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Socioeconomic and Psychological Associations with Asthma Morbidity in Adults in the Chicago Initiative to Raise Asthma Health Equity (CHIRAH) Study

John Jay Shannon, MD, Pulmonary and Critical Care Medicine, John Stroger Hospital of Cook County, Chicago, IL

Stress and coping mechanisms are thought to contribute to asthma disparities among African-Americans and low-income populations. The Chicago Initiative to Raise Asthma Health Equity (CHIRAH) study is a prospective observational cohort study, analyzing the effects of environmental and psychosocial stressors, socioeconomic status, social support and coping mechanisms on asthma morbidity in children and adults with asthma in Chicago. An interim analysis of cross-sectional baseline data of the adult cohort found that depressive symptoms were common and more frequently experienced by women, the unemployed, those who had experienced more negative life stressors and those with less perceived asthma-specific social support. These depressive symptoms were associated with lower quality of life and increased symptoms but not with health care utilization for asthma. Analysis of the

impact of insurance status was also performed on the adult cohort. Better health status was associated with private insurance compared to public insurance or self-pay status. Private insurance was more common in men, non-minority adults, those with higher education and literacy, those working for pay and those who own a home rather than rented. Having private insurance was associated with better asthma-specific quality of life and fewer hospitalizations, but not with symptoms or urgent visits in our adjusted analysis. The directional and mechanistic relationships between depression, socioeconomic status, insurance and asthma need to be explored for effective interventions to be devised.

These results are being prepared for official publication in a peer-reviewed journal. In order to meet submission guidelines, this abstract has been kept brief.

Air Pollution and Lung Inflammation Among Public Housing Residents

continued from previous page

of PM₁₀. Community-based monitoring of airway inflammation is feasible, though exhaled monoxide concentrations must be corrected for concentrations indoors at the time of breath collection. Ozone was associated with an increase in eCO, suggesting oxidative injury as a mechanism of ozone effects on inner city asthmatics.

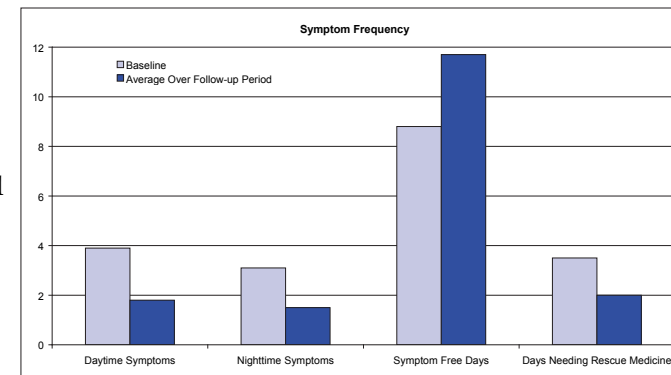
The project described was supported by grant K08 ES011302 from the National Institute of Environmental Health Sciences, NIH. Its contents are solely those of the author and do not necessarily reflect the official views of the NIEHS, NIH.

Use of Lay Health Educators to Improve Asthma Management Among African-American Children

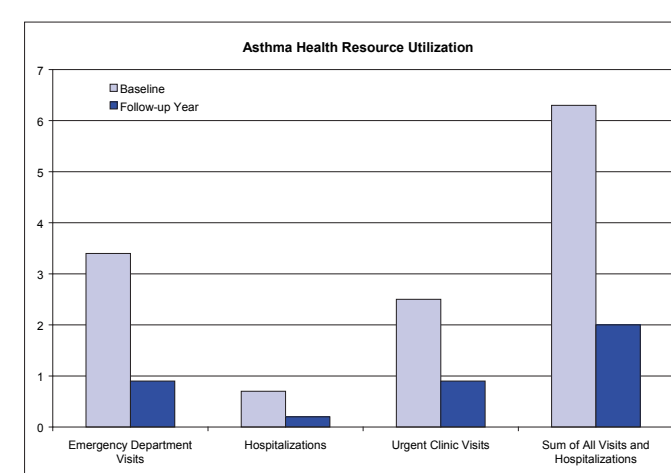
Helen Margellos-Anast, MPH, Steve Whitman, PhD, Melissa Gutierrez, MS Sinai Urban Health Institute, Sinai Health System, Chicago, Illinois
Gloria Seals, Deepak Jajoo, MD, Sinai Children's Hospital, Chicago, Illinois

Asthma affects 12% of children in the U.S., with some of the highest rates being reported among inner-city, African-American children. A tendency to rely primarily on the emergency department (ED) for asthma care has also been documented. As the focus in the ED is on the treatment of acute symptoms, many frequent ED users are not properly medicated or educated on asthma self-management. Our goal was to design, implement and evaluate an intervention that would educate and empower inner-city, African-American children and their families to better manage asthma, while also facilitating the establishment of a relationship with a Primary Care Provider (PCP). The pilot project assessed the effectiveness of using a Lay Health Educator (LHE) in reducing asthma morbidity and improving quality of life among children with poorly controlled asthma. Children were recruited primarily from the ED and inpatient units of an inner-city hospital and also via referrals from community physicians. Eligible children had severe, uncontrolled asthma, were between the ages of 2-16 years, and were African-American. Two LHEs were recruited from the target community and trained to educate children and their families about how to more effectively manage asthma. Once trained, LHEs conducted 3-4 home visits during a 6-month period with each partici-

pating family, providing individualized asthma education. The LHE also served as a liaison between the family and the medical system, helping to bridge the gap between parents and



PCPs. Data was collected for 1 year post-baseline for evaluation purposes. Between November 15, 2004 and July 15, 2005, 70 children were enrolled into our study. Ninety-six percent of enrolled children were Medicaid insured and 54% lived with a smoker. The average child was 7.3 years old and had visited an ED, been hospitalized or visited a physician for worsening asthma 6.5 times in the year prior to participation. Fifty-eight (82.9%)



completed the entire 6-month intervention phase. Analysis was limited to the 50 (71.4%) children who completed the entire 12-month evaluation phase. Findings were suggestive of improved asthma control. Specifically, a significant improvement in 4 symptom-related variables was noted, with approximately 2-fold reductions in frequency. Urgent health resource utilization also decreased significantly over the follow-up period. For example, ED visits decreased from 3.4 times in the year prior to the study to 0.9 in the year following ($p < 0.05$). Parental

Quality of Life, an indicator of the impact of improved asthma control (scaled 1-7), significantly increased from 5.2 to 5.9 ($p < 0.05$) by month 6 and to 6.0 ($p < 0.05$) by month 12. Other important outcomes included improved asthma-related knowledge, decreased exposure to asthma triggers in the home, improved use of medications and increased obtainment of Asthma Action Plans (72.4% at six months). Our findings suggest that individualized, one-on-one asthma education provided by a trained, culturally competent LHE in the home environment may be an effective means of improving asthma management among inner-city, African-American children with poorly controlled asthma. Further studies are needed to affirm our results and assess the model's generalizability.

Exploring Multiple Dimensions of Asthma Disparities Using the Behavioral Risk Factor Surveillance System

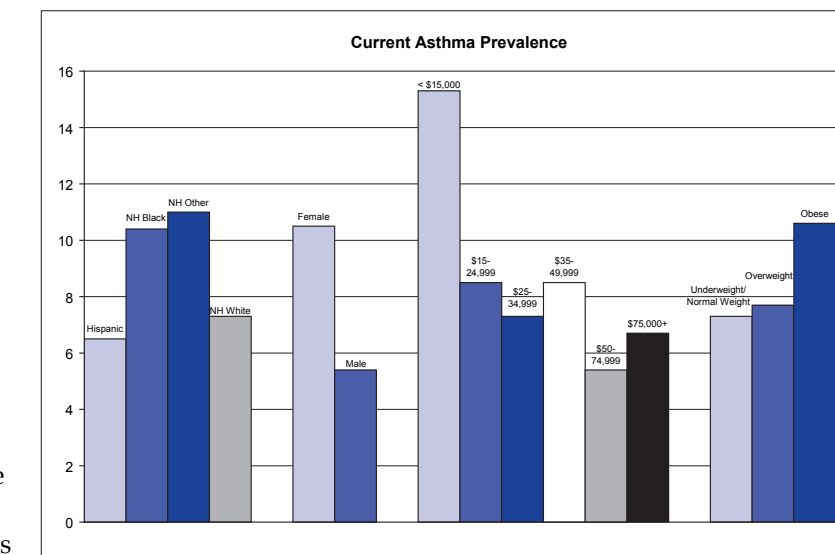
Kirsti Bocskay, PhD, MPH, Office of Epidemiology, Chicago Department of Public Health, Chicago, Illinois

Known risk factors for asthma include race/ethnicity, gender, obesity, poverty, smoking, urban residence and health care usage. Few studies have focused on variations in adult asthma prevalence; most have concentrated on differences in children. This study examined the association of race/ethnicity, gender, age, socioeconomic and health insurance status with the prevalence of ever having been diagnosed with asthma (Ever Asthma) and currently having asthma (Current Asthma). The study population was built from 2001-2005 Behavioral Risk Factor Surveillance System (BRFSS) survey data of Chicago residents. The BRFSS is an annual state-based, random-digit-dialed survey of non-institutionalized, civilian adults, aged 18 and older that collects information about modifiable risk factors. Bivariate analyses were first performed using Chi square test statistics to compare the total study population to the Ever Asthma and Current Asthma populations. Multiple logistic regression modeling was then utilized to evaluate the association of Ever and Current Asthma with significant risk factors identified through the prior bivariate analysis: sex, weight, household income and race/ethnicity. The study population was composed of 3,280 Chicago residents. The overall prevalence of Ever Asthma was 12.8%, and

Current Asthma was 8.4%. Prevalence of Ever or Current Asthma did not significantly change over the study period (2001-2005). Ever and Current Asthma prevalence was highest for the Non-Hispanic Black, Non-Hispanic Other and female populations, and slightly higher among 18-24 year olds as compared to other age groups. Study subjects in the lowest household income bracket (< \$15,000), who had not graduated high school or who were unable to work also had higher asthma prevalence (Ever and

compared to the total study population. However, multiple logistic regression modeling revealed that only gender, weight and household income were significantly correlated with Ever and Current Asthma prevalence in this study population. Racial/ethnic differences did exist at the lowest income brackets, but decreased or disappeared as income increased. Because the study population was compiled from multiple survey years, weighting factors could not be applied and as such, the findings here may not

be representative of Chicago as a whole. Information on ethnicity is not collected on each Hispanic subgroup in the BRFSS and thus, intra-group differences could not be accounted for (i.e., Puerto Ricans have been shown to have higher rates of asthma than other Hispanic populations). The BRFSS survey generates a cross-sectional study population and therefore, it is not possible to measure



temporality among the risk factors and outcomes (e.g., which came first, obesity or asthma?). Despite these and other limitations in the BRFSS study design, real disparities in asthma prevalence existed in this adult study population. Socioeconomic status, as measured by household income, gender (female) and obesity were significantly related to both ever having and still having asthma in this population of Chicago adults.