



# ASTHMA REPORT CARD

*2005*



## The San Diego Regional Asthma Coalition

The San Diego Regional Asthma Coalition is a collaborative of diverse agencies and individuals. Staffed by the American Lung Association, the Coalition is comprised of over 50 participating agencies, including the County of San Diego Health and Human Services Agency, health care providers, health plans, hospitals, community clinics, school districts, researchers/educators, community collaboratives, community based organizations, environmental advocates, and local businesses. The Coalition's mission is to provide leadership in identifying, developing, mobilizing and coordinating resources to prevent asthma and positively impact the lives of people affected by asthma. The California Endowment and San Diego County Supervisor Ron Roberts provided funding for the 2005 Asthma Report Card. For more information on SDRAC activities contact Coalition Coordinator Joni T. Low at 619-297-3901 or [joni@lungsandiego.org](mailto:joni@lungsandiego.org).

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## The San Diego County Asthma Report Card

The San Diego Regional Asthma Coalition (SDRAC) is pleased to present the second annual *San Diego County Asthma Report Card*. Its primary purpose is to summarize and document key data on asthma and asthma-related issues. By compiling data from several sources, we have gained a better understanding of asthma in San Diego County and the areas and populations most in need of asthma-related services. Currently, this report card is the only comprehensive asthma surveillance system for the County.

## Major Findings and Recommendations

- 1. Asthma is controllable and does respond to efforts from government and other public and private organizations. Existing efforts should continue to be supported and expanded where possible.** The region has made significant gains in controlling asthma in the past few years, with reductions in deaths due to asthma, a steady decline in asthma-related 911 calls, and steadily improving air quality (see pages 8 and 12-14). Preventive efforts have great potential to reduce the intermediate to long-term impact of asthma, both in financial terms and in terms of human suffering.
- 2. Because asthma must be actively managed, families without medical insurance or other means to pay for medical care are at increased risk for asthma exacerbations and mortality. Efforts directed toward increasing access to healthcare should be continued and strengthened.** Managing asthma effectively requires regular checkups to monitor medications and symptoms. Rising healthcare costs have real potential to deter large numbers from seeking preventive care, especially for those who must pay out of pocket. Healthcare coverage of basic preventive and maintenance healthcare visits is essential for treating asthma efficiently and in a cost-effective manner.
- 3. Significant economic and ethnic disparities exist for those affected by asthma. Devoting resources to asthma management and control for at risk groups will yield significant future benefits in reductions in lost work and school days, healthcare costs, and human distress.** African-Americans, Native Americans, and the economically disadvantaged all suffer disproportionately from asthma. Asthma interventions targeted to these populations and geographic areas where asthma is most prevalent have great potential to return significant dividends in terms of reduced human suffering and decreased healthcare costs.

We know that efforts to control asthma can be successful. We know where asthma lives, who it affects the most, and effective measures to manage and treat asthma symptoms. Allowing asthma services to fade out of the spotlight will lead to increased healthcare costs as more people receive care only when they arrive at the emergency room. Increasing preventive and management services for asthma is both cost-effective and the right thing to do for the public health of San Diego County.

## What is Asthma?

Asthma is a chronic inflammatory lung disease. Common symptoms include recurrent wheezing and coughing, difficulty breathing, and tightness of the chest. These symptoms result from an intense immune response in the lungs to allergens or irritants in the environment. Pet dander, dust mites, pollen, mold, tobacco smoke and chemical fumes are all capable of triggering asthma symptoms and attacks. In addition to these environmental triggers, respiratory infections, exercise, and changes in weather can also produce asthma symptoms. While asthma episodes can range from mild to life threatening, most can be prevented with appropriate clinical management and a healthy physical environment.

## What Causes Asthma?

The actual causes of asthma are unknown, but studies have shown that factors such as genetics, development and growth of the lungs and immune system, various infections and exposures in the environment can affect the risk of developing asthma. It is widely accepted that asthma is a disease that can be inherited. However, the genes involved have yet to be clearly identified. Premature birth, exposure to tobacco smoke, exposure to certain chemicals, or air pollution are also known risk factors for developing asthma.

## Why is Asthma Important?

During the past several decades, asthma prevalence has been rising nationwide. Asthma is currently one of the leading chronic health conditions in the United States. While there is no known cure for asthma, respiratory health can be dramatically improved and costs can be reduced through better prevention, detection, treatment and educational efforts. **Healthy People 2010<sup>1</sup>** challenges individuals, communities, and professionals to take specific steps to ensure long, healthy lives and to eliminate health disparities among specific segments of the population. Specific asthma-related objectives include:

- Reduce asthma deaths
- Reduce asthma hospitalizations
- Reduce asthma-related hospital emergency visits
- Reduce activity limitations among persons with asthma
- Reduce the number of school or work days missed because of asthma
- Increase the proportion of persons with asthma who receive formal patient education, including information about community and self-help resources, as an essential part of the management of their condition
- Increase the proportion of persons with asthma who receive appropriate asthma care based on the National Asthma Education and Prevention Program (NAEPP) Guidelines

Asthma is the leading cause of serious chronic illness and hospitalizations among children in San Diego County.

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<sup>1</sup> A program of the Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services <http://www.healthypeople.gov>

# INTRODUCTION

## Who is at Risk?

- **Children:** Asthma is the most common chronic childhood disease, affecting approximately 9 million children nationwide in 2003. Nearly 1 in 13 school-aged children have asthma, and the number of children with asthma is rising more rapidly in preschool-aged children than in any other age group. Asthma accounts for one-third of all pediatric emergency room visits. It is the fourth most common cause for physician office visits and is one of the leading causes of school absenteeism, accounting for over 14 million missed school days per year.<sup>2</sup>
- **Low-Income Populations:** The burden of asthma weighs heavily on low-income and minority populations. Asthma tends to be prevalent in low-income neighborhoods and urban areas with poor housing conditions. While people living in urban areas are most likely to have asthma, those living in rural areas are more likely to have frequent asthma symptoms because of increased exposure to asthma triggers such as pollen and dust. Lack of health insurance, inadequate primary care, language barriers and inability to access services further contribute to avoidable hospitalization and asthma deaths.



### *Profile – American Lung Association Asthma Clinical Research Center*

During summer 2004, San Diego became the newest home to an American Lung Association Asthma Clinical Research Center (ACRC) located at the University of California, San Diego (UCSD). It is the 20th center in the national American Lung Association ACRC network.

With the backdrop of UCSD's intensive research infrastructure, Co-Principal Investigators, Stephen I. Wasserman, MD and Joe W. Ramsdell, MD, bring more than 60 years' combined asthma and airways research experience to the ACRC. Both are highly enthusiastic about joining the ACRC nationwide network. The root of their excitement is the very essence of what makes the ACRC unique: an opportunity to focus on "real-world" studies where improved patient care is the immediate goal.

An advantage to locating a center in San Diego is that the ACRC will have access to a very diverse patient population, particularly Hispanic and Asian and Pacific Rim patients, which should complement some of the other centers who have a larger population of African Americans. "The large incidence of allergic disease among Asian and Pacific Rim patients may provide insights into asthma care that has been overlooked," says Dr. Wasserman.

Two clinical trials are underway at the center and more are planned in the future. For more information on the ACRC please contact: the ALA Asthma Clinical Research Center at UCSD Clinical Trials Center at 888-827-3247 or [ctc@ucsd.edu](mailto:ctc@ucsd.edu).

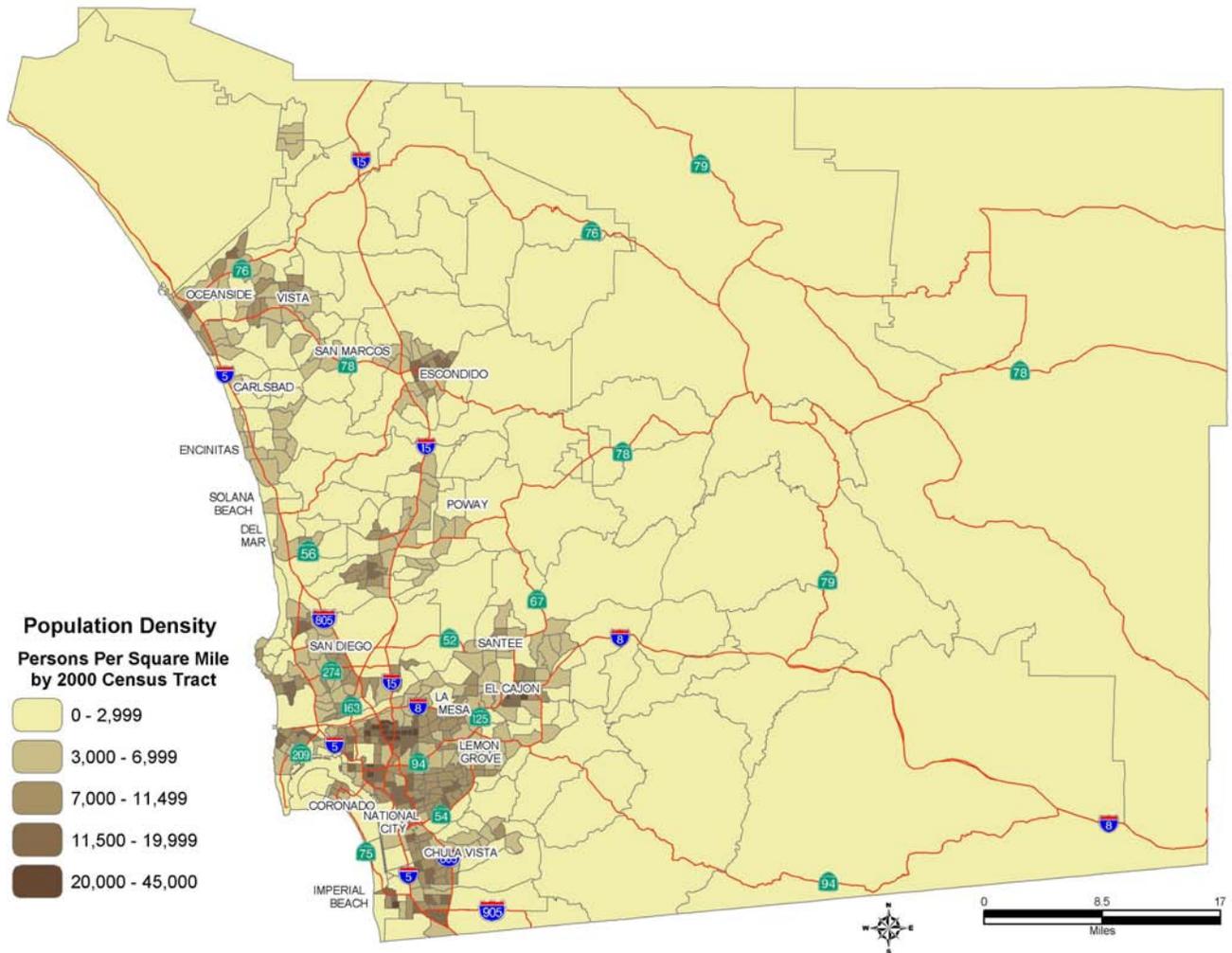
<sup>2</sup> Centers for Disease Control - [www.cdc.gov/nchs/fastats/asthma.htm](http://www.cdc.gov/nchs/fastats/asthma.htm); see also [www.epa.gov/asthma/about.html](http://www.epa.gov/asthma/about.html)

# SAN DIEGO COUNTY DEMOGRAPHICS

## San Diego County Facts

San Diego County is the third most populous county in California with an estimated 2.8 million people. According to Census 2000, 55% of the County's population is White, 27% Hispanic, 9% Asian, 5% Black, 3% Mixed and 1% Native American. As illustrated in the density map below, the population is concentrated in the San Diego metropolitan area and communities along the coast (west of I-15).

Socioeconomic factors play an important role in mediating the effects of asthma because of their influence on access to care and disease education. Housing stock and availability impacts the community burden of asthma because older houses tend to harbor allergen-producing pests and mold that can exacerbate asthma symptoms. Renters also tend to have less control over asthma triggers in their living environment than homeowners. High numbers of vehicles and long commute times are detrimental for asthmatics because of increased pollution exposure.



# SAN DIEGO COUNTY DEMOGRAPHICS

## Socioeconomic Characteristics

- Unemployment in the County decreased slightly in 2004 to 4.7% from 5.2% in 2003<sup>3</sup>.
- The County's median household income in 2004 was \$58,280, and has increased approximately 10% (adjusted for inflation) since 2000<sup>4</sup>.
- 10.9% of County residents and 15.2% of children lived in poverty in 2002, essentially unchanged from 2001<sup>5</sup>.

## Housing Stock<sup>4</sup>

- In 2004, an estimated 95.6% of San Diego County's housing stock was occupied with an average of 2.79 persons per household.
- Approximately 55% of the housing stock was owner occupied.
- The residential density (housing units per residential acre) was 4.6.
- 64% of the County's housing stock was built prior to 1979.

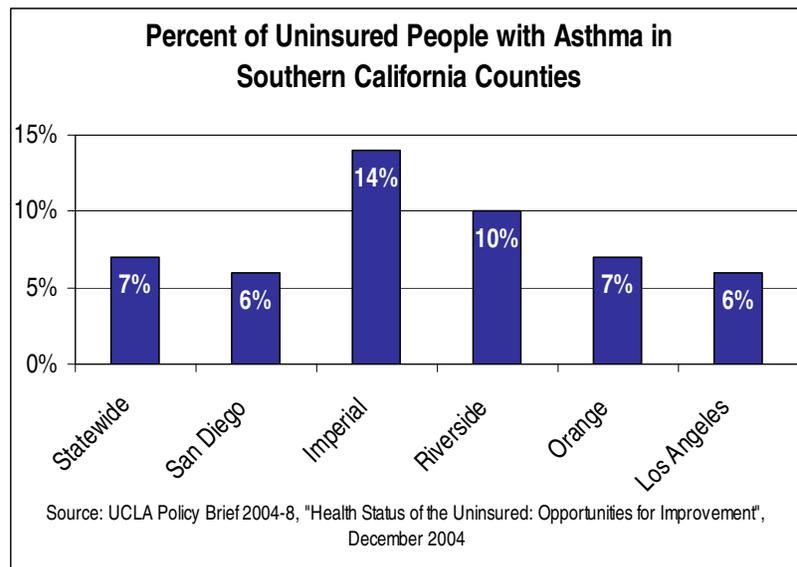
## Transportation<sup>5</sup>

- 39% of the County's households have 2 vehicles and 18% of households have 3 or more.
- In 2000, the average commute time in the County was 24 minutes, close to the national average of approximately 26 minutes.
- 78% of County workers drove to work alone in 2000.

## Rates of Medical Insurance

Health insurance is an important predictor of access to medical care. The 2003 California Health Interview Survey (CHIS), estimates that 15% of all County residents lack health insurance. For Native Americans, the problem is especially severe, with about 50% lacking insurance. Approximately 30% of Hispanics and multi-ethnic residents lack health insurance. 11% of Asian residents, 9% of African-American residents, and 8% of White residents lack insurance<sup>6</sup>.

In San Diego County, approximately 33,000 people without health insurance suffer from asthma. While this figure is comparable to nearby counties and the statewide average, it also represents a significant number of people at risk for uncontrolled asthma and increased public medical costs.<sup>7</sup>



**Figure 1:** Percent of Uninsured Residents with Asthma Symptoms

<sup>3</sup> United States Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov))

<sup>4</sup> SANDAG Data Warehouse ([www.sandag.org](http://www.sandag.org))

<sup>5</sup> U.S. Census Bureau ([www.census.gov](http://www.census.gov))

<sup>6</sup> These figures represent the "point estimate" in a 95% confidence interval, which is a range that provides a more reliable prevalence estimate of persons in the population who fit that category. 2003 CHIS survey results are reported ([www.chis.ucla.edu](http://www.chis.ucla.edu)).

<sup>7</sup> UCLA Policy Brief 2004-8 ([www.healthpolicy.ucla.edu](http://www.healthpolicy.ucla.edu))

# ASTHMA INDICATORS - PREVALENCE

## Asthma Diagnosis

The 2003 California Health Interview Survey estimates that about 314,000 San Diego County residents ( $\approx 11\%$ ) have been diagnosed with asthma by a healthcare provider during their lifetime. Of these, 84,000 are children and 230,000 are adults. Asthma disproportionately affects San Diego's children and young adults.<sup>8</sup> San Diego's asthma rates have shown a small, statistically insignificant decrease from 2001 to 2003. Currently, asthma diagnosis percentages in the County are slightly lower than the statewide average, but equal those of most neighboring counties.

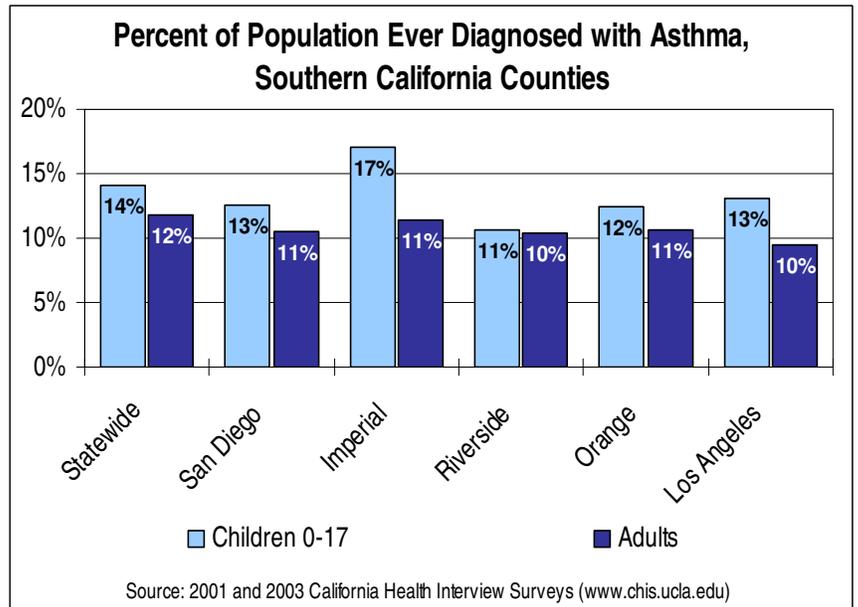


Figure 2: Percent Diagnosed with Asthma

As part of the United Way of San Diego's Outcomes and Community Impact Survey, 3,600 randomly selected households are surveyed periodically to measure resident's perceptions of need and services. 26% of people with asthma surveyed said that they were unable to perform normal daily activities at least one day in the past 12 months as the result of asthma.

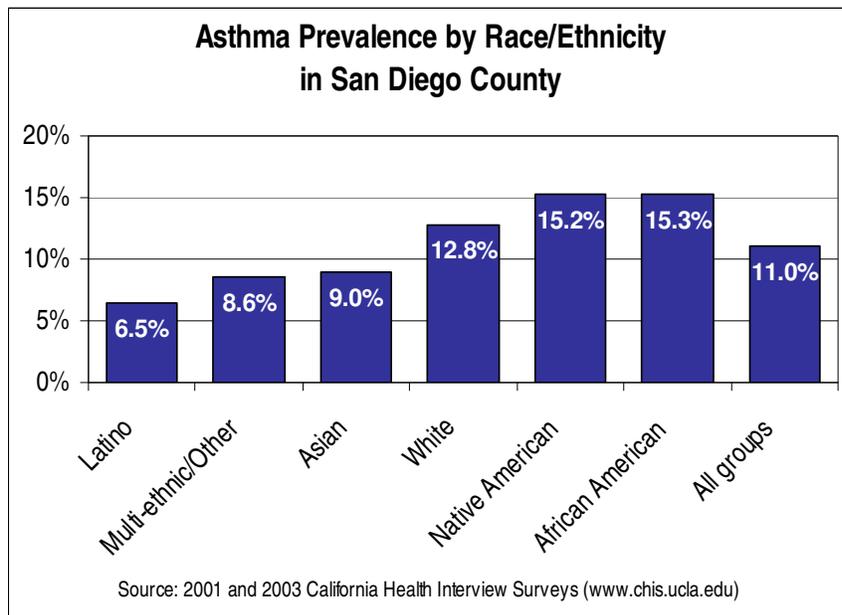


Figure 3: Percent Diagnosed with Asthma by Ethnicity

## Race/Ethnic Disparities

Asthma prevalence varies by ethnicity in San Diego County and nationwide. The reasons for this are not entirely clear, but studies suggest differences in asthma prevalence by ethnicity vary due to urban environment, exposure to risk factors like secondhand tobacco smoke and air pollution, and possibly genetic factors. In San Diego County, African-Americans, Native Americans, and Whites are the most likely to have been diagnosed with asthma, while Asians, Latinos, and people from multi-ethnic or other ethnic backgrounds have a lower prevalence rate.

<sup>8</sup> These figures represent the "point estimate" in a 95% confidence interval, which is a range that provides a more reliable prevalence estimate of persons in the population who fit that category. Where possible, results from the 2001 and 2003 CHIS surveys have been combined for greater accuracy, otherwise the more recent 2003 CHIS survey results are reported (www.chis.ucla.edu). Rates are for asthma diagnosis, not symptom prevalence.

# ASTHMA INDICATORS – MORTALITY

## Asthma Mortality

During the last two decades asthma morbidity and mortality rates have been rising throughout the U.S., particularly in low-income urban and rural areas. With the exception of 2001, San Diego County asthma-related deaths have been slowly but steadily declining.

According to the California Department of Health Services, 107 people died from asthma-related causes in San Diego County between 2001 and 2003. Elderly residents of San Diego County experienced the highest death rates.

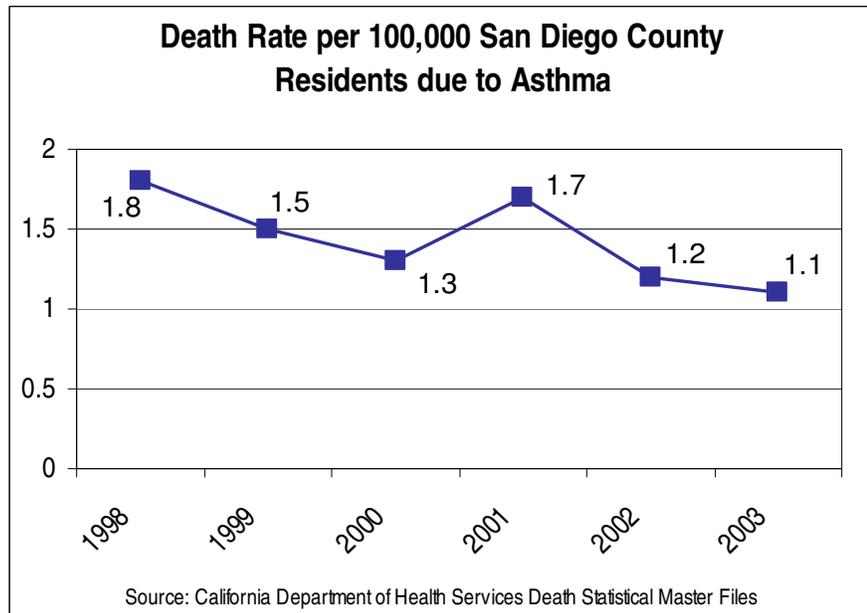


Figure 4: Death Rate due to Asthma in San Diego County, 1998-2003

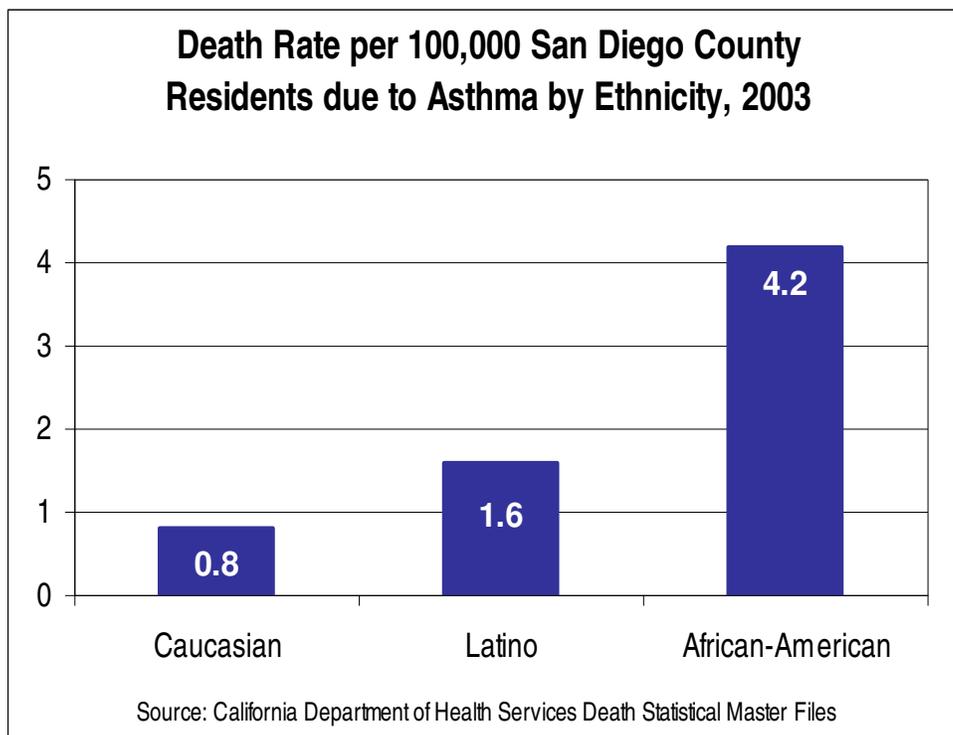


Figure 5: Death Rate due to Asthma in San Diego County by Ethnicity

## Race/Ethnic and Geographic Disparities

While overall asthma mortality rates have been declining, African Americans continue to experience death rates that are several times higher than for Whites or Latinos. The death rate for Latinos due to asthma has been on the rise in recent years, growing from near zero in 2001 to 1.6 per 100,000 inhabitants in 2003. Rates for other ethnicities are not available because of low numbers.

Death rates also vary by San Diego County

region. The highest asthma-related mortality rates (between 1999-2003) were in the Central region of San Diego (3.4), followed by the South Bay region (2.1), East County and North Coastal (both 1.3), and with North Inland and North Central experiencing the lowest rates with 1.1 and 1.0 deaths per 100,000\*.

\* Rates adjusted for age.

# ASTHMA INDICATORS – EMERGENCY ROOM AND URGENT CARE VISITS

## Emergency Room and Urgent Care Visits

The Office of Statewide Health Planning and Development (OSHPD) began collecting data on Emergency Room and Urgent Care visits in late 2004. This data is not yet available to the public, but will be included in the 2006 Asthma Report Card. However, some data on ER/Urgent Care visits is available through the California Health Interview Surveys (CHIS) project. Each year approximately 18,000 County residents go to an emergency room or urgent care facility

because of asthma, accounting for about 4.3% of total ER/urgent care visits.<sup>9</sup> Approximately 1 out of 10 County residents with a diagnosis of asthma require emergency room or urgent care treatment each year, indicating substantial unmet needs for improved asthma management and education.

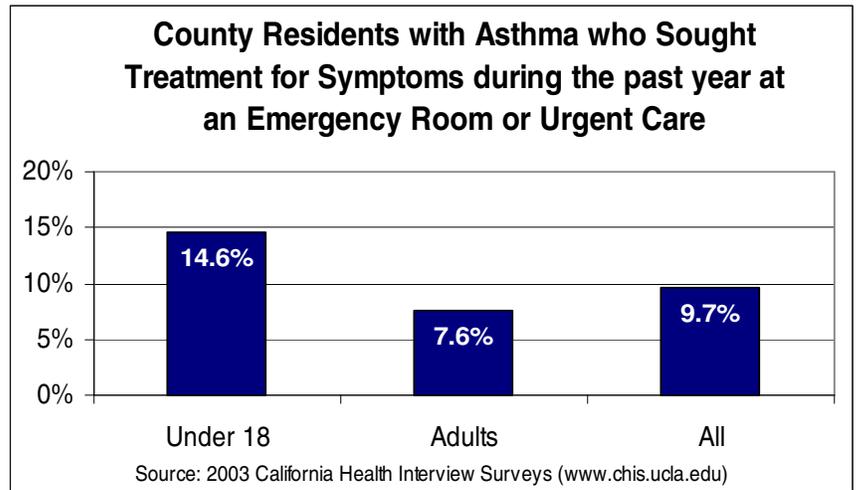


Figure 6: Residents with Asthma Seeking ER Treatment



### Profile – Community Action to Fight Asthma

The San Diego Regional Asthma Coalition (SDRAC), Mid-City CAN (a community organizing agency), and the National Latino Research Center have been working to address the environmental triggers of childhood asthma in San Diego. Unlike many clinically based asthma programs that focus on managing the disease, the Mid-City CAFA intervention was designed to educate and engage local residents to advocate for policies and regulations that make their community a healthier and safer place to live. Based on over 400 door-to-door surveys in English, Spanish, and Somali, excessive garbage and cockroaches emerged as the top housing-related concerns (see [www.csusm.edu/nlrc](http://www.csusm.edu/nlrc) for full report). Because of these concerns about garbage and its link to increased rat and cockroach infestations (both known asthma triggers), trash has been the main focus of the CAFA intervention in Mid-City.

The CAFA team has worked with community partners to deliver multilingual trainings for residents in leadership, asthma and environmental triggers, public speaking, media, tenant rights, policy and how to effectively advocate for improvements to substandard housing. Residents have met with agencies such as City of San Diego Environmental Services (responsible for public trash collection), Code Enforcement, and the Housing Commission to learn more about their roles and what they can do to improve Mid-City neighborhoods. Now in its third year, the Mid-City CAFA project is diving into the political arena as residents meet with local city council members and agencies to share their concerns and discuss solutions. For more information about CAFA's work on asthma, housing, and community organizing, please contact Arcela Nuñez-Alvarez at [nlrc@csusm.edu](mailto:nlrc@csusm.edu) or Joni Low at [joni@lungsandiego.org](mailto:joni@lungsandiego.org).

<sup>9</sup> These figures represent the "point estimate" in a 95% confidence interval, which is a range that provides a more reliable prevalence estimate of persons in the population who fit that category. Results are from the 2001 CHIS survey unless otherwise noted ([www.chis.ucla.edu](http://www.chis.ucla.edu)).

# ASTHMA INDICATORS – HOSPITALIZATIONS

## Hospitalization Rates\*

Our understanding of asthma hospitalization rates has changed since the release of the 2004 Asthma Report Card. Recently, the San Diego Association of Governments (SANDAG) released more accurate population figures that allowed greater accuracy in calculating asthma rates. Previously it appeared that asthma hospitalization rates in the County had been steadily declining. With the new data, a more complex picture is emerging. Past hospital discharge rates (per 100,000) are illustrated in figure 7 for

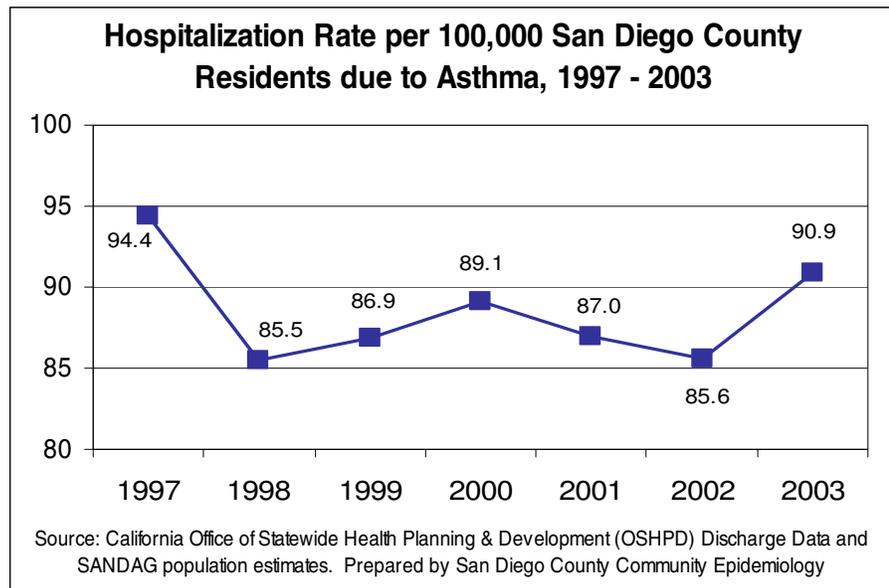


Figure 7: San Diego County Hospitalization Rates due to Asthma, 1997-2003

patients whose primary discharge diagnosis was asthma. These fluctuations roughly track unemployment rates from the previous year<sup>10</sup> and suggest that hospitalization for asthma may be related to the effects of the loss of health insurance benefits as residents become unemployed.

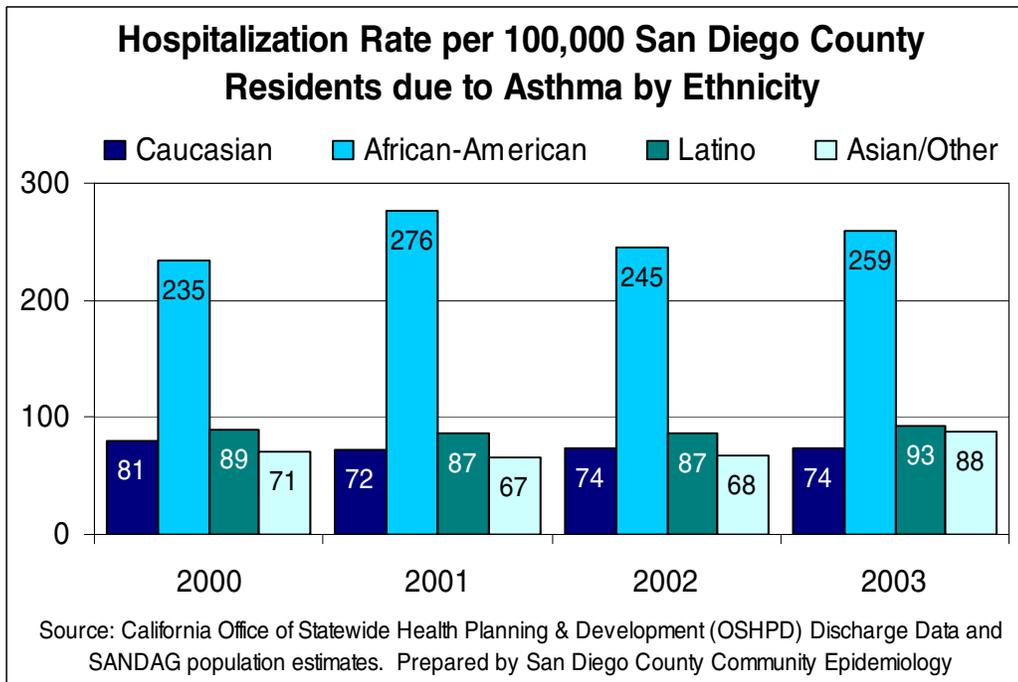


Figure 8: Hospitalization Rates due to Asthma by Ethnicity, 2000-2003

## Ethnic Disparities

As illustrated in figure 8, asthma-related hospitalization rates in San Diego County are between 2 and 3 times higher for African-Americans than for any other ethnic group. Rates for Latinos are slightly but consistently elevated compared to those for Whites and Asians/Others.

\* Rates adjusted for age where appropriate

<sup>10</sup> Pearson correlation = .7, p = .08, based on unemployment data from 1996-2002 from the United States Bureau of Labor Statistics (www.bls.gov)

# ASTHMA INDICATORS – HOSPITALIZATIONS

## Geographic Disparities

There is also substantial variance in hospitalizations due to asthma from one region of San Diego to another. The Central Region has consistently experienced the highest rates in the County. The North County region has experienced lower rates than other regions over the past few years. The high rates in the Central region may reflect risk factors associated with an urban environment. Increasing rates in North Central, South, and East regions should be monitored as the population density increases in these areas.

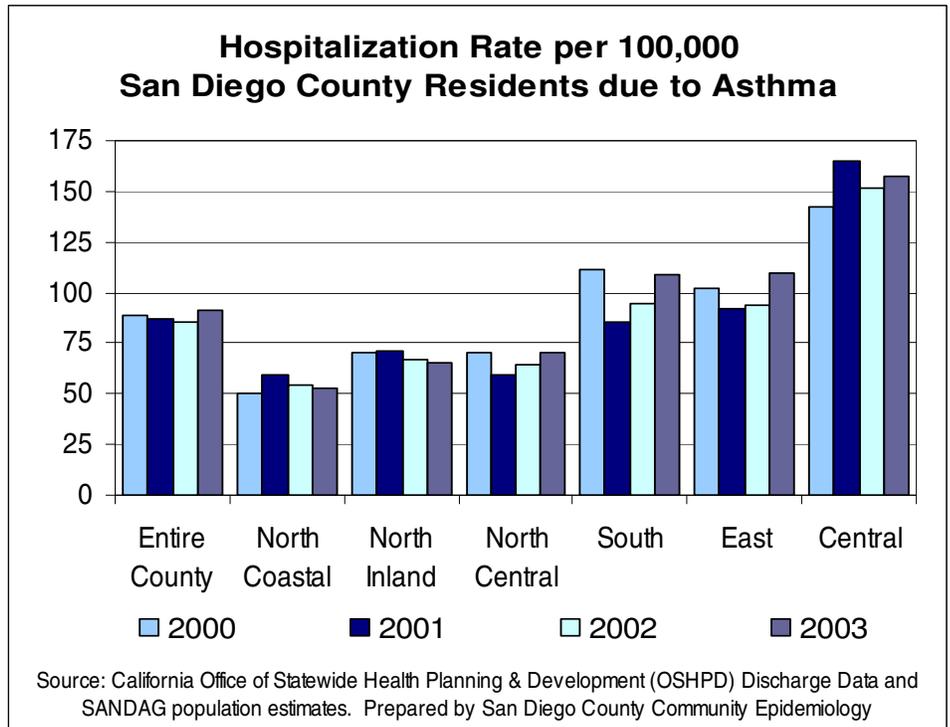


Figure 9: Hospitalization Rates due to Asthma by County Area

## Age Disparities

Young children are most susceptible to asthma because their lungs are small and still developing. In general, lung capacity decreases with age for everyone. For people with asthma, this decrease contributes to an increased risk of hospitalization with age. Asthma may also develop later in life, though it usually appears in childhood.

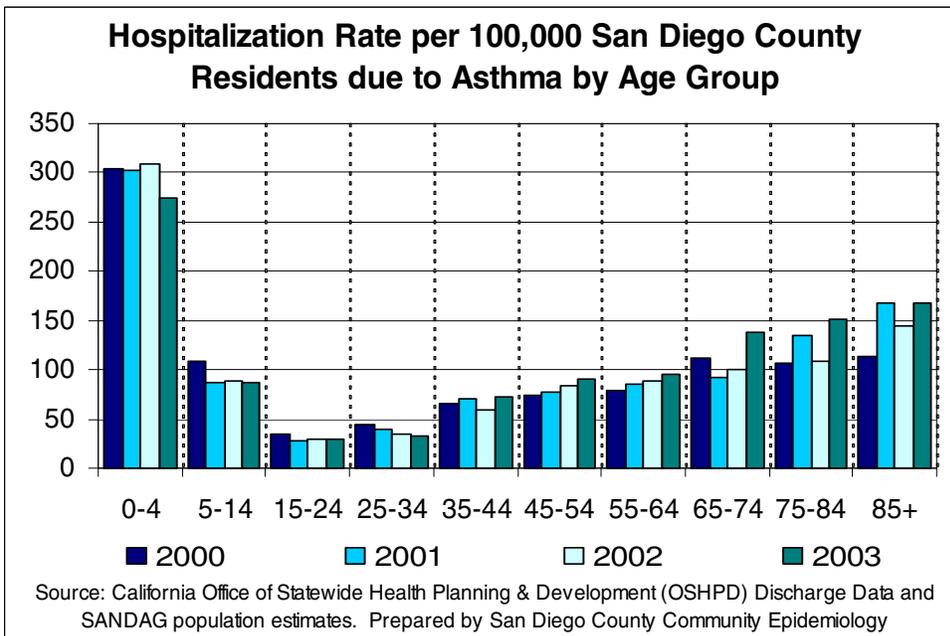


Figure 10: Hospitalization Rates due to Asthma by Age Group

The hospitalization rate for children under age five has been declining in recent years, possibly due to increased services such as those provided by the First 5 Commission of San Diego County-funded Childhood Asthma Initiative (see highlight box, page 12). With few exceptions, for adults over age 35 the rates have been climbing. This trend may indicate a need for better education and increased services for adults with asthma.

# ASTHMA INDICATORS – 911 CALLS

## Asthma-Related 911 Calls

Asthma-related 911 calls have declined steadily over recent years.<sup>11</sup> For 2003, 911 calls are down while hospitalizations are up (see figure 7). This may indicate that more people are seeking help for their asthma symptoms before they require emergency services due to successful asthma education efforts by SDRAC members.

## Geographic Disparities

Central San Diego consistently experiences the highest asthma-related 911 calls in the County, with a rate nearly three times the County average in 2000 – 2001 (most recent local data).

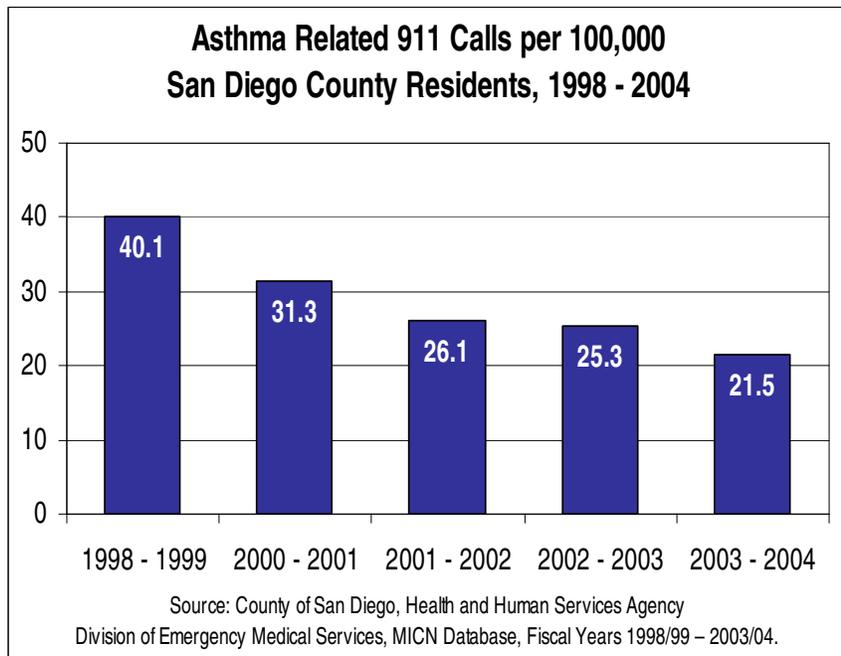


Figure 11: 911 Call Rates due to Asthma



## Profile – The San Diego Childhood Asthma Initiative

Since 2001, the San Diego Childhood Asthma Initiative has been committed to reducing the burden of asthma in San Diego County. The Initiative helps kids with asthma grow into healthy adults by enabling families and healthcare providers to work together to deliver optimal asthma care. This is accomplished by going where asthma management actually happens – the homes of children with asthma. Bilingual staff trained in respiratory therapy or social work provide one-to-one education to families about effective asthma care and risk factors in the home environment. They teach families how to use medications and devices appropriately, follow a physician-approved Asthma Action Plan, and identify and reduce asthma triggers in their home. Efforts are coordinated with the family's healthcare provider through regular communication. The result is a strong asthma management team that fosters better health outcomes for the children enrolled in the program and cost savings for the organizations that provide their treatment. For example, after just six months of being enrolled in the program, children experience:

- A decrease in emergency room visits by over 60%\*
- A decrease in hospitalizations by over 50%\*
- A decrease in unscheduled clinic visits by over 50%\*
- A decrease in parents missed workdays by over 60%\*
- A decrease in missed days from child care by over 60%\*

For more information contact Lily Valmadiano at [lily@lungsandiego.org](mailto:lily@lungsandiego.org).

\*Statistically significant (p<.01)

<sup>11</sup> Diagnoses established by the emergency department or hospital may differ from the chief complaint recorded in the pre-hospital database at the time of the 911 call.

# AIR QUALITY AND ENVIRONMENTAL FACTORS

## Air Quality

Poor outdoor and indoor air quality can pose a serious health threat and is known to significantly increase the risk of asthma attacks. According to the Healthy People 2000 report<sup>12</sup>, each year in the United States:

- The health costs of human exposure to outdoor air pollutants range from \$40 to \$50 billion.
- An estimated 50,000 to 120,000 premature deaths are associated with exposure to air pollutants.
- People with asthma experience more than 100 million days of restricted activity, costs for asthma exceed \$4 billion, and about 4,000 people die of asthma.

### What is Particulate Matter?

Particulate matter is found in both indoor and outdoor air. It includes very small particles and aerosols from combustion sources such as motor vehicles, industrial processes, tobacco smoke, cooking, and wood burning activities. Particulate pollutants also include biological components such as pollen, mold spores, dust mites, cockroach allergens, soil particles and fine fibers such as asbestos.

San Diego County has made important strides towards cleaner air and reached a major milestone in 2002, when it attained the federal one-hour clean air standard for ozone. Nonetheless, there are several areas where the County has not met more stringent state air quality standards. Particulate matter (PM10 and PM2.5) and ozone continue to be two areas of major concern.

### Particulate Matter

Particulate Matter (PM10) is composed of small particles that stay suspended in the air and are small enough to be inhaled into the lungs. The state's 24-hour standard for this air pollutant is 50 micrograms per cubic meter. San Diego County did not meet the State 24-hour standard for particulate matter (PM10) for 2003.<sup>13</sup> PM10 levels have increased at Otay Mesa and Kearny Mesa and fluctuated at other air quality monitoring stations over the past few years.

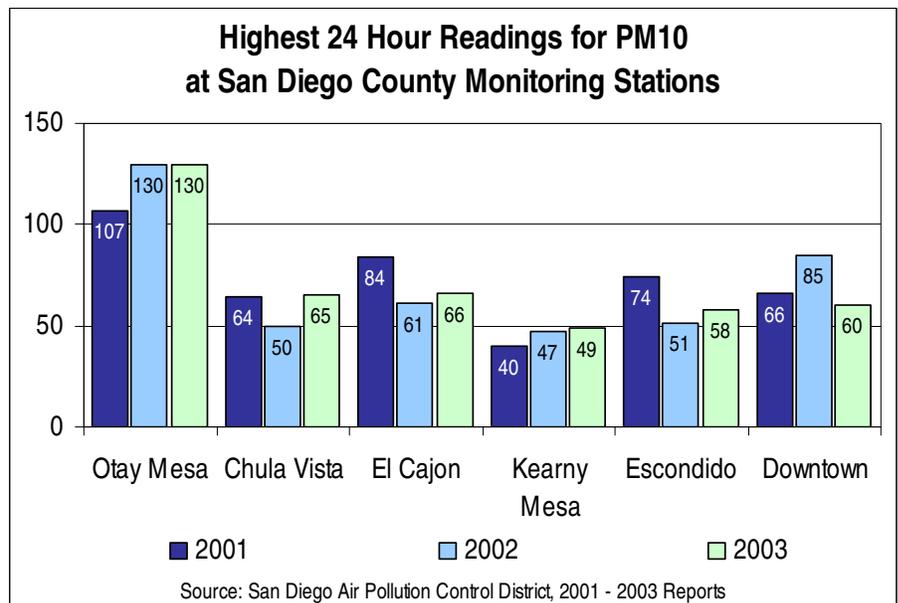


Figure 12: PM10 Readings from County Monitoring Stations

### Particulate Matter 2.5

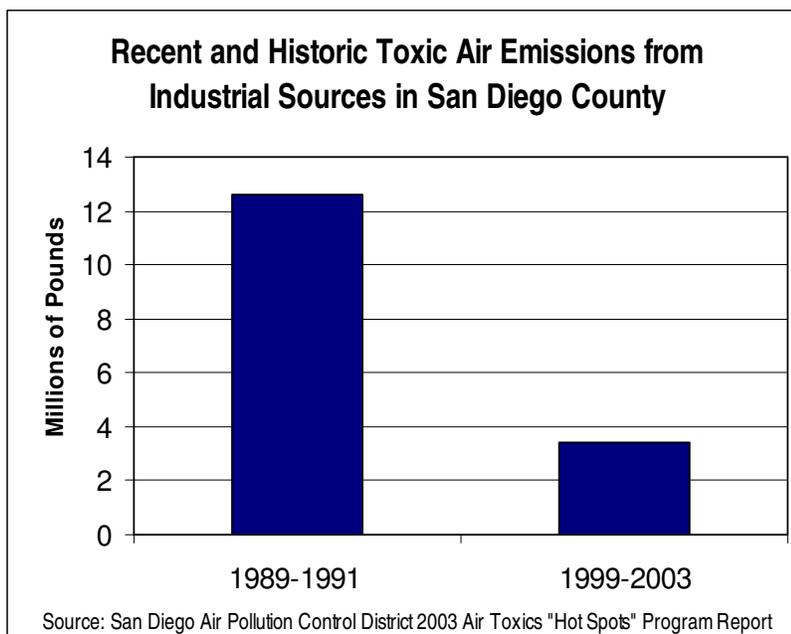
PM 2.5 is composed of smaller fine particles that can be inhaled deeper into the lungs, causing irritation. It contributes to heart disease as well as asthma and other lung conditions. The State Particulate Matter 2.5 standard (annual average) is 12  $\mu\text{g}/\text{m}^3$ . The San Diego County Air Pollution Control District indicates that some areas of San Diego exceeded this standard in 2003. For example, Chula Vista's annual average was 14, El Cajon was 12, Kearny Mesa was 12, Escondido was 14 and Downtown San Diego was 15  $\mu\text{g}/\text{m}^3$ .

<sup>12</sup> <http://www.cdc.gov/nceh/airpollution/about.htm>

<sup>13</sup> 2003 data excludes figures resulting from fires affecting San Diego County.

## Toxic Air Pollution

Toxic air pollutants are poisonous substances in the air that come from natural or man-made sources such as motor vehicles, industrial processes (factories), and consumer products. There are thousands of chemicals in the air that can pose serious threats to health. Because there are so many different kinds of toxic air pollutants, the risks from these emissions can be difficult to assess. However, some of these substances are likely to contribute to the risk of developing asthma. Many have also been shown to cause increased symptoms for those who already have asthma. For example, polycyclic aromatic hydrocarbons, produced by diesel exhaust, have been shown to provoke inflammatory responses in the lungs.



**Figure 13:** Recent and Historic Industrial Toxic Emissions

Since 1990, the Air Pollution Control District of San Diego County has operated toxic sampling monitors in El Cajon and Chula Vista. According to sampling collected at these two sites and other data, overall emissions of toxic air contaminants from industrial sources have decreased by approximately 75% (see figure 13).<sup>14</sup> The most significant reductions include a variety of chlorinated solvents and heavy metals. While these gains are impressive, toxic air pollution remains a significant public health issue. The San Diego County Air Pollution Control District's 2003 Air Toxics "Hot Spots" Program Report estimates that 31 million pounds of toxic air emissions are emitted into San Diego's air each year from industrial, mobile, area and natural sources. The majority of these emissions come from mobile sources (vehicles), which emit about 21.4 million pounds per year. In particular, diesel engines are responsible for more than 70% of the total ambient air toxic risks known today. Continued reductions in toxic air emissions will require reducing vehicle emissions, especially those from diesel sources.

## Indoor Air Quality

There are many sources of indoor air pollution in the home, school and workplace. Some of the most prevalent are combustion sources such as gas, kerosene and wood, tobacco products, building materials, mold spores from wet or damp carpet, household cleaning and maintenance supplies, dust from central heating and cooling systems, and pesticides. While there is little data available to measure the overall impact of indoor air quality, controlling and/or eliminating environmental triggers (both indoor and outdoor) can significantly reduce asthma attacks<sup>15</sup>. Common indoor environmental asthma triggers include:

- Secondhand smoke
- Dust mites
- Mold
- Cockroaches
- Pet dander

<sup>14</sup> Air Quality in San Diego County, 2003 Annual Report, Air Pollution Control District, County of San Diego.

<sup>15</sup> <http://www.epa.gov/asthma/triggers.html>

# ECONOMIC AND SOCIAL COSTS OF ASTHMA

## Economic and Social Costs

In addition to the human costs of morbidity and mortality, asthma also places a significant burden on the community in terms of financial costs and reduced productivity. While they can be difficult to track, estimates of these costs are important to obtain because of their ability to show the impact of asthma in terms of dollars and cents. They may also serve as warning signs that asthma morbidity and mortality are on the rise.

## Asthma In Schools

Since data collection methods vary considerably between and within school districts, it is difficult to accurately assess the impact of asthma on school absenteeism in San Diego County. However, national figures indicate:

- Asthma accounts for 14 million lost days of school annually in the United States.
- Asthma is the third most common cause of hospitalization among children under age 15.
- The estimated cost of treating asthma among children 18 years and younger is \$3.2 billion per year.<sup>16</sup>

Additional data on the impact of asthma on school absenteeism and health office visits is available from Project SHARE, a collaborative health surveillance project of San Diego County Public Health Services, the San Diego County Office of Education, and San Diego County School Districts. Between September 2004 and March 2005, over 2500 students visited school health offices because of asthma symptoms, accounting for 2.2% of health office visits. This number represents only a fraction of the total number of students who missed school due to asthma during this period, since not all schools in the County are participating in Project SHARE as of yet.

### Project SHARE – San Diego County School Health and Absenteeism Reporting Exchange

In December 2003, the San Diego County Community Epidemiology Branch launched a pilot surveillance system called Project SHARE at selected school sites throughout the County. Thirty-five elementary and secondary schools provided daily information about absenteeism (total enrolled students and total absences) and types of health office visits (e.g. asthma, diarrhea, fever, flu, headache, lice, rash, respiratory problems, and vomiting). During the 2004-05 school year, the number of participating schools was expanded and additional health categories were added, including dental, diabetes, injury, and insect bites/stings. Selected surveillance information from over 170,000 de-identified student health office visits have been reported since Project SHARE began. These records are part of an emerging early warning system for communicable disease outbreaks, including bioterrorism events and disease outbreaks.

## Direct & Indirect Medical Expenditures

In 2003 the total charges for asthma hospitalizations<sup>17</sup> in San Diego County were nearly \$28.5 million (not including Kaiser Permanente patients)<sup>18</sup>. Despite the declining asthma hospitalizations rates, charges are up sharply.

**Table 1:** Hospitalizations and Direct Medical Costs in San Diego County due to Asthma

	2001	2002	2003
<b>Total Number of Hospitalizations</b>	2,418	2,416	2,619
<b>Mean Charge per Stay</b>	\$12,545	\$13,199	\$16,345
<b>Average Length of Stay</b>	3.42 days	3.02 days	3.22 days

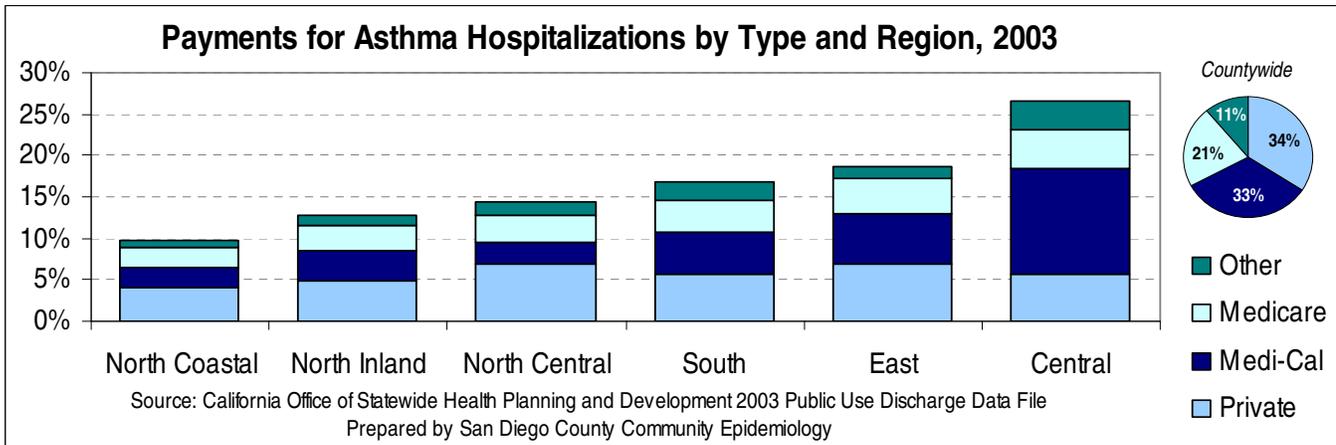
<sup>16</sup> <http://www.cdc.gov/asthma/children.htm>

<sup>17</sup> Where asthma was the principal diagnosis

<sup>18</sup> California Office of Statewide Health Planning & Development (OSHPD) 2002 Public Use Discharge Data File and Community Epidemiology, San Diego County Health & Human Services Agency.

## Payments for Healthcare

Types of payments varied considerably by region. The Central region had the highest percentage of Medi-Cal payments (48%). Overall, nearly as many hospitalizations were paid for by Medi-Cal (33%) as were paid for by private insurance (34%). All but a very small percentage of hospitalizations due to asthma are preventable with effective management and preventive treatment. These patterns suggest that additional health insurance and medical services beyond the Medi-Cal safety net have the potential to prevent significant human suffering and expensive utilization of healthcare services.



**Figure 14:** San Diego County Hospitalizations due to Asthma and Payment Types (excludes Kaiser Permanente)



### Profile – National City Asthma Committee

The National City Asthma Committee (NCAC) was formed in February 2004, in response to concerns from a local elementary school regarding an increase in the number of children with asthma. Councilmember Frank Parra championed the idea of bringing government, residents, schools, healthcare and other organizations together to identify the community's concerns regarding asthma and environmental issues and pull together resources to find solutions to the problems.

Some of the NCAC's accomplishments include:

- Identification of city policy & procedures that aid in the reduction of outdoor environmental asthma triggers and improvement of quality of life
- Increases in local code enforcement efforts to ensure that businesses comply with the City Municipal Code
- Increases in availability and dissemination of health care resources for children with asthma
- Collaboration with the San Diego County's Air Pollution Control District and Hazardous Materials Division to increase green business practices in the neighborhood
- Co-sponsorship of a World Asthma Day health fair on May 7, 2005
- Provision of recommendations to future land use planning and zoning changes in the city
- Recognition from the U.S. Environmental Protection Agency as a model success story for other cities throughout the nation.

Membership includes Council members Frank Parra and Luis Natividad (Co-Chairs), the Building & Safety Department, city residents, St. Anthony's Parish, National School District, Paradise Valley Hospital, the American Lung Association, and the Environmental Health Coalition. For more information contact Veronica Serrano at [VSerrano@ci.national-city.ca.us](mailto:VSerrano@ci.national-city.ca.us).

# HOW ARE WE DOING?

## How are we doing in San Diego County?

The data presented in this report provides useful information regarding trends and disparities in San Diego County. In summary, the data suggest:

- **Children, Urban Populations and Minorities are Disproportionately Represented:** The data clearly suggest that children, urban populations, African-Americans, Native Americans, and low-income populations all have higher asthma rates and less favorable health outcomes. This is a statistic of concern as these populations are growing.
- **Decrease in Asthma Related Deaths:** Since 1994 the number of asthma related deaths in San Diego County have been steadily declining (with the exception of 2001).
- **Recent Increase in Asthma Hospitalizations:** 2003 data shows an increase in hospitalizations for asthma for the population as a whole and a clear pattern of disproportionately high hospitalization rates for urban areas and for African-Americans.
- **Emergency Department and Urgent Care Visits:** Given the lack of systematic data collection, emergency and urgent care visits are difficult to assess. The data we do have show that a significant percentage of those with asthma require emergency treatment. All but a very small number of extremely severe cases of asthma can be effectively managed through a primary care provider or allergist without the necessity of emergency services. These numbers highlight the need for better patient education and healthcare coordination.
- **Decrease in 911 Asthma-Related Emergency Calls:** The San Diego County Division of Emergency Medical Services continues to report a decline in overall asthma-related 911 calls.
- **Air Quality in San Diego:** The County has made considerable progress towards improving air quality, but does not yet meet state standards for particulate matter and ozone.
- **Rise in Direct Medical Costs of Asthma:** Costs continue to rise, making affordable asthma care difficult to obtain for those with inadequate or no medical insurance.
- **Increase in hospitalizations for residents over 45:** Rising numbers of hospitalizations for adult and elderly San Diegans suggest that educational efforts targeting these groups are needed.

Based on these data we put forth the following recommendations for policy leaders, community groups, and everyone with an interest in reducing the human and financial costs of asthma in San Diego County:

1. **Asthma is controllable and does respond to efforts from government and other public and private organizations. Existing efforts should continue to be supported and expanded where possible.**
2. **Because asthma must be actively managed, families without medical insurance or other means to pay for medical care are at increased risk for asthma exacerbations and mortality. Efforts directed toward increasing access to healthcare should be continued and strengthened.**
3. **Significant economic and ethnic disparities exist for those affected by asthma. Devoting resources to asthma management and control for at risk groups will yield significant future benefits in reductions in lost work and school days, healthcare costs, and human distress.**

There are many ways that we can act as individuals and as a community to minimize the negative effects of asthma. The factors that have lead to the rapid rise in the incidence of asthma and the consequences of uncontrolled asthma affect not just people with asthma but also the San Diego County community as a whole. The following list suggests some ways that you or your organization can help in the fight against asthma.

# WHAT YOU CAN DO

## What you can do at home

- If you or someone in your household has asthma, learn what you can do to prevent asthma symptoms at [www.lungsandiego.org/asthma/](http://www.lungsandiego.org/asthma/) or call 1-800-LUNG-USA
- Do not allow smoking in your home, especially if someone with asthma lives there
- Burning either natural gas or coal generates over 60% of our electricity. Reduce air pollution by conserving energy – purchase energy efficient appliances, turn off lights and appliances when not in use, and make sure your home is well insulated

## What you can do on the road

- Walk, bike, or take public transit whenever possible
- Minimize the number of trips you take in your car
- Carpool to work or school
- Buy fuel-efficient, low-emission vehicles and lawn equipment

## What you can do at school

- If you are a parent, contact your district or local school nurse and ask them about:
  - Their indoor air quality policies and procedures
  - Student access to asthma medications while at school
  - Emission controls and alternative fuels for school buses
- If you are a teacher or work at a school, ask them to provide training on asthma
- If you are a school principal or administrator, contact the San Diego Regional Asthma Coalition coordinator ([joni@lungsandiego.org](mailto:joni@lungsandiego.org)) for help with asthma education for your students and staff
- If you are a healthcare provider, communicate with your school district about asthma management plans for your patients and permission to carry asthma medication at school

## What you can do as a citizen

- Support the development of clean electricity supplies such as wind, geothermal and solar
- Oppose the weakening of air quality standards or short-circuiting environmental review processes in order to speed up the construction of power plants
- Support reduced emissions through cleaner fuel requirements
- Call, fax, or email your local representative and let them know that asthma is an issue of concern

## What you can do as a business

- Limit the use of diesel generators to emergency situations
- Reduce the use of diesel fuel and consider natural gas alternatives for fleet vehicles
- Promote telecommuting and other efforts to conserve energy and reduce pollution
- Keep your workplace free of asthma triggers such as mold, smoke, dust, and pests

## What you can do as a government agency

- Support efforts to track asthma within your agency and between agencies
- Be aware of asthma risk factors/triggers and work to minimize them in your workplace
- Contact the San Diego Regional Asthma Coalition to find out how your organization can work with other groups and businesses to help control asthma in San Diego County
- Establish or enforce policies that promote cleaner air

## ACKNOWLEDGEMENTS

This report card was supported by a grant from **The California Endowment** as part of the state-wide *Community Action to Fight Asthma (CAFA)* Initiative. **San Diego County Supervisor Ron Roberts** provided funding for printing the report card. Many individuals and organizations contributed to this report by helping to identify, gather, organize and analyze the data and asthma indicators. The San Diego Regional Asthma Coalition (SDRAC) would like to acknowledge the following individuals for their contributions:

**San Diego Regional Asthma Coalition Research and Data Workgroup:** Members of Coalition's data and research workgroup provided invaluable leadership, time, and energy in compiling and analyzing data, defining content, and editing the first San Diego County Asthma Report Card. The members include:

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Additionally, we would like to thank David Lindsay (Senior GIS Analyst, County of San Diego Health and Human Services Agency) for providing the map of San Diego County.

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- United States Bureau of the Census ([Http://www.census.gov](http://www.census.gov))
- United States Bureau of Labor Statistics ([Http://www.bls.gov](http://www.bls.gov))
- U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion ([Http://www.healthypeople.gov](http://www.healthypeople.gov))
- United States Environmental Protection Agency. ([Http://www.epa.gov/asthma/about.htm](http://www.epa.gov/asthma/about.htm))

**The San Diego Regional Asthma Coalition** is a collaborative of diverse agencies and individuals committed to providing leadership in identifying, developing, mobilizing and coordinating resources to prevent asthma and positively impact the lives of people affected by asthma.

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For more information visit [www.sdrac.org](http://www.sdrac.org) or contact Coalition Coordinator Joni T. Low at 619-297-3901 or via email at [joni@lungsandiego.org](mailto:joni@lungsandiego.org).