Better Home Visits for Asthma
Lessons Learned from the Seattle–King County Asthma Program

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Introduction

Asthma remains a major cause of morbidity and health inequities among children. In response, practitioners and researchers have developed innovative interventions to improve asthma control. One such intervention is home visits to help families reduce exposure to multiple indoor asthma triggers. The *Guide to Community Preventive Services* (*Community Guide*), as described in this supplement to the *American Journal of Preventive Medicine*, recently reviewed the evidence for the effectiveness of home visits and recommended wider implementation of this approach.[1,2]

The Seattle–King County Asthma Program has developed and evaluated several home-visit programs over the past 12 years, including the Healthy Homes I and II research projects[3,4] and the Steps to Health[5] and Allies Against Asthma[6] home-visit programs. In the course of this work, we have learned many lessons. Table 1 summarizes these lessons, and we describe the most salient ones in more detail here.

Program Characteristics

Integrating Environmental and Medical Aspects of Asthma Control

The *Community Guide* review focuses on interventions to reduce exposure to asthma triggers found in home environments, as did our Healthy Homes I project. We found that our clients are interested in learning about the full spectrum of activities they can do to control asthma, both environmental and medical. The evidence for offering self-management support for the medical aspects of asthma control is strong.[4,7–9] We therefore expanded the scope of our subsequent programs to include proper use of medications and devices, self-monitoring of asthma control status, use of action plans, effective use of the healthcare system, and patient–provider communication. Such an integrated approach offers an efficient method for delivery of all aspects of asthma self-management. Protocols that describe client and home-visitor actions in each of these domains are available at our website.[10]

Recruiting and Retaining Clients

One of the biggest hurdles faced by newly established programs is recruiting and retaining clients. We currently enroll 80% of eligible clients, and 90% of those enrolled complete our programs. We and others have used a range of recruitment strategies, including referral systems, small media advertising, participation in health fairs and other community events, word-of-mouth, and case-finding door-to-door surveys. Referral systems may be active (e.g., using clinical billing data, chart reviews, asthma registries, or school lists to generate recruitment lists for program staff outreach) or passive (relying on clinic staff to make referrals as they think of it). Active referral systems appear to be most effective strategy, especially when coupled with a personalized invitation from the provider caring for the patient.

Incentives have been helpful in securing participation and promoting retention. One of our more successful strategies has been providing resources for better asthma control (e.g., vacuums, cleaning supplies). Distributing these over the course of the intervention, rather than all at the first visit, enhances retention.

Collecting and frequently updating alternate contact information and following a structured follow-up contact protocol that includes phone, mail, and home-visit elements are important for a successful retention system. Increasing the evening availability of community health workers (CHWs) also increases retention.

Establishing a Base for Home Visitors

Our visitors are based at the local health department. Advantages of locating visitors in a single agency include the ability to work with clients regardless of source of medical care, efficiencies in infrastructure (e.g., supervision, data systems, and quality control) and the availability of peer support. Another common home for the visi-

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0749-3797/$17.00
doi: 10.1016/j.amepre.2011.05.010

Table 1. Lessons learned from the Seattle–King County asthma program

Program feature	Lesson learned	Comments
Program infrastructure	Establish robust support system for home visitors **before** starting visits	Elements of a support system include: supervision (administrative and clinical), home-visitor training, quality control to assure home visit protocol implementation, system for data entry, computerized system for client scheduling, system to track clients' progress through program (visit and protocol completion), system to project and adjust visitor workload.
	Use technical innovations	Examples include laptop and printer for printing action plans in the home, home spirometry, smart phone for text and cell communications while in field.
	Follow protocols for client contact to reduce attrition	Check-in phone calls at regular intervals, alternative contacts, incentives, updating contact information every 3–4 months
	Link home visitors with primary medical providers	Establish simple, routine fax communication of home visit encounter notes to medical providers. Contact providers by telephone for urgent issues.
Program design	Combine environmental and medical self-management support	Follow a comprehensive set of protocols that address trigger reduction, medication use and adherence, self-monitoring, action plans, patient–provider communication and effective use of the health system.
	Tailor recruitment methods to community served	Use knowledge of community to recruit clients through established social networks.
	Make home visitors accessible to multiple referral sources	Consider basing visitors in a broad-reaching agency such as a local health department or multi-service center so that patients from multiple clinics and health systems can be served.
	Address resource barriers	Provide clients with tools to address indoor triggers (HEPA vacuums, green cleaning kits, allergen-proof bedding covers, and food-storage containers) and asthma medication boxes.
	Assist clients in managing stressors and psychosocial issues	Assist clients with problem-solving and referrals to community resources.
	Assess presence of triggers and allergies through client interviews and visual inspection	The logistic challenges and costs associated with biological assessments (e.g., allergy testing and dust sampling) make them impractical.
	Concentrate visits soon after enrollment	Make an initial assessment visit and three follow-up visits (0.5, 1.5, and 3.5 months later), supplemented by interim telephone calls or visits as needed. Call all clients at 10 months and schedule an additional visit if necessary.
Home visitors	Home visitor characteristics are important for fostering trusting relationships with clients	Select visitors who share culture, language, and community with clients; have a personality that allows them to quickly build rapport and trust; are well organized and work independently; and value community service.
	Set a realistic caseload	It is reasonable for a visitor to have 50–60 active clients, and make two to three visits per day and no more than 12 per week, in order to decrease burnout and give time for recordkeeping, programmatic and personal needs.
	Establish client-centered work schedules	Use a 4-day, 10-hour work schedule to allow evening visits.
Clients	Focus on clients with not well-controlled or poorly controlled asthma	Offers greater opportunity to improve outcomes

tors is a community clinic, which facilitates tighter linkages between visitors and clinical providers and simplifies the recruitment of patients, but often lacks the benefits of centralization.

Maintaining Program Infrastructure

Fundamental to the success of a home-visit program is an efficient and effective infrastructure. The first element is strong supervision of home visitors, including close

schedule oversight to promote productivity, provision of support for managing the significant stresses associated with home-visit work, and clear performance expectations with regular feedback. The second is a set of written protocols describing each client-education component.[10]

The third element is a well-designed data system that tracks and prepares schedules for client contacts and visits, stores client data, monitors visitor activities, and produces reports for data quality and visit tracking. A fourth is quality control, including review of each client's home self-management plan; regular audits of client records using a standard review tool (focusing on clients who are not well controlled); observation of home visits using a checklist; and monitoring adherence to home-visit protocols. The fifth element is the provision of training, consisting of intensive baseline training (60 hours), scheduled periodic reviews of protocols, and weekly case discussions. A manager and health educator oversee the infrastructure.

Addressing Social Issues

Many home-visit clients face significant social stressors that may overshadow asthma as a concern, such as unstable housing, domestic violence, and lack of health insurance. It can be difficult to focus on asthma until these more immediate concerns are addressed. Home visitors can provide support, guide problem solving, and refer clients to community resources for these issues. They can assist clients with landlord interactions around housing repairs or finding healthier housing. Establishing procedures with the local housing authority to expedite repairs or relocate clients to more appropriate units have been extremely helpful. The home visitors help clients develop organizational skills to remember medical appointments and to store and use medications correctly.

Home Visitor Characteristics

Types of Visitors

The programs reviewed by the *Community Guide* vary in the type of home visitor employed, using CHWs, masters-level health educators, research assistants, respiratory therapists, nurses, sanitarians, and physicians. Available evidence is insufficient to support an evidence-based choice of the most appropriate type of visitor. Practical considerations have lead us to use CHWs because they are well suited to work with low-income, ethnically diverse clients.[11–13] CHWs have social and cultural connections to clients that facilitate the development of rapport and trust. In addition, they are less costly than other types of home visitors.

Personal Attributes

Perhaps the most important attribute of a successful home visitor is the ability to connect well with clients by being warm, empathetic, and respectful. Persistence and resilience are important because supporting behavior change can be frustrating and slow. Visitors who have strong organizational skills, the ability to work independently, and an ethic of service to their community are more likely to succeed.

Conclusion

The evidence for the effectiveness of home visits for asthma is strong. However, until barriers to wider implementation are addressed, too few people with asthma will benefit from this intervention. This commentary has focused on one barrier—the need for more information on how to organize an effective program. Our website[10] and others have protocols and tools that can be used by home-visit programs. Even better would be the development of a set of field-tested tools that would support implementation of a standard approach (with local modifications as needed). Other barriers include lack of a certification mechanism for home visitors, lack of reimbursement for home visits by health insurers, and lack of awareness among medical providers about the value of home visits.[14,15] Efforts to address these barriers are underway in many states including Massachusetts, Minnesota, and Texas. Provisions of the Affordable Care Act may also speed the implementation of home-visit programs. In closing, we hope that our experiences will give others developing home-visit programs valuable information and insights as they make this service more widely available.

Thanks to Michelle deMiscio, Margarita Mendoza, Giang Nguyen, and Maria Rodriguez, the current Seattle–King County Asthma Program Community Health Workers, who have shown us how to better serve our clients.

Publication of this article was supported by the Centers for Disease Control and Prevention through a Cooperative Agreement with the Association for Prevention Teaching and Research award # 07-NCHM-03.

No financial disclosures were reported by the authors of this paper.

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