

# Home Intervention Decreases Asthma Symptoms

Melissa Schorr

March 22, 2004 (San Francisco) — A home intervention program successfully reduced some daily asthma symptoms in inner-city asthmatic children, researchers reported here Sunday at the annual meeting of the American Academy of Allergy, Asthma & Immunology.

"We found that a global intervention was able to reduce levels of particulates and cockroach allergen," lead author Peyton Eggleston, MD, director of Hopkins Center for Childhood Asthma in the Urban Environment at Johns Hopkins University in Baltimore, MD, said during his presentation. "There was a reduction of symptoms of children living in these homes."

Dr. Eggleston and colleagues attempted to determine whether it was possible to reduce pollutants and allergens in the household, and whether that reduction in exposure was associated with any health effects in asthmatic children.

The investigators recruited 100 children who had gone through an asthma self-management course. The children ranged from age six to 12 years, with an average age of eight years. The children all had physician-diagnosed asthma and were currently experiencing symptoms, but no other form of lung disease.

At baseline, a questionnaire documented demographic information, home environment information, and health status of all children. The family and child were sent to a clinic for initial skin testing and blood sampling, using RAST, and to determine FEV<sub>1</sub> before and after use of a bronchodilator. The children were retested clinically after a year of intervention.

Each home was inspected, including dust collection of the bedroom and kitchen. The air was sampled for three days, with passive monitors of ozone and NO<sub>2</sub>.

At the end of the evaluation, the children were randomly divided into an intervention or control group, which received the same treatment delayed until the end of the year-long study. The home environment was evaluated again for dust Blag<sub>1</sub>, Musm<sub>1</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, O<sub>3</sub>, and NO<sub>2</sub> at six and 12 months. A telephone assessment of asthma symptoms and the environment was conducted at baseline and at three, six, nine, and 12 months.

The actual intervention included three to four home visits by a home health educator, cockroach and mouse extermination at baseline and at six months, provision of sealed food containers, allergen-proof bedding encasings, a HEPA air cleaner in the child's bedroom, and smoking cessation education for parents.

The children in the two groups were comparable at baseline, with about two thirds having at least one smoker in the household. All had normal FEV<sub>1</sub> (intervention group, 101% vs. 94% of predicted for the control group). About one third were receiving controller medications and had visited a hospital emergency room within the last three months.

The researchers found that the amount of particulates in the air significantly decreased in the treatment group while remaining stable in the control group.

There was also a significant difference in wheezing and coughing during the last two weeks in the intervention group from six months onward. Daily asthma symptoms decreased from 58% to 35% in children who received treatment, but they increased in the children who received no treatment (41% to 66%, respectively).

However, there was no difference between each group's quality-of-life scores. And both groups experienced a decrease in ER visits, from about 33% to about 13% to 15%, but there was no significant difference between the groups.

"It was an encouraging finding," said session comoderator Adnan Custovic, MD, a professor of allergy at Wythenshawe Hospital in Manchester, England. "We need more understanding of how to alter the environments to get an effect, but we're not there yet. It does tell us it warrants further research with well-defined outcomes and sample sizes."

"These are difficult studies to do," said Euan Tovey, PhD, research leader of the allergen group at the University of Sydney in Australia, who comoderated the session, "It's essential we keep on pressing."

Dr. Eggleston disclosed financial support from GlaxoSmithKline, Clorox, and AstraZeneca.

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*Reviewed by Gary D. Vogin, MD*

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