Lack of Routine Preventive Care as a determinant for Pediatric Asthma ER Visits

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Outline

- Objectives
- Background
- Data Source
- Study Population and Sample Size
- Outcome Assessment
- Results
- Conclusions

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Objectives

- determine if there is a higher prevalence of pediatric **asthma exacerbations** in populations that **lack adequate preventive medical care**
- examine the prevalence of childhood **ER visits** for asthma among recipients and non-recipients of **asthma management programs**
- determine the relationship between adequate preventive medical care and asthma ER visits in children < 18 years of age.

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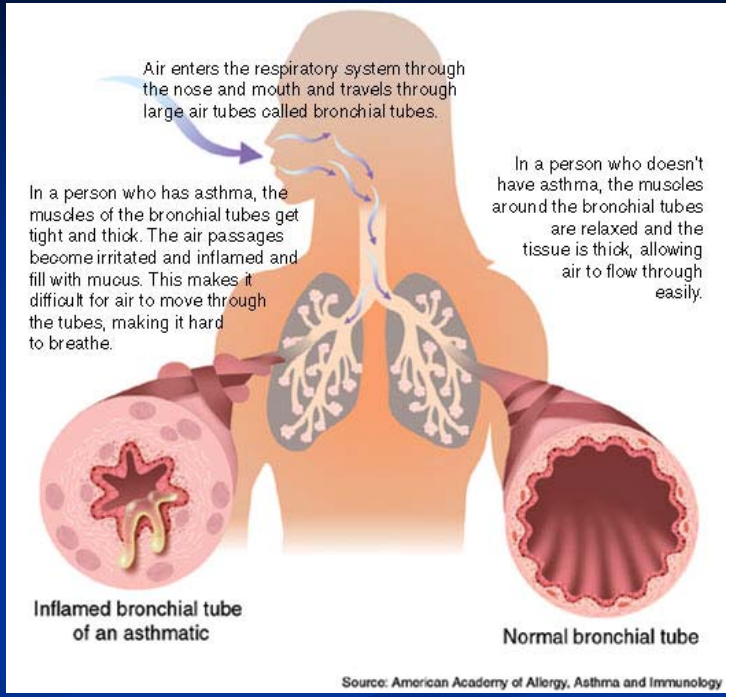
Background

- Asthma
  - **Preventable** chronic inflammatory condition of the lungs that results in the tightening or narrowing of the airways
  - Exacerbations are usually attributed to an allergic reaction from one or more of a variety of "triggers"
    - cigarette smoke, pollen, mold, animal dander, feathers, dust, air pollution, food, exercise or emotional stress



Why is asthma in children an important public health issue?

- Potentially dangerous asthma exacerbations are almost **completely preventable** with proper care
- **Leading cause of school absenteeism** attributed to a chronic condition, with more than 10 million days of school missed annually due to asthma-related issues*
- also one of the leading causes for **emergency care visits**, morbidities, hospitalizations, and mortalities in children*
- Children and parents are not receiving asthma management information to prevent, control and monitor asthma exacerbations

*American Lung Association, Asthma and Children Fact Sheet 2004.

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2003 National Health Interview Survey (NHIS)

- Continuous, nation-wide cross sectional survey of the health status and behaviors in the United States
- Multistage probability sampling, obtained through extensive questionnaires and flash cards
- Face-to-face questionnaires administered in randomly selected households

2003 National Health Interview Survey (NHIS)

- Children's Sample Questionnaire
- Additional family history data was taken from the Family questionnaire portion of the survey

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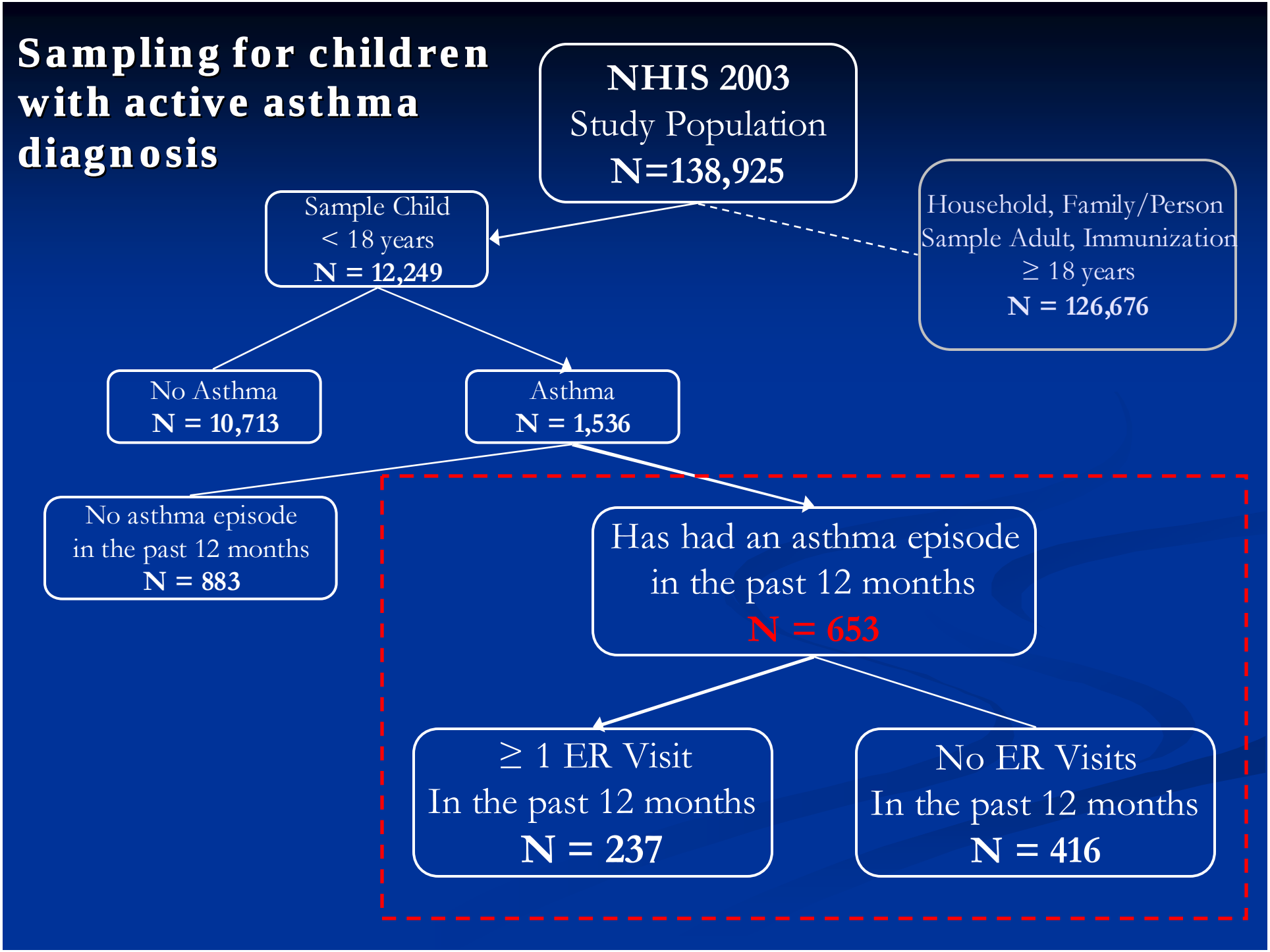
Study Population

- Children, <18 years of age
- Diagnosed as having asthma by a physician
- Had an asthma episode in the past 12 months

Sampling for children with active asthma diagnosis



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Outcome Assessment

- Outcome Variable
  - ER visit in the past 12 months
- Main Independent Variable
  - Composite variable created from 12 variables
    - Use of proper medication and prescription inhalers, asthma management education, given asthma management plan, recognition of early signs and symptoms and proper response and monitoring and environment education
  - Composite variable was dichotomized to create adequacy of care
    - Score of < 6 = inadequate
    - Score of ≥ 6 = adequate
- Covariates
  - Socio-demographic variables for both parents and children
  - Access and utilization of care

Data Analysis

- Descriptive
  - proportions, means
- Crude analysis
  - binary logistic regressions
  - ER visit in the past 12 months as the dependent variable
- Adjusted analysis
  - multiple logistic regression

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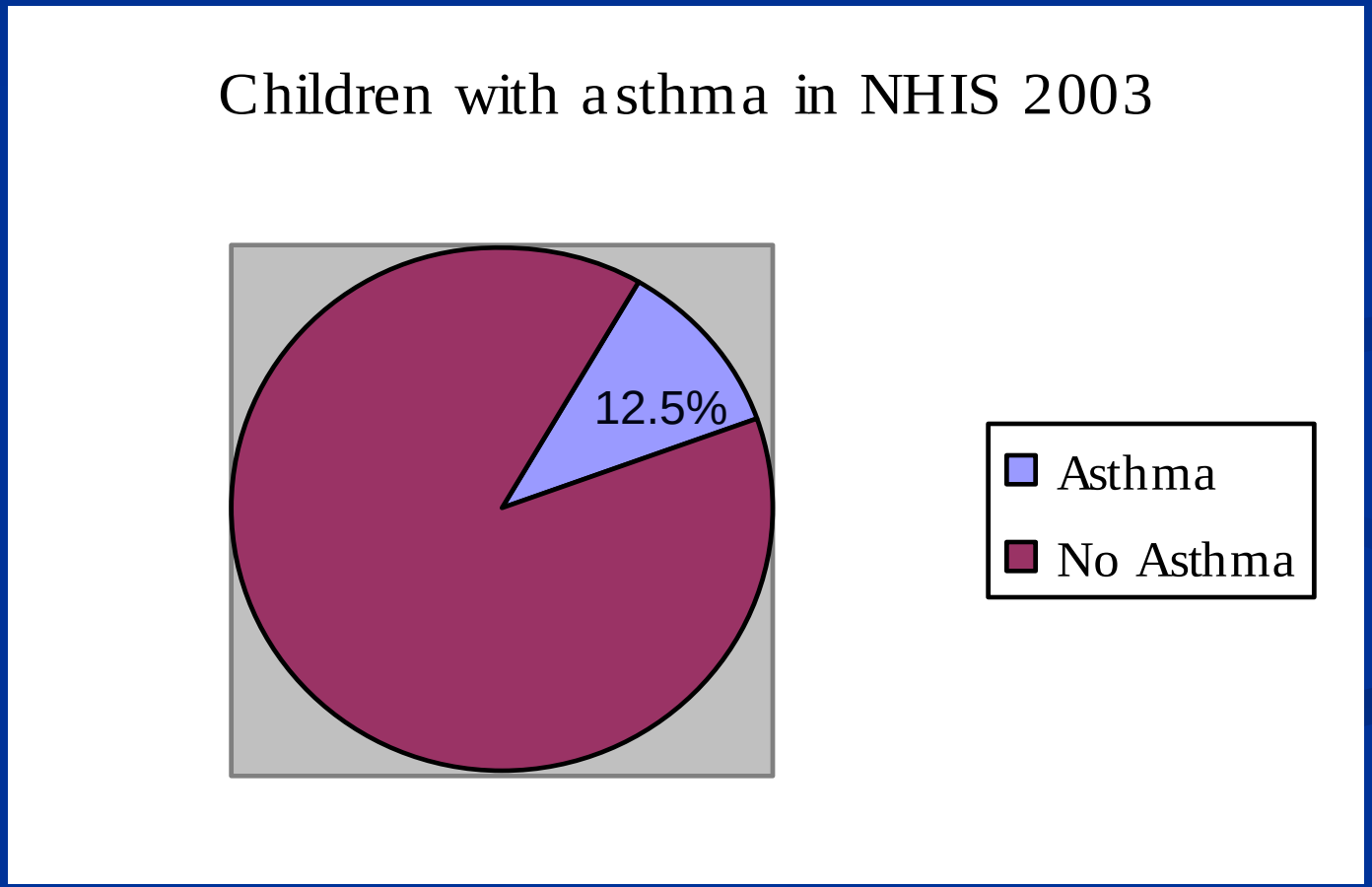
Results

- NHIS asthma prevalence resembles the national average of 13%



Results - Descriptive

Variable			
Gender	Male	Female	
	58.6%	**41.4%**	
Age (years)	<6	6 – 10	11 – 17
	25.7%	**28.5%**	**45.8%**
Race	White	African American	All Other
	70.7%	**25.0%**	**4.3%**
Ethnicity	Hispanic	Non-Hispanic	
	22.3%	**77.7%**	
Family Income	< $20,000/Year Family Income	> $20,000/Year Family Income	
	25.4%	**74.6%**	

Results

- **Prevalence of ≥ 1** ER visit in the previous 12 months
  - **22.7%** of children with asthma
  - **55.7%** of children < 6 years
  - **48.1%** of African American children
  - **49%** of children whose mother, and **43.7%** whose father did not graduate from high school
  - **50.3%** of children with < $20,000/year family income
  - **90.6%** who have stayed overnight in the hospital due to asthma

Variable	Total	ER Visit	Crude			Adjusted		
	N	N	POR	95% CI		POR	95% CI	
Child's Age								
Under 6 years	167	93	**2.752**	**1.780**	**4.254**	**3.409**	**2.042**	**5.691**
6 to 10 Years	185	58	0.892	0.599	1.330	0.966	0.609	1.531
11 to 17 Years	297	86	1.000			1.000		
Child's Race								
White	459	146	1.000			1.000		
African American	162	78	0.538	0.250	1.160	0.525	0.222	1.240
All other races	28	13	1.071	0.479	2.394	0.739	0.291	1.873

Variable	Total	ER Visit	Crude			Adjusted		
	N	N	POR	95% CI		POR	95% CI	
Mother's Education Level								
Less than High School	100	49	1.332	0.792	2.238	0.817	0.439	1.519
High School Diploma	169	63	0.824	0.519	1.307	0.748	0.445	1.257
Some College, No Degree	136	57	**0.469**	**0.291**	**0.756**	**0.456**	**0.271**	**0.767**
A.S/A, B.S/A, M.S/A, Pro	182	46	1.000			1.000		
Family Income								
Less than $20,000/year	157	79	**2.200**	**1.520**	**3.184**	**1.771**	**1.097**	**2.858**
$20,000/year or more	460	145	1.000			1.000		

Variable	Total	ER Visit	Crude			Adjusted		
	N	N	POR	95% CI		POR	95% CI	
Place Most often Visit								
Other Office, Hospital, HMO	614	220	1.000			1.000		
Hospital Emergency Room	14	10	0.233	0.069	0.721	0.421	0.120	1.477
Standard of Care								
Inadequate <6	383	148	**1.638**	**1.106**	**2.426**	**2.055**	**1.257**	**3.361**
Adequate >6	261	87	1.000			1.000		

Results – Adjusted OR

- Significant Adjusted Results:

**** 2.055 (1.257, 3.361) children with inadequate care visited the ER at least one time in the past 12 months ****

- **3.409** (2.042, 5.691) children under 6 years
- **1.771** (1.097, 2.858) children with family/income < $20,000/year
- **0.456** (0.271, 0.767) children whose mother has at least some college, but no degree

Conclusions

- Lack adequate asthma management and prevention are important determinants for asthma related ER visits in children
- Practices that support early interventions for asthma management and preventive care were associated with reduced risk of ER visits
- Initiatives to support mandatory asthma management education and programming at primary care practices and as well as the home setting are essential in the management of pediatric asthma.

Study Limitations

- Questionnaire-based
  - Recall bias
    - Overestimating their child's illness
    - Dishonesty - preventive care measures preceding the ER visit
- Questions associated with child health care
  - parents embarrassed or ashamed
  - may lead to refusals or dishonesty
- Interviewer bias
  - 200 different interviewers administering the questionnaire