

Demographic and socioeconomic disparities in children's secondhand smoke exposure in the home

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Background

- ❑ The home is becoming the predominant site of involuntary exposure to secondhand smoke for children (U.S. Surgeon General, 2006).
- ❑ While the percentage of children who are exposed in the home has decreased in recent years, 11% of U.S. children under age 6 are exposed (Soliman et al, 2004; U.S. Environmental Protection Agency, 2004).
- ❑ Children are more vulnerable to the harmful effects of secondhand smoke exposure because they are still physically developing and have higher breathing rates than adults (U.S. Environmental Protection Agency, 2010).

Background, continued

- ❑ Exposure to secondhand smoke increases children's risk of asthma and respiratory infections, ear infections, and Sudden Infant Death Syndrome (SIDS; U.S. Surgeon General, 2006).
- ❑ Racial, ethnic, and economic disparities exist in children's exposure to secondhand smoke in the home, which may result in additional disparities in children's health (Singh et al, 2010).
- ❑ Children's exposure to secondhand smoke in the home is associated with various socioeconomic indicators, including lower parental education and lower income (Bolte & Fromme, 2008).

Methodology

- ❑ **2008 Southeastern Pennsylvania Household Health Survey**
 - ❑ Population-based RDD telephone survey with pilot cell phone component
 - ❑ n=10,007 households (n=300 cell interviews)
 - ❑ Additional interviews (n=2,732) with child proxy (person who knows most about health of selected child)
 - ❑ Adult and child respondents selected using Last Birthday method
 - ❑ Southeastern Pennsylvania: Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties
 - ❑ Fielded: June – September 2008

Aims

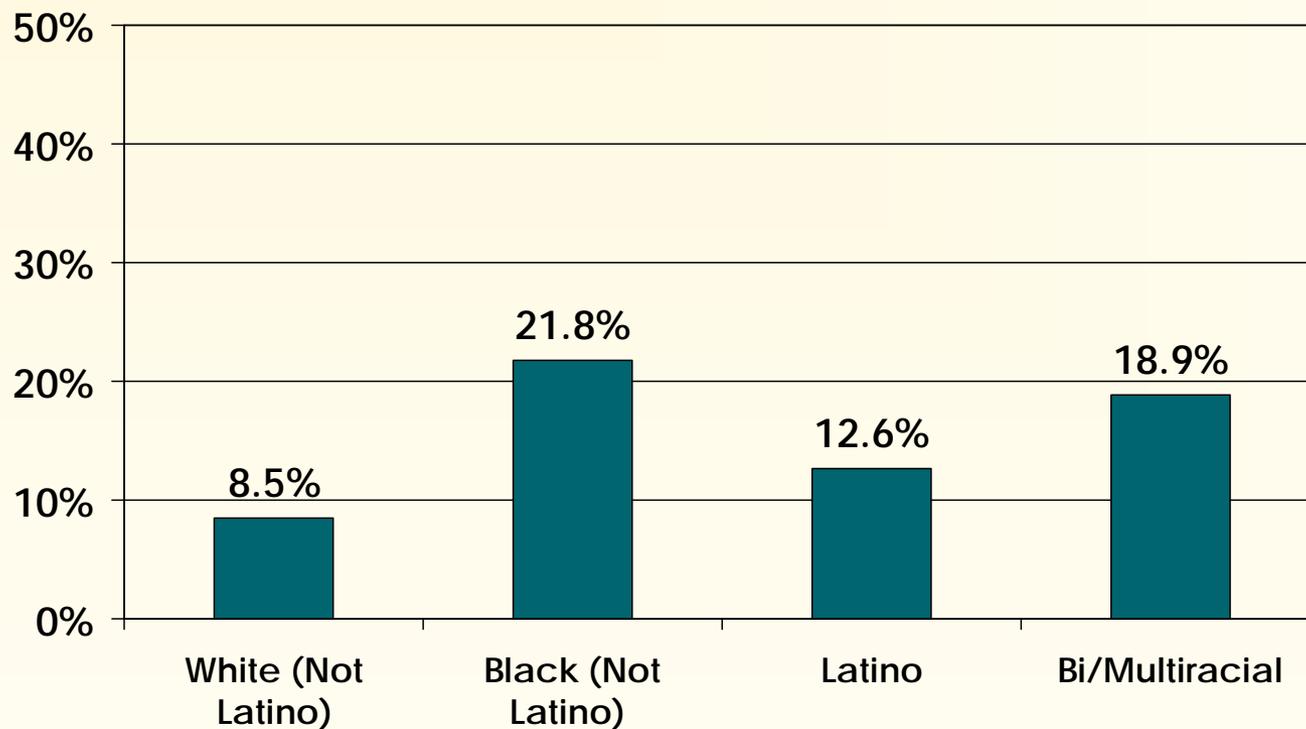
- ❑ This presentation examines disparities in and predictors of children's home exposure to secondhand smoke in the major metropolitan area of Southeastern Pennsylvania.
- ❑ In Southeastern Pennsylvania, 12.6% of children 17 and younger are exposed to secondhand smoke in the home, representing about 118,200 children (PHMC, 2008).

Factors attaining statistical significance in a stepwise Binary Logistic Regression model include¹:

- ❑ Race/ethnicity
- ❑ Poverty
- ❑ Child's insurance status
- ❑ Adult respondent's education level
- ❑ Urban vs. suburban residence
- ❑ Number of adults in the household

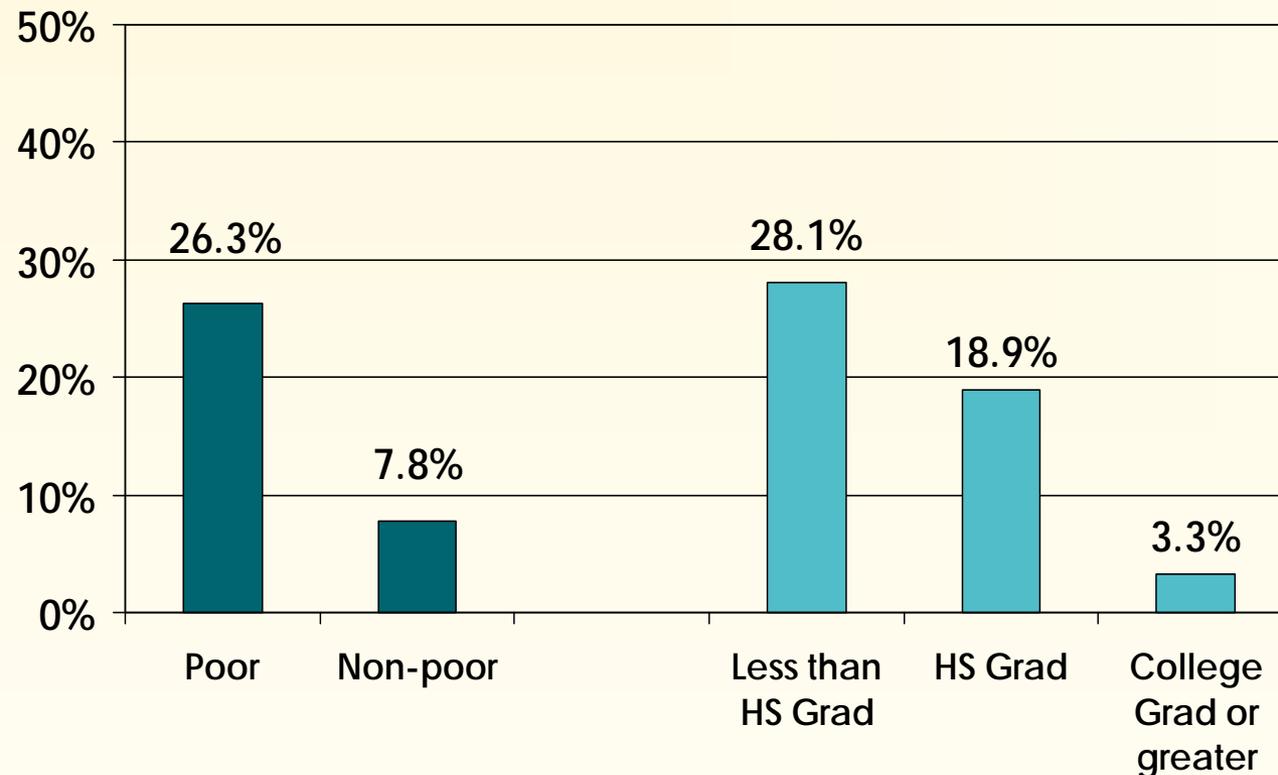
¹ Nagelkerke R Square=0.201

Figure 1. Percentage of Children (Ages 0-17) Exposed to Secondhand Smoke in the Home by Race/Ethnicity, Southeastern PA, 2008.



- Non-White children are more likely to be exposed to SHS in the home than White children ($p < .001$).
- The adjusted odds of a Latino child being exposed to SHS in the home is two times higher than the odds of a White child being exposed. AOR=2.01
- The difference in odds of exposure between White and Black children was not significant.

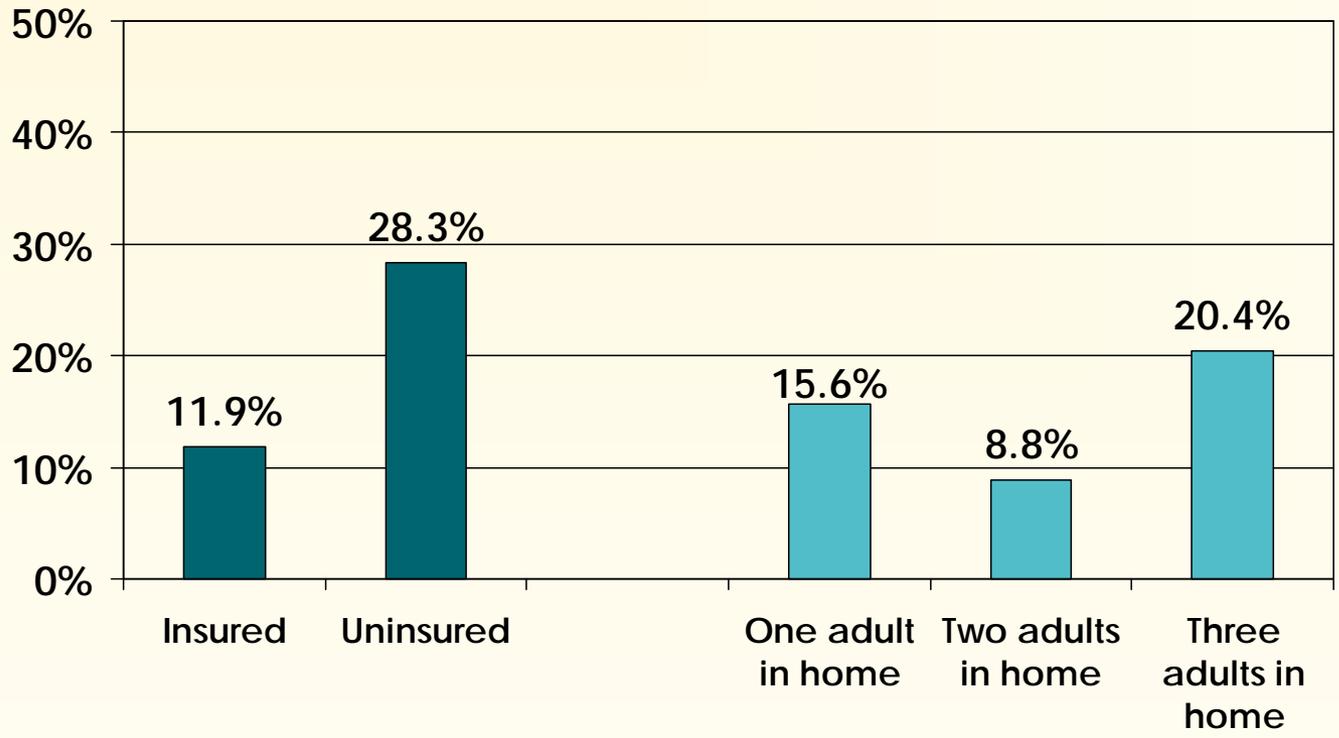
Figure 2. Percentage of Children (Ages 0-17) Exposed to Secondhand Smoke in the Home by Poverty¹ and Adult Respondent Education Level, Southeastern PA, 2008.



- Poor children are more at risk than non-poor, and children who have no private or public health insurance coverage are more likely to be exposed insured kids ($p < .001$). AOR=2.05
- As adult respondent education level increases, children are less likely to be exposed ($p < .001$).
- The odds of a child in a home with an adult respondent that has less than a high school diploma being exposed is seven times greater than that of a child in a home with an adult respondent with at least a college degree. AOR=7.12

¹ Poverty is described as living at or below 150% of the Federal Poverty Level, which is calculated by family size and household income according to the 2008 Poverty Guidelines.

Figure 3. Percentage of Children (Ages 0-17) Exposed to Secondhand Smoke in the Home by Insurance Status and Number of Adults Living in the Home, Southeastern PA, 2008.

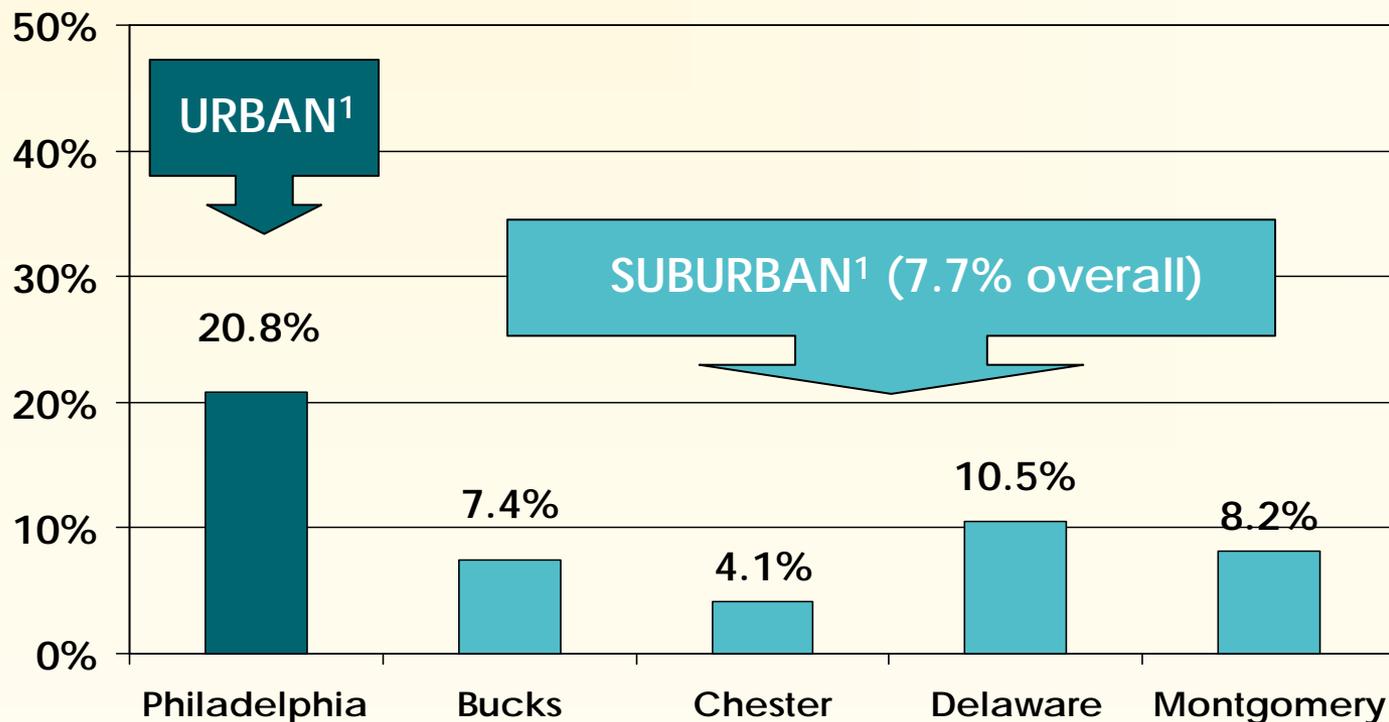


- Children without health insurance coverage are more likely to be exposed than insured children ($p < .001$). AOR=1.64

- Children who live in a home with one adult are more likely than children with two adults but less likely than children with three adults to be exposed.

- The difference in odds of exposure between 1 and 2 adults in the home is not statistically significant though the difference between 1 and 3 adults is significant ($p < .001$). AOR=2.13

Figure 4. Percentage of Children (Ages 0-17) Exposed to Secondhand Smoke in the Home by County Residence, Southeastern PA, 2008.



■ In Southeastern PA, Philadelphia's children are more likely to be exposed to SHS than children who reside in the surrounding suburban counties ($p < .001$). AOR=1.6

¹ Urban refers to residence in Philadelphia County, suburban refers to residence in one or the four surrounding counties (Bucks, Chester, Delaware, or Montgomery).

Summary

- ❑ Overall, children's SHS exposure is significantly related to: children's race/ethnicity, poverty, insurance status, and urban vs. suburban residence as well as adult respondent's education level and number of adults in the home.

- ❑ A number of factors had a significant effect on the odds of children being exposed to secondhand smoke in the home:
 - ❑ Latino vs. White
 - ❑ Poor vs. non-poor
 - ❑ Child living in a home with an adult respondent with a college degree or more vs. child with adult respondent who has less than a high school diploma
 - ❑ Uninsured vs. insured
 - ❑ One adult in the home vs. three adults in the home
 - ❑ Urban vs. suburban residence

References

Bolte, G, and Fromme, H. (2008). Socioeconomic determinants of children's environmental tobacco smoke exposure and family's home smoking policy. *European Journal of Public Health*, 19(1), pp. 52-58.

Singh, GK, Siahpush, M, and Kogan, MD. (2010). Disparities in children's exposure to environmental tobacco smoke in the United States, 2007. *Pediatrics*, 126(1), pp. 4-13.

Soliman, S, Pollack, HA, and Warner, KE. (2004). Decrease in the prevalence of environmental tobacco smoke exposure in the home during the 1990s in families with children. *American Journal of Public Health*, 94(2), pp. 314-320.

Public Health Management Corporation. (2008). Community Health Data Base's Southeastern Pennsylvania Household Health Survey.

U.S. Department of Health and Human Services. (2006). *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

U.S. Environmental Protection Agency. (2010). Health effects of exposure to secondhand smoke. Retrieved on October 20, 2010, at:
<http://www.epa.gov/smokefree/healtheffects.html>.

U.S. Environmental Protection Agency. (2004). Fact Sheet: National Survey on Environmental Management of Asthma and Children's Exposure to Environmental Tobacco Smoke. Washington, DC: U.S. Environmental Protection Agency.

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Contact Information

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