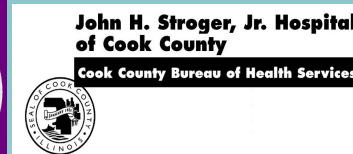


# Variation in diagnosed asthma prevalence in an urban school-age population

Shannon JJ<sup>1</sup>, Durazo-Arvizu RA<sup>2</sup>, Shalowitz MU<sup>2</sup>, Sadowski L<sup>1</sup>, Weiselberg L<sup>1</sup>, Weiss KB<sup>2</sup>.  
<sup>1</sup>John H. Stroger, Jr. Hospital of Cook County; <sup>2</sup>Northwestern University Feinberg School of Medicine



**NOTE:** The data presented on this poster are updated, representing school surveys through March, 2005

## Abstract

**Rationale:** National data suggest differences in the prevalence of asthma may partially explain racial disparities in asthma morbidity. We sought to characterize asthma prevalence in a large population of school age children in Chicago public and private schools.

**Methods:** As part of subject recruitment for a study of asthma disparities, schools in Chicago were selected using population-proportionate weighted sampling to achieve racial and socioeconomic diversity. The Brief Pediatric Asthma Screen, a pediatric asthma screening tool validated in English and Spanish, was distributed to all children in the schools (grades pre-kindergarten to 8), taken home and completed by an adult caregiver. Diagnosed asthma is an affirmative response to "Has a doctor or nurse ever told you that this child has asthma?"

**Results:** Forty-one (32 public, 9 Catholic) elementary schools returned a total of 16625 surveys, a response rate of 77%. A diagnosis of asthma (prevalence in %, 95% CI) was reported more often in self-described African-American respondents (19.2, 18.4-20.1) than non-African-American students (10.2, 9.5-10.9). Independently associated with an increased adjusted odds of asthma diagnosis were (adjusted odds ratio, 95%CI): male sex (1.5, 1.4-1.7), African-American race (2.0, 1.8-2.2) and having a parent with asthma (4.0, 3.5-4.4). Age was not independently associated with a higher likelihood of diagnosed asthma.

**Conclusions:** The prevalence of diagnosed asthma is high in Chicago elementary schools. Differences in prevalence are likely a significant contributor to differences in asthma morbidity by race. Recognition of these demographic features associated with higher asthma prevalence may be used to target high-risk populations.

## Objectives

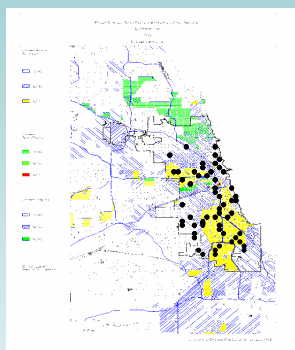
The Chicago Initiative to Raise Asthma Health Equity (CHIRAH) is analyzing the relationships between socioeconomic and psychosocial stressors and asthma morbidity.

1. To recruit children and adults with asthma for a longitudinal study of asthma disparities
2. To estimate the total asthma burden (asthma plus possible undiagnosed asthma)
3. To conduct a city-wide, population-based ascertainment of elementary schoolchildren with asthma

**Funding:** NHLBI 1 U01 HL072496-01

## Methods

School sampling strategy:



- Schools classified into 2 race categories (>or < 50% of students self-described African American) and 2 socioeconomic status categories (>or <70% of students qualify for reduced/free lunch)
- Population proportionate sampling of schools within the 4 groups
- Screened students attending 83 Chicago Public and Catholic elementary schools between September 2004 and March 2005, using survey completed by caregiver.
- Diagnosed asthma is an affirmative response to "Has a doctor or nurse EVER told you that your child has asthma?"

**Statistical Analysis:** Two-independent sample t-test were used to compare continuous variables.  $\chi^2$  tests for independence were used to test differences in distributions with categorical variables; multivariate logistic regression was applied to estimate the association between asthma prevalence, adjusting for potential confounders.

## Results

Surveys distributed to 83 schools (62 public, 21Catholic)

-school census=46,759  
-79% survey return rate

SAMPLE DESCRIPTION (N=36,881)	
Male	49.2 %
African American	33.7 %
Mean Age in Years (S.D.)	9.8 (2.9)
English Language	87%
Parent with Asthma	8.6%

## Results (n=26824 students 6-12 years of age)

Confounder	Group	Diagnosed Asthma N=3421 (12.8 % of sample)	No asthma diagnosis N=23403 (87.2% of sample)
Race	African American	1,725 (19.1)	7,318 (80.9)
	Non-African American	1,696 (9.5)	16,085 (90.5)
Sex	Female	1,425 (10.6)	12,067 (89.4)
	Male	1,973 (15.1)	11,066 (84.9)
Parent has Asthma*	No	2,503 (10.5)	21,271 (89.5)
	Yes	851 (37.0)	1,448 (63.0)
Type of School	Public	2,962 (12.8)	20,112 (87.2)
	Archdiocese	459 (12.2)	3,291 (87.8)

\*26,073 observations with data

Predictor variable	Odds Ratio	P-value	95% CI
Age	1.02	>0.43	0.98-1.06
Male	1.56	<0.001	1.47-1.66
African American	2.07	<0.001	2.04-2.10
Parent has Asthma	4.55	<0.001	3.50-5.92
Archdiocese School	1.15	<0.006	1.04-1.26

## Conclusions

In Chicago elementary schools there are racial disparities in diagnosed asthma, with African American children twice as likely to have an asthma diagnosis. Knowledge of variance in the prevalence of asthma in focused populations is needed for understanding differences in asthma morbidity such as health care utilization. Awareness of risk factors associated with asthma should be used to inform policy decisions such as allocation of resources. Reduction of asthma disparities at the local level requires knowledge of high-risk populations.