Effective partnerships between parents and schools in asthma management of students

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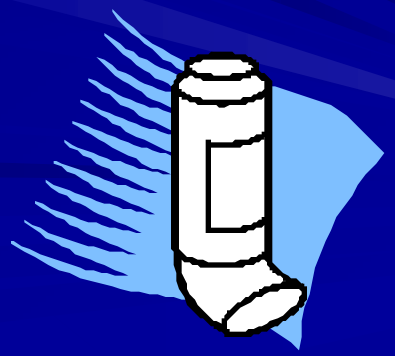
Focus

- Goal: The focus of this research was to establish supplemental data to an existing youth asthma education program by investigating parents' beliefs, and behaviors regarding managing their child's asthma, environmental irritants and triggers in the home, and perceptions of the effectiveness of the in-school program.

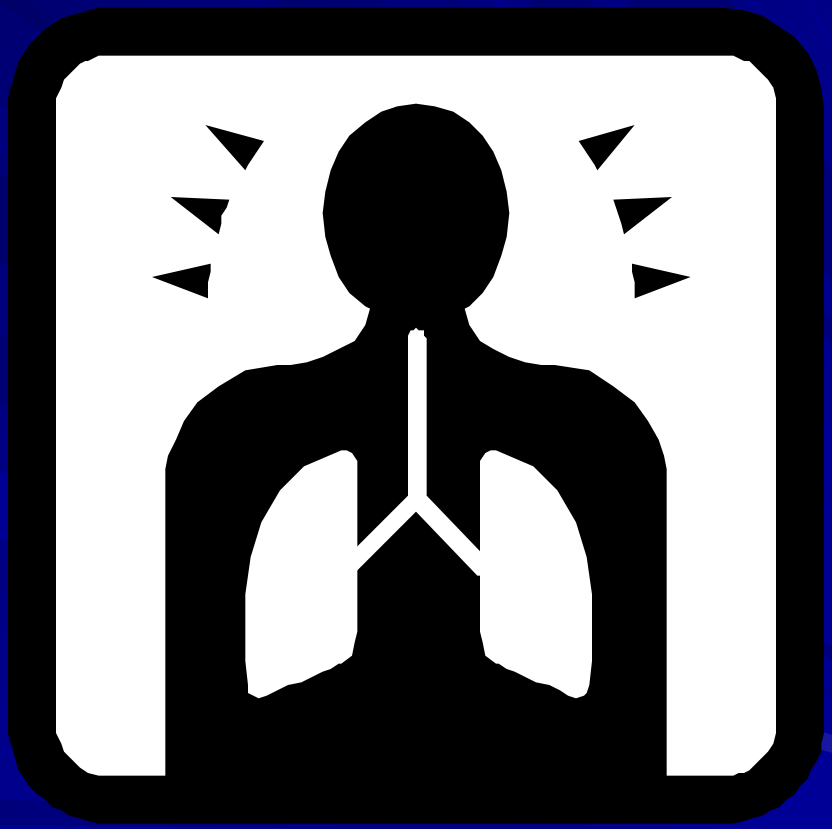


Background

- Asthma is a chronic pulmonary disease in which the bronchial passages become narrowed, restricting air flow.
- Airway narrowing due to:
  - Smooth muscle spasm
  - Mucous secretion
  - Edema
  - Immune sensitivity
  - Desquamafication

Symptoms

- Wheezing
- Shortness of Breath
- Chest Tightness
- Coughing



Diagnosis

- Family History
- Atopy
- Frequency of Symptoms
- Pulmonary Function Testing
- No known cause
- No known cure

Common Environmental Irritants and Triggers

- Pollen
- Dust mites
- Mold and Mildew
- Animal Dander
- Cockroach remains
- Smoke
- Humidity
- Cold Air
- Physical Activity
- Chemical Odors
- Appliances

The Big Scene

- 2002, United States prevalence = 7.5%
- 9 Million youth (12.2%) < 18yrs diagnosed
- 14.6 Million school days missed, attributed to asthma
- Most prevalent chronic youth disease
- 3rd highest cause for youth hospitalization

So What's Going on in the Mountain State?

- ALA, 2000: 32,000 children with asthma
- Prevalence 9.1%
  - Reported 23.2% in High Schools
  - Reported 21.1% in Middle Schools
- 3rd highest ranking state in nation

WV Geography→Demography

- Increased risk factors for asthma
- 37/55 Counties insufficient health care
- ↑ Poverty
- ↑ Unemployment
- ↓ Education
- ↓ Access to health care
- ↑ Tobacco Use

Background: Open Airways for Schools

- In-school asthma education program for elementary school-aged children
- Columbia University: College of Physicians and Surgeons
- Piloted in NY in 1987
- 1992 Health Education Research Award
- Endorsed by American Lung Association
- Currently 24,667 schools nationwide

So what does Open Airways do?

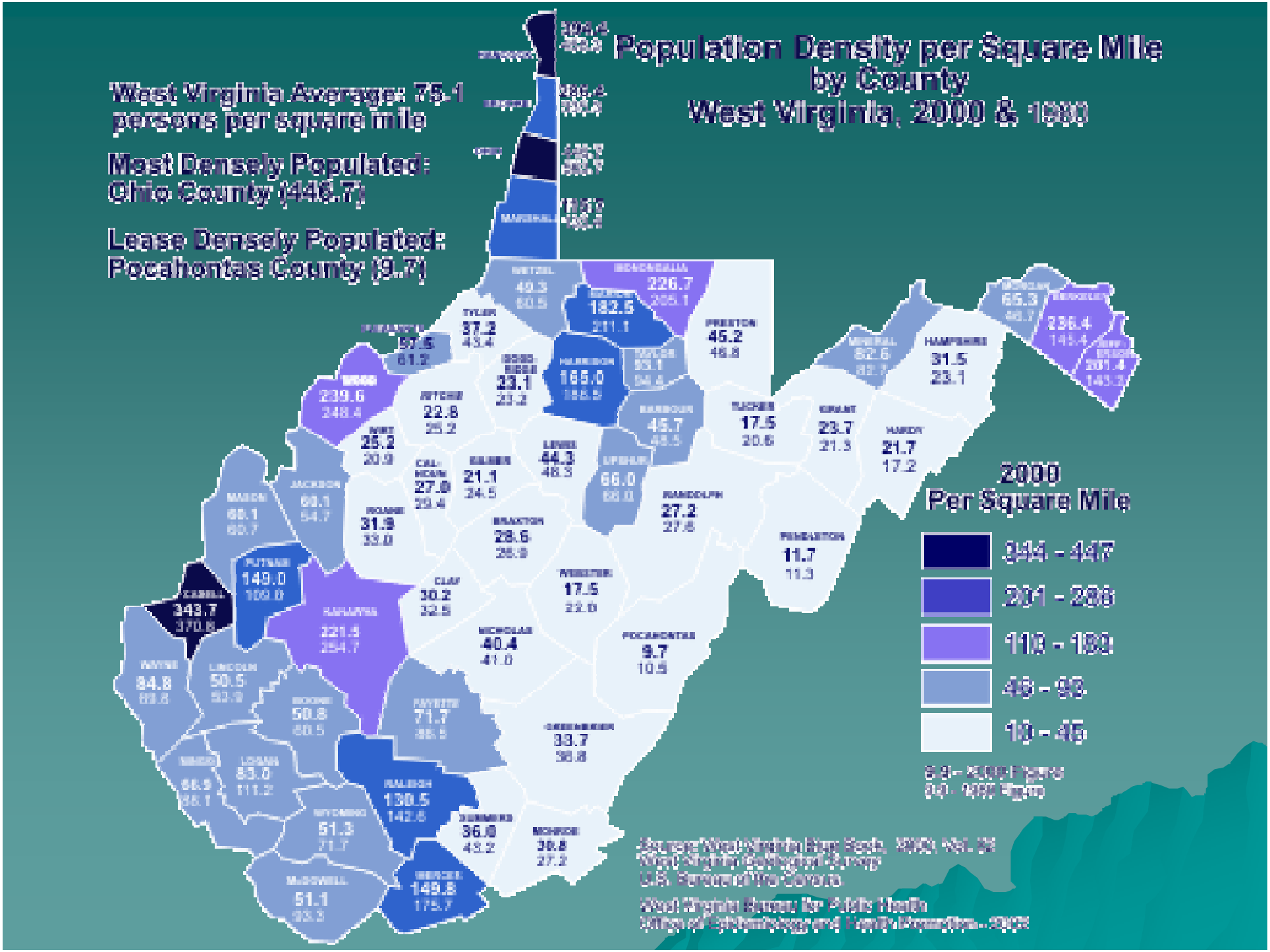
- Educate youth about:
  - Environmental risk factors
  - Irritants and triggers
  - How to manage symptoms and/or an asthma attack
  - Drug therapy and compliance
  - Preventative measures

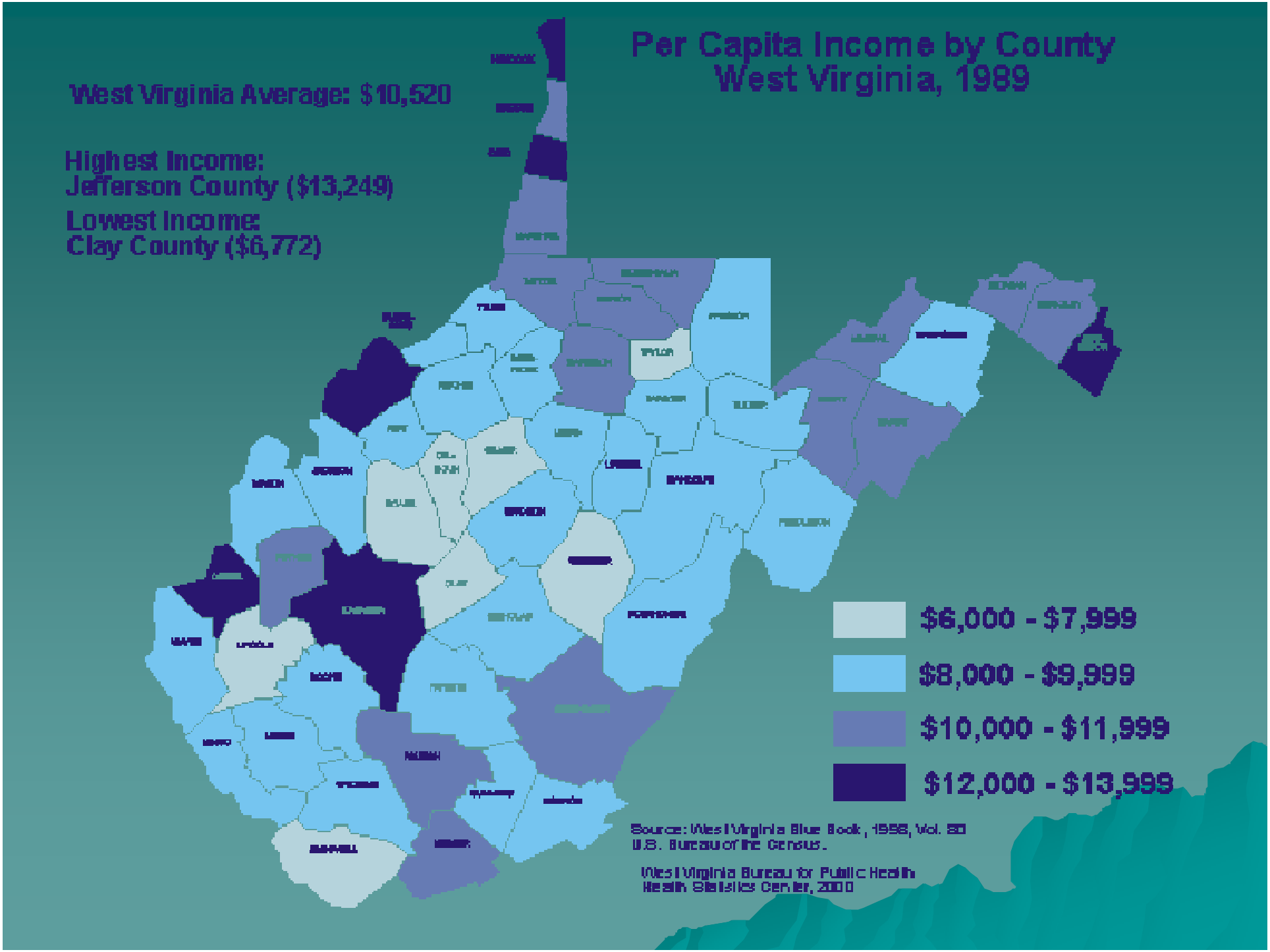
Current Implementation

- 2004: Priscah Mujuru DrPH RN COHN-S
- Cooperation with WVU CMED, EPA, & ALA
- Implement Open Airways program at Kingwood Elementary School, in Preston County WV

Why Kingwood?

- Kingwood Elementary→ 12% prevalence of student asthma
- Preston County 45.2 people per sq. mile
- High School graduates 1.2% below state
- Bachelor's Degree 4% below state average
- Median annual income $29,155
- 21.9% smoking prevalence
- 2003 Pop. = 2,928
- Close proximity to WVU





Limitations of Open Airways

- Has no Parent Education Component
- Does not investigate parents' knowledge or beliefs
- Does not evaluate the home environment
- Practicum seeks to supplement data

Approach

- Telephone interview/questionnaire for parents
- Ask about the home environment, irritants and triggers, perception of Open Airways program, demographics
- Evaluate by descriptive statistics
- Develop inferences from result

Methodology

- Questionnaire developed with four sections
  - The home environment
  - Perceptions of irritant and triggers in the home
  - Asthma education beliefs
  - Demographics
- 54 possible responses containing ordinal, nominal and contingency responses
- Duration 5-10 minutes
- Pre-tested with 3 adults for content validity
- IRB amendment to existing protocol

Participant Pool

- Convenience Sample
- 70 of 586 students with asthma
- 37 students in grades 3-5
- 2 students from grades 1 and 2 with special request to participate
- 18 participated in education program (2 were siblings)
- → **Possible 17 households for practicum study**

Methodology

- Calling made from WVU Dept. Community Medicine
- Initially 8 attempts to contact with additional 5 attempts
- Calls made between 6/14/05 and 7/31/05
- Calls made between 9:00AM and 8:30PM
- Contacts documented in Excel
- Responses were entered into SPSS with no personal identifiers

Analysis

- SPSS code book created for questionnaire
- Data was tested for frequency of participant responses
- Cross-tabulation conducted to measure selected variables

Results: The home

- 69.2% used gas furnaces
- 23.1% reported using air cleaning devices
- 38.4% used humidifiers in the home
- 61.5% reported having cats or dogs, ¾ let them in the house, and allow them in the bedrooms

Results: The home

- 30.8% reported family member smoking
- 50% of smokers smoked inside the home
- 50% of smokers smoked in the car with child

Results: The Home

- 92.3% of households have had children visit a physician to diagnose asthma symptoms, irritants and triggers
- 53.8% of children have had allergy testing

Parent's Perceptions of Irritants

Does the following affect asthma symptoms?

Irritatant	Yes	No	Not sure	Freq.
Pollen	9	3	1	69.2%
Mold/Mildew	11	2		84.6%
Dust Mites	11	2		84.6%
Dogs/Cats	10	3		76.9%
Cockroaches	9	2	2	69.2%
Smoke	12		1	92.3%
Humidity	9	3	1	69.2%
Fireplaces etc.	10	2	1	76.9%

Other stated irritants

- Cold air (15.4%)
- Heat (7.7%)
- Odors (7.7%)
- Physical Activity (7.7%)
- Pollution (7.7%)

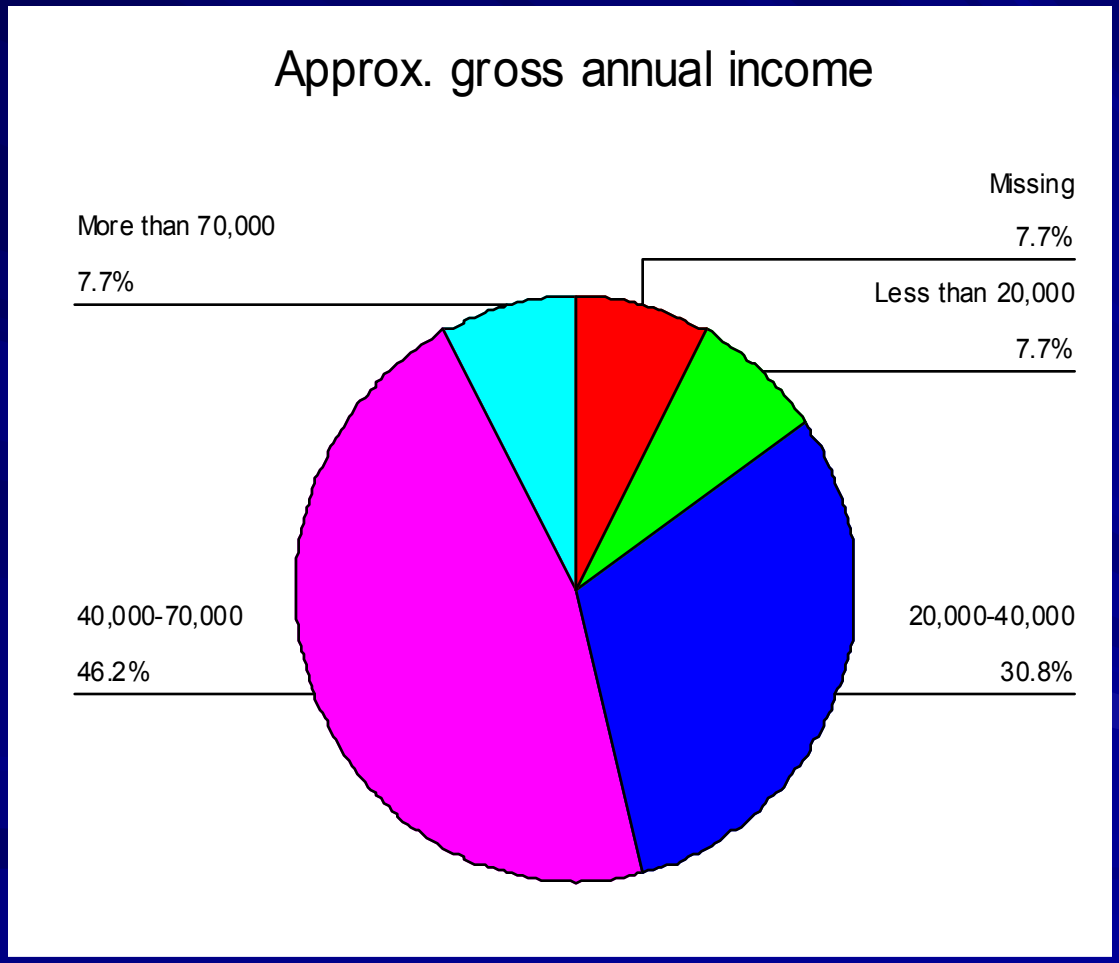
Perceptions of asthma education

- 100% reported helped child through materials
- 15.4% made changes in their home as result of program (2 installed mattress covers)
- 100% reported evidence child increased knowledge from the program
- 76.9% reported child's symptoms improved

Why some parents did not participate in Open Airways

- Infringement of privacy (15.4%)
- Children didn't need the program (7.7%)
- Child has doctor that advises (7.7%)
- Fear of singling out (15.4%)
- Reluctance because of prevalence of smoking (7.7%)
- Uncomfortable with research (15.4%)

Demographics



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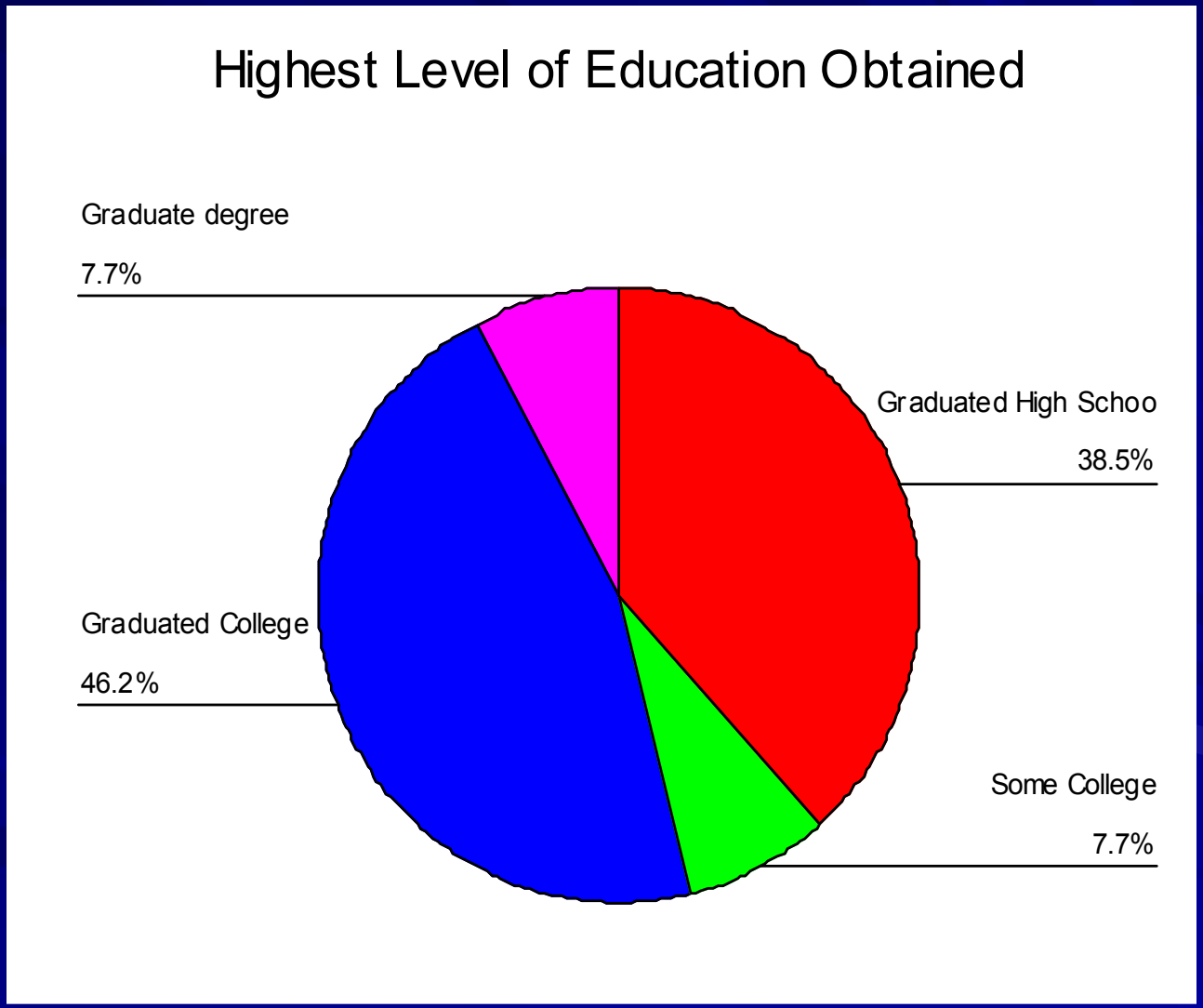

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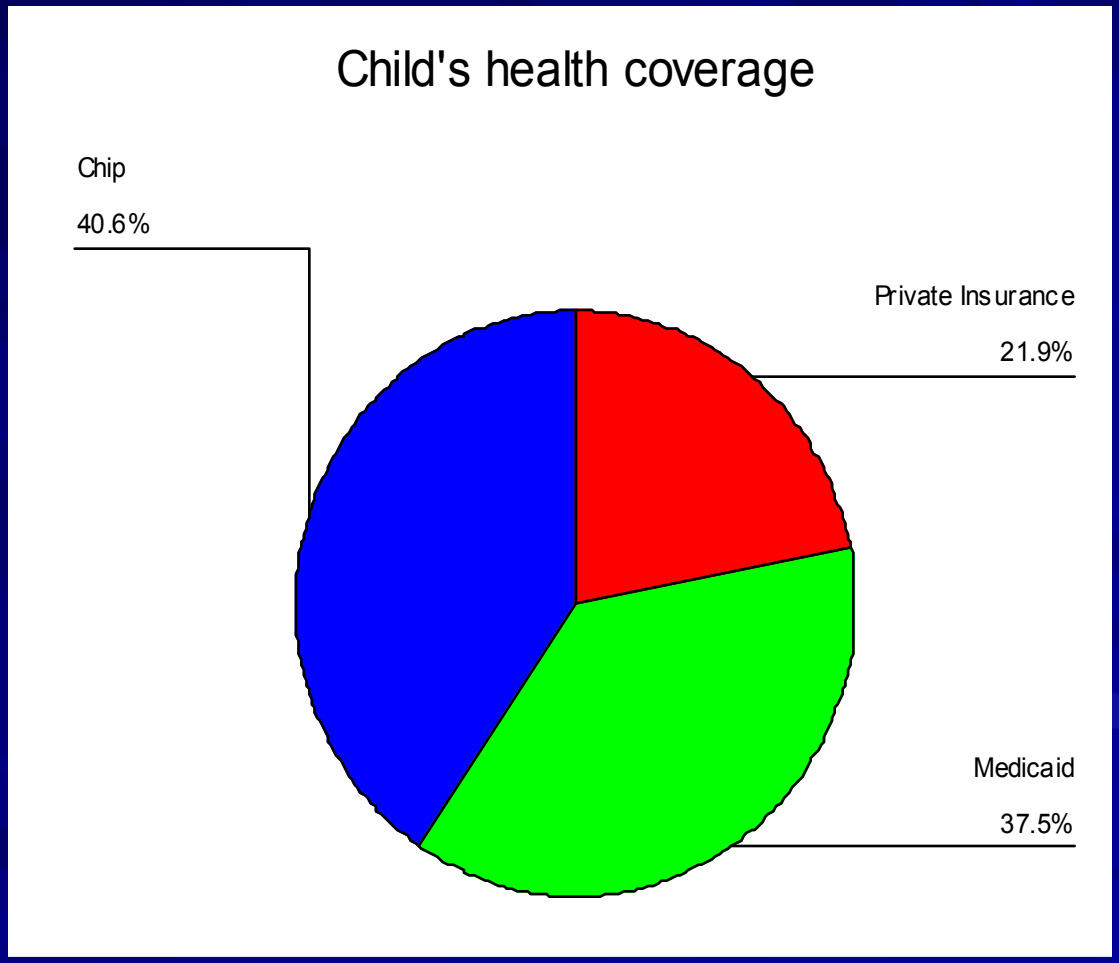


Dust Mites and Mattress Covers

Do you use mattress covers and pillow cases on the bed of the child with asthma? * In general, do you think that dust mites affect asthma symptoms? Crosstabulation

			In general, do you think that dust mites affect asthma symptoms?		
			Yes	No	Total
Do you use mattress covers and pillow cases on the bed of the child with asthma?	Yes	Count	9	1	10
		Expected Count	8.5	1.5	10.0
	No	Count	2	1	3
		Expected Count	2.5	.5	3.0
Total		Count	11	2	13
		Expected Count	11.0	2.0	13.0

- $X^2 = .965$ p = .326 $\Phi = .272$ p = .326

Smoking cigarettes, cigars, pipes

Does anyone who lives in the home smoke cigarettes, cigars, or pipes? * In general, do you think that tobacco smoke affects asthma symptoms? Crosstabulation

			In general, do you think that tobacco smoke affects asthma symptoms?		
			Yes	Not sure	Total
Does anyone who lives in the home smoke cigarettes, cigars, or pipes?	Yes	Count	4	0	4
		Expected Count	3.7	.3	4.0
	No	Count	8	1	9
		Expected Count	8.3	.7	9.0
Total		Count	12	1	13
		Expected Count	12.0	1.0	13.0

- $X^2 = .481$ p = .488 $\Phi = .192$p = .488

Smoking inside the house

Do they smoke inside the home? * In general, do you think that tobacco smoke affects asthma symptoms? Crosstabulation

			In general, do you think that tobacco smoke affects asthma symptoms?	
			Yes	Total
Do they smoke inside the home?	Yes	Count	2	2
		Expected Count	2.0	2.0
	No	Count	2	2
		Expected Count	2.0	2.0
Total		Count	4	4
		Expected Count	4.0	4.0

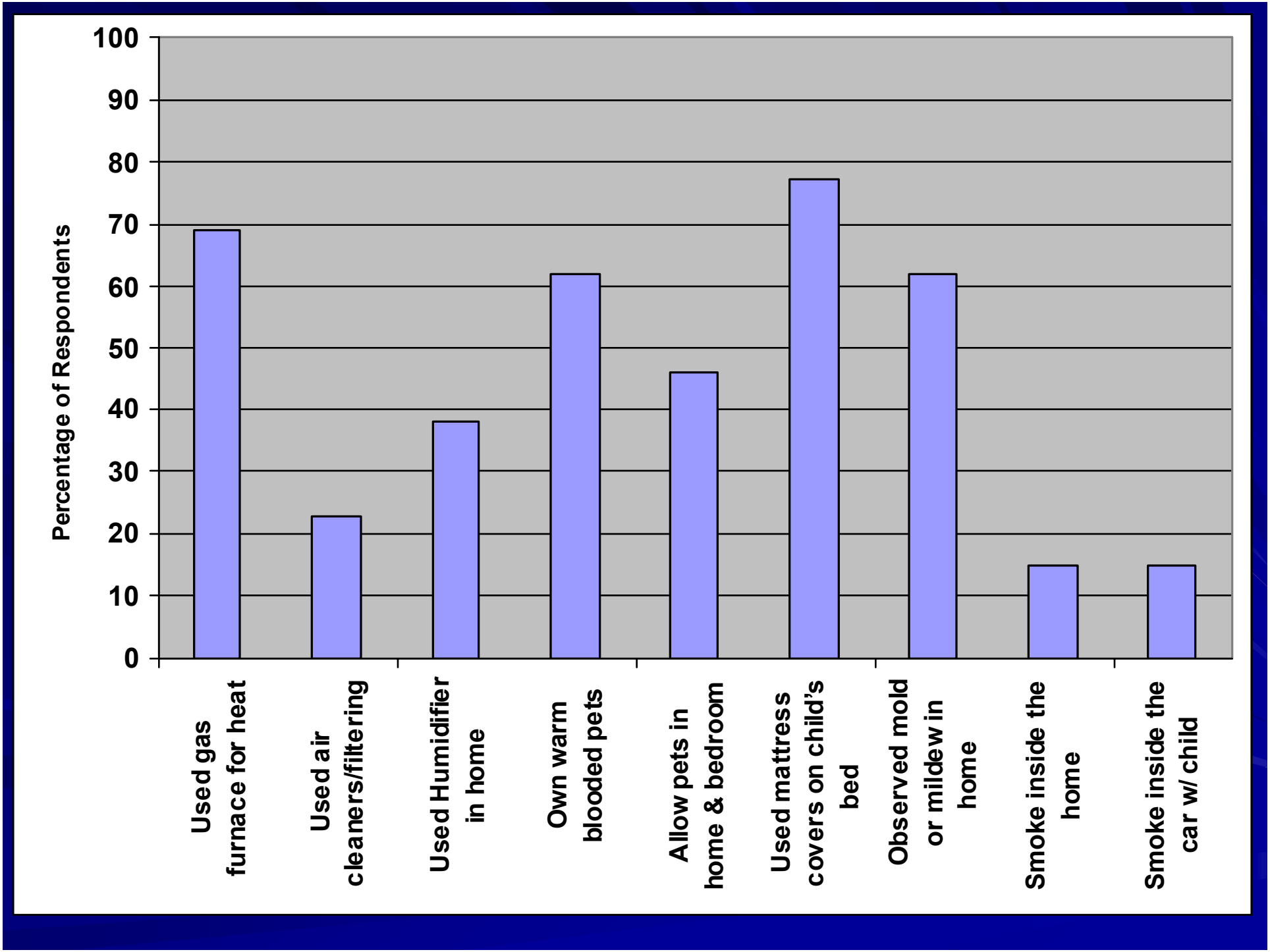
- No statistic

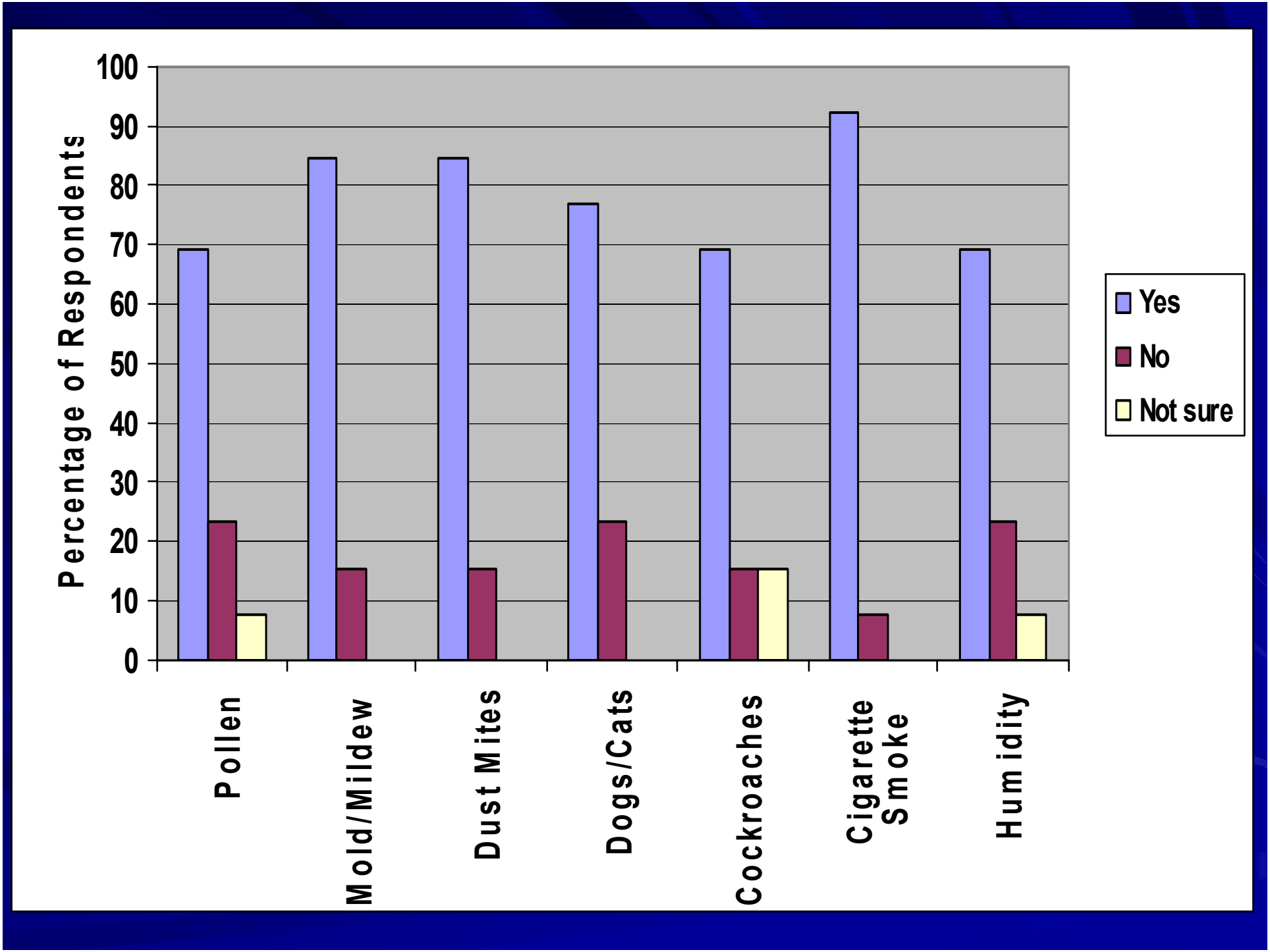
Pets in the home

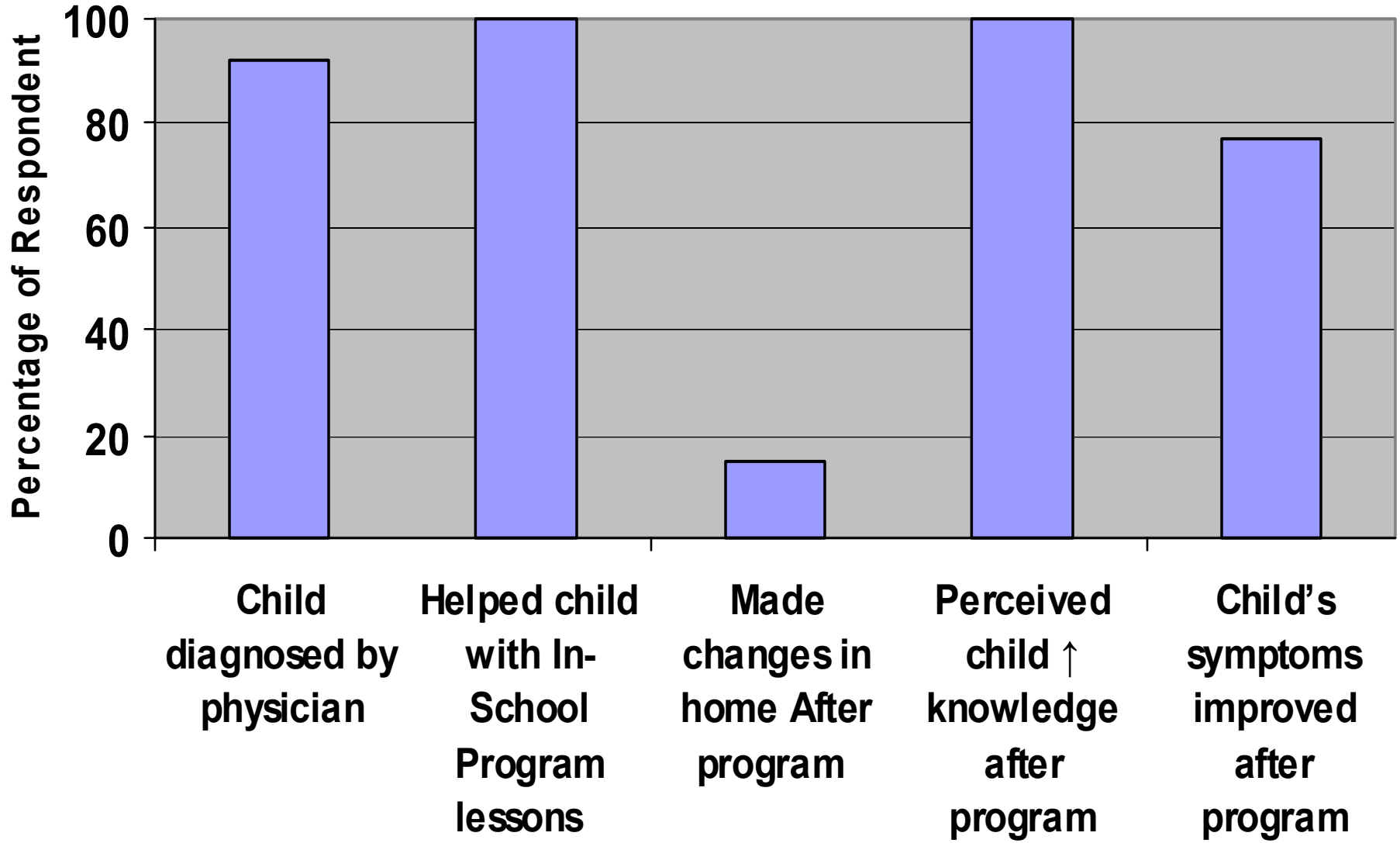
Are they allowed in the house? * In general, do you think that dogs or cats affect asthma symptoms? Crosstabulation

			In general, do you think that dogs or cats affect asthma symptoms?		
			Yes	No	Total
Are they allowed in the house?	Yes	Count	5	1	6
		Expected Count	4.5	1.5	6.0
	No	Count	1	1	2
		Expected Count	1.5	.5	2.0
Total		Count	6	2	8
		Expected Count	6.0	2.0	8.0

- $X^2 = .889$ $p = .346$ $\Phi = .333$ $p = .346$







Discussion

- Recruitment
  - High participation rate from pre-existing participants in education program
  - Does not give a full illustration of the what homes are like.
  - Need to gain information from parents that elected not to participate in the program
  - Higher in education, income, healthcare

Discussion

- The home environment
  - Approx ¼ use separate air cleaning systems
  - Approx. ¾ use mattress covers on child's bed
  - Most frequent source of mold or mildew in kitchen
  - Most pets are allowed in the house and in the bedrooms
  - 38.4% use humidifiers in the home
  - ½ of smokers smoked in the home and car
  - Allergy testing is not as prevalent as asthma diagnosis

Discussion

- Knowledge and Beliefs
  - All Irritants and triggers reported by majority to affect asthma symptoms
  - All participants reported assisting child with education materials
  - All participants reported increase in child awareness/knowledge
  - 2 participants reported implementing mattress covers
  - Approx. ¾ reported improvement in child's symptoms

Discussion

- Why did some parents choose not to take advantage of the education program?
  - Had physician for this purpose
  - Privacy
  - Uncomfortable with research
  - Singling out
  - Smokers

Recommendations

- Future Open Airways evaluation should develop instrument to evaluate parents who elected not to participate.
- Refine survey instrument to eliminate instrument bias and increase validity/reliability

Limitations

- Small sample: Not enough power for reliable statistic analysis
- Restricted by only interviewing households who have participated in the education program
- Instrument and response bias

Questions?