



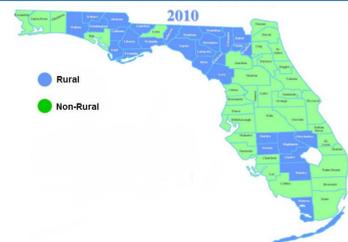
## Background

- Rural youth are equally<sup>1</sup> or more likely<sup>2</sup> to be diagnosed with asthma than youth in urban areas.
- Youth who reside in rural environments can encounter numerous barriers, such as reduced access to health care or financial challenges<sup>3</sup>, that may place them at risk for asthma-related health disparities.
- Pediatric asthma prevalence and morbidity are well characterized among youth in urban areas; however, there has been inadequate investigation of these factors among youth living in rural areas.
- This study compared the prevalence and morbidity of asthma among high school students residing in rural and non-rural counties in Florida.

## Hypotheses

- Hypothesis 1:** Asthma prevalence and morbidity will be similar among youth in rural and non-rural counties.
- Hypothesis 2:** Racial/ethnic minority youth in rural counties will be more likely to have a diagnosis of asthma and reported morbidity compared to non-minority youth.

## Method



- A random sample of Florida public high school students ( $N = 32,921$ ) were administered the 2014 Florida Youth Tobacco Survey.
- The Florida Department of Health defines rural counties as those with a population density of less than 100 persons per square mile, and schools were coded as rural or non-rural based on the county in which they reside.
- The data were statistically weighted to be representative of all Florida public school students.

## Method

Outcome	Question
Asthma Status	1) Has a doctor or nurse ever told you that you have asthma? 2) Do you still have asthma?
Asthma Attacks	During the past 12 months, did you have an asthma attack?
ED/urgent care visits	During the past 12 months, how many times did you go to an emergency room (ER) or urgent care center because of your asthma?

**Aim 1:** 95% confidence intervals (CIs) were calculated to assess for significant differences in prevalence and morbidity. Two groups whose CIs did not overlap were interpreted as having a statistically significant difference at  $p < .05$ .

**Aim 2:** Logistic regression models were used to estimate the odds of having asthma, experiencing an asthma attack, or visiting an ED/urgent care center for students living in rural areas for each racial/ethnic group after controlling for sex.

## Results

	Prevalence %	95% Confidence Interval
<b>Asthma Diagnosis</b>	10.8	10.2, 11.3
Rural County	11.2	10.4, 12.0
Non-Rural County	10.7	10.2, 11.3
<b>Asthma Attack</b>	28.6	26.4, 30.8
Rural County	28.5	25.2, 31.8
Non-Rural County	28.6	26.3, 30.8
<b>Asthma ED visit</b>	23.6	21.5, 25.8
Rural County	23.9	20.5, 27.2
Non-Rural County	23.6	21.4, 25.9

### Aim 1

- There were no significant differences in asthma status, asthma attacks, or ED visits in the past year between rural and non-rural students ( $p > .05$ ).

## Results

### Odds of Sex and Race Differences for Asthma and Morbidity within Rural Counties

	Asthma Diagnosis OR (95% CI)	Asthma Attack OR (95% CI)	ED visit OR (95% CI)
<b>Step 1</b>			
Sex <sup>a</sup>			
Female	<b>1.4 (1.2, 1.7)*</b>	1.4 (1.0, 2.0)	1.2 (0.8, 1.8)
<b>Step 2</b>			
Sex <sup>a</sup>			
Female	<b>1.4 (1.2,1.7)*</b>	1.4 (1.0,1.9)	1.3 (0.8,1.9)
Race <sup>b</sup>			
African American	<b>1.5 (1.2,1.9)*</b>	0.7 (0.5,1.1)	<b>1.9 (1.2,3.0)*</b>
Latino	0.7 (0.6,1.0)	1.0 (0.6,1.6)	1.7 (0.9,3.0)

Note. <sup>a</sup> = male comparison group <sup>b</sup> = non-Latino white comparison group  
\* =  $p < .05$

### Aim 2

- Among rural youth, non-Latino black students were 1.5 times as likely (CI: 1.2, 1.8) to report having asthma compared to non-Latino white students.
- There were no significant racial differences in asthma attacks ( $p > .05$ ).
- Non-Latino black students with asthma were 2.5 times as likely (CI: 1.7, 3.5) to report ED visits compared to non-Latino white students.

## Conclusions

- Consistent with previous research<sup>5</sup>, the results of this study suggest the prevalence of asthma is similar in high school students from rural and non-rural counties. However, these findings also suggest that non-Latino black students experience disproportionate rates of asthma and asthma morbidity within rural settings.
- Larger systematic changes in the quality of healthcare in rural settings are likely needed to address these disparities.
- Additional research and health policy initiatives should focus on better understanding how to minimize pediatric asthma disparities within rural communities.

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