

## **Health Care for Asthmatic Children in Public Housing**

For asthmatic children, adequate health care is a crucial component in managing symptoms and avoiding attacks and emergency room visits. However, low-income inner-city children often lack the information, medications, and access to health care providers that would allow for appropriate asthma management. It is these children who need the most medical and social support, given the number of environmental and social risk factors for asthma that cluster in low-income urban housing.

The Healthy Public Housing Initiative (HPHI) is a collaboration among a number of Boston-area universities (Boston University and Harvard University Schools of Public Health, and Tufts University School of Medicine), government agencies (Boston Housing Authority and Boston Public Health Commission), community partners (West Broadway and Franklin Hill Tenant Task Forces, Committee for Boston Public Housing), and consulting firms (Urban Habitat Initiatives, Peregrine Energy). A primary goal of HPHI is to evaluate the effectiveness of interventions in reducing known asthma triggers and improving the health of pediatric asthmatics in public housing.

Our intervention study enrolled 78 children (64% Hispanic, 33% African-American) from three public housing developments in Boston. Prior to the interventions, we conducted a detailed assessment of health status and risk factors for asthma, to better understand the children in our study. Based on asthma symptoms and spirometry measures, 56% of these children had moderate persistent asthma, with 14% considered severe persistent, 10% mild persistent, and 20% mild intermittent.

Key findings relevant to provision of health care include:

- Only 36% of persistent asthmatics were prescribed any daily controller medication (63% of severe persistent, 33% of moderate persistent, and 17% of mild persistent children)
- 80% of children had some wheezing, tightness in the chest, or cough in the two weeks prior to our assessment, while 66% had to slow down or stop their play or activities and 68% woke up at night (indicating poorly managed asthma)
- For 28% of children, the caregiver reported having no doctor to call other than the emergency room for asthma care. Those without a doctor to call tended to have less severe asthma and lacked recent hospitalizations, although 69% of these children had persistent asthma (25% severe persistent).
- Only 37% of children had a written asthma action plan signed by their doctors
- Only 27% of children had a peak flow meter
- 38% of caregivers reported that their pharmacy did not have their asthma medications at least once in the last six months

Moreover, we found elevated prevalence of a number of important environmental and social risk factors, including:

- 56% of children were classified as overweight (above 95<sup>th</sup> percentile BMI)
- 59% of children were allergic to cockroaches
- 59% of children were allergic to dust mites

- 41% of caregivers would not let their children play outside due to fear of violence in the neighborhood (with 26% directly impacted by violence in the past). This may contribute to obesity and increased exposure to indoor allergens, as well as to psychosocial stress.

Our findings are consistent with other studies, which indicate underuse of asthma action plans or peak flow meters, as well as gaps in appropriate medication usage. These shortfalls could be related to inadequate quality of care, limitations in access to and continuity of care, communication gulfs between caregivers and providers, or other factors.

We examined whether the gaps in asthma management could be explained by either characteristics of the households or characteristics of the health care facilities where they receive asthma care. These 78 children received health care across 16 facilities, including major medical centers (Boston Medical Center, Children's Hospital, New England Medical Center) and community health centers in a variety of neighborhoods (the most frequent being Harvard Street, Martha Eliot, and South Boston Community Health Center). Limitations in asthma management persisted across these and other facilities, indicating that this is a fairly ubiquitous problem. We also considered whether families where our questionnaires were administered in Spanish (indicating lack of comfort with English) had greater limitations in asthma management. The message was mixed, with more Spanish-speaking families having asthma action plans (47% vs. 36%) but many more reporting that asthma management was impaired by having too many medications to keep track of (53% vs. 10%). These findings indicate that some barriers to optimal asthma management differ by subpopulation but that many are ubiquitous.

Broadly, our findings support the importance of asthma management that simultaneously addresses the social environment and the built environment as well as medical management. Primary care providers of asthmatic children in low-income housing should take steps to optimize medical management while helping the families to identify and potentially address significant environmental risk factors.