

# BASTA

Border Asthma & Allergies Study

## Summary of Findings

November 2009

### Background

Imperial County has the highest rate of childhood asthma hospital admissions in California. In 2003, children 0–14 years old were admitted to the hospital because of asthma more than three times the state average. Nearly 85% of these hospital admissions occurred among Latino children.

In May 2005, the California Department of Public Health conducted a health survey in Imperial County called the Border Asthma and Allergies study or BASTA. The purpose of the survey was to:

- determine the amount of asthma and asthma symptoms in young teenagers, and
- examine family and environmental factors that might be related to asthma.

### Participants

In total, 3,224 students from 10 schools completed the survey. Students were from 7th and 8th grade classrooms, and most were 13 or 14 years old. The students attended large and small schools in cities and in rural areas.

About 76% of the students who took the survey were of Mexican heritage and described themselves as Mexican or Mexican-American. Another 11% called themselves “Other Latino,” specifically Black Latino, Mexican Indian, or other. Almost 7% said that they were White, and 6% said that they were either Black, Asian or another race. Students reported that they spoke Spanish (42%), English (34%), or both languages (23%) at home.

### Asthma Results

Of all the students surveyed, about one in five (20%) had been diagnosed with asthma at some point in their life. Of these students, one in eight (12.5%) said that they had symptoms of asthma, such as wheezing, chest tightness, or repeated coughing, at some point during the past year.

When compared with children of all races in California and the United States at that time, BASTA participants had a higher percentage of asthma.

The National Survey looked at young people ages 5–14, whereas BASTA students were 12–15 years old. These numbers are not exactly comparable because we would expect to see a higher percentage of asthma in BASTA students than in younger children who were included in the National Survey. An exact national comparison group for BASTA students is not available.

2005 Study Groups Children of All Races	Percent with asthma
BASTA Survey	20.2%
California Survey <sup>1</sup>	19.3%
National Survey <sup>2*</sup>	13.7%

<sup>1</sup> California Health Interview Survey (CHIS), 2005

<sup>2</sup> National Health Interview Survey (NHIS), 2005

\* Note: NHIS asthma percentage is for ages 5–14, whereas CHIS and BASTA are for ages 12–15.

## Asthma among Students of Mexican Heritage

Almost 1 in 5 (18.6%) students of Mexican heritage had asthma in the BASTA survey.

2005 Study Groups Children of Mexican Heritage	Percent with asthma
BASTA Survey	18.6%
California Survey <sup>1</sup>	14.6%
National Survey <sup>2*</sup>	12.1%

## Asthma in Students of All Racial Groups

Students of all racial groups in BASTA had higher percentages of asthma than compared with the rest of California or the United States. However, it's important to note that, except for those of Mexican heritage, these percentages are based on very small numbers of students and therefore could be different if measured in a larger population. This table shows the percentages of students in the BASTA survey with asthma broken down by race or ethnicity.

Race/Ethnicity of BASTA Students	Percent with asthma
White	34%
Asian, Black, Other	22.2%
Other Latino	21.7%
Mexican Heritage	18.6%

## Schools

Of the ten schools participating in BASTA, most had relatively large percentages of students who had ever had asthma among the 7th and 8th graders who took the survey. Some schools had percentages as high as 25% (1 in 4 students). We are providing these percentages because local community groups and schools have expressed an interest in this information. However, these numbers represent a snapshot in time of the asthma percentages among young teenagers who took this survey, and these numbers may

School	Number of students taking survey	Percent with asthma
Barbara Worth	700	25.2%
Frank Wright	220	21.2%
Heber	148	16.1%
Holtville	216	18.0%
Kennedy	462	12.4%
Meadows	106	23.9%
San Pasqual	85	13.7%
Westmorland	91	23.4%
William Moreno	279	17.4%
Wilson	917	21.8%

be different now. More importantly, for the smaller schools, these numbers may be less accurate. We have much more confidence in the results of the overall BASTA survey, which is based on responses of thousands of students from all of the schools. Nevertheless, these findings highlight the need for more school-based asthma programs in Imperial County.

## Allergies

About 57% of the students reported allergy-related conditions other than asthma in the BASTA survey. These included runny nose without a cold, symptoms of "hay fever" (such as stuffy or runny nose, and itchy or watery eyes), or an itchy rash and eczema. More than

1 in 3 (34%) of the students reported that they had been diagnosed with allergies at some point in their lives by a doctor. Based on BASTA findings, children in Imperial Valley may suffer from a wide range of allergies. In addition, among children who have both allergies and asthma, their allergies can make asthma worse.

## Breathing Problems in Students without Asthma

A large number of BASTA students who had never been diagnosed with asthma said that they had symptoms similar to those due to asthma in the year before the BASTA survey. Though some breathing problems, such as wheezing, are common in childhood, it is possible that a number of children in Imperial County have undiagnosed or untreated asthma. Based on the BASTA survey, the percentage of children who might have undiagnosed asthma could be as low as 2% or as high as 23%, depending on how many asthma symptoms were counted. The following table shows the types and percentages of asthma-like symptoms reported by students who did not have a doctor's diagnosis of asthma.

Symptoms of asthma in last year among students without asthma	Percent with Symptoms*
Wheeze without a cold or flu AND Wheeze that interrupts sleep	2%
Wheeze without a cold or flu	6%
Wheeze	11%
Dry cough at night without a cold or chest infection	11%
In the last 12 months, any of the following: (i) wheeze, (ii) dry cough at night without cold or flu, or (iii) repeated dry cough for more than three weeks.	23%

\* percentage based on 2,650 students who had not been diagnosed with asthma by a doctor or nurse.

These findings suggest that there may be a need for more widespread screening programs to detect asthma in this age group and possibly others.

## Family and Environment

Based on the BASTA findings, family and personal health played a large role in whether a student was likely to have asthma. Students were more likely to have asthma if they had:

- a history of allergies or bronchitis;
- a runny nose without a cold;
- a parent or family member with asthma.

Free-time activities also influenced who was likely to have asthma. Students were more likely to have asthma if they:

- spent three hours or more watching television on the weekends; and if
- they spent six hours or more using the computer on the weekends.

The location and condition of students' homes were related to whether a child reported having had asthma. Children were more likely to have asthma if they lived in:

- houses or apartments that had rats; or
- homes located near open and dusty areas.

## Students of Mexican Heritage

Among students of Mexican heritage, those who ate more fruit had a lower risk of wheeze.

Students who only spoke Spanish at home had the lowest risk of asthma. The risk of having asthma increased in proportion to the amount of English spoken at home.

Eating fruit and speaking Spanish at home indicate that diet, as well as family or cultural influences, may play a role in asthma.

## Conclusions

BASTA findings show that, overall, children in Imperial County are more likely to have asthma at some point in their lives than most other children in California.

Students in the BASTA study had:

- Higher percentages of asthma than students in other parts of California;
- Higher percentages of asthma than a national comparison group.

BASTA students of Mexican heritage had higher percentages of asthma than children of Mexican heritage in California and National Health Interview Surveys.

There are children in Imperial County with asthma-like symptoms who have never been diagnosed by a doctor as having asthma. Depending on the number of symptoms counted, the number of children who have undiagnosed (and therefore untreated) asthma could be relatively small or quite high.

## Asthma in Imperial County 2009

In the four years since the BASTA survey was conducted, children in Imperial County are still three times more likely to be admitted to the hospital for asthma than in the rest of the State. In proportion to its population size, Imperial County has the highest number of asthma-related emergency room visits for children ages 5–17; the age range that includes BASTA participants. These more recent findings lead us to believe that asthma remains a major health problem for young people in Imperial County.

### What is Asthma?\*

Asthma is a disease that affects the lungs. It is one of the most common long-term diseases in children, but adults have asthma too. People with asthma have it all the time, but will have asthma attacks only when something like a cold or smoke irritates their lungs. Asthma cannot be cured, but it can be controlled.

### Asthma Symptoms and Signs

- Repeated episodes of wheezing or whistling in the chest
- Difficulty breathing
- Chest tightness
- Repeated coughing, especially at night or in the early morning

Approximately 20 million Americans have asthma. The dramatic increase in the number of asthma cases in the last 30 years suggests that environmental factors are at the root of the problem.

\* from Asthma Basic Information [www.cdc.gov/asthma/faqs.htm](http://www.cdc.gov/asthma/faqs.htm)

### Dedication

The Border Asthma and Allergies Study (BASTA) wishes to dedicate this community report to the memory of Marie Dugan Delgado. Marie was a 16-year old sophomore at Southwest High School in Imperial County who passed away on May 29, 2009, as the result of an asthma attack.