

## **WISCONSIN HEAD START HEALTHY HOMES INITIATIVE**

**The University of Wisconsin School of Pharmacy**

**Year of Grant: 2000**

**Contact: Christine Sorkness  
608-263-2866**

The University of Wisconsin (UW) School of Pharmacy (SOP) and School of Medicine (SOM), the Bureau of Environmental Health (BEH) of the Wisconsin Department of Health and Family Services (DHFS), and the nonprofit organizations Dane County Parent Council Head Start (DCHS) and Project Home have come together for this collaborative proposal to HUD's Healthy Homes Initiative (HHI). We are leveraging these resources, as well as those of supporting organizations including Lowe's Companies through Lowe's Home Safety Council, Madison SAFE KIDS Coalition, and the Greater Madison Safe Communities Coalition. This proposal integrates the strengths and experience of these organizations in an effort to reduce three important health risks affecting preschool-aged children: asthma, home injury hazards, and lead exposure.

The project will use home visitation to the families of DCHS children (poverty-level families) and the basic principles of epidemiology--an examination of host, agent, and environment--to reduce environmental risk factors for asthma, injury, and lead. These home visits, by trained members of Head Start (HS) families, as well as by professionals, will employ an extensive environmental survey involving home inspection for allergen exposure, injury hazards, and lead exposure; risk stratification; and individualized and targeted home interventions. Quality assurance will be built into all process elements, and environmental and medical evaluations will be used to determine outcomes.

The UW academic Health Center has a long tradition of community outreach. Much of the more than \$400 million UW annual grant awards is used for community-based applied research. Since 1992, the UW SOP and SOM have collaborated with DCHS in funded research initiatives to identify children at increased risk for asthma and to implement diagnostic, educational, and medical interventions. The current proposal expands and builds upon these existing initiatives, and demonstrates the feasibility of coordinating multiple health and safety home interventions. The UW SOP will be responsible for administering the grant, and the principal investigator (PI), Dr. Sorkness, Professor of Pharmacy and Medicine, has extensive experience with grants management and asthma/allergy research in the community in general, and in HS specifically. The Co-PI, Dr. Katcher, Professor of Pediatrics and Family Medicine, has been active in childhood injury prevention nationally, and Mr. Schirmer from BEH is an epidemiologist and public health educator with the Wisconsin lead poisoning prevention program (WLPPP). DCHS has a very strong emphasis on the health and safety of their families and also on providing economic opportunity to them. Project Home is a housing and weatherization agency that has a long history of integration of poverty-level housing repairs with health and safety issues.

Asthma, injuries, and lead poisoning are important problems affecting the health and well being of children and have been targeted for prevention both by Healthy People 2010, and by the Wisconsin state health plan. Epidemiologic data demonstrate that all three of these problems are of high incidence in the preschool population, especially among racial and ethnic minorities, and in poverty-level households. Thus, our targeted population are the poverty-level families of 700 preschool children per year enrolled in Head Start in Dane County. An average of 7% of children in the US have asthma. Asthma is the most common chronic disease of childhood. Increases in childhood asthma prevalence and morbidity have been greatest in ethnic minority groups residing in inner-city areas. In the first 4 years of our NIAID-funded asthma demonstration project with DCHS, of the 3522 children enrolled, more than two-thirds of these children were of a minority background, and the overall prevalence of physician-diagnosed asthma in these DCHS children was 16.0%. Therefore, the prevalence of asthma identified in our population is substantial; these children are at great risk from environmental threats. Injuries are the most common cause of death among individuals 1-34 years of age. Annually, more than 6,000 children died from unintentional injury, and more than 14 million are injured seriously enough to require medical attention. A recent HUD publication states that more than 250,000 children are injured or killed at home, and 90% of the prevention messages included relate to home injury prevention. The primary causes of injury and injury-related death in the home are fires and burns, falls, drowning, choking, poisoning, and firearms. Hazard reduction and prevention of these injuries will be the focus of this component of the project. Lead-Though reported lead poisoning is low in Dane County, 27% of the housing stock was built pre- 1950 and is therefore likely to contain lead paint—more frequently found in the poverty-level housing of our DCHS population.

The project will consist of three 1-year cycles, each beginning at the start of the DCHS school year in September, and each targeting the poverty-level families of 700 DCHS enrollees. All families will be interviewed at DCHS enrollment, using standardized questionnaires, to determine (1) whether the child has asthma and, if so, skin tests will be applied to determine sensitivity to dust mite, alternaria, and/or cockroach antigen; (2) what are the reported home injury hazards (these will be quantified by risk and potential for prevention); and (3) whether the child is at risk for environmental lead exposure and, if so, blood lead level will be done. Those meeting the risk criteria will receive home hazard inspections (estimated number 50 for asthma, 600 for injury, and 100 for lead, though some households may be at risk for more than one). The home-injury hazard inspection will be performed by trained Head Start family members thus providing economic opportunity to them; the asthma/allergy and the lead inspections will be done by a professional assessor. Environmental sampling for allergens (and/or lead) will be obtained by a standard methodology described in the proposal; quality will be assured by the grant management team. All households with asthma environmental risk and the 200 households with highest injury risk score will be randomized into two groups—the "Facilitation Group" and the "Installation Group." The Facilitation Group will have allergen- and injury-prevention devices (e.g., mattress and pillow covers, smoke alarms, cabinet latches, etc) made available at no cost. The Installation Group will have these devices installed by the trained HS parents or the Project Home staff. Repeat home-hazard inspections will be performed at 3 months and at 9-12 months, with a phone interview at 6 months, to assess change in allergy and injury hazard scores, and to determine 3-month recall for asthma- or injury-related school absenteeism, physician visits, emergency

department visits, or hospitalizations, as well as asthma medication use. Education about risk will be given to all, and knowledge-retention tests will be given at baseline, 3 months, and at 9-12 months. Evaluation of outcome data will be performed to determine differences between the randomized groups, and also comparison with the "Education Only Group."

The diversity of the partnership allows each organization to contribute unique in-kind resources, as well as scientific, technical, and educational expertise. The UW SOP and SOM will offer in-kind pharmacist and physician resources for the annual DCHS comprehensive, multidisciplinary screening, as well as environmental asthma/allergy consultation (R. Bush, MD). The state BEH will offer in-kind State tax dollars dedicated to Childhood Lead Poisoning Prevention, to be used for blood and environmental lead testing, as well as the use of lead sampling equipment and personnel to operate it. Other partners will include DCHS that will provide in-kind staff time; Project Home professional staff; the UW Children's Hospital (home of the Madison Area SAFE KIDS Coalition), which will provide 0.1 FTE in-kind nurse home-safety educator time; and the Lowe's Companies and Lowe's Home Safety Council that will supply in-kind safety products. The sustainability of the partnership infrastructure described above has been demonstrated by the successful 8-year environmental asthma research collaboration between UW and DCHS. Building on this successful relationship, the current project makes it possible to continue and expand the asthma component, and to add the injury and lead-poisoning prevention components.