

August 2004

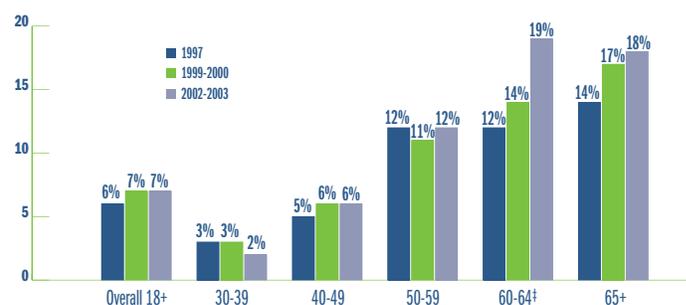
DIABETES

The rising prevalence of diabetes is a serious public health issue in the United States. Results from the 2002-03 Los Angeles County Health Survey (LACHS) indicate that 7% of adults (or approximately one-half million adults) in L.A. County have been diagnosed with diabetes, almost three times higher than the Healthy People 2010 target of 2.5%. The age-adjusted¹ prevalence of diabetes was higher among American Indians (12%²), Latinos (12%), and African-Americans (10%) as compared to Whites (6%) and Asians/Pacific Islanders (5%) (Table 1). Also, the prevalence of diabetes was higher among lower income groups. This inverse relation between diabetes and income was significant among Latinos³ (but not for other racial/ethnic groups) after controlling for age, health insurance status, and body mass index.

Age-adjusted prevalence rates of diabetes ranged from 12% in the South Service Planning Area (SPA) to 5% in the West SPA. The highest prevalence of diabetes was among adults aged 60–64 years in contrast to results from previous surveys, which found that diabetes was most prevalent among adults 65 years and older. Nearly one-in-five (19%) adults aged 60–64 years reported having been diagnosed with diabetes, a significant increase from the 12% in 1997 (Figure 1). The shift in diabetes to younger age groups is likely related to the epidemic of obesity in the County's non-elderly adult population.⁴ Results of the 2002-03 survey

FIGURE 1

Diabetes Trends by Age Group, 1997-2002



†From 1997 to 2002, trend analysis revealed significant increases ($p < .05$)

indicate that the prevalence of diabetes among adults who were obese was nearly five times higher than the prevalence among adults who were not overweight or obese (Figure 2).

The Burden of Diabetes

Diabetes is a condition in which blood sugar is abnormally high. Type II diabetes accounts for 90-95% of diabetes in the U.S. and usually develops during adulthood (versus Type I, or insulin-dependent, diabetes which most often occurs in childhood). Symptoms may include excessive thirst, frequent urination, dizziness,

1. Most health conditions do not occur at the same rate throughout the life span; for example, diabetes increases with age. Certain population sub-groups can have different age distributions, so age-adjustment allows for comparisons of a condition between groups while controlling for such age differences.

2. Estimate should be viewed with caution because of small numbers.

3. Centers for Disease Control and Prevention: Diabetes Among Hispanics—Los Angeles County, California, 2002-2003. MMWR 52: 1152-1154, 2003. Accessed May 18, 2004, at: <http://www.cdc.gov/mmwr/PDF/wk/mm5247.pdf>

4. Los Angeles County Department of Health Services: Obesity on the Rise. L.A. Health July 2003. Accessed May 17, 2004, at: http://lapublichealth.org/ha/reports/habriefs/labealth073003_obes.pdf

TABLE
1

Percent of Adults (18+ years) Diagnosed with Diabetes, 2002-03

	**Age-Adjusted Percent	Unadjusted Percent	Estimated Number
L.A. County	7.9%	7.2%	495,000
Gender			
Male	8.0%	6.9%	229,000
Female	7.9%	7.5%	266,000
Race/Ethnicity			
Latino	11.8%	8.2%	226,000
White	5.6%	6.7%	162,000
African American	9.9%	9.1%	60,000
Asian/Pacific Islander	4.8%	4.6%	45,000
American Indian	12.4%*	8.4%*	1,000
Education			
Less than high school	11.4%	10.7%	179,000
High school	7.5%	6.8%	104,000
Some college or trade school	7.9%	7.2%	131,000
College or post graduate degree	5.1%	4.4%	79,000
>Federal Poverty Level			
0-99% FPL	12.7%	9.4%	137,000
100%-199% FPL	9.4%	8.8%	148,000
200%-299% FPL	6.1%	6.5%	86,000
300% or above FPL	5.8%	5.2%	124,000
Service Planning Area			
Antelope Valley	6.7%	6.9%	14,000
San Fernando	6.8%	6.3%	91,000
San Gabriel	7.3%	6.8%	85,000
Metro	7.5%	6.8%	57,000
West	4.8%	4.2%	21,000
South	11.9%	9.2%	56,000
East	10.1%	9.4%	83,000
South Bay	8.6%	8.0%	86,000

*Estimate should be viewed with caution because of small numbers.

**Age-adjusted percentage according to the 2000 U.S. standard population aged 18 years and older.

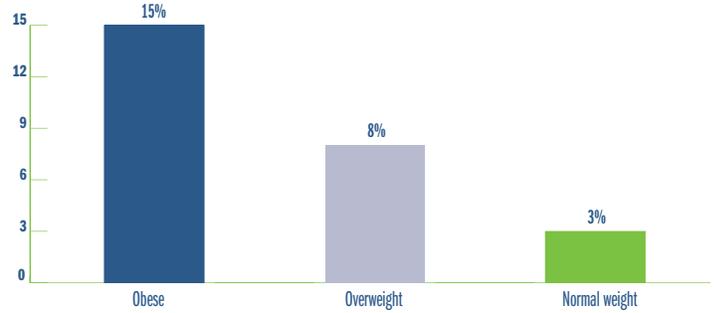
>Based on 2002 Federal Poverty Level (FPL) thresholds which for a family of four (2 adult, 2 dependents) correspond to annual incomes of \$18,859 (100% FPL), \$37,718 (200% FPL), and \$56,557 (300% FPL).

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FIGURE
2

Prevalence of Diabetes by Body Mass Index,[§] 2002-03



[§] Obesity is defined as a body mass index (BMI) of 30 or greater. Overweight is defined as a BMI of 25-29.9. Normal weight is defined as a BMI of 18.5-24.9. $BMI = (\text{weight (lbs.)} / [\text{height (in.)}]^2) \times 703$.

and fatigue. However, many persons with Type II diabetes have no symptoms and may be unaware of their disease. National studies indicate that nearly one in three adults in the U.S. with diabetes have not been diagnosed.⁵ For this reason, the true rate of diabetes in Los Angeles County is likely to be higher than the 7% reported in our survey.

Diabetes poses a large health burden on the population. It is a major cause of kidney failure, blindness, and limb amputations. Furthermore, persons with diabetes are 2 to 4 times more likely to die of heart disease or have a stroke, and are 3 times more likely to die of influenza or pneumonia.^{6,7} Between 1990 and 2000, there was a 53% increase in diabetes deaths among Los Angeles County residents. Direct medical and indirect expenditures attributable to diabetes in the United States were estimated at \$132 billion in 2002.⁸ Additionally, medical costs are about 2.4 times higher for people with diabetes than those without diabetes.

Prevention of Diabetes

Diabetes and its complications are to a great degree preventable. Lifestyle changes such as exercise, eating healthy food, and weight loss are effective preventive measures for Type II diabetes. In fact, losing as little as 5–7% of body weight among overweight persons has been shown to prevent the onset of diabetes by 58%.⁹ Healthy diets and physical activity are effective ‘medicine’ for those with prediabetes, a condition in

5. Centers for Disease Control and Prevention: *Prevalence of Diabetes and Impaired Fasting Glucose in Adults—United States, 1999-2000*. *MMWR* 52: 833-837, 2003.

6. Centers for Disease Control and Prevention: *Diabetes: Disabling, Deadly, and on the Rise*. Accessed March 2, 2004, at: http://www.cdc.gov/nccdphp/aa/pdffiles/aaag_ddi2004.pdf

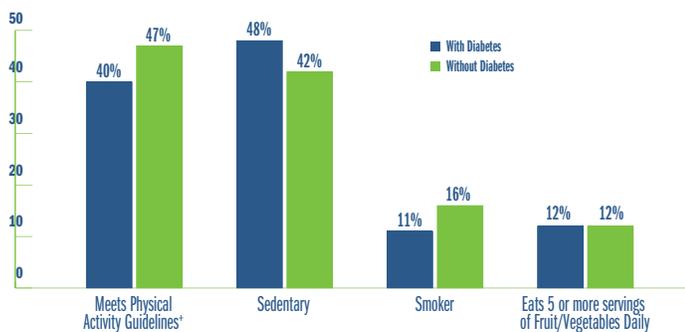
7. Centers for Disease Control and Prevention: *National Diabetes Fact Sheet*. Accessed May 18, 2004, at: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2003.pdf

8. American Diabetes Association: *Economic Costs Of Diabetes in the United States In the U.S. in 2002*. *Diabetes Care* 26: 917-932, 2003.

9. Rao SS, Disraeli P, McGregor T. *Impaired Glucose Tolerance and Impaired Fasting Glucose*. *American Family Physician* 69(8): 1961-8, 1971-2, 2004. Accessed May 18, 2004, at: <http://www.aafp.org/afp/20040415/1961.html>

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FIGURE 3 Age-adjusted** Prevalence of Selected Health Behaviors Among Adults (18+ years) by Diabetes Status, 2002-03



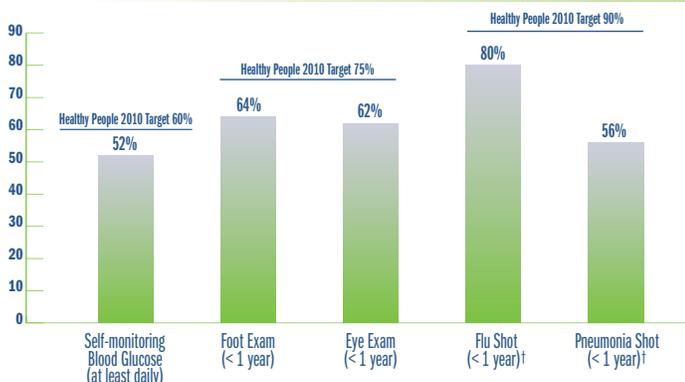
**Age adjustment according to the 2000 U.S. standard population aged 18 years and older.
 *To meet Physical Activity Guidelines at least one of the following criteria must be fulfilled: 1) Vigorous Activity - hard physical activity causing heavy sweating, large increases in breathing and heart rate - for 20+ minutes, > 3 days/wk, 2) Moderate Activity - cause light sweating, slight increases in breathing and heart rate - 30+ minutes, > 5 days/wk, 3) A combination of Vigorous and Moderate Activity meeting the time criteria for > 5 days/wk.

which blood sugar is slightly elevated and in the absence of intervention, often leads to diabetes. This underscores the importance of early diagnosis. Once developed, many complications of diabetes can be avoided through behavior change and medications. Controlling weight, getting regular physical activity, quitting smoking, and monitoring and treating concurrent medical conditions can reduce kidney failure by 30–70%, blindness by 50–90%, amputations by 85%, and cardiovascular disease by 30% among persons with diabetes.^{6,7}

Results from the 2002-03 LACHS found that a lower percentage of adults with diabetes (40%) met physical activity guidelines as compared with those without diabetes (47%). Furthermore, approximately one-in-ten (11%) adults with diabetes reported that they currently smoke cigarettes (Figure 3).

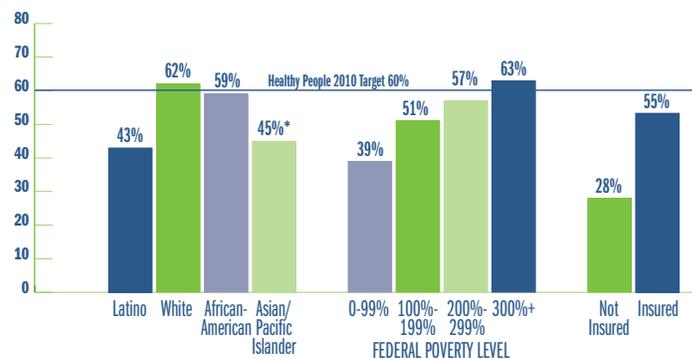
The Healthy People 2010 preventive health care targets for people with diabetes include self-monitoring blood glucose at least once a day, having eye exams and foot exams once a year, and being up-to-date on

FIGURE 4 Prevalence of Selected Health Practices Among Adults (18+ years) with Self-Reported Diabetes Compared to Healthy People 2010 Targets



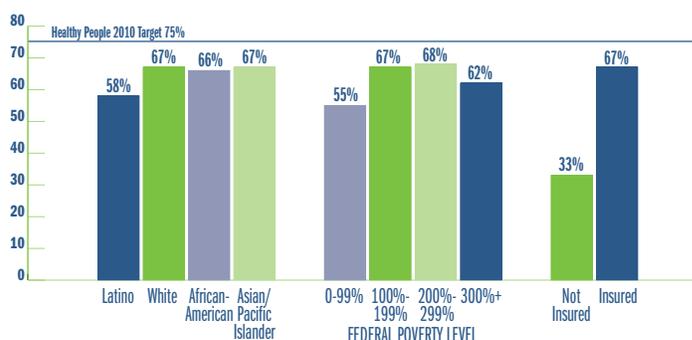
† Only for adults aged 65 and over

FIGURE 5 Adults with Diabetes who Self-Monitor Blood Glucose At Least Once a Day by Race/Ethnicity, Income, and Health Insurance, 2002-03



*Estimate should be viewed with caution because of small numbers

FIGURE 6 Adults with Diabetes who Had a Dilated Eye Exam Within the Past Year by Race/Ethnicity, Income, and Health Insurance, 2002-03



immunizations. The 2002-03 LACHS data revealed that adults with diabetes in L.A. County met none of these targets. For example, only 52% of adults with diabetes self-monitored their blood glucose at least once a day, and only 62% reported having an eye exam within the past year (Figure 4). Of particular concern were the low rates of self-monitoring blood glucose (43%) and having eye exams (58%) among Latinos with diabetes, and among adults with diabetes living below the federal poverty level (Figures 5 and 6). Large disparities were also found between insured and uninsured persons with diabetes (Figures 5 and 6).

What Can Be Done

Primary Prevention

The current obesity epidemic, if not reversed, is likely to fuel a dramatic increase in diabetes over the coming years. By 2020, the number of Hispanics with diabetes nationwide is projected to increase over 100% from 2002 levels.⁸ Reversing these trends will require interventions that address both individual behaviors and the 'toxic' environment that makes healthy eating

What Can I Do To Prevent Diabetes?

- First of all, know your risk for diabetes. Are you overweight? Does someone in your family have diabetes? If so, talk with your doctor about testing for diabetes.
- By making changes in your lifestyle, you can lower your risk of getting diabetes. If you are overweight, losing 5–7% of your total body weight (as little as 5–10 pounds in most people) can help. Losing weight also will lower your blood pressure and cholesterol levels.
- Physical activity of any kind can lower your risk of getting diabetes. Your daily routine should include 30 minutes of moderate physical activity at least five times a week. Be sure to stay at an exercise level that your doctor says is safe for you.
- Following a healthy diet also can help. Eat foods like salads, vegetables, fruits, whole grains, fish, beans, and low-fat meats. Limit foods with lots of sugar, including high fructose corn syrup and honey. Eat foods made with whole grains instead of white flour (for example, substitute white rice with brown rice and white bread with whole wheat bread).
- Avoid fatty and fried foods. Less than 30% of your total daily calories should come from fat. Less than 10% of your daily calories should come from saturated fat (the kind of fat found in butter, cheese, whole milk, fried foods, and meat). Your doctor might refer you to a dietitian or diabetes educator for help in changing your eating habits.

www.ndep.nih.gov/diabetes/prev/prevention.htm

on the web

American Diabetes Association is the nation's leading nonprofit health organization providing diabetes research, information and advocacy. Its mission is to prevent and cure diabetes and to improve the lives of all people affected by diabetes. www.diabetes.org

The Community Guide provides a systematic review of the recommendations from the Task Force on Community Preventive Services (the Task Force) regarding the effectiveness of selected population-based interventions addressing diabetes, focusing on strategies within health-care system level interventions and diabetes self-management. www.thecommunityguide.org/diabetes/default.htm

The California Diabetes Prevention & Control Program is a public health program in the California Department of Health Services that works to prevent and detect diabetes, improve quality of care, reduce health disparities, develop and sustain public health policy, and raise awareness. www.caldiabetes.org

The National Diabetes Education Program is a federally funded program sponsored by the U.S. Department of Health and Human Services' National Institutes of Health and the Centers for Disease Control and Prevention. It includes over 200 partners at the federal, state, and local levels, working together to reduce the morbidity and mortality associated with diabetes. www.ndep.nih.gov/index.htm

The Centers for Disease Control and Prevention provides general information and national estimates on diabetes in the United States. www.cdc.gov/diabetes/pubs/factsheet.htm

The California HealthCare Foundation and **La Opinion** (the nation's largest Spanish-language daily newspaper) offers a free Spanish guide (Todos Contra La Diabetes) for Californians designed to help individuals and families move through the process of detecting and treating diabetes and effectively managing it with their physician. www.laopinion.com/supp28

and being physically active so difficult. Community interventions that promote healthy lifestyles (e.g., efforts by schools to limit the availability of high sugar drinks such as soda, and increase the availability of fruit, dairy products and other nutritious foods) can be an effective means of preventing diabetes as well as overweight and obesity. In Los Angeles County, campaigns have already been initiated to promote physical activity (e.g., Fuel Up/Lift Off! L.A. and Adopt-A-Park programs) and improve nutrition (e.g., Project LEAN, 5-a-Day, and the recently launched Los Angeles Collaborative for Healthy Active Children healthy breakfast for school children campaign¹⁰).

Improving Health Care

Clinical guidelines based on scientific-evidence are widely available (see “On the web” box) and, if implemented, can lead to improved health outcomes for persons with diabetes. For example, the U.S. Task Force on Community Preventive Services recommends systems-based approaches such as disease management, case management, and patient self-management.¹¹ Essential components of disease management include the identification of persons with diabetes, the use of clinical guidelines in the provision of their care, and an information system to track their care. Case management is an approach to better coordinate care

10. Los Angeles Collaborative for Healthy Active Children: Taking the First Step with a Healthy Breakfast. March 2004. Accessed May 17, 2004, at: http://lapublichealth.org/nut/LACOLLAB_Files/BreakfastBriefFINAL.pdf

11. Centers for Disease Control and Prevention: Strategies for Reducing Morbidity and Mortality from Diabetes Through Health-Care System Interventions and Diabetes Self-Management Education in Community Settings. *MMWR* 50: 1-15, 2001.



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In this issue:
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for persons with diabetes, often complicated because it involves many providers and services. A case manager is a single health professional (usually a nurse) that assists patients to assure that they receive all necessary care and information. Self-management education in health care or community settings can lead to better adherence to dietary and medication regimens by allowing persons with diabetes to share experiences and set goals in a group setting.¹² Lastly, to assess the

effectiveness of these systems-based approaches and guide the planning of future primary prevention campaigns, ongoing population-based tracking of diabetes prevalence, diabetes-related morbidity and mortality, and related health behaviors in Los Angeles County is essential.

12. Norris SL, Nichols PJ, Casperson CJ, Glasgow RE, Engelgau MM, Jack L, Snyder SR, et al. Increasing diabetes self-management education in community settings. Am J Prev Med 2002;22(4S):39-66.

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 2002-2003 survey collected information on a random sample of 8,167 adults and 5,995 children. Interviews were offered in English, Spanish, Cantonese, Mandarin, Korean, and Vietnamese. The most recent survey was supported by grants from First 5 LA, the California Department of Health Services through grants to the Family Health, Tobacco Control and Prevention, and Alcohol and Drug Programs, and the Public Health Response and Bioterrorism Preparedness federal grant. The survey was conducted for the Los Angeles County Department of Health Services between October 2002 and March 2003 by Field Research Corporation.

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**For additional information about the
L.A. Survey: www.lapublichealth.org/ha**