



EXECUTIVE SUMMARY:

Evaluating Home/Environmental and Clinical Interventions for Asthma in HRSA-funded Community/Migrant Health Centers (C/MHCs)

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INTRODUCTION: Asthma is a significant public health problem, which disproportionately affects children and minorities. Optimal treatment of asthma requires an integrated approach, including mitigating asthma home environmental triggers.

METHODS: This project was a randomized, controlled trial in pediatric patients of Community/Migrant Health Centers (C/MHCs) to test the feasibility and effectiveness of a combination of interventions that have been shown to reduce symptoms and improve outcomes in previous studies: 1) clinical-based interventions including medication review and feedback, provider education through webcasts and presentations, peak flow personal best and asthma action plans 2) environmental/home-based interventions, including home environment assessments, trigger reduction plans and free environmentally safe products, asthma and safety education 3) telephone surveillance consisting of bimonthly telephone calls by a registered nurse. Trial participants included 220 children, aged 6-19 years, who have mild persistent to severe asthma, documented use of beta-agonist and two or more visits to the C/MHC in the previous year. Thirteen C/MHCs and one managed care organization located in New York, New Jersey, Missouri, Philadelphia, Puerto Rico and the U.S. Virgin Islands participated in the project. Participants were randomly assigned to either the Early Intervention group (Experimental group) or Late Intervention group (Control group). Participating patients were 45% African American and 55% Hispanic, with a higher proportion of male patients (60%). We also conducted two rounds of follow-up calls at 6 and 9 months after the intervention and a medical record review of at one year after the interventions. Analyses conducted included (1) Cross-sectional description of information from initial medical record review, (2) Micro-level analysis of baseline and outcome characteristics of Early Intervention and Late Intervention groups (3) Overall treatment and treatment component effects from baseline to post-intervention and baseline to long-term follow-up; (4) Assessment of the validity and predictive utility of parental reports of environmental conditions; and (5) Subgroup micro level analysis of Early Intervention and Late Intervention group characteristics to examine special populations.



RESULTS:

(1) Cross-sectional: Medical record reviews (N=759) showed regional differences in medication use, emergency room visits, hospitalizations and unscheduled visits to the primary care physician. Less than 1% of the patient charts reviewed had a written asthma action plan. More than 50% of the asthma patients were overweight (BMI > 85th percentile) and nearly 40% very overweight/obese (BMI > 95th percentile). Patient interviews showed low physical activity: 42% of the patients spent more than 20 Hs per week watching TV.

(2) Micro-level group differences (N=220): Peak flow meter use and the percentage of patients with a written asthma management plan increased significantly. Participating families significantly increased the use of mattress and pillow covers, changed some cleaning habits (dusting in front of an asthmatic child), and reduced their cockroach problems. The intervention significantly reduced emergency room visits, the number of unscheduled visits to the primary care physician and the number of days of school missed because of asthma.

(3) Effects of overall intervention and intervention components: All children showed improvement in asthma morbidity and health care utilization (ER Visits and hospitalization), potentially due to peak flow meter distribution and education. Above and beyond the observed changes in morbidity and health care utilization in all children, participants who received pest control products and mattress covers showed fewer symptoms and reported less ER visits than children not receiving these products. Based on follow-up phone-call and medical record data, the changes in morbidity and health care utilization seen at post-intervention were maintained one year later. In addition, phone calls at 6 and 9 months after the last home visit showed that the majority of participants continued to use most of the products provided through the interventions.

(4) Validity and predictive utility of parental reports: Analyses indicated that parents can provide information about home environmental risk factors (e.g., cockroaches, dust mites) that is concordant with home observations of these risk factors by trained observers. In addition, analyses indicated parents reports of cockroaches in the home incrementally predict increased ER use in the future, above and beyond baseline ER use.

(5) Subgroup analysis: Puerto Rican sites (N=66), particularly rural sites (N=40), had significant reductions in emergency room visits due to the intervention. Children who exercise vigorously more than 10 hours per week reduced emergency room visits.

CONCLUSIONS: Results indicate the feasibility and potential utility of using a combination of clinical and home/environmental interventions to improve asthma outcomes in a population of asthmatic children seen in Community/Migrant Health Centers.

Funded by Grant # CH982053-01-0 from Environmental Protection Agency – Region II, Grant # 99-OFO-0005 from Health Resources and Services Administration – Region II, and by supplemental funds from New Jersey Department of Environment Protection under agreement with the South Camden (New Jersey) Citizens in Action.