

# Environmental Asthma Triggers and Active Asthma by Socioeconomic Status Among Children in Texas, 2006-2010

2013 CSTE Conference, Pasadena, CA  
June 10<sup>th</sup>, 2013

**Erin Wickerham, MPH**

Texas Asthma Control Program  
Office of Surveillance, Evaluation, and Research  
Health Promotion and Chronic Disease Prevention Section  
Texas Department of State Health Services



- Background
- Objective
- Methods
- Results
- Summary
- Limitations
- Next steps

- Asthma is a chronic disease
- Asthma triggers – Ex: tobacco smoke, dust mites, outdoor air pollution, mold
- Environmental asthma triggers
- No cure → Disease management through management of asthma triggers

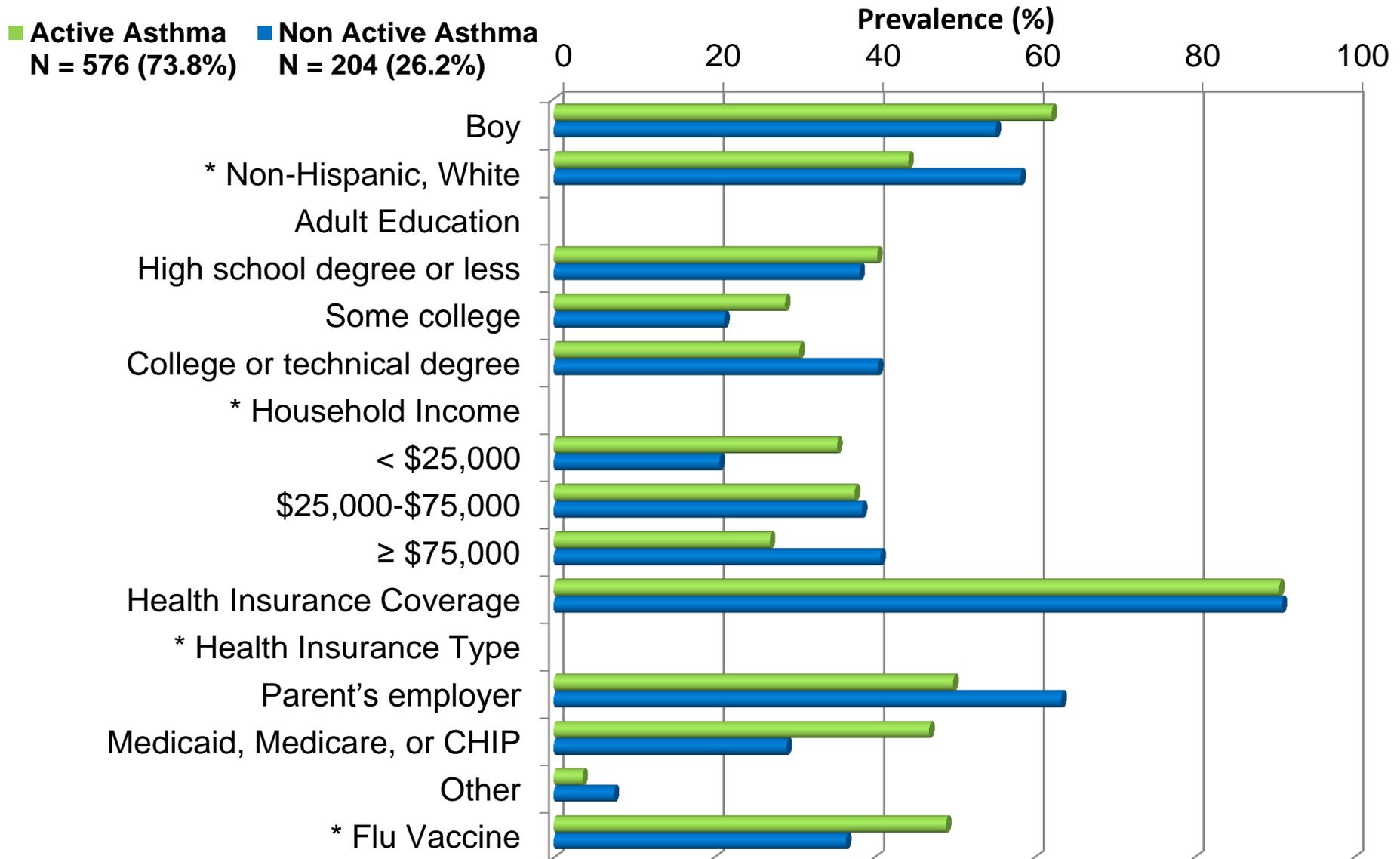
To examine the relationship between active asthma status and exposure to asthma triggers in the home by socioeconomic status (SES) among children in Texas.

- Data: 2006-2010 Behavioral Risk Factor Surveillance System Child Asthma Call-Back Survey
- Analysis & Software: Survey-weighted logistic regression using SAS 9.2
- Outcome of interest: Active/inactive asthma status
- Active asthma
  - In the last 12 months any of the following occurred:
    - Adult talked to a doctor or other health care provider about the child's asthma, or
    - Child took any asthma medication, or
    - Child had any symptoms of asthma without having a cold or respiratory infection

- Nine questions about presence of environmental triggers in home categorized into 4 types:
  - 1) Cigarette smoke, 2) mold, 3) Furry/ feathered animals 4) Indoor use of wood burning/gas
- Primary exposure variable: Exposure to 0, 1, 2, or 3-4 environmental trigger types
- Socioeconomic status (SES): Household income <\$25,000 (low), \$25,000-\$75,000 (middle), and ≥\$75,000 (high)
- Full models were adjusted for child's age, child's sex, current flu vaccine, and adult's race/ethnicity

- Demographics by asthma status
- Home environmental exposures by asthma status
- Adjusted odds ratios for active asthma among low, medium, and high SES by number of home environmental asthma trigger exposures

# Demographics by asthma status, ACBS, Texas, 2006-2010



\* Indicates statistically significant Chi Square test ( $p < 0.05$ )

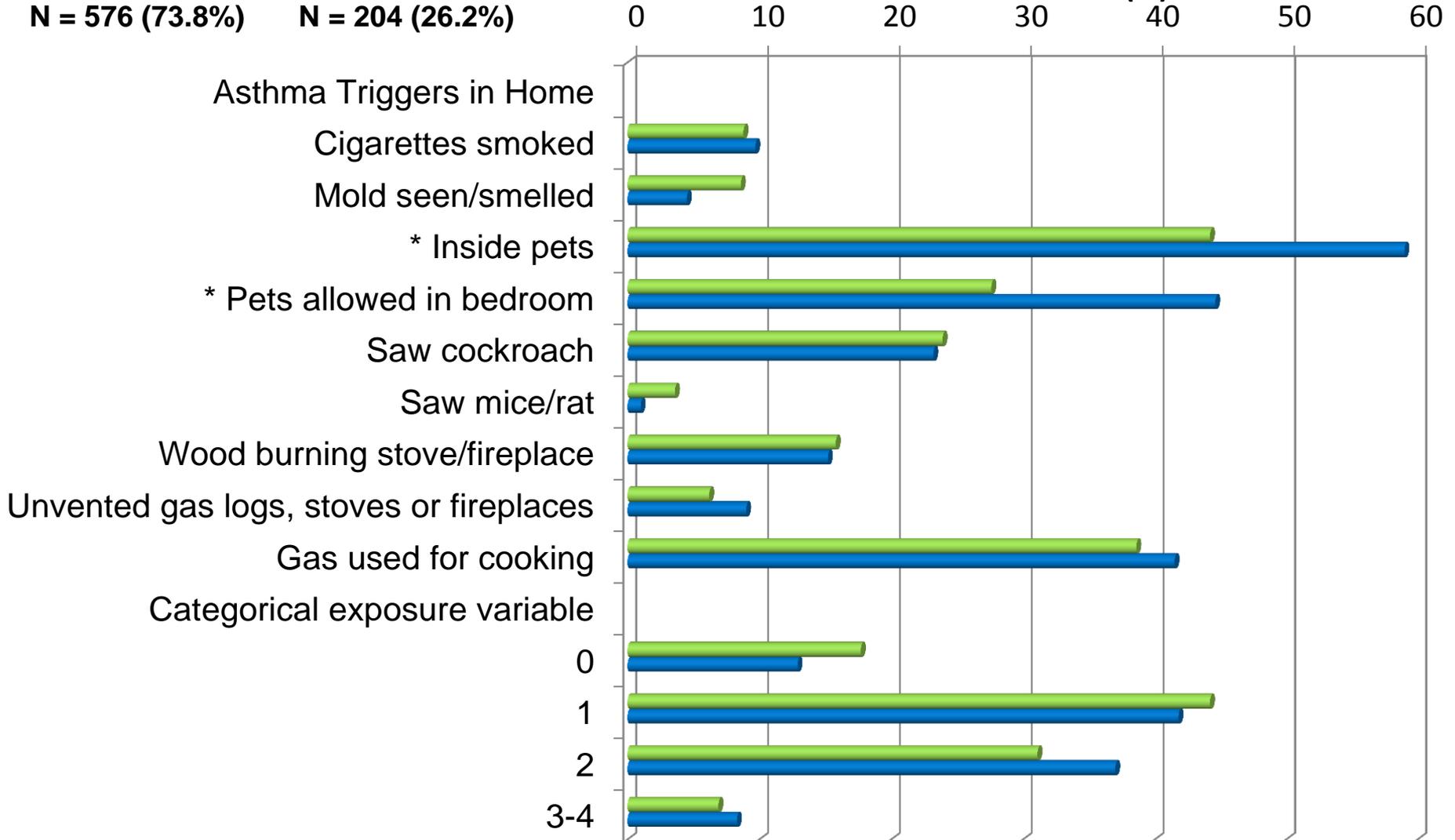
# Home environmental exposures by asthma status, ACBS, Texas, 2006-2010



■ Active Asthma  
N = 576 (73.8%)

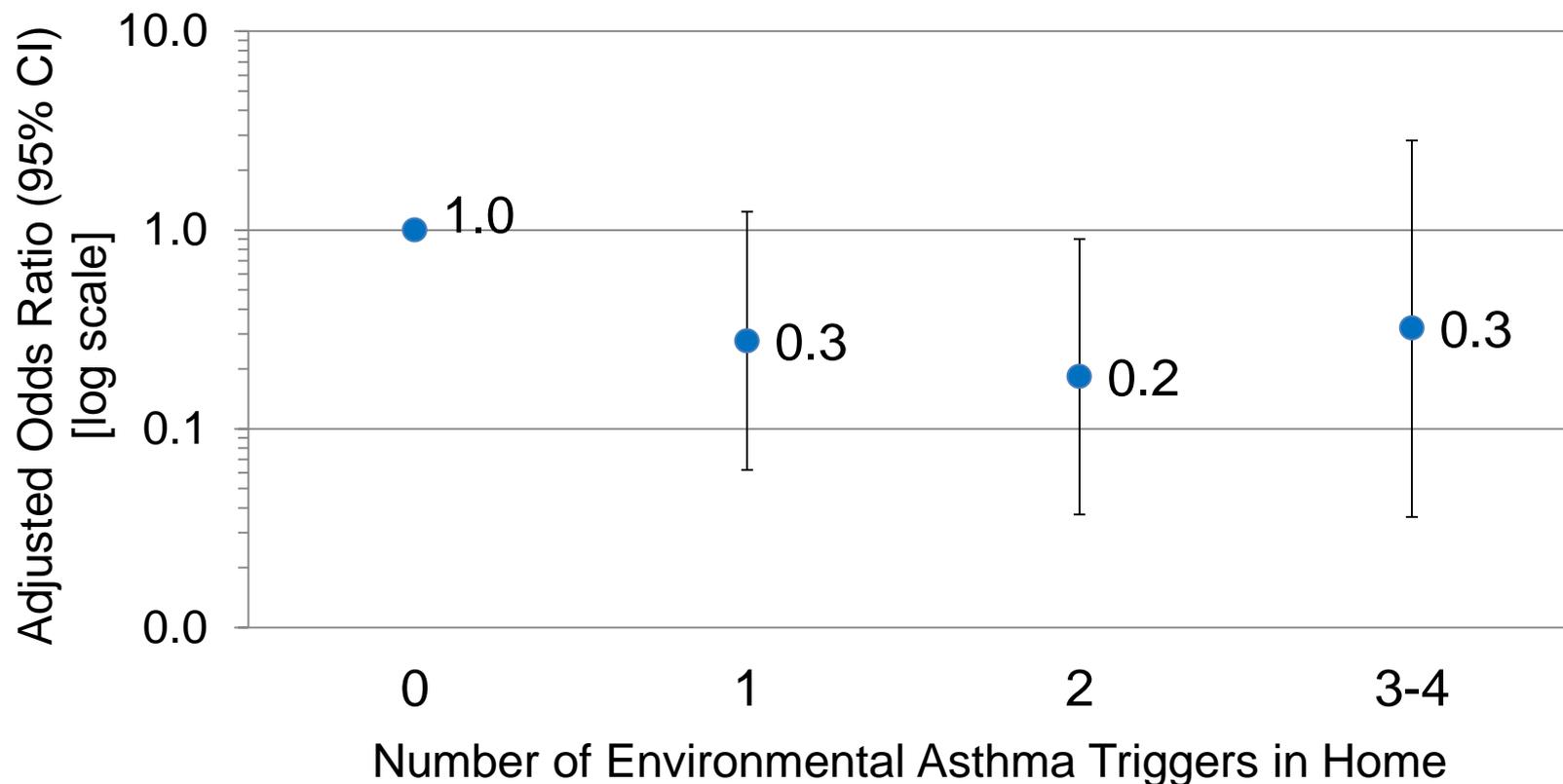
■ Non Active Asthma  
N = 204 (26.2%)

Prevalence (%)



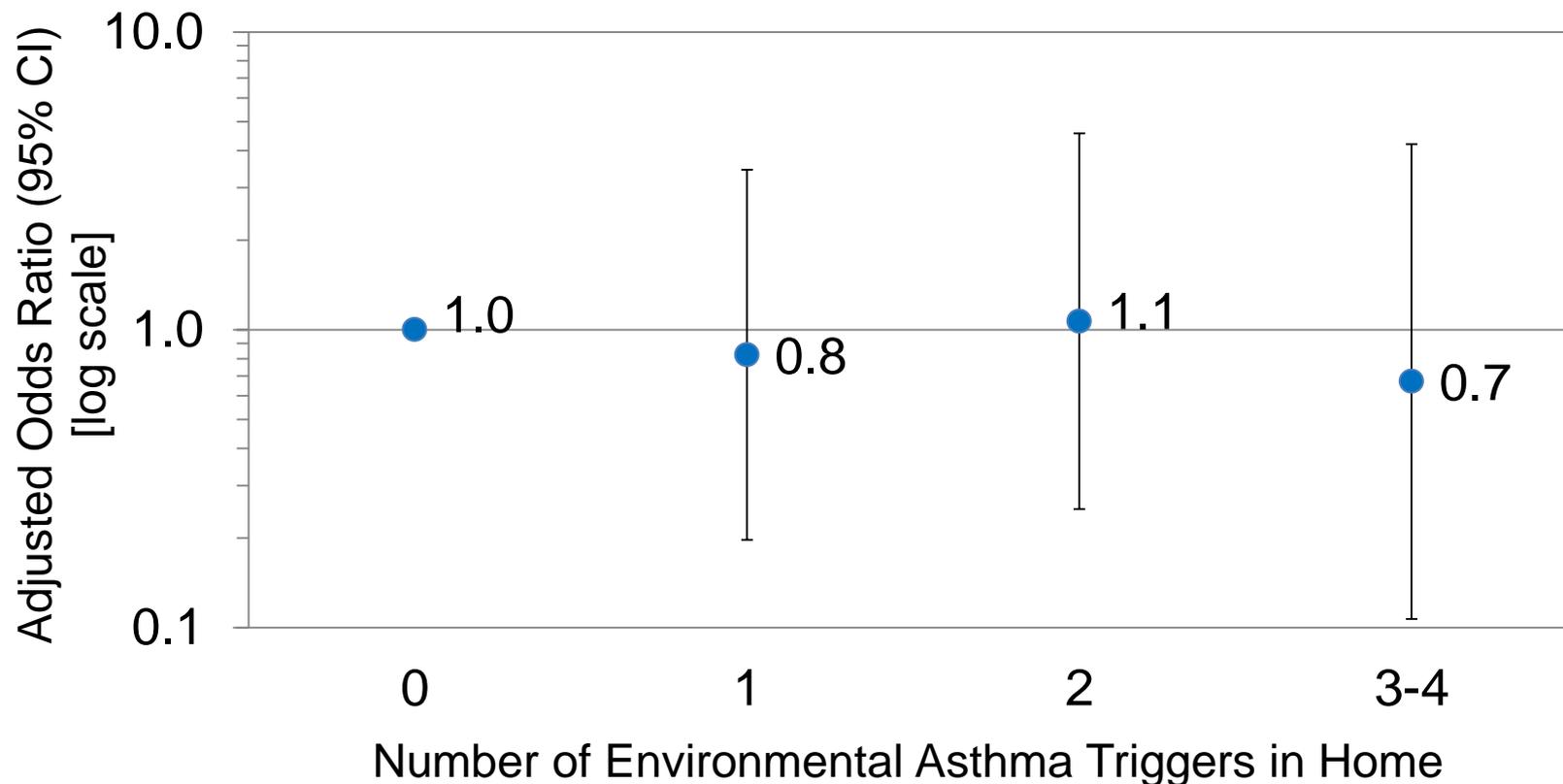
\* Indicates statistically significant Chi Square test (p<0.05)

## Adjusted<sup>1</sup> odds ratios for active asthma among low SES children



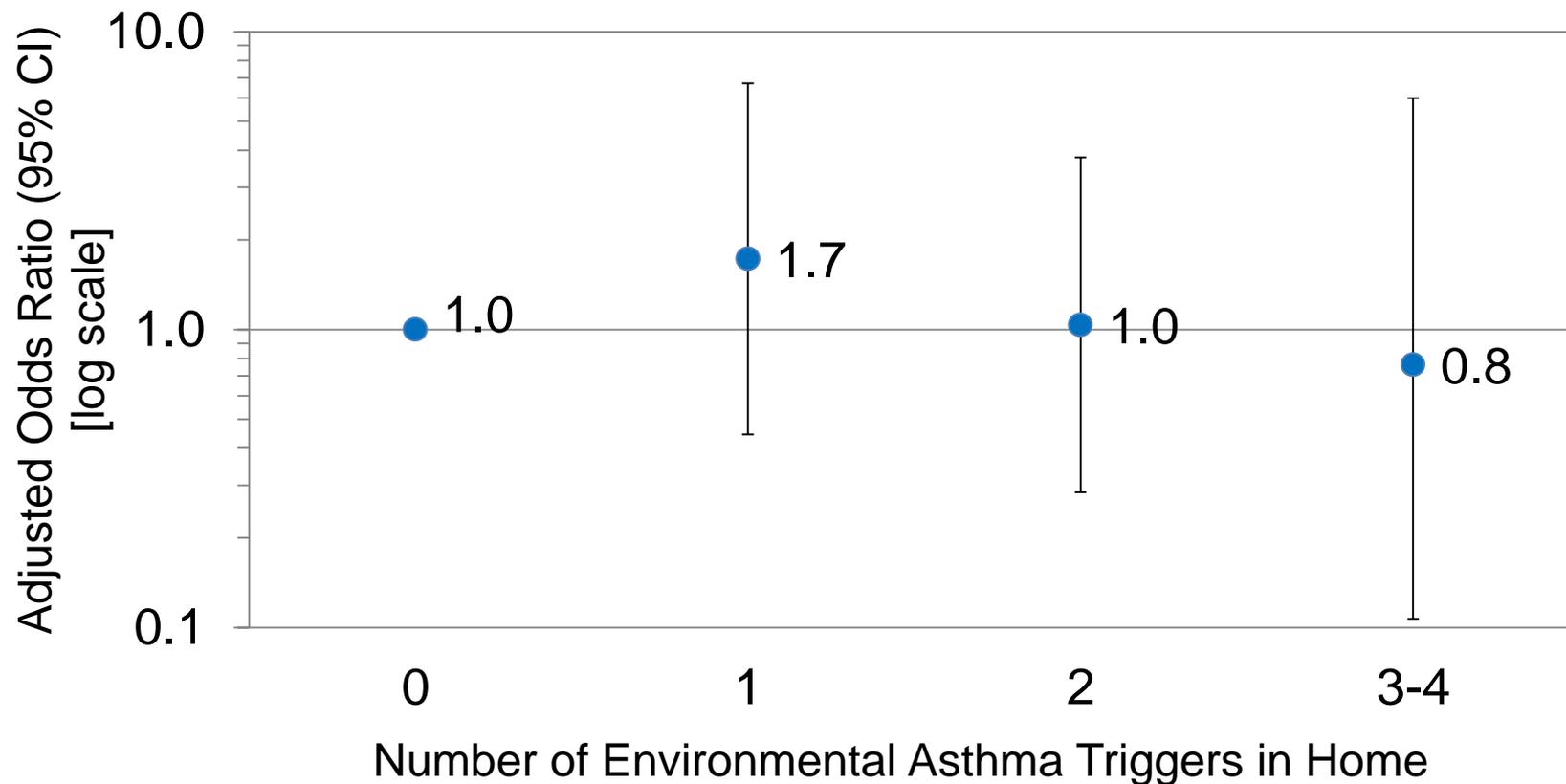
<sup>1</sup> Models adjusted for child's age, child's sex, current flu vaccine, and adult's race/ethnicity.

## Adjusted<sup>1</sup> odds ratios for active asthma among middle SES children



<sup>1</sup> Models adjusted for child's age, child's sex, current flu vaccine, and adult's race/ethnicity.

## Adjusted<sup>1</sup> odds ratios for active asthma among high SES children



<sup>1</sup> Models adjusted for child's age, child's sex, current flu vaccine, and adult's race/ethnicity.

- 74% of children who had ever been told they have asthma had current asthma.
- Low SES children in Texas exposed to more asthma triggers were less likely to have active asthma ( $p=0.04$ ).
- Exposure to environmental asthma trigger groups was not associated with active asthma in bivariate analysis.
- Opposite findings of what might be expected?
- Asthma triggers in other settings may be important (Ex: school, day care)

- Temporality of exposure variables is inconsistent
- Temporality of exposure and categorization of active asthma status
- Income variable is missing data → smaller sample size for multivariate analysis
- Not enough information to determine size of environmental exposures or if the exposure is in fact an asthma trigger for the child
- “Actions taken to reduce environmental exposures” have not been included but may be associated with both active asthma, exposure to environmental asthma triggers, and SES

- Possible ideas for future analyses:
  - Environmental asthma triggers at school
  - Environment modifications
  - Proportion of exposures in the home environment
  - ... and many more!

# Thank You.

CONTACT: Erin Wickerham  
Erin.Wickerham@dshs.state.tx.us  
(512)776-3519

<http://www.dshs.state.tx.us/asthma/default.shtm>