

Florida Asthma Prevention and Control Program

Childhood Asthma in Florida, 2006 - 2010



Florida Department of Health
Division of Environmental Health
Bureau of Environmental Public Health Medicine
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I. INTRODUCTION

ABOUT ASTHMA

Asthma is a chronic lung disease characterized by inflammation of the airways and recurring attacks of symptoms such as wheezing, coughing, and chest tightness. Inflammation makes the airways sensitive to various allergens and irritants in the environment, including tobacco smoke, fragrances, dust mites, animal dander, pollen, mold, and diesel emissions. There is no cure for asthma, but it can be controlled through proper clinical treatment and environmental management.

Asthma rates have increased dramatically over the last thirty years in all populations in the United States. Asthma is the third leading cause of preventable hospitalizations and one of the leading causes of school absenteeism. In addition, asthma incurs high costs, in terms of the costs of care, lost workdays and productivity, and lower quality of life for persons with asthma and their families. For these reasons, asthma is a public health priority for the State of Florida.

Asthma in Florida Children

Asthma is the most common chronic illness among children. Poorly managed asthma results in unnecessary visits to the emergency department, hospitalizations, and in the worst cases, asthma can be fatal.

In 2009, there were a total of 42,238 emergency department (ED) visits and 7,646 hospitalizations with asthma listed as the primary diagnosis among Florida children under the age of 18. The total charges for these visits combined are approximately \$221.9 million dollars, with approximately 60% of these charges billed to Medicaid. These ED visits, hospitalizations, and charges are largely avoidable when asthma is properly managed.

According to the 2010 Florida Child Health survey, 18.0% of children under the age of 18 in Florida have at some point during their life time been diagnosed with asthma by a doctor or nurse. Approximately 60% of these individuals still have asthma. About a quarter of the children (25.5%) with asthma in Florida have missed one or more days of child care or school in the past year due to their asthma.

Asthma is a Community Health Problem

Many children with asthma spend most or part of their day in school or child care. Poorly managed asthma can hinder a child's attendance, participation, and progress in early learning programs and school. The school and child care environment can also serve as a source of asthma triggers. For these reasons, comprehensive school and childcare care center based asthma management programs are encouraged. Comprehensive programs include asthma training for teachers and staff about preventing and responding to asthma emergencies, good communication systems between parents of children with asthma and teachers or staff, opportunities for self-management education for students, asthma trigger assessment and management processes, and support for children with asthma to help remove obstacles faced in managing their asthma. By helping children manage their asthma in these environments,

schools and child care facilities are better positioned to achieve their core mission - educating children - but they can't do it alone.

The Florida Department of Health, the Florida Asthma Coalition, and members of local asthma coalitions in Jacksonville, Tampa, South Florida, and St. Petersburg, and other partners are committed to reducing asthma's impact on children. Strategies to improve asthma outcomes seek to engage the many organizations and individuals who care for or provide support to children with asthma, including parents, childcare centers, schools, hospitals, EDs, primary care providers, specialists, and pharmacies.

PURPOSE AND ORGANIZATION OF THIS REPORT

This report offers a comprehensive view of trends in childhood asthma prevalence, disease impact, risk factors, and management. The purpose of this report is to provide key stakeholders, those who are in positions to make an impact in asthma prevention and control, with the information they need to bring about positive change. Key stakeholders include local and state public health professionals, health care practitioners, individuals with asthma and their families, program administrators, the general public, policy makers, and media.

The report first discusses the burden of childhood asthma in Florida, including lifetime and current asthma prevalence. In this report, lifetime asthma prevalence is defined as those individuals who have ever been told by a doctor or nurse that they have asthma. Among those, current asthma prevalence is defined as those who report still having asthma. The burden of asthma is further explored through the examination of current asthma attacks and rates of the often preventable health related outcomes including ED visits, hospitalizations, and mortality data. The next section covers asthma risks and risk behaviors, including exposure to secondhand smoke, weight status, smoking behaviors, safety behaviors, and mental health indicators. The final section will examine asthma care, management, and education. When feasible, comparisons will be made between subpopulations such as gender, age, and race/ethnicity.

Methods

This report includes data from a variety of sources in Florida, categorized as Mandatory Reportable Health Data and Population-Based Survey Data, which provide different perspectives of the burden of asthma in Florida. Analytical methods used for both are discussed below.

Mandatory Reportable Health Data: The ED visit and hospitalization data come from the Agency for Health Care Administration (AHCA), and only include cases with asthma listed as the primary diagnosis (determined by ICD-9 code 493). The mortality data come from the Florida Department of Health, Bureau of Vital Statistics (VS), and only include cases with asthma listed as the primary cause of death (determined by ICD-10 codes J45-J46). Rates are calculated using population estimates provided by the Florida Legislature, Office of Economic and Demographic Research.

Population-Based Survey Data: Multiple population-based surveys allow us to look at lifetime and current prevalence of asthma in Florida's children, as well as associated risk behaviors. Lifetime prevalence is defined as a child who has been told that they have asthma by a doctor or

nurse at some point during their lifetime. Current asthma prevalence is defined as those with lifetime asthma who respond that they still have asthma. Current asthma attacks are defined as those students with lifetime asthma who have had one or more asthma attacks in the past year. The survey data included in this report use different sampling and surveying methodology, but all data have been weighted to be representative of the state population. The Behavioral Risk Factor Surveillance System (BRFSS) is a telephone-based survey that uses a random-digit dial sampling methodology to select households across the state. BRFSS respondents with children under the age of 18 living in the household that agree to be called back for future studies make up the sampling frame for the Florida Child Health Survey (FCHS).

The FCHS was first administered in Florida in 2008, although the majority of the asthma questions were not added until 2010. The FCHS asks a series of in depth questions related to asthma care and management. In 2010, the FCHS sampled parents or guardians of approximately 1,500 children in Florida, however only 263 of those children had lifetime asthma. Because of this small sample size, it does not allow for deeper analyses such as comparing demographics or assessing the co-occurrence with other diseases or behaviors. Despite this limitation, it is still a valuable data source as it collects a series of asthma specific questions that are not otherwise available.

The Florida Youth Tobacco Survey (FYTS), Middle School Behavior Survey (MSHBS), and the Youth Risk Behavior Survey (YRBS) are part of the Florida Youth Survey, a simultaneous administration of several survey instruments to a random representative sample of Florida public middle and high school students. Surveys are administered in the classroom, using a paper and pencil format.

The Middle School Health Behavior Survey (MSHBS) and the Youth Risk Behavior Survey (YRBS) capture self-reported lifetime and current asthma prevalence for Florida public middle school and high school students respectively. These two surveys are only administered in odd-numbered years and only at the state level.

The MSHBS was first administered in 2009 while the YRBS has been conducted annually in Florida since 2001, although the asthma questions were not added until 2005 (lifetime prevalence) and 2007 (current prevalence). In 2009, the MSHBS was completed by 6,356 Florida students in 99 public middle schools (grades 6-8) and the YRBS was completed by 5,684 Florida students in 80 public high schools (grades 9-12). The MSHBS and YRBS combined student and school response rates were 81% and 71% respectively.

The Florida Youth Tobacco Survey (FYTS) captures the self-reported lifetime prevalence and the prevalence of current asthma attacks (students with lifetime asthma who have had an asthma attack in the past year) for Florida public middle and high school students. In future years, a question will be added to the FYTS so current asthma prevalence can be calculated at the county-level every even-numbered year.

The FYTS has been conducted annually in Florida since 1998, although the asthma questions (lifetime prevalence and current episodes/attacks) weren't added until 2006. In odd-numbered years, the FYTS targets 5,000 students in middle school (grades 6-8) and an additional 5,000 in high school (grades 9-12). The FYTS is conducted at the county-level in even-numbered years, allowing for the examination of geographic differences across the state. The 2010 FYTS was

administered to 39,385 middle school students and 37,797 high school students in 729 public schools across the state. The combined student and school response rates were 79% and 74% respectively. This robust dataset allows us to examine differences by asthma status for risk behaviors such as smoking and personal safety and associated risks such as exposure to secondhand smoke, weight status, and mental health.

Determination of Statistical Significance

Determination of statistical significance for the population-based survey data in this report is based on non-overlapping 95% confidence intervals (CIs). A 95% confidence interval is a range in which the “true” rate will fall 95% of the time. In certain situations when the overlap of 95% CIs were close, the square root of the sum of squares of the standard error was calculated and added to the difference of the means to determine significance.

II. BURDEN OF ASTHMA AMONG FLORIDA CHILDREN

The following section discusses the burden of childhood asthma in Florida, including lifetime and current asthma prevalence. The burden of asthma is further explored through the examination of current asthma attacks and rates of the often preventable health related outcomes including ED visits, hospitalizations, and mortality data.

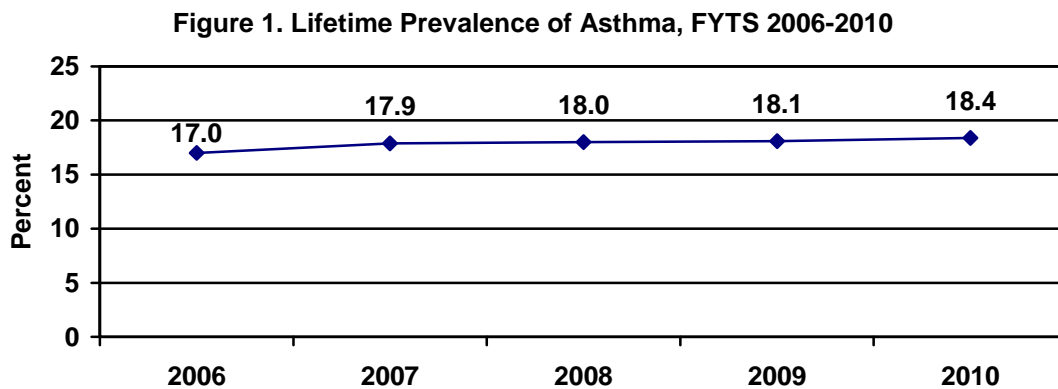
PREVALENCE

As discussed previously, lifetime prevalence of asthma is defined as a child who has been told that they have asthma by a doctor or nurse at some point during their lifetime. Current asthma prevalence is defined as those with lifetime asthma who respond that they still have asthma. Current asthma attacks are defined as those students with lifetime asthma who have had one or more asthma attacks in the past year.

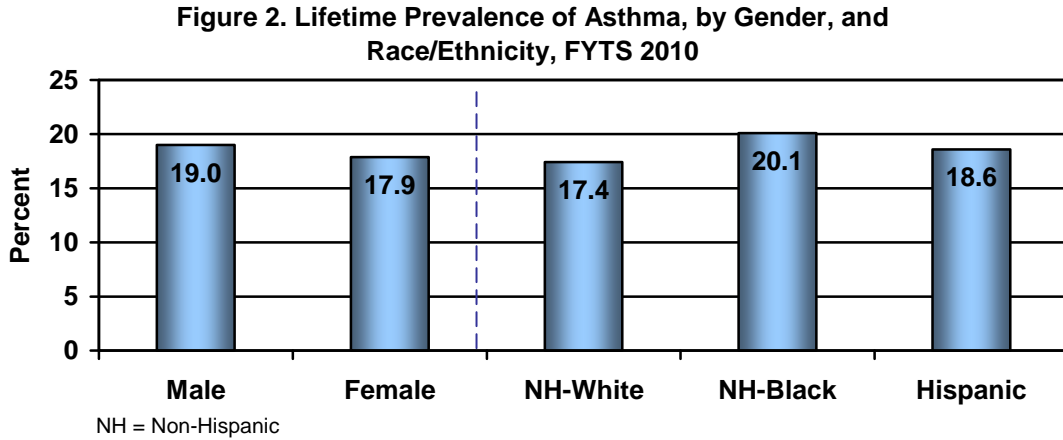
Lifetime Asthma Prevalence

The FCHS data from 2010 indicate that 18.0% of children under the age of 18 in Florida have been diagnosed with asthma by a doctor or nurse at some point during their lifetime.

These results are consistent with the 2010 FYTS which showed a lifetime prevalence of 18.4% among Florida's public middle school (grades 6-8) and high school (grades 9-12) students. From 2006-2010, the prevalence of lifetime asthma among Florida public middle and high school students has increased significantly from 17.0% in 2006 to 18.4% in 2010 (Figure 1).

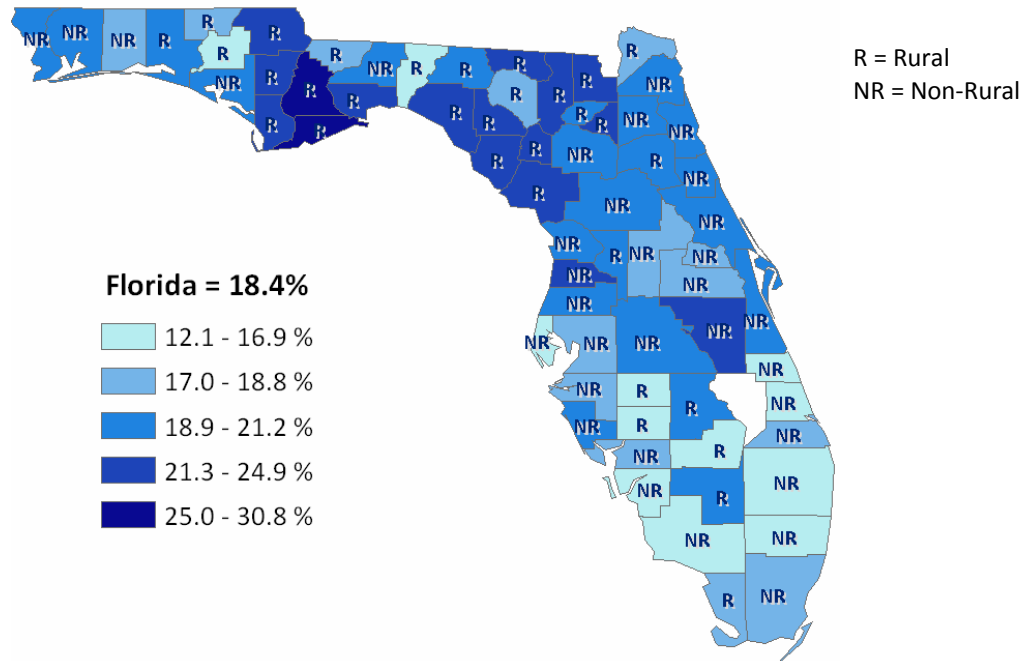


In 2010, males (19.0%) had a significantly higher prevalence of lifetime asthma than females (17.9%). Non-Hispanic black students (20.1%) had a significantly higher prevalence than non-Hispanic white students (17.4%) (Figure 2).



About half of Florida’s counties are rural (33 of 67). Rural counties are defined as areas with a population density of less than 100 individuals per square mile or an area defined by the most recent U.S. Census as rural. A comparison of 2010 FYTS data from 32 of Florida’s rural counties (Okeechobee, a rural county, did not participate) against the 34 non-rural counties in the state showed that students living in rural counties had a significantly higher prevalence of lifetime asthma (20.0%) than students living in non-rural counties (18.3%) (Figure 3).

Figure 3. Lifetime Prevalence of Asthma by County, FYTS 2010



In 2010, there were 7 counties where students had a significantly higher prevalence of lifetime asthma than the state (Table 1). In addition, three counties (Broward, Collier, and Indian River) had a significantly lower prevalence of lifetime asthma than the state.

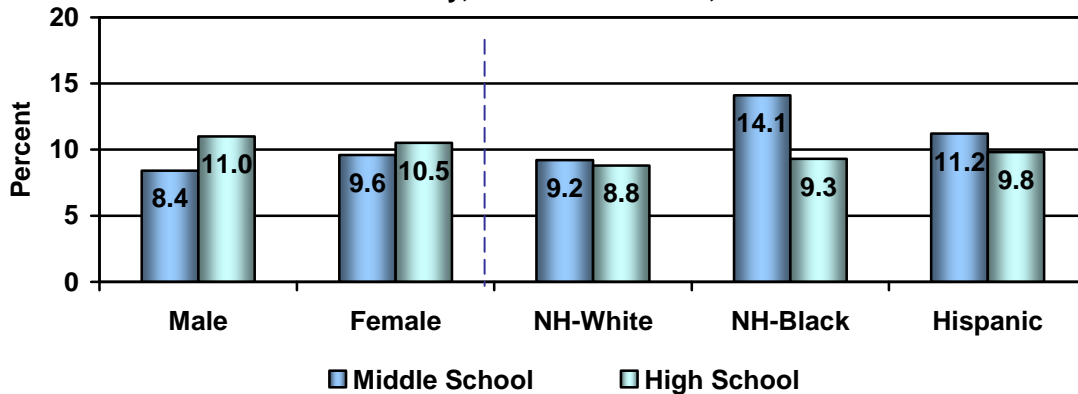
Table 1. Counties with a Significantly Higher Prevalence of Lifetime Asthma than the Mean State Prevalence, FYTS 2010

County		Percent	95% Confidence Interval
Calhoun	Rural	24.0%	(20.1 – 28.0)
Columbia	Rural	23.8%	(21.0 – 26.6)
Franklin	Rural	30.8%	(23.9 – 37.7)
Hamilton	Rural	24.9%	(20.2 – 29.6)
Hernando	Non-Rural	22.0%	(19.8 – 24.1)
Jackson	Rural	21.8%	(19.1 – 24.4)
Osceola	Non-Rural	22.2%	(20.2 – 24.2)
FLORIDA		18.4%	(17.9 – 18.9)

Current Asthma Prevalence

In 2009, the prevalence of current asthma was 10.8% among middle school students and 9.0% among high school students (MSHBS and YRBS). Among middle school students, females (9.6%) had a higher prevalence of current asthma than males (8.4%), and among high school students, males (11.0%) had a higher prevalence than females (10.5%) although neither of these differences were statistically significant. Non-Hispanic black students (14.1%) had the highest prevalence of current asthma among middle school students. Among high school students, Hispanic students (9.8%) had the highest prevalence of current asthma (Figure 4).

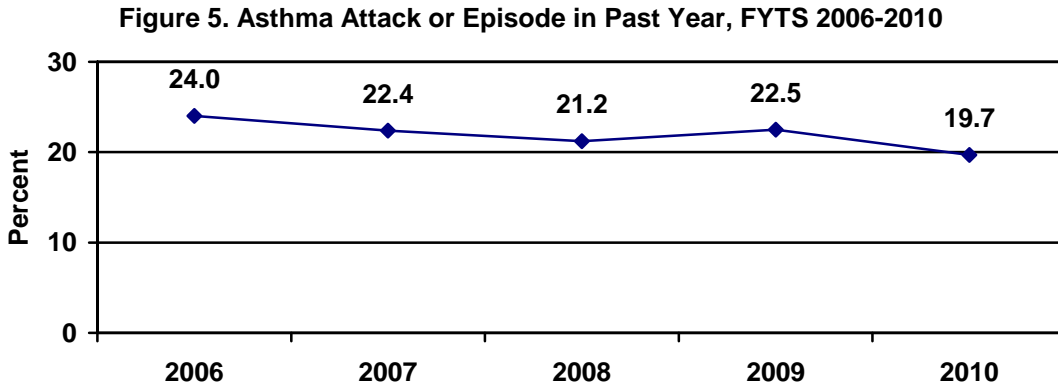
Figure 4. Current Prevalence of Asthma, by Gender, and Race/Ethnicity, MSHBS and YRBS, 2009



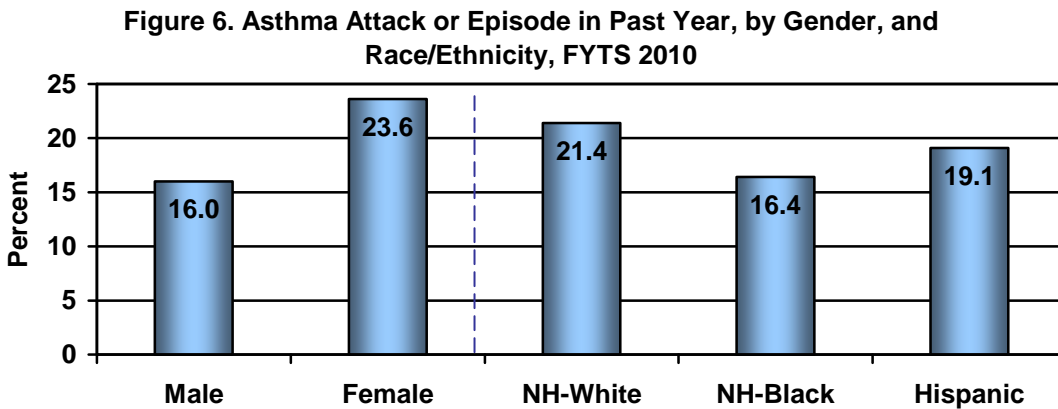
NH = Non-Hispanic

Asthma Episodes or Attacks

Among those students with lifetime asthma, the prevalence of having an asthma attack during the past year decreased significantly among Florida public middle and high school students from 24.0% in 2006 to 19.7% in 2010 (Figure 5). This decrease could be indicative of better asthma management.



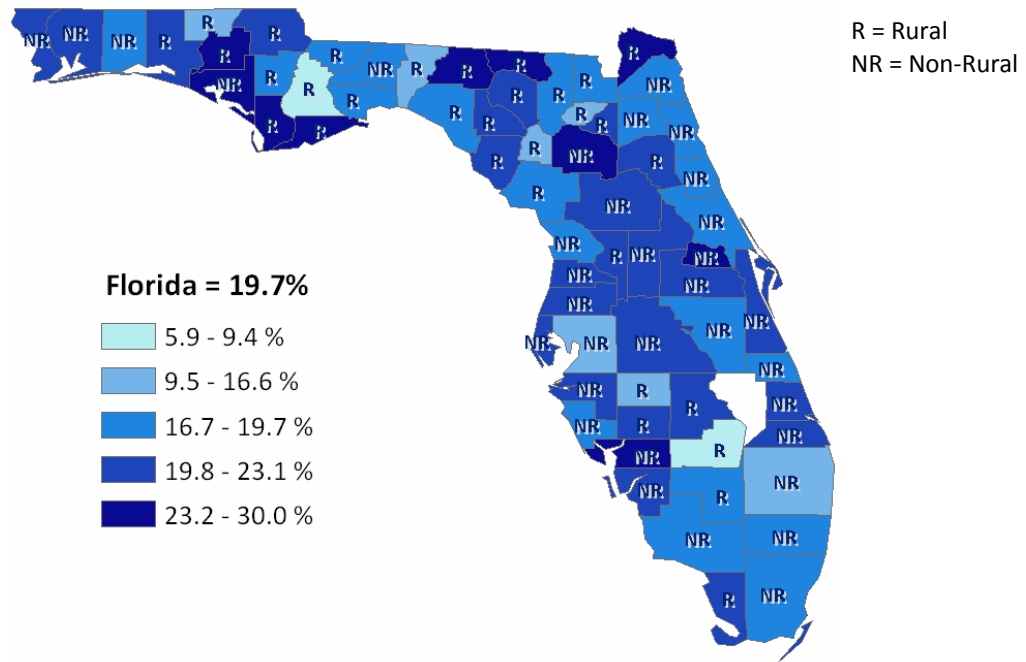
Females (23.6%) had a significantly higher prevalence of having one or more asthma attacks in the past year than males (16.0%). Non-Hispanic black students (16.4%) had a significantly lower prevalence than non-Hispanic white students (21.4%) (Figure 6).



NH = Non-Hispanic

A comparison of Florida’s rural and non-rural counties showed that among students with lifetime asthma, the prevalence of asthma attacks did not vary significantly for students living in rural counties (19.9%) from those living in non-rural counties (19.7%) (Figure 7). While about half of the counties had a higher prevalence than the state, Seminole County (29.2%) was the only county with a significantly higher prevalence.

Figure 7. Asthma Attack or Episode in Past Year by County, FYTS 2010



HEALTH OUTCOMES

The burden of asthma among Florida children is also assessed by looking at health outcome data, including ED visits, hospitalizations, and deaths. All ED visits and hospitalizations with a primary diagnosis of asthma (ICD-9 code = 493) were included in this analysis. While ED visit and hospitalization data cannot be used to describe the population with asthma in Florida, they help us examine which groups do not have their asthma under proper control.

Emergency Department Visits

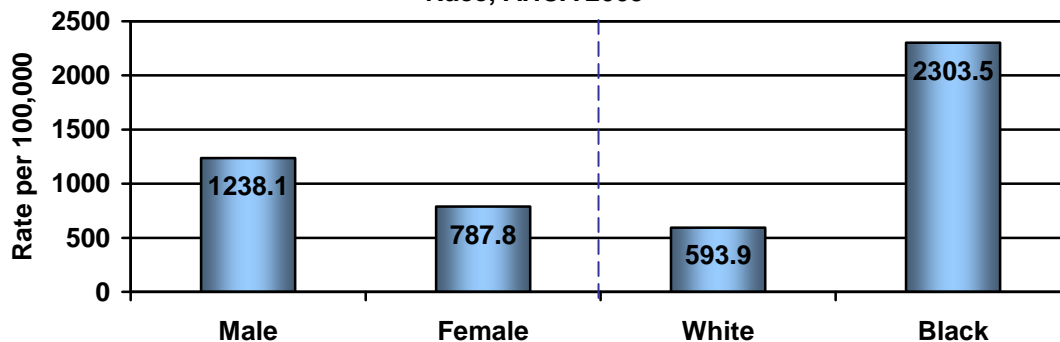
In 2009, there were a total of 42,238 ED visits among children under the age of 18 in Florida with asthma listed as the primary diagnosis. While children under the age of 18 in Florida only make up about 22% of the state’s population, this group accounted for almost half (47.2%) of the total asthma-related ED visits among all ages in 2009. Younger children had a larger number of ED visits than older children (Table 2).

Table 2. Count of Asthma Related ED Visits by Age Group, Ages 0-17, AHCA, 2009

Age Group	Count	Percent
0 - 4	17,413	41.2%
5-10	15,357	36.4%
11-17	9,468	22.4%
Total	42,238	100%

ED visits due to asthma are largely preventable with proper management and control. Healthy People 2020, a report providing science-based 10-year objectives for the health of all Americans, includes a national objective to reduce the rate of asthma ED visits to less than 95.5 per 10,000 (or 955 per 100,000) among children ages 0 to 4 and less than 49.1 per 10,000 (or 491 per 100,000) for children ages 5 to 17. In 2009, the crude rate of asthma ED visits in Florida for ages 0-4 was 1,531.8 per 100,000 and the crude rate for ages 5-17 was 823.8 per 100,000. Males (1,238.1) had a higher rate of ED visits than females (787.8). Black children had a higher rate of asthma ED visits (2,303.5) than white children (593.9), a notable disparity (Figure 8).

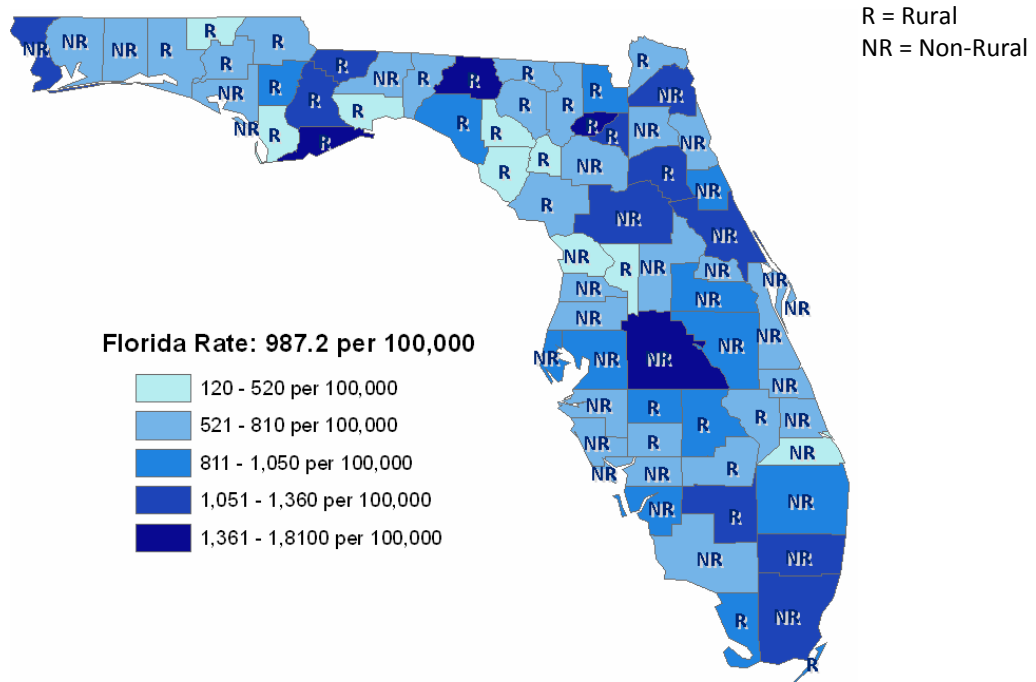
Figure 8. Asthma ED Visit Crude Rates, Ages 0-17, by Gender and Race, AHCA 2009



The rate of ED visits varied by geographical location, but not necessarily by rurality (Figure 9). For county-specific asthma ED visits, please view the fact sheet, Florida Emergency Department Visit Rates, 2006-2009, available at:

<http://www.myfloridaeh.com/medicine/Asthma/AsthmaEDvisits.pdf>.

Figure 9. Asthma ED Visit Crude Rates, Ages 0-17, by County, AHCA 2009



In 2009, the average charge of an asthma ED visit for children less than 18 was approximately \$1,500 and the total charges for asthma ED visits for this age group were \$64.3 million. Approximately 60% of the charges are covered by Medicaid, 23% are covered by private insurance, and 11% are paid out of pocket (including uninsured).

Reducing ED visits, particularly among populations with the greatest disparity (black non-Hispanic children), should be a priority given the burden placed on families and the health care system. Efforts should focus on ensuring those visiting the ED receive self-management education, have access to and know how to properly use prescriptions, and are connected to a primary care provider or specialist who can monitor the child’s asthma and provide the routine care needed to prevent emergencies. Many EDs in Florida and across the country are working on quality improvement initiatives to improve patient care and help prevent repeat ED visits due to asthma. As these programs expand, we will likely see reduced disparities, reduced rates of ED visits, improved quality of life and reduced costs.

Hospitalizations

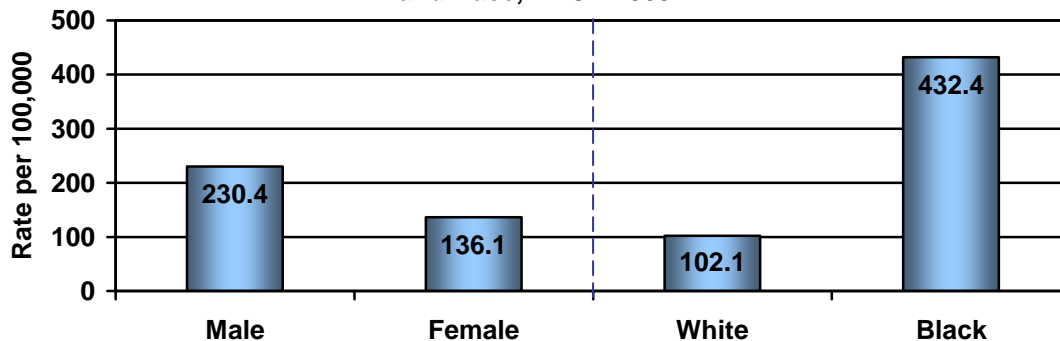
In 2009, there were a total of 7,646 hospitalizations among children under the age of 18 in Florida with asthma listed as the primary diagnosis. This group accounts for about a quarter (24.9%) of all asthma-related hospitalizations. Younger children had a larger number of hospitalizations than older children (Table 3).

Table 3. Counts of Asthma Hospitalizations by Age Group, Ages 0-17, AHCA 2009

Age Group	Count	Percent
0 – 4	4,046	53%
5-10	2,520	33%
11-17	1,080	14%
Total	7,646	100%

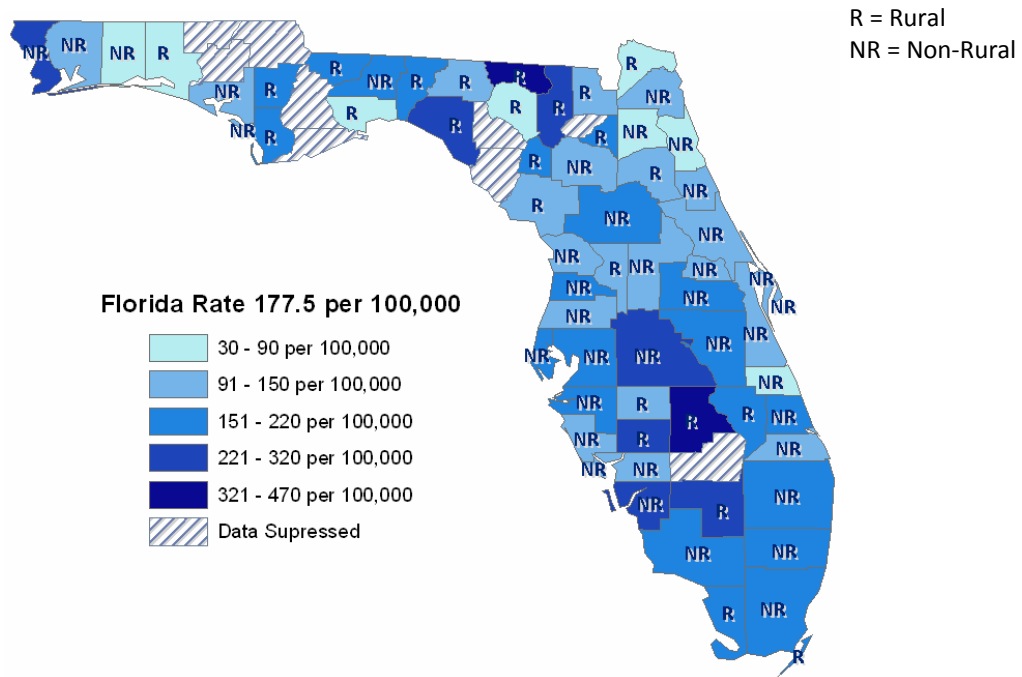
The Healthy People 2020 objective for asthma hospitalizations reduces hospitalization rates to less than 18.1 per 10,000 (or 181 per 100,000) among children ages 0 to 4 and less than 8.6 per 10,000 (or 86 per 100,000) for children ages 5 to 17 nationwide. In 2009, the crude rate of asthma hospitalizations in Florida for children ages 0-4 was 355.9 per 100,000 and the rate for children ages 5-17 was 119.5 per 100,000. Males (230.4) had a higher rate of asthma hospitalizations than females (136.1). Black children had a higher rate of asthma hospitalizations (432.4) than white children (102.1), again a notable disparity (Figure 10).

Figure 10. Asthma Hospitalization Crude Rates, Ages 0-17, by Gender and Race, AHCA 2009



The rate of hospitalizations varied by geographical location, but not necessarily by rurality (Figure 11). For county-specific asthma hospitalization rates, please view the fact sheet, Florida Asthma Hospitalization Rates, 2006-2009, available at: <http://www.myfloridaeh.com/medicine/Asthma/FLAsthmaHospitalizationRates.pdf>.

Figure 11. Asthma Hospitalization Crude Rates, Ages 0-17, by County, AHCA 2009



In 2009, the average charge of an asthma hospitalization for a child less than 18 was approximately \$12,320 and the total charges for asthma hospitalizations for this age group were \$157.6 million. Approximately 63% of the charges were covered by Medicaid, 28% were covered by private insurance, and 5% were paid out of pocket (including uninsured).

Asthma hospitalizations, like asthma ED visits, can largely be prevented with proper asthma control and management. Reducing hospitalizations, particularly among populations with the greatest disparity- black non-Hispanic children, should also be a priority. Efforts for in-patient care should mirror those recommended for out-patient care and ensure those admitted to the hospital receive self-management education, have access to and know how to properly use prescriptions, and are connected to a primary care provider or specialist who can monitor the child’s asthma and provide the routine care needed to prevent emergencies. As more hospitals in Florida come into compliance with the National Heart, Lung, and Blood Institute’s EPR-3 Guidelines for the Diagnosis and Treatment of Asthma, we will likely see reduced disparities, reduced rates of hospital visits, improved quality of life, and reduced costs.

Mortality

Deaths from asthma (ICD-10 codes J45-46) represent the worst outcome of the disease. Older adults are much more likely to die from asthma than children. In 2009, there were a total of 202 deaths in Florida with asthma listed as the underlying cause. Children under the age of 18 accounted for 14 of those deaths.

BURDEN SUMMARY

The prevalence of lifetime asthma among Florida public middle and high school students has increased from 17.0% in 2006 to 18.4% in 2010. As data on current asthma has not always been collected for this age group, the change over time cannot be assessed. Recent data show that males had a significantly higher prevalence of lifetime asthma than females, although females had a significantly higher prevalence of current asthma attacks.

Non-Hispanic black students had the highest prevalence of lifetime asthma, but current asthma differed by race/ethnicity and grade level. Among middle school students, non-Hispanic blacks had the highest prevalence of current asthma; among high school students current asthma was more common within the Hispanic group.

Students living in rural settings had a significantly higher prevalence of lifetime asthma than students living in non-rural settings. However, there was no difference in the prevalence of current asthma attacks between these two groups.

Children under the age of 18 accounted for about half of all asthma ED visits and a quarter of all asthma hospitalizations in 2009. The youngest children (ages 0-4), males, and blacks had the highest rates of ED visits and hospitalizations. Asthma deaths are a relatively rare occurrence among children in Florida.

Large disparities exist among children in Florida that are impacted by asthma, but no one group is exempt from the disease. Interventions targeted to specific groups can help reduce disparities, but ultimately the burden is wide spread across Florida's children. Children with asthma can live normal, active lives, if given the proper education, treatment, and support.

III. RISKS AND RISK BEHAVIORS

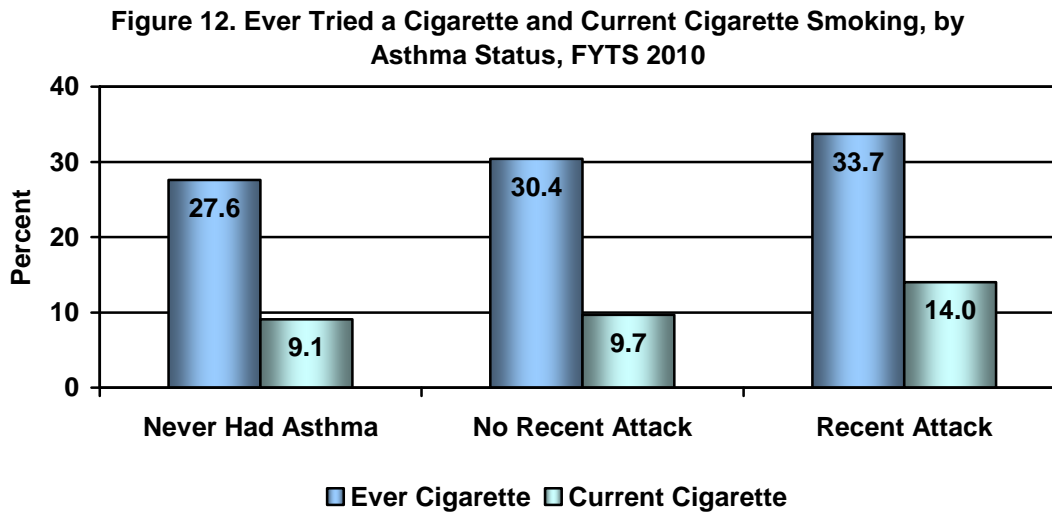
This section provides data from the 2010 FYTS that can help us better understand the risks and behaviors that complicate asthma management or exacerbate asthma in Florida’s children. The findings are important to clinicians, educators, and public health professionals because they demonstrate the many challenges faced by children with asthma. These challenges must be taken into consideration in order to provide the best possible support for a child with asthma.

For the purpose of this section, three groups were created based on asthma status: 1) Students who have never been told by a doctor or nurse that they have asthma (Never Had Asthma); 2) Students with lifetime asthma (have been told by a doctor or nurse that they have asthma) who have not had an asthma attack in the past year (No Recent Attack); and, 3) Students with lifetime asthma who have had an asthma attack in the past year (Recent Attack).

RISK BEHAVIORS

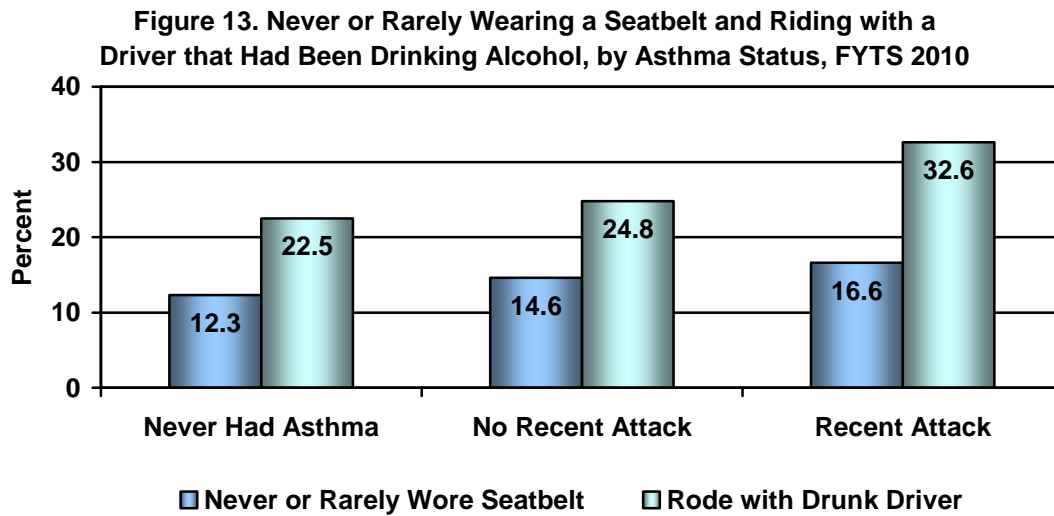
Smoking Behaviors

Students with no recent attacks (30.4%) and students with recent attacks (33.7%) had a significantly higher prevalence of having ever tried smoking cigarettes compared to students who have never had asthma (27.6%). Students with recent attacks (14.0%) had a significantly higher prevalence of current smoking (having smoked one or more cigarettes during the past 30 days) compared to students who have never had asthma (9.1%) and students with no recent attacks (9.7%) (Figure 12).



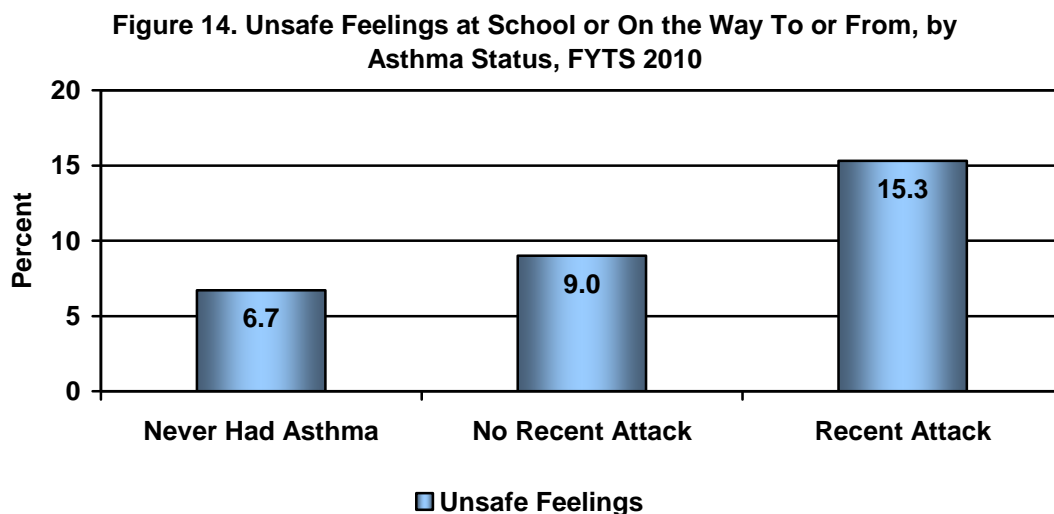
Safety Behaviors

Students with no recent attacks (14.6%) and recent attacks (16.6%) had a significantly higher prevalence of never or rarely wearing their seatbelt than students who have never had asthma (12.3%). Approximately 1 out of 3 students with recent attacks (32.6%) rode with a driver who had been drinking alcohol one or more times during the past 30 days. This prevalence was significantly higher than students with no recent attacks (24.8%) and students who have never had asthma (22.5%) (Figure 13).



Unsafe Feelings

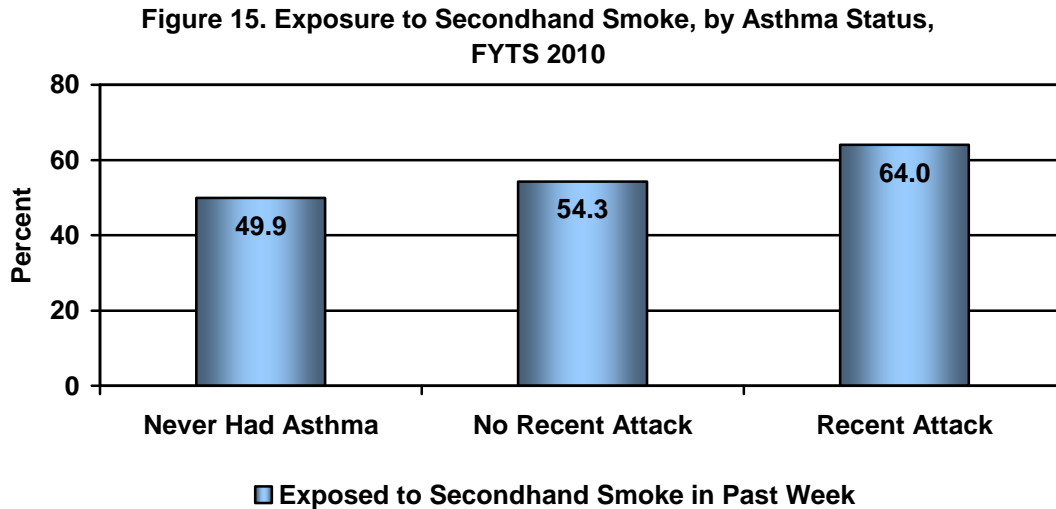
Students who have never had asthma (6.7%) had a significantly lower prevalence of not going to school one or more times during the past month because of feeling unsafe at school or on their way to or from school than students with no recent attacks (9.0%). Students with recent attacks (15.3%) were significantly more likely to not go to school due to unsafe feelings than students in either of the other two groups (Figure 14).



RISKS

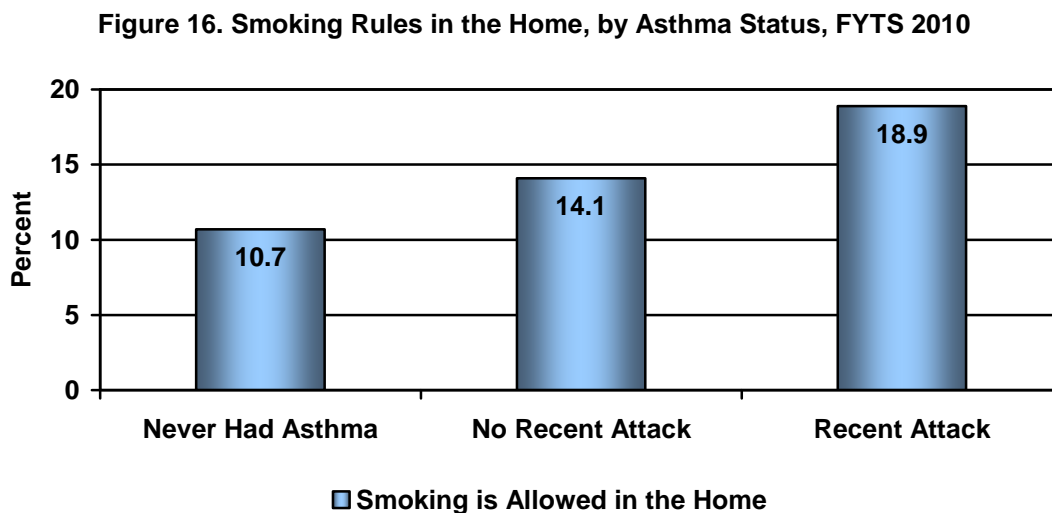
Exposure to Secondhand Smoke

Students who have never had asthma (49.9%) had a significantly lower prevalence of having been exposed to secondhand smoke (SHS) in a room or car one or more times during the past 7 days than students with no recent attacks (54.3%). Students with recent attacks (64.0%) were significantly more likely to have been exposed to SHS in a room or car than either of the other groups (Figure 15).



Smoking Rules in the Home

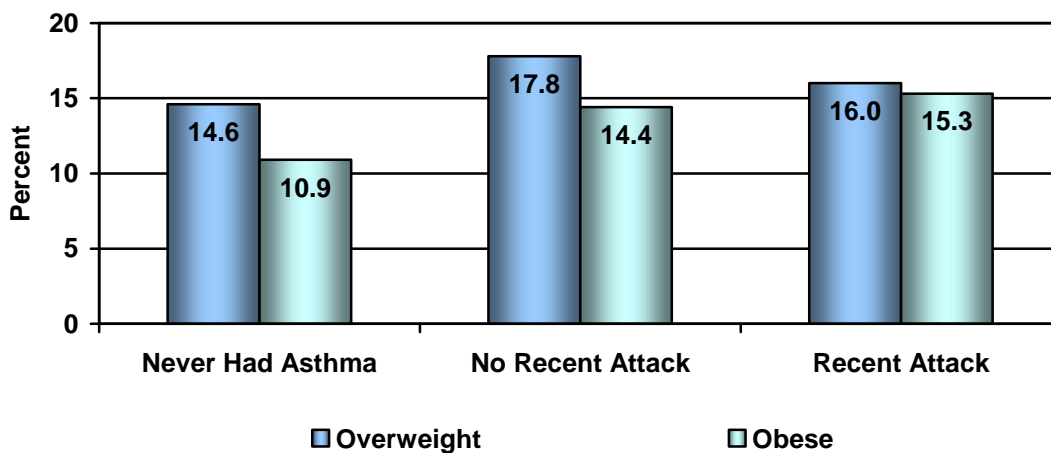
Students who have never had asthma (10.7%) had a significantly lower prevalence of living in a home where smoking is allowed indoors compared to students with no recent attacks (14.1%). Students with recent attacks (18.9%) had the strongest association of living in a home where smoking is allowed indoors (Figure 16).



Weight Status

The FYTS collects self-reported height and weight information which is used to calculate body-mass index (BMI). Overweight is defined as students having a BMI between the 85th and 95th percentile among children of the same age and gender. Obesity is defined as students having a BMI greater than or equal to the 95th percentile among children of the same age and gender. Students with no recent attacks (17.8%) were significantly more likely to be overweight than students who have never been diagnosed with asthma (14.6%). Students with no recent attacks (14.4%) and those with recent attacks (15.3%) were significantly more likely to be obese than students who have never been diagnosed with asthma (10.9%) (Figure 17).

Figure 17. Overweight¹ and Obesity², by Asthma Status, FYTS 2010

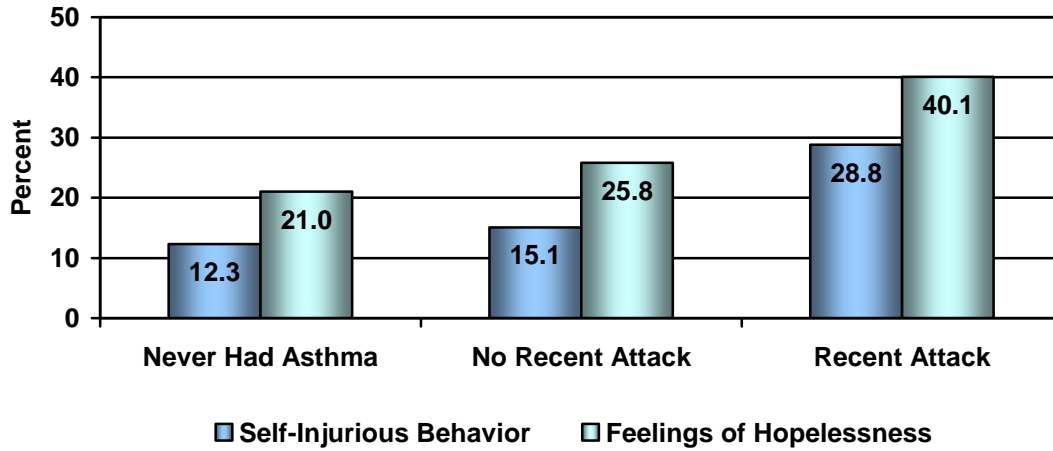


1 – Overweight is defined as students having a BMI between the 85th and 95th percentile among students of the same age and gender
2 – Obese is defined as students having a BMI greater than or equal to the 95th percentile among students of the same age and gender

Self-Injury and Feelings of Hopelessness

Students with no recent attacks (15.1%) had a significantly higher prevalence of injuring themselves on purpose without the intention of dying (such as cutting or burning themselves) one or more times during the past year, compared to students who have never had asthma (12.3%). Students with no recent attacks (25.8%) had a significantly higher prevalence of feeling so sad or hopeless for 2 or more weeks in a row that they stopped doing some of their usual activities compared to students who have never had asthma (21.0%) (Figure 18). Students with recent attacks were significantly more likely to have self-injured (28.8%) and to have had feelings of hopelessness (40.1%) than either of the other groups.

Figure 18. Self-Injurious Behavior and Feelings of Hopelessness, by Asthma Status, FYTS 2010



RISKS AND RISK BEHAVIORS SUMMARY

Students with lifetime asthma, including those with no recent attack and those with recent attacks, appear to also be vulnerable to other preventable health problems. It is important to maximize community resources to address these in tandem when possible.

IV. ASTHMA CARE AND MANAGEMENT

This section presents information about the type of care, education, and management received by children with asthma in Florida. This helps administrators in schools, hospitals, health plans, and in public health identify and prioritize opportunities for improvement.

Asthma Awareness and Education

- Approximately 2 out of 3 (67.6%) parents report that a doctor or other health professional has taught them or their child how to recognize early signs or symptoms of an asthma episode or attack
- Approximately 2 out of 3 (66.5%) parents report that a doctor or other health professional has taught them or their child what to do during an asthma attack
- Only 1 out of 10 (10.3%) parents report that they or their child has taken a course or class on how to manage the child's asthma

Asthma Action Plan

- Only 1 out of 3 (33.4%) parents report that a doctor or other health professional has ever given them an asthma action plan for their child – the asthma action plan is defined as a form with instructions about when to change the amount or type of medicine, when to call the doctor for advice, and when to go to the emergency room
- Among those parents who have received an asthma action plan for a child who attends school, a little fewer than half (45.9%) report providing a copy of the asthma management plan to the child's school

Asthma Treatment

- About half (51.0%) of children needed to see a doctor during the past year due to their asthma
- Approximately 1 out of 5 (19.8%) children had been to an ED or urgent care center because of their asthma

Asthma Medication

- 31.7% of children use a medicine every day that was prescribed by a doctor to keep them from having asthma problems
- Slightly more than half (52.4%) report that their child uses a rescue medication inhaler

Absenteeism

- Approximately 1 out of 4 (25.5%) children missed one or more days of daycare or school due to their asthma

V. CONCLUSION

As the prevalence and cost of asthma among Florida's children continues to increase, it is more important than ever to build capacity and establish networks within communities to support children with asthma. Managing asthma is possible, but it requires proper medical treatment, medication adherence, communication, and self-management for success.

Younger children are more reliant on their caretakers (parents, teachers, and school / childcare center staff), while older children need proper education to be able to play a more active role in the control of their asthma. Health care providers have the important responsibility of ensuring parents and children receive and understand their asthma action plans. Further, these plans need to be put on file at the childcare centers, schools, and other places where the child spends significant amount of time.

Clinicians in primary care, hospitals, and ED settings should be sure to follow the updated 2007 EPR-3 Guidelines when assessing, diagnosing, or treating a child with asthma. Every ED visit or hospitalization is an opportunity to provide education and information about proper management.

Incentives should be identified to encourage schools, childcare centers, hospitals, urgent care centers, and health plans to implement robust programs that support individuals with asthma. Florida can recognize the greatest return on investment – in terms of quality of life, cost savings, and productivity- through a coordinated and integrated approach to asthma management for children.

Appendix A: Data Dictionary

- Current Asthma Attacks: Children with lifetime asthma that report having one or more asthma attacks in the past 12 months
- Current Asthma: Children with lifetime asthma that report still having asthma
- Current Cigarette Use: Students who have smoked one or more cigarettes during the past 30 days
- Ever Cigarette Use: Students who have ever tried smoking a cigarette, even one or two puffs
- Exposure to Secondhand Smoke: Students who have been in a room or car where someone was smoking one or more times during the past 7 days
- Feelings of Hopelessness: Students who felt so sad or hopeless almost everyday for two weeks or more in a row that they stopped doing some of their usual activities
- Lifetime Asthma: Children who have ever been told by a doctor or nurse that they have asthma
- Never Had Asthma: Students who have never been told by a doctor or nurse that they have asthma
- Never or Rarely Wore Seatbelt: Students who never or rarely wore their seatbelt when riding in a car driven by someone else
- No Recent Attack: Students with lifetime asthma who do not report having had an asthma attack in the past year
- Obesity: students having a BMI greater than or equal to the 95th percentile among children of the same age and gender
- Overweight: students having a BMI between the 85th and 95th percentile among children of the same age and gender
- Recent Attacks (same as Current Asthma Attacks): Students with lifetime asthma who report having had one or more asthma attacks during the past year
- Rode with Drunk Driver: Students who rode in car or other vehicle driven by someone who had been drinking alcohol one or more times during the past 30 days
- Self-Injured: Students who did something to purposely hurt themselves without wanting to die, such as cutting or burning themselves on purpose, one or more times during the past year
- Unsafe Feelings: Students who report not going to school because of feeling unsafe at school or on the way to or from school