LA Health

May 2014

County of Los Angeles Public Health

BREATHING EASY? CHILD ASTHMA IN LOS ANGELES COUNTY

Introduction

Asthma is one of the most prevalent chronic diseases of childhood. It is a common inflammatory disease of the small airways in the lungs that makes it difficult to breathe. Symptoms include wheezing, coughing, chest tightness, and shortness of breath.[1] Asthma attacks range in severity from mild to life-threatening. Various environmental exposures such as mold, pests, tobacco smoke, and outdoor air pollution may cause or exacerbate asthma. There is no known cure for asthma, but it can be effectively managed with proper medical and self care, and reduced exposure to environmental triggers.[2]

We measure the burden of asthma by the number of asthma-related hospitalizations, emergency room (ER) visits, deaths, days of school or daycare missed, and other factors such as activity limitations. In Los Angeles County, the rate of children hospitalized due to asthma was 13.6 per 10,000 children in 2012. That same year, the rate of ER visits for children was 88.5 per 10,000 children in LA County (equating to 20,737 visits).[3]

Asthma is associated with tremendous health care expenditures that include both direct and indirect costs. Direct costs include ER visits, hospitalizations and medications, while indirect costs take the form of lost days of work and school, and loss of future potential earnings associated with premature morbidity and mortality.[4]

Data from the National Institutes of Health (NIH) indicate that total annual costs are approximately $450 for patients whose asthma is well controlled, compared to $5,000 annually for patients with more than one hospital admission. For

1. *National Institutes of Health. Asthma. Retrieved April 7, 2011 from http://health.nih.gov/topic/Asthma.*
2. *Centers for Disease Control and Prevention. (2013). Asthma Facts—CDC's National Asthma Control Program Grantees. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.*
3. *California Office of Statewide Health Planning and Development*
4. *Bahadori K., Doyle-Waters MM., Marra C., Lynd L., Alasaly K., Swiston J. and Fitzgerald M. Economic Burden of Asthma: A Systematic Review. BMC Pulmonary Medicine 2009, 9:24.*

1 TABLE Percent of Children (0-17 years) Who Currently Have Asthma‡, LACHS 2011

	Percent (%)	95% CI	Est #
Los Angeles County	9.0	7.6 - 10.3	214,000
Gender			
Male	10.6	8.5 - 12.6	129,000
Female	7.3	5.5 - 9.0	85,000
Age Group			
0-5	6.1	3.9 - 8.2	47,000
6-11	9.4	7.3 - 11.5	72,000
12-17	11.1	8.5 - 13.7	94,000
Race/Ethnicity			
Latino	8.0	6.3 - 9.7	119,000
White	7.2	4.7 - 9.7	32,000
African American	24.9	17.7 - 32.1	49,000
Asian/Pacific Islander	4.1	2.2 - 5.9	10,000
Parent/Primary Caregiver's Education			
Less than high school	6.4	3.9 - 8.8	40,000
High school	9.0	5.7 - 12.4	41,000
Some college or trade school	12.3	9.0 - 15.6	67,000
College or post graduate degree	8.4	6.3 - 10.5	62,000
Federal Poverty Level $			
0-99% FPL	10.3	7.4 - 13.3	82,000
100-199% FPL	8.5	6.0 - 11.0	51,000
200-299% FPL	9.5	5.5 - 13.4	24,000
300% or above FPL	7.6	5.8 - 9.4	56,000
Service Planning Area			
Antelope Valley	12.2*	6.1 - 18.2	14,000
San Fernando	9.1	5.8 - 12.4	45,000
San Gabriel	7.8	4.5 - 11.2	32,000
Metro	4.3*	2.1 - 6.4	9,000
West	4.8	2.7 - 6.9	5,000
South	9.4	5.2 - 13.6	29,000
East	9.9	6.3 - 13.6	36,000
South Bay	11.5	8.2 - 14.9	43,000

*The estimate is statistically unstable (relative standard error ≥23%).

$ Based on U.S. Census Bureau, Housing and Household Economic Statistics Division, 2009 Federal Poverty Level (FPL) thresholds which for a family of four (2 adults, 2 dependents) correspond to annual incomes of $20,444 (100% FPL), $40,888 (200% FPL), and $61,332 (300% FPL).

‡ Asthma prevalence consists of those ever diagnosed with asthma by a health care provider and reported still having asthma and/or having had an asthma attack in the past 12 months.

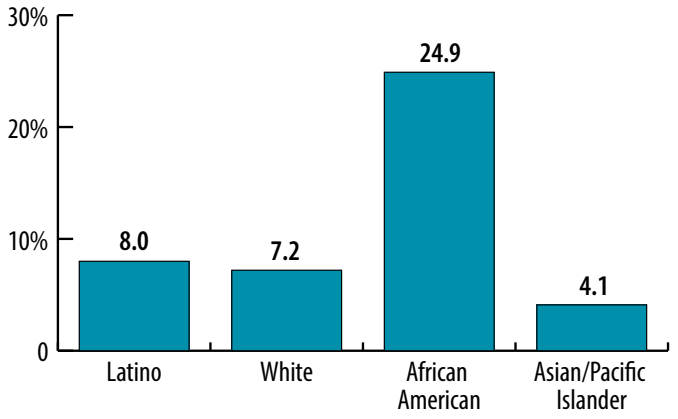
patients with severe asthma, costs are even higher. A study following patients with severe or difficult-to-treat asthma for two years indicated that the average costs for patients who achieved control were $6,452, while average costs for patients who remained uncontrolled were $14,213.[5]

Data from the Los Angeles County Health Survey (LACHS) highlight the ongoing problem of childhood asthma and the need for decision makers to do more to improve this issue in LA County. To obtain the percent of children with asthma (both controlled and uncontrolled), the 2011 LACHS used the following definition: those ever diagnosed with asthma by a health care provider AND either reported still having asthma AND/OR had an asthma attack in the past 12 months. Results found that 9.0% of children 0-17 years of age (or approximately 214,000 children) have asthma (Table 1), which is similar to the 2012 national estimate of 9.3%. Below we highlight disparities in asthma prevalence among children living in Los Angeles County.

Disparities Persist

- Asthma rates were higher among boys (10.6%) than girls (7.3%).
- Significant disparities exist by race/ethnicity as African American children had over three times the rate of asthma (24.9%) compared to Latinos (8.0%), whites (7.2%), and Asians/Pacific Islanders (4.1%) (Figure 1).
- Children living in poverty (<100% federal poverty level [FPL]) had the highest rates of asthma (10.3%).
- The highest child asthma rates were in the Antelope Valley (12.2%*) and South Bay (11.5%) Service Planning Areas (SPAs), and lowest in the West (4.8%) and Metro (4.3%*) SPAs.

1 FIGURE **Percent of Children with Asthma by Race/Ethnicity, LACHS 2011**



Asthma and Physical Activity

At a time when childhood overweight and obesity have increased to epidemic levels, physical activity limitations due to asthma are a significant concern. Children who are overweight or obese experience more asthma symptoms than normal weight children, and asthma can lead to obesity in children.[6] Increasing physical activity in children with asthma may be achieved through improved disease management strategies such as regular access to healthcare, using asthma action plans (AAP), and decreasing uncontrolled symptoms that lead to ER visits and hospitalizations. When children have their asthma under control, they can participate in normal physical activities.

- 40.9% of children with asthma had their physical activity limited due to their asthma (Table 2).
- A higher percentage of girls (48.0%) compared to boys (36.1%) had their physical activity limited due to their asthma.
- Percentages of children's physical activity being limited due to asthma were inversely related to household FPL and parental/primary caregiver's education (Figure 2, on page 4).

* The estimate is statistically unstable (relative standard error ≥23%).

5. *Sullivan, S.D. (2005). The burden of uncontrolled asthma on the U.S. health care system. Managed Care, 14(Suppl. 8), 4-7; Discussion 25-27.*
6. *Papoutsakis, C., Priftis, K.N., Drakouli, M., Prifti, S., Konstantaki, E., Chondronikola, M., … Matziou, V. (2013). Childhood overweight/obesity and asthma: Is there a link? A systematic review of recent epidemiologic evidence. Journal of the Academy of Nutrition and Dietetics, 113 (1), 77-105.*

TABLE 2 Percent of Children (0-17 years) With Current Asthma‡ Whose Physical Activity Was Limited, Who Missed School/Daycare, and Who Went to the ER or Urgent Care (in the past year) Due to Asthma, LACHS 2011

	Activity Limitation			Missed School/Daycare			Went to ER		
	Percent (%)	95% CI	Est #	Percent (%)	95% CI	Est #	Percent (%)	95% CI	Est #
Los Angeles County	40.9	32.8 - 49.0	87,000	52.0	43.5 - 60.5	96,000	34.9	27.2 - 42.6	75,000
Gender									
Male	36.1	25.9 - 46.4	46,000	52.4	41.4 - 63.3	57,000	45.3	34.8 - 55.8	58,000
Female	48.0	35.2 - 60.8	41,000	51.5	37.9 - 65.0	39,000	19.1	11.1 - 27.2	16,000
Age Group									
0-5	33.8*	16.3 - 51.2	16,000	54.0	34.5 - 73.6	17,000	58.6	40.8 - 76.4	27,000
6-17	42.9	33.8 - 51.9	71,000	51.6	42.1 - 61.0	80,000	28.3	20.3 - 36.2	47,000
Race/Ethnicity									
Latino	42.6	31.2 - 53.9	50,000	53.1	41.1 - 65.0	52,000	41.7	30.6 - 52.8	50,000
White	17.3*	6.7 - 28.0	6,000	30.3*	15.7 - 44.8	9,000	14.1*	3.9 - 24.2	5,000
African American	54.7	37.7 - 71.7	27,000	65.4	48.5 - 82.3	30,000	35.0*	18.5 - 51.5	17,000
Asian/Pacific Islander	35.3*	14.4 - 56.1	4,000	50.3*	26.4 - 74.2	5,000	26.3*	6.8 - 45.9	3,000
Parent/Primary Caregiver's Education									
Less than high school	65.4	48.7 - 82.0	26,000	54.3	30.7 - 77.9	18,000	47.5	27.1 - 68.0	19,000
High school	56.4	37.4 - 75.4	23,000	58.5	39.1 - 77.9	20,000	37.1*	17.9 - 56.4	15,000
Some college or trade school	32.3	19.6 - 45.0	22,000	56.3	41.2 - 71.3	31,000	35.9	22.3 - 49.5	24,000
College or post graduate degree	26.3	14.8 - 37.9	16,000	43.2	29.7 - 56.8	25,000	25.9	15.7 - 36.1	16,000
Federal Poverty Level $									
0-99% FPL	63.1	49.3 - 77.0	52,000	60.1	43.7 - 76.5	40,000	46.4	31.1 - 61.7	38,000
100-199% FPL	38.6	24.2 - 53.1	20,000	63.7	47.9 - 79.6	29,000	40.7	25.9 - 55.5	21,000
200-299% FPL	25.6*	10.7 - 40.5	6,000	29.5*	12.3 - 46.7	7,000	19.8*	7.4 - 32.2	5,000
300% or above FPL	16.9	10.1 - 23.8	10,000	40.4	29.0 - 51.9	20,000	19.4	11.9 - 26.9	11,000

* The estimate is statistically unstable (relative standard error ≥23%).

$ Based on U.S. Census Bureau, Housing and Household Economic Statistics Division, 2009 Federal Poverty Level (FPL) thresholds which for a family of four (2 adults, 2 dependents) correspond to annual incomes of $20,444 (100% FPL), $40,888 (200% FPL), and $61,332 (300% FPL).

‡ Asthma prevalence consists of those ever diagnosed with asthma by a health care provider and reported still having asthma and/or having had an asthma attack in the past 12 months.

The Burden of Asthma

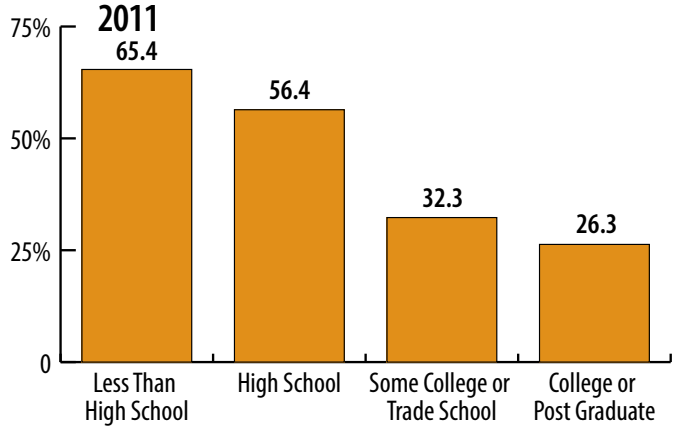
Missed school days

Asthma is one of the most common causes of school absenteeism.[7] School absenteeism is associated with poor academic outcomes, such as lower scores on standardized reading and math tests, and higher likelihood of not graduating from high school.[8,9] Increased school absenteeism may reflect greater asthma severity, inadequate asthma management and control, or lack of access to appropriate care.

- 52.0% of children with asthma missed at least one day of school or daycare in the past year due to asthma.
- 54.0% of children 0-5 years and 51.6% of children 6-17 years missed at least one day of daycare or school in the past year due to asthma. On average, 0-5 year olds who missed school or daycare missed 5.7 days in the past year, and 6-17 year olds missed 6.5 days in the past year due to their asthma.

7. *Wang LY, Zhong Y, Wheeler L. Direct and Indirect Costs of asthma in School-Age Children. Prev Chronic Dis, January 2005. Available from: http://www.cdc.gov/pcd/issues/2005/jan/04_0053.htm*
8. *Gottfried MA. The Detrimental Effects of Missing School: Evidence from Urban Siblings. Am J Educ 2011;117(2):147-82.*
9. *Balfanz, R., & Byrnes, V. Chronic Absenteeism: Summarizing What We Know From Nationally Available Data. Baltimore: Johns Hopkins University Center for Social Organization of Schools, 2012.*

FIGURE 2 Percent of Children with Asthma Whose Physical Activity is Limited Due to Asthma by Parent/Primary Caregiver Education, LACHS 2011



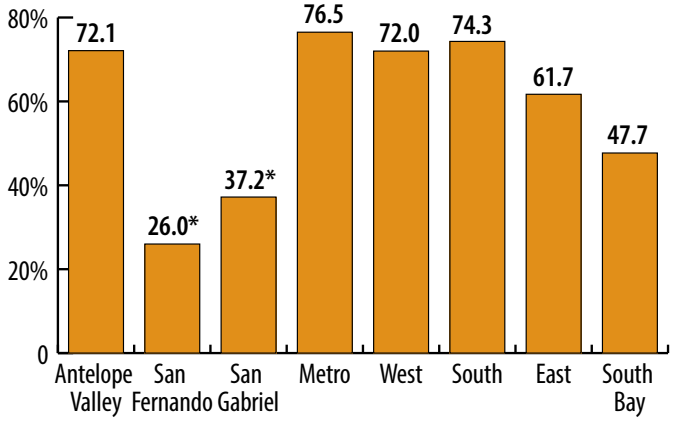
- 65.4% of African American children with asthma missed school or daycare because of their asthma, followed by 53.1% of Latinos, 50.3%* of Asians/Pacific Islanders, and 30.3%* of whites.
- There were marked disparities by SPA with the highest percent of children who missed school or daycare in the Metro SPA (76.5%) and the lowest in the San Fernando SPA (26.0%*) (Figure 3).

Emergency Room Visits

Most people with asthma should not require emergency room services or hospitalizations and should not have to limit their physical activities if they receive appropriate medical care, practice self management, and avoid exposure to asthma triggers. Yet asthma is one of the leading causes of emergency room (ER) visits among children 0-17 years old. ER visits contribute to both direct costs (services) as well as indirect costs (due to child missing school and potentially the parent/caregiver missing work).

- Over one-third (34.9%) of children with asthma went to the ER or urgent care in the past year due to their asthma.

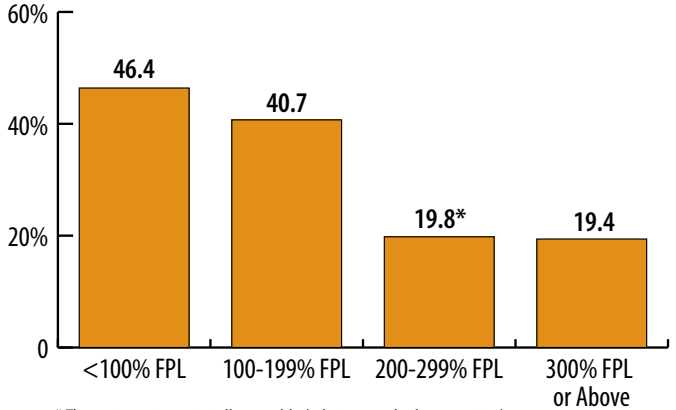
FIGURE 3 Percent of Children with Asthma Who Missed School or Daycare Due to Their Asthma, LACHS 2011



* The estimate is statistically unstable (relative standard error ≥23%).

- Over twice as many boys (45.3%) as girls (19.1%) with asthma went to the ER or urgent care because of their asthma.
- A significantly higher percentage of 0-5 year olds (58.6%) with asthma went to the ER or urgent care compared to 6-17 year olds (28.3%).
- Children living in households with incomes <200% FPL had higher rates of ER visits compared to those at or above 200% FPL (Figure 4).

FIGURE 4 Percent of Children With Asthma Who Went to the Emergency Room or Urgent Care (in the past year) Due to Their Asthma, LACHS 2011



* The estimate is statistically unstable (relative standard error ≥23%).

Recommendations[10,11,12]

What Individuals and Families Can Do:

- Receive ongoing medical care and education about how to manage your child's asthma and asthma attacks.
- Avoid asthma triggers at school, home, outdoors, and elsewhere. Triggers can include mold, tobacco smoke, air pollution, stress, and infections linked to influenza, colds, and other viruses.

What Healthcare Providers Can Do:

- Participate in professional development opportunities that promote high quality asthma care.
- Utilize the National Asthma Education and Prevention Program Guidelines to ensure delivery of evidenced-based care (**http://www.nhlbi.nih.gov/about/naepp/**).
- Provide Asthma Action Plans for all patients.
- Advocate for coverage and reimbursement for asthma management education and services provided by non-licensed asthma professionals.

What Child Care Centers, Schools, and School Districts Can Do:

- Support the development and implementation of comprehensive asthma policies to ensure the health and well-being of students with asthma.
- Establish standard emergency protocols and educate all relevant school personnel, students, and parents about asthma.
- Obtain and ensure the implementation of Asthma Action Plans for all students with asthma.
- Encourage participation in physical education and appropriate physical activity for students with asthma.
- Require use of an integrated pest management plan in school settings (**http://epa.gov/pesp/htmlpublications/ipm_fact_sheet.html**).
- Implement protocols to maintain or improve classroom air quality (ie. change air filters, HVAC system maintenance, etc.).

What Indoor Air Quality Advocates and Decision Makers Can Do:

- Support improved code enforcement by City and County housing inspectors regarding moisture-causing problems, vermin infestation, and smoking restrictions.
- Educate homeowners, tenants, landlords, and property managers about asthma triggers and how to reduce them.
- Require landlords to bring all properties up to health and safety standards and educate tenants about which City and County departments to call to report substandard conditions.
- Promote collaboration among tenant rights groups, healthcare providers, community health workers/promotores de salud, and code enforcement officials to reduce asthma triggers and improve indoor air quality.
- Promote the use of integrated pest management practices in all public buildings.

What Outdoor Air Quality Advocates and Decision Makers Can Do:

- Support legislation and policy to reduce the growing pollution from the Ports of Los Angeles and Long Beach.
- Support efforts of locally impacted communities to reduce the health and environmental impact of emissions from ships, trains, trucks and yard equipment at ports, rail yards, distribution centers, and on heavily-trafficked freeways.
- Encourage the adoption of policies that create smoke-free outdoor areas (e.g. parks, beaches, bus stops) throughout Los Angeles County.
- Promote policies for hazardous industries that prohibit disproportionate siting of these industries in low-income communities.

10. ACLAC Strategic Plan goals and objectives, 2013-2017
11. Controlling asthma in Los Angeles County: A call to action, 2006
12. U.S. Centers for Disease Control

Asthma Coalition of Los Angeles County (**ACLAC**)

Who is ACLAC?

ACLAC is a broad-based coalition of experts and advocates from community-based organizations, advocacy groups, universities, government entities, school districts, environmental groups, health plans, hospitals, and clinics in Los Angeles County.

What is ACLAC's mission?

The mission of ACLAC is to act as a collective, powerful voice for policy and systems change to prevent, minimize and manage the burden of asthma.

What are ACLAC's goals?

ACLAC's goals are to advocate for policy and systems changes in order to:

- Increase access to and improve quality of health care
- Improve indoor air quality in homes
- Improve asthma management in schools
- Improve outdoor air quality

What are some of ACLAC's activities?

- Sign and write letters of support for policies
- Participate in community health fairs and events
- Educate legislators and staff about asthma issues
- Discuss and develop policy solutions to asthma
- Seek funding to implement asthma-focused projects

When does ACLAC have meetings?

ACLAC holds quarterly general meeting on the fourth Monday in January, April, July, and October. All interested stakeholders are invited to attend.

How does someone join ACLAC?

Community organization members are encouraged to join ACLAC's Steering Committee and/or one of the Workgroups: Clinical/Healthcare; Asthma Friendly Schools; Indoor Air Quality; and Outdoor Air Quality.

For more information, visit **www.asthmacoalitionla.org** or call (213) 639-6459.

on the web

LOCAL

BREATHE California of Los Angeles County (**BREATHE LA**) is dedicated to clean air and preventing lung and other air pollution related diseases by partnering with youth, advocating public policy, supporting lung health research, and educating the public.
http://breathela.org/

The LAC+USC **Breathmobile Program** is a comprehensive, mobile-based pediatric asthma disease management program created in 1995 as a collaborative effort to deliver asthma-specialty care to inner-city, underserved children at no costs to their families. The program is designed to overcome barriers to healthcare and improve the health of low-income asthmatic children and their families with limited access to care and medications.
http://www.labreathmobile.com/

The **LAUSD Nursing Services Asthma Program** recognizes the need for a special program dedicated to improving asthma management among students in the school district. Their mission is to improve the health and academic achievement of students with asthma by reducing asthma exacerbations through the education of students, parents, and staff on the prevention and management of asthma.
http://www.asthmala.com/

Long Beach Alliance for Children with Asthma. Aiming to change the profile of childhood asthma in the most affected areas of Long Beach and surrounding communities, the Long Beach Alliance for Children with Asthma (LBACA) employs a multi-faceted, community based approach addressing the systems, policies and social barriers to effective asthma care using evidence-based models.
http://lbaca.org/

STATE

RAMP (Regional Asthma Management and Prevention) is a collaborative that brings together diverse partners to develop strategies for reducing asthma through a broad and comprehensive approach that includes clinical management and environmental protection. **http://www.rampasthma.org/**

Through research, education and advocacy, the **American Lung Association in California** fights to reduce smoking, keep the air we breathe clean, and prevent and treat lung diseases such as asthma. Children of all ages can learn about managing their asthma in a fun way through their Kickin' Asthma and Open Airways for Schools programs.
http://www.lung.org/lung-disease/asthma/

NATIONAL

The **Centers for Disease Control and Prevention (CDC) Asthma Data & Statistics** provides data about youth asthma and school health programs, policies, and practices designed to address asthma in school settings. These data are collected through surveillance systems administered by CDC's Division of Adolescent and School Health.
http://www.cdc.gov/healthyyouth/asthma/data.htm

Los Angeles County
Department of Public Health
313 N Figueroa Street Room 127
Los Angeles, CA 90012
213.240.7785

Presorted
Standard
U.S. Postage
PAID
Orange, CA
Permit No. 193

L. A. County Board of Supervisors
Gloria Molina, First District
Mark Ridley-Thomas, Second District
Zev Yaroslavsky, Third District
Don Knabe, Fourth District
Michael D. Antonovich, Fifth District

NACCHO
National Association of County & City Health Officials

2012 Model Practice Award
Los Angeles County Health Survey

In this issue:

BREATHING EASY? CHILD ASTHMA IN LOS ANGELES COUNTY

Suggested Citation: Los Angeles County Department of Public Health, Office of Health Assessment and Epidemiology, Breathing Easy? Child Asthma in Los Angeles County, May 2014

For additional information about the LA County Health Survey, visit: www.publichealth.lacounty.gov/ha

L. A. County Department of Public Health
Jonathan E. Fielding, MD, MPH
Director and Health Officer
Cynthia A. Harding, MPH
Chief Deputy Director
Steven Teutsch, MD, MPH
Chief Science Officer

Office of Health Assessment and Epidemiology
Margaret Shih, MD, PhD, Director
Susie Baldwin, MD, MPH, Chief, Health Assessment Unit
Amy S. Lightstone, MPH, MA, Interim Chief, Health Assessment Unit

Health Assessment Unit Staff:
Gigi Mathew, DrPH; Jerome Blake, MPH; Yan Cui, MD, PhD; Yajun Du, MS

Maternal, Child and Adolescent Health
Suzanne Bostwick, Interim Director

Child and Adolescent Health Program and Policy
Robert Gilchick, MD, MPH, Director
Janet Scully, MPH, Health Program Analyst III
Monica Morello, MPH, MA, Centers for Disease Control, Public Health Prevention Service Fellow

Asthma Coalition of Los Angeles County
Loretta Worthington, MOL, MA, Coordinator

FSC
Mixed Sources
Product group from well-managed forests and other controlled sources
www.fsc.org Cert no. SGS-COC-004090
© 1996 Forest Stewardship Council

Printed by a Forest Stewardship Council certified printer on paper certified by the Forest Stewardship Council to consist of 50% total recycled content, of which 25% is Post Consumer recycled.

The Los Angeles County Health Survey is a periodic, population-based telephone survey that collects information on sociodemographic characteristics, health status, health behaviors, and access to health services among adults and children in the County. The 2011 survey collected information on a random sample of 8,036 adults and 6,013 children. The survey was conducted for the Los Angeles County Department of Public Health by Abt SRBI Inc., and was supported by grants from First 5 LA, the Los Angeles County Department of Mental Health, and Department of Public Health programs including the Tobacco Control and Prevention Program, the Emergency Preparedness and Response Program, Substance Abuse Prevention and Control, and Environmental Health.