programs may not have the capacity to train staff and address all health/housing-related hazards within the community. To address those concerns, programs may need to identify and use community/national resources.

Policy

With regard to state and local laws that address Healthy Homes issues, programs should identify gaps in regulations, ordinances, and program enforcement policies. Housing codes (i.e., codes for property maintenance, sanitation, and habitation) should be identified along with the appropriate agency that has enforcement authority. Programs should discuss with appropriate officials (e.g., legal counsel) how to use these authorities effectively to address health hazards in homes. As a part of the strategic plan, the program should develop an approach to address gaps/inconsistencies identified in current laws, regulations, codes, and policies. State and local health departments should consult with their general counsel's office concerning rules and restrictions pertinent to lobbying activities.[12]

Program Experience

The needs assessment should be used to evaluate agency resources, past performance, infrastructure, and management in regard to their goals. Programs should also assess the knowledge, skills, and experience of personnel in planning, managing, or conducting activities associated

with housing or health-related programs. The Healthy Homes Specialist Credential should be considered when assessing program experience. Other programs that have transitioned to Healthy Homes have identified a need for access to social service agencies.[13] As a program plans to address Healthy Homes issues, it should also develop a mechanism to address social services issues.

Partnerships

Programs should develop partnerships based on issues identified by the community analysis. First, programs should identify issues they can address successfully with existing resources. Then, programs should identify organizations within the community through which they can address other issues of concern.

Programs should also engage faith-based and neighborhood organizations; such partnerships are critical to addressing community needs. Faith-based and neighborhood organizations are also essential to addressing health and environmental disparities found in low-income, vulnerable, and other underserved populations. A number of executive orders and policy statements mandate federal agencies to address environmental justice and faith-based community organizations in a more comprehensive manner.[6, 8]

Programs should survey the community and identify partners that can address their needs. When developing partnerships, programs should employ concepts such as

- Determine what all organizations—including yours—can contribute and gain through the collaboration.
- Ensure that representatives have the expertise and organizational support to participate in the partnership.
- Identify a common interest or value upon which to build the partnership, keeping in mind that values and interests may differ substantially.
- Select partners that have the decision-making authority to move the partnership forward.
- Establish through a formal process (e.g., Memorandum of Understanding or Agreement) the roles and responsibilities of program and partner. An organizational chart is helpful when depicting the relationship between these entities.

There are a number of partners that programs may consider when developing a Healthy Homes program. Partnerships may include

- Academia;
- Advocacy Groups;
- Early Start Programs (e.g., Head Start);
- Environmental Justice and Academic Centers (e.g., the University of Michigan, Clark Atlanta, Dillard, Florida A&M, Texas Southern, and other universities);
- Faith-based and Community Organizations (i.e., Secular and Nonprofit Organizations);
- Fire Departments;
- Housing Programs (e.g., Weatherization, Code Enforcement, Housing Authority, Builders, Developers, Realtors, Landlord Associations, Maintenance Providers),
- Local, state and federal government (e.g., City Council Representatives, U.S. Department of Housing and Urban Development, U.S. Environmental Protection Agency, Bureau of Indian Affairs, Indian Health Service, Medicaid/Medicare);
- Public Health Programs (e.g., Maternal and Child Health, Environmental Health, Medical Providers, Home Visitation, Women Infants and Children); and
- Youth Centers.

Referral Process

Referrals are an integral component of most Healthy Homes programs. HHLPPB's experience has indicated that referrals to and from partners are difficult to track and follow through to resolution. Without ensuring follow up, a program has no way to measure impact, gauge effectiveness of interventions, or ensure cases have been adequately addressed. A program should specifically address how to track referrals and, for each Healthy Homes issue, ensure follow up.

Programs should develop a comprehensive plan that describes how to identify, address, and resolve housing issues. Throughout the process, communication between program and partners is critical to ensure timely resolution of issues and documentation of activities. When developing an approach to addressing healthy homes issues, programs should consider three elements:

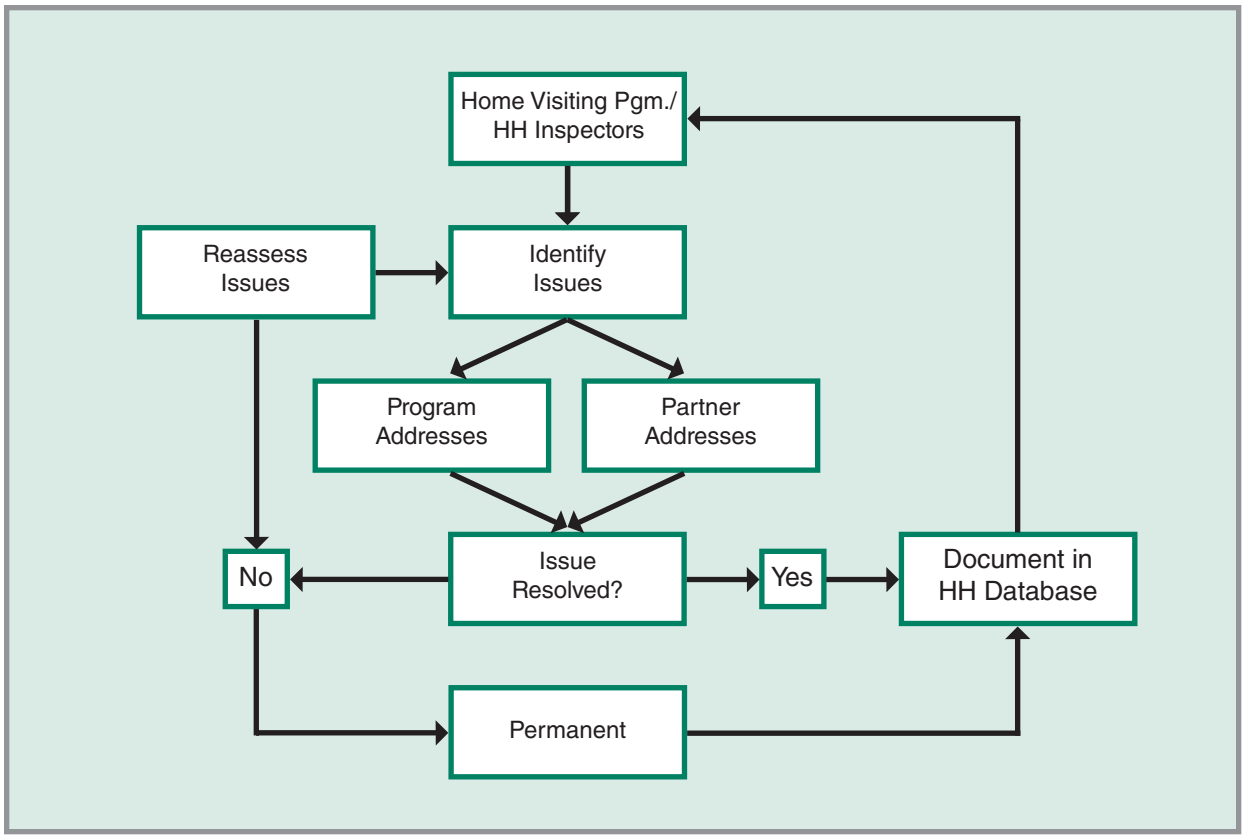
- Identify the Issue. Determine the various mechanisms through which an issue will be identified. For example, when conducting home visits, will the program

provide inspections to identify issues or receive referrals from other agencies that might also identify issues?

- Address the Issue. Determine how issues will be addressed once they are identified. For example, will the program address all issues or will they make a referral to a partner agency to address some issues? How will the program determine if an issue has been addressed, particularly when making a referral?
- Resolve the Issue. Determine what measures will be implemented to determine if an issue has been resolved. Will the program document results in a database once the issue has been resolved or when it is determined that an issue cannot be resolved? Will the program incorporate measures to reassess the issue and determine why it was not resolved?

A flowchart similar to Figure 1 will help clarify the process of the program and its partners. Programs should develop a similar flowchart of their processes, including referrals, for each healthy housing issue.

FIGURE 1. Referral process flowchart



Follow-up Care

When determining if an issue has been resolved, programs should examine whether issues associated with either the house or the child have been addressed. Programs should be proactive in their approach for ensuring that properties identified with hazards are remediated. If a child moves before issues related to the house are resolved, programs should have a mechanism in place which allows continuous monitoring of the property; including enforcement actions. Programs should also provide direct case management (e.g. lead, asthma) or work in conjunction with other programs. All events associated with each element should be documented in the surveillance system.

For some diseases and conditions, programs will follow both the child and the house over time. Children with lead poisoning or asthma, for example, require long term case management, as well as, ongoing assessment of housing hazards. In other cases, programs may only follow the house. For example, if the program provides/installs smoke alarms or other safety devices, an inventory of addresses where alarms have been installed should be created allowing programs to determine if an increase in safety devices leads to a decrease in specific injuries over time.

Surveillance

Programs may need to obtain a new—or modify an existing—surveillance system capable of tracking housing variables. HHLPPB has developed the new Web-based Healthy Housing and Lead Poisoning Surveillance System (HHLPSS) that has the capacity to track lead and housing variables. HHLPPB provides this software at no cost to programs. However, to install and operate HHLPSS, programs must have specific hardware and software in place. This may require the purchase of new computer servers and supporting software. Programs should contact HHLPPB for more information on how to obtain or transition to HHLPSS.

Program Evaluation

Evaluation is essential for effective public health programming and allows for continuous quality improvement.

Dedication of time and funding to an evaluation component is important when developing a Healthy Homes program. An evaluation determines how well an activity fares compared with another option, plan, or period. It identifies expected outcomes of the program and develops mechanisms for evaluation design, data collection, and analysis. Public health officials can use the evaluation process to assess program effectiveness and make informed decisions.

Evaluations are developed to focus on different aspects of a program: process, outcomes, and impact of the intervention. Each type of evaluation has its place in gathering evidence to assess or monitor whether a program reaches the intended population and meets its goals.

Program evaluation answers two questions:

- **Are we doing things right?** That is, are program activities implemented and functioning as planned? (Process evaluation); and
- **Are we doing the right things?** That is, are program activities having the intended effect? (Outcome/impact evaluation)

Reliance on the four standards of utility, feasibility, propriety, and accuracy will assist in the development of an evaluation methodology and will maximize the final evaluation tool's utility. Essential components of a good evaluation process also include developing SMART Objectives —Specific, Measurable, Achievable, Relevant, and Time-bound.

Logic models are useful when designing an evaluation framework. They demonstrate how activities included in the work plan relate to goals and objectives. Developing logic models in a collaborative manner builds a shared understanding of the program among stakeholders and provides user feedback. Evaluation measures or indicators can be developed from logic models by examining the relationships between the goals, objectives, and activities. These models can also be used for project planning or management and as a communication tool to relate the specifics to the big picture. A number of resources exist for program evaluation.[14–24]

HEALTHY HOMES STRATEGIC PLAN

The Healthy Homes strategic plan is a document whose development is based on issues identified during the needs assessment process. It should include goals, measurable objectives, and a timeline for addressing issues. The strategic plan should also incorporate the activities already underway. When developing goals and objectives for the strategic plan, the program should address four primary questions:

- Who is the target audience for the intervention?
- What are the anticipated barriers for implementing the intervention?
- How will the identified barriers be addressed?
- What are the expected outcomes?

Programs should then develop activities that meet the intended goals and objectives. These include plans that

- Define roles and responsibilities for accomplishing the objectives.
- Evaluate the individual/community/institutional health impact of each strategy.
- Communicate information in a clear and timely manner.
- Develop an approach to strengthen / develop collaborations with other programs.

BEST PRACTICES

Programs developing a Healthy Homes initiative are encouraged to undertake those interventions with proven efficacy.[4, 13] In 2009, the National Center for Healthy Housing reviewed interventions pertinent to Healthy Homes.[4] Table 1 lists those Healthy Homes interventions with proven efficacy in decreasing exposure and disease in homes. Programs should refer to the references for a review of other interventions.

TABLE 1. Interventions where there is "sufficient evidence" to indicate efficacy in improving health.[4]

- Multi-faceted tailored asthma interventions
- Integrated Pest Management (pest/allergen reduction)
- Moisture intrusion elimination
- Radon air mitigation through active sub-slab depressurization
- Smoking bans
- Functional smoke detectors
- Lead hazard control
- Voluntary drinking and wastewater treatment standards for small systems and private wells
- Training for small water system personnel
- Guidelines for water use by immune-compromised persons
- Four-sided pool fencing
- Pre-set, safe temperature hot water heaters
- Housing Choice rental voucher program

SUMMARY

A Healthy Homes approach looks at a number of topics in a more holistic manner. While researchers and investigators have covered some topics extensively, others remain relatively unstudied. A rigorous needs assessment will allow a program to identify community issues and program strengths/weaknesses to develop a strategic plan. This plan will help guide a program and its partners to efficiently address community issues. As a program moves to implement community interventions, it should consider the results of previous research to help make such initiatives successful. Programs are also encouraged to communicate with each other and refer to other sources of guidance such as reports compiled by various health departments.[13]

Development of a Healthy Homes program is an ongoing process that will need time, resources, and strong collaborative efforts to succeed.

CDC's HHLPPB remains committed to improving the health of people through healthy homes.

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