

# LA Health

## TRENDS IN DIABETES: TIME FOR ACTION

### Introduction

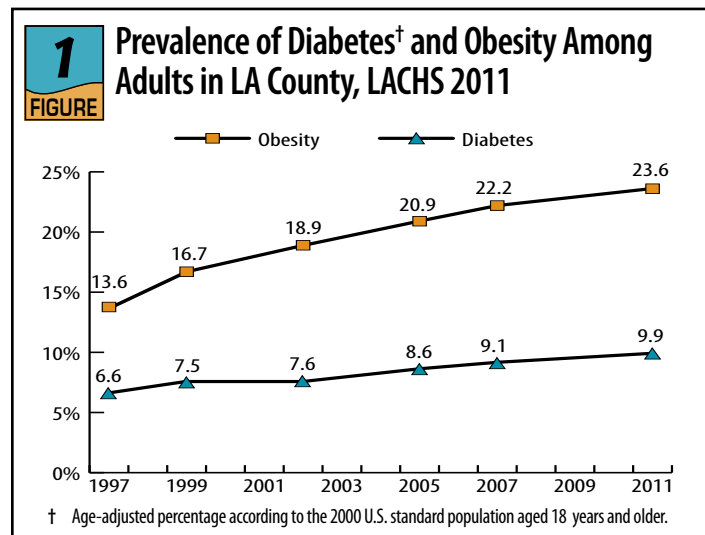
Results from the 2011 Los Angeles County Health Survey (LACHS) show that the prevalence of diabetes among adults in Los Angeles County is continuing to rise. From 1997 to 2011, the percentage of adults with this condition increased from 6.6% to 9.9%;<sup>1-3</sup> more than 685,000 adults in the county are now affected. Obesity is the primary preventable risk factor for type 2 diabetes,<sup>4</sup> which accounts for over 90% of all diabetes cases. In LA County, the increase in diabetes has mirrored the obesity epidemic (Figure 1). Living with uncontrolled diabetes long-term can lead to severe health consequences such as heart disease, stroke, kidney failure, neuropathy, and blindness. Diabetes is the 5th leading cause of death in the County,<sup>5</sup> and the risk of death among people with diabetes is about twice that of people of similar age who do not have diabetes.<sup>6</sup>

### Diabetes is Costly to Treat and Manage

Diabetes is one of the most costly chronic conditions. Medical expenses for people with diabetes average more than twice as much as for those without diabetes.<sup>6</sup> Nationally, the direct medical costs for individuals with this disease have been estimated to be more than \$116 billion per year, with another \$58 billion attributed to indirect costs associated with disability, productivity losses, and premature death. In LA County, the total direct cost of treating diabetes is estimated to be more than \$6 billion per year.<sup>7</sup>

### The Continuing Rise in Diabetes

- The age-adjusted<sup>8</sup> percentage of adults with self-reported diabetes increased from 6.6% in 1997 to 9.9% in 2011; this is a 50% increase in prevalence (Figure 1).



- The prevalence increased more rapidly and was higher among men (10.8%) than women (9.1%) (Table 1).
- Diabetes rates increased among all age groups; the largest increase was among adults age 65 and older, among whom nearly 1 in 4 (24.1%) reported having diabetes.
- The prevalence increased among all major racial/ethnic groups. The largest increase was among Asians/Pacific Islanders (A/PIs).
- Increases in diabetes prevalence were observed among all income groups.

1. Two methodologic changes were implemented in the 2011 LACHS to maintain the accuracy and representativeness of the data collected. These changes were adding cellular telephone households and adopting an improved weighting methodology. These changes may result in small changes in prevalence estimates from previous survey years (see references 2 and 3).

2. Centers for Disease Control and Prevention. Methodologic Changes in the Behavioral Risk Factor Surveillance System in 2011 and Potential Effects on Prevalence Estimates. *MMWR* 2012;61:410-413.

3. 2011 Los Angeles County Health Survey (LACHS), Survey Methodology Report, June 2012. Available at: [www.publichealth.lacounty.gov/ha](http://www.publichealth.lacounty.gov/ha)

4. Type 2 diabetes occurs when the body becomes resistant to the effects of insulin.

5. Los Angeles County Department of Public Health, Office of Health Assessment and Epidemiology. *Mortality in Los Angeles County 2008: Leading causes of death and premature death with trends for 1999-2008*. December 2011.

6. Centers for Disease Control and Prevention. *National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2011.

7. Unpublished data. Estimates courtesy of Research & Evaluation in the Division of Chronic Disease and Injury Prevention at the Los Angeles County Department of Public Health.

8. Results are age-adjusted and therefore may differ from statistics presented in other reports; 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.



**1**  
**TABLE**

**Percent of Adults (18+ years old), Ever Diagnosed with Diabetes<sup>†</sup>, LACHS 1997-2011**

	1997 (%)	1999 (%)	2002 <sup>a</sup> (%)	2005 (%)	2007 (%)	2011 (%)	Increase 1997-2011 (%)
<b>Los Angeles County</b>	6.6	7.5	7.6	8.6	9.1	9.9	50
<b>Gender</b>							
Male	6.7	7.7	7.7	8.8	9.4	10.8	61
Female	6.6	7.4	7.6	8.4	8.8	9.1	38
<b>Age Group</b>							
18-29	0.8*	1.7	0.9*	1.3*	1.3*	1.7*	*
30-39	2.8	2.9	2.1	3.3	3.6	3.7	32
40-49	5.1	6.1	6.0	7.0	7.0	7.9	55
50-64	11.6	11.8	13.4	15.2	16.8	14.9	28
65 and over	14.3	16.8	17.8	18.3	19.2	24.1	69
<b>Race/Ethnicity</b>							
Latino	9.5	11.3	11.4	12.3	12.8	13.5	42
White	4.6	5.5	5.4	5.6	5.7	6.7	46
African American	10.1	9.5	9.4	12.0	11.4	12.4	23
Asian/Pacific Islander	5.9	5.6	5.1	7.1	9.0	9.9	68
<b>Federal Poverty Level<sup>§</sup></b>							
0-99% FPL	9.0	11.1	12.7	14.0	14.7	13.9	54
100-199% FPL	9.0	9.2	9.1	10.2	9.1	11.7	30
200% or above FPL	5.3	6.1	5.8	6.5	7.1	7.9	49
<b>Service Planning Area</b>							
Antelope Valley	6.7	6.6	7.1	9.0	9.3	11.9	78
San Fernando	5.7	6.3	6.5	6.3	7.0	9.6	68
San Gabriel	7.0	7.2	6.8	7.3	8.4	7.5	7
Metro	6.9	7.8	7.8	11.4	10.5	8.5	23
West	5.3	6.1	4.3	4.7	5.1	5.2	-2
South	11.5	9.5	11.2	14.5	13.9	11.7	2
East	5.7	9.3	10.1	10.5	11.8	16.2	184
South Bay	6.0	7.1	8.2	8.3	9.1	9.8	63

<sup>†</sup> Age-adjusted percentage according to the 2000 U.S. standard population aged 18 years and older.

\* The estimate is statistically unstable (relative standard error ≥ 23%) and therefore may not be appropriate to use for planning or policy purposes.

<sup>§</sup> 2011 FPL data was based on U.S. Census 2009 Federal Poverty Level (FPL) thresholds which for a family of four (2 adults, 2 dependents) correspond to annual incomes of \$21,756 (100% FPL) and \$43,512 (200% FPL). [These thresholds were the values at the time of 2011 survey interviewing.]

<sup>a</sup> Estimates may differ from prior estimates as new weights were utilized beginning March 2006 (2002 data).

- The Antelope Valley and East Service Planning Areas (SPAs) experienced the largest increases in diabetes prevalence (78% and 184%, respectively), and the East SPA had the highest prevalence (16.2%).

### Age and Racial/Ethnic Disparities

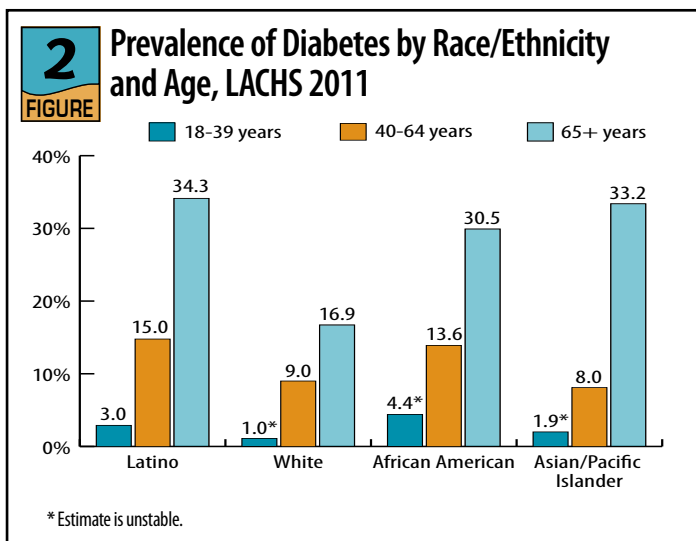
- Diabetes increased with age: In 2011 the prevalence was 3.7% for adults ages 30-39 years and increased to 24.1% for those 65 years and older (Table 1).
- Diabetes prevalence was highest among Latinos (13.5%) and African Americans (12.4%); it was lowest among whites (6.7%). Latinos and African Americans also have the highest prevalence of obesity.<sup>9</sup>
- Among adults age 65 years and older, diabetes prevalence differed by race/ethnicity: 34.3% of Latinos, 33.2% of A/Pis, and 30.5% of African Americans reported being diagnosed with diabetes, compared to 16.9% of whites (Figure 2).
- Diabetes prevalence among adults living below the federal poverty level (FPL) was 14.0%, as compared to 7.9% among adults living at or above 200% FPL.

### Gestational Diabetes Rates Are Rising

Gestational diabetes mellitus (GDM; diabetes that begins or is first diagnosed during pregnancy) can negatively affect the health of mothers and infants if not well controlled. Furthermore, women who have had GDM have a 35% to 60% chance of developing type 2 diabetes within the next 10 to 20 years.<sup>6</sup>

The prevalence of GDM has been increasing both nationally and in LA County,<sup>10,11</sup> and parallels the trend in type 2 diabetes. It is believed that the rise in GDM stems from increasing rates of overweight/obesity among pregnant women.<sup>12</sup> The prevalence of GDM is estimated to range from 2-10% of pregnancies in the United States.<sup>6</sup>

- Results from the 2010 Los Angeles Mommy and Baby (LAMB) survey,<sup>13</sup> a population-based survey of mothers who recently delivered a baby in LA County, showed that the percentage of mothers who report having GDM<sup>14</sup> increased from 10.3% in 2005 to 12.4% in 2010 (Table 2).



	2005 (%)	2007 (%)	2010 (%)
<b>Los Angeles County</b>	10.3	12.0	12.4
<b>Maternal Age</b>			
<20 Years	2.1*	5.9	5.0
20-24 Years	5.8	7.1	7.2
25-34 Years	11.7	12.0	12.7
35+ Years	15.7	20.0	19.7
<b>Race/Ethnicity</b>			
Latino	10.5	12.2	13.1
White	7.0	8.4	7.0
African American	9.0	10.0	9.5
Asian/Pacific Islander	14.6	17.1	18.7

\* The estimate is statistically unstable and should be interpreted with caution.

9. Los Angeles County Department of Public Health, Office of Health Assessment and Epidemiology. Trends in Obesity: Adult Obesity Continues to Rise, September 2012.

10. Baraban E, McCoy L, Simon P. Increasing prevalence of gestational diabetes and pregnancy-related hypertension in Los Angeles County, California, 1991-2003. *Prev Chronic Dis* 2008; 5:A77. Epub 2008 Jun 15.

11. Getahun D, Nath C, Ananth CV, Chavez MR, Smulian JC. Gestational diabetes in the United States: temporal trends 1989 through 2004. *Am J Obstet Gynecol* 2008;198:525.e1-525.e5.

12. Kim SY, England L, Wilson HG, Bish C, Satten GA, Dietz P. Percentage of gestational diabetes mellitus attributable to overweight and obesity. *Am J Public Health* 2010;100:1047-52.

13. <http://publichealth.lacounty.gov/mch/lamb/LAMB.html>

14. Mothers were asked "Did you have high blood sugar (gestational diabetes) that started during this pregnancy?"



- The prevalence of self-reported GDM increased with maternal age, ranging from a low of 5.0% among mothers less than age 20 years to a high of 19.7% among mothers 35 years and older.
- The prevalence of GDM was highest among A/PI mothers (18.7%) and was more than twice that of white mothers (7.0%).

## Discussion

The prevalence of diabetes in LA County continues to rise. Nearly 1 in 10 adults now have this chronic disease. Many more are unaware that they have this condition. According to national studies, approximately one-third of people with diabetes do not know they have it.<sup>15</sup>

The continued rise in diabetes prevalence is likely due to a combination of factors. The most important factor is the increase in adult obesity, which is the main driver of the diabetes epidemic. Other factors include more people with diabetes living longer because of better secondary prevention, treatment, and disease management,<sup>16</sup> and changes in the makeup of the County population. In LA County, Latinos have the highest prevalence of diabetes, and the growing Latino population currently makes up 48% of the county's population. Finally, the aging of the population, as well as the high levels of childhood obesity in the County, are expected to contribute to increased future rates of adult diabetes.

An important finding is that racial/ethnic and socioeconomic disparities in diabetes prevalence persist. This underscores the critical need for culturally appropriate interventions for disproportionately affected groups, and also the need to address the root social and environmental causes of diabetes and obesity; these include poverty, inadequate access to early care and preventive services, lack of physical activity, widespread advertising of unhealthy foods and beverages, and the greatly increased availability and

affordability of unhealthy foods relative to healthy foods.<sup>17,18</sup> To have a collective impact, substantive investments in coordinated, multi-sectoral efforts are needed.<sup>19</sup>

## Recommended Actions

### Individuals:

- Follow a healthy meal plan of whole grains, fruits, and vegetables; low-fat dairy products and lean cuts of meat, fish, or poultry; limit foods high in salt and sugar.
- Maintain or include physical activity in your daily routine: be physically active 30-60 minutes on most days of the week.
- Pregnant women should discuss weight gain during pregnancy with their prenatal provider.
- If diagnosed with gestational diabetes during pregnancy, get tested for diabetes 6 to 12 weeks after your baby is born, then every 1 to 3 years.
- Take the free ADA “Risk Test” at: [www.stoptdiabetes.com/get-the-facts/risk-test.html](http://www.stoptdiabetes.com/get-the-facts/risk-test.html)
- People with pre-diabetes can prevent or delay the onset of type 2 diabetes through weight loss and moderate physical activity of at least 150 minutes per week.<sup>20</sup>

### If you have diabetes:

In addition to the recommendations above:

- Participate in diabetes self-management education (DSME) to prevent short- and long-term health conditions that result from diabetes.<sup>17</sup>
- Enroll for free in ADA's national “Living With Type 2 Program”; sign up at [www.diabetes.org/living-with-diabetes/recently-diagnosed/living-with-type-2-diabetes](http://www.diabetes.org/living-with-diabetes/recently-diagnosed/living-with-type-2-diabetes) or call 1-800-DIABETES.
- See your health care provider regularly and follow his/her instructions on checking your blood sugar and taking any medications.

15. Cowie CC, Rust KF, Byrd-Holt DD, et al. Prevalence of Diabetes and Impaired Fasting Glucose in Adults in the U.S. Population: National Health and Nutrition Examination Survey, 1999-2002.

16. Abi Khalil C, Roussel R, Mohammedi K, Danchin N, Marre M. Cause-specific mortality in diabetes: recent changes in trend mortality. *Eur J Cardiovasc Prev Rehabil.* 2011 Apr 28. [Epub ahead of print].

17. Guide to Community Preventive Services. [www.thecommunityguide.org](http://www.thecommunityguide.org).

18. National Prevention Council, National Prevention Strategy, Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General, 2011.

19. Kania J, Kramer M. Collective Impact. *Stanford Social Innovation Review.* Winter 2011. pp.36-41

20. Knowler WC, Barrett-Conner E, Fowler SE, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med.* 2002;346(6):393-403..



- Check your feet daily for cuts and blisters, and get a dilated eye exam, complete foot exam, and dental exam at least once a year.
- If you smoke, seek help to quit.

### **Cities and Communities:**

- Improve access to affordable and nutritious produce and products to make it easier for the public to find and choose healthier foods.
- Promote community-based strategies that improve food quality (e.g., age-appropriate portion sizes, sodium content limits, etc.) in food service and vending settings.
- Take steps toward ensuring healthy places for physical activity by incorporating health into local planning decisions and by increasing access to safe parks and recreation areas.

### **Schools:**

- Implement and enforce California's state physical education requirements in K-12 instruction as part of a comprehensive school health curriculum.
- Develop collaborations with schools (e.g., joint use arrangements) so that community members may use recreational facilities.
- Establish safe routes so that children can walk, skateboard, or bicycle to schools.

### **Businesses and Governments:**

- Offer incentives for employers to provide, and for employees to participate in, workplace wellness programs.
- A robust national agenda is needed to focus on both clinical preventive services (early detection, improved delivery of care and proper self-management measures) and community preventive services (education initiatives, public health programs, and policies).<sup>18</sup>
- The national agenda should provide financial incentives and structural supports for individuals to initiate and maintain healthy lifestyle choices with regard to nutrition, physical activity, diabetes education, and wellness programs.<sup>21</sup>



## on the web



The **Division of Chronic Disease and Injury Prevention**, in LA County's Department of Public Health, works to improve health and decrease health disparities in Los Angeles County by reducing the occurrence, severity, and consequences of chronic diseases and injuries.

[www.publichealth.lacounty.gov/chronic](http://www.publichealth.lacounty.gov/chronic)

The **American Diabetes Association (ADA)**, leads the fight against the deadly consequences of diabetes and fights for those affected by diabetes, in part by funding research to prevent, cure, and manage diabetes, as well as deliver services throughout the U.S. [www.diabetes.org](http://www.diabetes.org)

The **California Diabetes Program**, funded by the Centers for Disease Control and Prevention, is a partnership between the University of California, San Francisco and the California Department of Public Health. It is a coordinating leader for stakeholders from the community, health care, policy, and environmental sectors.

[www.caldiabetes.org](http://www.caldiabetes.org)

The **National Diabetes Education Program (NDEP)** is sponsored by the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention. NDEP includes over 200 partners at the federal, state, and local levels working together to improve the treatment and outcomes for people with diabetes, promote early diagnosis, and prevent or delay the onset of type 2 diabetes.

[www.ndep.nih.gov](http://www.ndep.nih.gov)

**Aim for a Healthy Weight.** The National Heart, Lung and Blood Institute (NHLBI) has published practical, easy-to-use information for losing and maintaining weight - including tips on healthy eating and physical activity, other options such as weight loss medications and weight loss surgery, setting weight loss goals, and rewarding success.

[www.nhlbi.nih.gov/health/public/heart/obesity/lose\\_wt/index.htm](http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/index.htm)

**ChooseMyPlate.gov** is the home page for the USDA's MyPlate. MyPlate, based on the Dietary Guidelines for Americans is part of an effort to promote healthy eating and to encourage consumers to make healthy choices.

[www.choosemyplate.gov](http://www.choosemyplate.gov)



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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.