

## **CUYAHOGA COUNTY URBAN MOISTURE & MOLD PROGRAM**

**Cuyahoga County Department of Development**

**Year of Grant: 1999**

**Contact: Terry Allan, Cuyahoga County Board of Health  
216-443-6690**

Background: The Cuyahoga Department of Development (DOD) is the administrative arm of the Cuyahoga County Consortium comprised of the Urban County and the Community Development Block Grant (CDBG) entitlements of Euclid, Lakewood, Parma and Cleveland Heights. Under DOD, there are 46 participating communities in the urban county. DOD will be collaborating with the Cuyahoga County Board of Health (CCBH) and Case Western Reserve University (CWRU) on a research and demonstration project called the Cuyahoga County Urban Moisture and Mold Program (UMMP). Environmental Health Watch, the Neighborhood Centers Association, the Cuyahoga Metropolitan Housing Authority, the Cleveland Housing Network, the USEPA Microbial Exposure Research Laboratory, P&K Microbiology, and IBT Laboratories will be the other key collaborators.

This grant application describes a unique and dynamic research and intervention project focusing on specific factors that impact child health in the home environment. The program will concentrate on primary prevention and morbidity reduction primarily among low income children residing in clearly delineated high risk areas represented by 180 target census tracts in the following project area communities: Cleveland, East Cleveland, Cleveland Heights, Maple Heights, Garfield Heights, Newburgh Heights, Warrensville Heights and Euclid. All study results will be disseminated throughout the entire community via the Cuyahoga County Health Care Council. It is designed to address the diseases of pulmonary hemosiderosis, asthma, and lead poisoning by controlling the environmental factors that allow for the proliferation of these conditions, particularly moisture and mold (MM) problems in the home.

This program will be initiated by referral of children from four well-defined sources: 1) a local Pulmonary Hemosiderosis Prevention Program 2) an ongoing Lead Hazard Control Program and 3) a randomized research trial on high risk asthma patients and 4) referrals from a county hospital, local community-based housing organizations, and the local housing authority. One hundred fifty homes derived from these sources will be remediated over a 2 year period. Innovative and cost-effective interventions will be implemented to address mold contamination and correct moisture infiltration. Environmental assessment of the homes will be conducted to determine baseline allergen loads in the units before remediation. Prospective tracking of relative humidity levels in the homes of asthmatic children will be conducted as a research component to gauge the success of housing interventions.

Clinical assessment of the families will also be conducted to determine the health impact on the families before remediation. Additionally, follow-up environmental and clinical assessments will be conducted following remediation to determine the efficacy of the overall intervention. Householder education will be a strong component throughout the entire process and the collection of all data will be centralized for ease in analysis and interpretation. Outside experts will meet in Cuyahoga County periodically to chart the course of the grant. Finally, all findings will be shared with the local public health community, HUD and at national meetings of several housing, health,

and building science organizations.

#### DEMONSTRATION OF NEED IN PROJECT AREA:

Age and Condition of Housing: The housing in Cuyahoga County as a whole is generally old, with 45.4% (274,307) built before 1950. In the target area, 63.6% (112,044) units were built before 1950. Within the target area 29.8% (114,861) persons are living below the poverty level versus 13.8% (191,149) of persons meeting this designation in the county as a whole. It is reasonable to assume that the condition of many of the housing units in the target area is likely to be substandard due to the lack of funds for most families to adequately maintain their homes. This assumption remains constant with our experience in these communities.

Income. Children <6 Years of Age. Unemployment: A significant portion of families living in the UMMP target area are low and very low income persons earning <80% of the median income. Specifically, 62.52% (234,748) of persons meet this criteria in the target area. Comparatively, 39.46% (531,321) of the people in the entire county meet this criteria. Within the area of focus, 36.7% (39,021) of the children are below the age of six, as percentage of all children under age eighteen. Overall, 9.9% of all persons living in the target area are under age six. Unemployment rates in the target area are over double that of the entire county. The study area exhibits a 15% (24,892) unemployment rate while the whole county reports 7.5% (51,371) unemployment.

Race Data: A particularly stark contrast between the target area and the entire county exists when examining race data. Cuyahoga county is 24.8% (350,185) African American while the target area is 70.3% (277,477) percent African American, according to 1990 census data. These statistics follow quite closely when viewing concentrations of minority persons as a group, where 72.3% (285,237) of the people residing in the target area are minorities versus 28.4% (400,659) in the entire county, with Hispanic persons representing only 1.2% (4,548) of all persons in the study area. This data was the basis for determining which census tracts to target in the grant.

#### DEFINING THE PROBLEM:

Pulmonary Hemosiderosis: Since 1994, Greater Cleveland has been the epicenter of an outbreak of acute pulmonary hemorrhage/hemosiderosis among infants. Local, state and national research and media attention has documented this previously rare disorder, which has been diagnosed in 43 infants in Northeast Ohio in the past five years. This serious disorder causes infants to cough blood and usually requires intensive care measures. Fifteen (35%) of these infants have died including nine originally diagnosed as Sudden Infant Death Syndrome (SIDS). Thirty three (77%) of these infants were African American, and all but one of who live in a limited geographic area of eastern metropolitan Cleveland in an area of poverty and older housing stock that is often poorly maintained.

An investigation of this outbreak in 1994 led by the CDC has linked this disease with exposure to a toxigenic mold called *Stachybotrys chartarum* (formerly *atra*), found in the infants homes. This mold requires water-saturated cellulose products to grow and has been linked to chronic basement flooding and/or chronic plumbing/maintenance problems. Once the source of water damage is corrected, the mold problem itself can be addressed by a varying degree of housing interventions.

These cost-effective housing interventions were developed in Greater Cleveland and are consistent with contemporary health and safety guidelines for the safe removal of fungal contamination in buildings.

For the geographic cluster area in our proposal for the period 1/1/93 through 11/23/95, idiopathic pulmonary hemosiderosis accounted for 12% of the infants' deaths originally classified as Sudden Infant Death Syndrome. Similarly, the incidence of IPH for this area and time period was 1.5 per 1000 live births with a death rate of 0.5 per 1000 live births. Another important consideration is that some of the cases at RB&C did not present with overt pulmonary bleeding, but only exhibited nose bleeds. In some cases, low grade pulmonary bleeding was only detected upon extensive clinical examination. Medically, this may indicate that occult bleeding may be a much larger problem among at-risk infants than is currently understood, which suggests an even higher prevalence of PH in this community. The CDC is currently reviewing this association and has launched a program of national surveillance, environmental investigation of clusters and clarification of the case definition in order to determine the scope, magnitude and exact nature of the illness.

Asthma: Asthma is the leading cause of chronic illness and school absenteeism among children in Cuyahoga County and throughout the United States. A number of environmental exposures in the home can trigger very severe asthma attacks in children. At both Rainbow Babies and Children's Hospital and MetroHealth Medical Center, two of the major pediatric centers in Greater Cleveland, asthma is the most common hospital emergency room diagnosis and cases in children aged 6 to 11 have increased over 50% in the last decades. Asthma disproportionately impacts the African American community, apparently due to factors of poverty associated with substandard housing. Nationally, asthma prevalence is about 30% higher and asthma deaths are four times higher in the African American population. Data is still being collected on the rates of asthma in Greater Cleveland, but preliminary results indicate that concentrations of asthmatics reside in some of the same census tracts as the families at risk for Pulmonary Hemosiderosis.

The public health, medical, housing and private health agencies of Cuyahoga County have been collaborating since 1997 to address this issue through the Greater Cleveland Asthma Coalition (GCAC). This Coalition was established to determine rates of asthma among children in the county and to develop a plan to address some of the environmental factors that trigger these asthma attacks, such as the presence of environmental tobacco smoke (ETS), cockroaches, mold and/or dust mites in the home environment. The UMMP will exchange information with the GCAC to address multiple environmental hazards related to mold and moisture intrusion in the targeted units and to provide educational information to the entire community. The GCAC will in turn use the data generated by the UMMP to build its own expanded intervention proposal.

Lead Poisoning: Lead poisoning has been identified as one of the most important pediatric disorders among Cuyahoga County children. Notably, several HUD Lead Hazard Control Grants have been awarded to this community because of the overwhelming need. Children exposed to lead-based paint dust and chips exhibit pronounced health effects including developmental delay and learning disabilities

which inhibit comprehension and retention. These exposures in childhood can have permanent effects, preventing children from reaching their full potentials as adults. Over 22% of children tested in Cuyahoga County have elevated blood lead levels (EBL) and in the City of East Cleveland, over 25% of children tested have EBL's. The CDC has set standards that classify areas with greater than 27% of the housing stock built before 1950 as high risk for lead poisoning and over 50% of the housing stock in Cuyahoga County meets this criteria. Socioeconomic status is also a strong indicator of risk for lead poisoning and over 40% of the residents in Cuyahoga County are classified as low or moderate income and over 68% percent of the residents on the City of East Cleveland are in the same classification. We therefore applied for and obtained grant funding from HUD in 1998 to screen children in high risk areas for lead, to assess homes for lead risks and to repair homes of lead poisoned and at-risk children. We plan to link these lead hazard control activities with the UMMP in targeting essentially the same census tracts.

Prior Experience & Activities: The DOD, CCBH and CWRU have been collaborating to address indoor MM problems since 1996. The current Lead-Safe Cuyahoga Round 5 Lead Hazard Control Grant incorporates healthy homes issues like MM control which will be integrated with the UMMP. The Pediatric Pulmonology Unit at CWRU continues to lead the investigation of PH in infants and Cuyahoga County is where environmental assessment of case homes has been conducted since 1994 in conjunction with cost-effective remediation techniques which will be documented in the scientific literature. These collaborative activities are integral to the PH prevention program instituted in 1996 as recommended by the Centers for Disease Control and Prevention.

Funding Request, Scope of Work: We request 3.15 million dollars from HUD to remediate 150 units for MM and lead hazards, to conduct targeted education, provide high efficiency vacuums and instruction to an additional 75 families as part of a control group, and create economic opportunity for low income residents. Approximately 270 families will receive advanced education, promoting healthy homes benefitting an estimated 675 children. A total of \$2,100,624 will be leveraged to support grant dollars in this research and demonstration project, which will provide valuable science-based data on the environmental impact on homes and on the health of children associated with cost-effective MM control.