POLICY brief

# Diabetes in California: Nearly 1.5 Million Diagnosed and 2 Million More at Risk

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Nearly 1.5 million California adults have been diagnosed with diabetes, and at least 1.8 million more are at significant risk for the condition—including a large number of individuals who currently have diabetes but have not yet been diagnosed. In addition, more than 12,000 adolescents ages 12-17 have been diagnosed with diabetes, and approximately 176,000 adolescents—6% of the state's undiagnosed adolescent population—are at risk for adult obesity, the predominant contributor to Type 2 diabetes, due to their being sedentary and overweight or at risk for being overweight.[1]

Diabetes is the seventh leading cause of death in the United States; a major cause of nontraumatic amputations, blindness, and end-stage kidney disease; and a significant risk factor for coronary heart disease and stroke. In California, as growing rates of obesity send the rates of Type 2 diabetes to unprecedented levels, there are also troubling indications of insufficient efforts at prevention and education, as well as barriers in the health care system that are resulting in an alarming number of cases in which diabetes is not appropriately managed, putting individuals in jeopardy.

This policy brief presents these and other findings from the 2001 California Health Interview Survey (CHIS 2001), California's largest representative health survey of the state and its counties.[2]

## Diabetes Hits Certain Communities Harder Than Others

Nearly 1.5 million California adults—5.9% of the population—have been diagnosed with diabetes.[3] The likelihood of being diagnosed with diabetes increases with age, though more than half (53.5%) of California adults with diabetes are younger than 60, and more than 195,000 adolescents and adults between the ages of 12 and 40 have been diagnosed with the condition.

Diabetes is significantly more common in certain racial and ethnic groups than in others, particularly among older Californians (Exhibit 1). Among adults ages 50-64, a much higher proportion of African Americans (20.5%), Latinos (17.9%), and American Indians and Alaska Natives (AIAN) (19.6%) have been diagnosed with the condition compared with Asians and Native Hawaiians and other Pacific Islanders (NHOPI) (10.9%) and whites (8.3%). Among adults 65 and over, rates among African Americans (25.6%) and Latinos (24.4%) are at least double the rate for whites (12.2%).

Diabetes is more than twice as common among adults who never attended high school (9.9%) as among college graduates (4.3%) and is significantly more common in adults living below 100% of the federal poverty level (FPL) than in those with incomes at or above 300% FPL (7.8% vs. 4.5%).

There is also considerable variation by place of residence. Even after accounting for varying age distributions, diabetes prevalence varies across California's counties (Exhibit 2). This variation is attributable to differences in rates of obesity, access to health care, and sociodemographic characteristics.

*Nearly 1.5 million California adults and....more than 12,000 adolescents have been diagnosed with diabetes.*

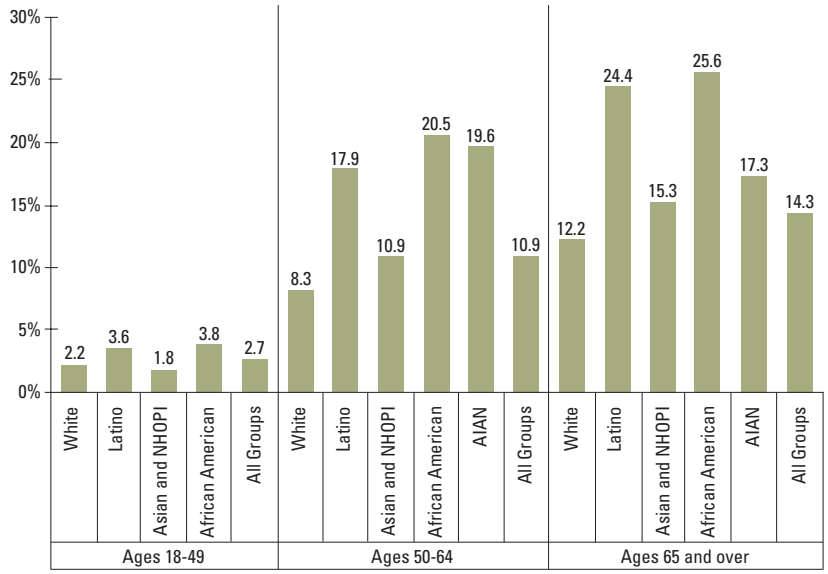
1 Diabetes is classified into two main types. Type 1 diabetes develops primarily in childhood and is characterized by the body's inability to produce enough insulin to metabolize sugars. Type 2 diabetes is much more prevalent, primarily affects adults, and is characterized by the body's inability to use available insulin due to insulin resistance and relative pancreatic ß-cell dysfunction.

2 This policy brief is based on a larger report presenting the findings of CHIS 2001 on Diabetes. See AL Diamant, SH Babey, ER Brown, N Chawla. *Diabetes in California: Findings from the 2001 California Health Interview Survey*. Los Angeles: UCLA Center for Health Policy Research, 2003.

3 The estimates of diabetes prevalence presented here are based on respondents reporting that they received a diagnosis of diabetes from a doctor, which may underestimate the prevalence due to limitations of respondent recall or limited access to medical care.

*Exhibit 1: Diabetes Prevalence by Age and Race/Ethnicity, Adults Ages 18 and Over, California, 2001*

Source: 2001 California Health Interview Survey




Note: Rates of diabetes among American Indians and Alaska Natives are not reported for ages 18-49 because the estimate is not statistically reliable. Native Hawaiian and other Pacific Islander is abbreviated NHOPI and American Indian and Alaska Native is abbreviated AIAN.

## Uninsurance, Lack of Usual Source of Care, Increase Risk

*Approximately one-fourth of California adults with diabetes (24.0%) take no medication for their condition.*

Access to the health care system is critically important for persons with diabetes because these individuals require effective, ongoing medical care to manage their chronic condition. Without health insurance, adults with diabetes have no financial protection against medical expenses and, as a result, their risk of not obtaining needed medical care is greatly increased.

In California, adults with diabetes are more likely than those without diabetes to have health insurance coverage. However, nearly one in five (18.8%) of the 915,000 nonelderly adults with diabetes was uninsured for all or part of the year. In addition, nearly 114,000 insured adults with diabetes (9.0%) report that they have no coverage for prescription drugs. Because insulin and other diabetes medications represent a substantial, ongoing expense, these individuals may face significant financial barriers to effective diabetes management.

Having a usual source of care—a regular connection to a health care provider—is very important for effective medical management of diabetes. More than 82,000 adults diagnosed with diabetes (5.8%) report having no usual source of care—often because they lack health insurance.

## Diabetes Care and Management: Disparities by Race and Ethnicity and Access to Care

Appropriate care of diabetes requires careful monitoring on the part of both the medical professional and the person with diabetes. Among other things, effective management includes taking needed medications; monitoring glucose at home; making necessary lifestyle changes such as controlling weight, engaging in physical activity, and not smoking; making regular visits to a physician; and receiving foot exams at least once a year.

Approximately one-fourth of California adults with diabetes (24.0%) take no medication for their condition. Although not everyone with diabetes requires medication, this proportion is nearly double the national rate of 13.4%, suggesting that in some of these cases, individuals who should be taking medication to control blood glucose levels are not doing so. More than half of all adults with diabetes who do not have a usual source of care (53.9%) are not taking any diabetes medications compared with less than one-fourth of those with a usual source of care (22.2%). Particularly troubling is the disparity between Latino adults with diabetes who are not on medication for the condition (32.4%) and the corresponding percentages for other racial and ethnic groups, which range from 18.0% to 21.7% (Exhibit 3).

*continued on page 4*

| | DIABETES PREVALENCE (ADULTS AGES 18+) | | AGE-ADJUSTED DIABETES PREVALENCE** (ADULTS AGES 18+) | |
|---|---|---|---|---|
| **NORTHERN AND SIERRA COUNTIES** | **%** | **(90% CI*)** | **%** | **(90% CI*)** |
| BUTTE | **6.1** | (4.5-7.7) | **5.3** | (4.0-6.6) |
| SHASTA | **6.7** | (5.1-8.2) | **6.0** | (4.4-7.6) |
| HUMBOLDT, DEL NORTE | **7.4** | (5.7-9.1) | **6.8** | (5.3-8.4) |
| SISKIYOU, LASSEN, TRINITY, MODOC | **7.2** | (5.7-8.8) | **5.7** | (4.4-7.1) |
| MENDOCINO, LAKE | **7.1** | (5.5-8.7) | **5.5** | (4.3-6.8) |
| TEHAMA, GLENN, COLUSA | **7.0** | (5.4-8.6) | **6.2** | (4.8-7.6) |
| SUTTER, YUBA | **8.0** | (6.4-9.7) | **7.6** | (6.1-9.1) |
| NEVADA, PLUMAS, SIERRA | **5.2** | (3.8-6.7) | **4.0** | (2.8-5.1) |
| TUOLOMNE, CALAVERAS, AMADOR, INYO, MARIPOSA, MONO, ALPINE | **6.3** | (4.8-7.8) | **5.0** | (3.7-6.2) |
| **GREATER BAY AREA** | | | | |
| SANTA CLARA | **5.1** | (4.1-6.2) | **5.3** | (4.3-6.3) |
| ALAMEDA | **5.7** | (4.5-6.9) | **5.8** | (4.6-7.0) |
| CONTRA COSTA | **5.6** | (4.4-6.8) | **5.2** | (4.1-6.2) |
| SAN FRANCISCO | **4.0** | (3.2-4.9) | **4.1** | (3.3-4.8) |
| SAN MATEO | **5.2** | (3.9-6.5) | **4.9** | (3.7-6.2) |
| SONOMA | **6.1** | (4.6-7.6) | **3.9** | (2.9-4.9) |
| SOLANO | **6.6** | (5.4-7.7) | **6.6** | (5.5-7.6) |
| MARIN | **3.7** | (2.4-5.0) | **3.0** | (1.9-4.0) |
| NAPA | **6.9** | (5.2-8.5) | **6.0** | (4.5-7.5) |
| **SACRAMENTO AREA** | | | | |
| SACRAMENTO | **6.2** | (5.0-7.4) | **6.1** | (4.9-7.3) |
| PLACER | **5.2** | (3.7-6.6) | **4.4** | (3.2-5.6) |
| YOLO | **4.2** | (3.0-5.4) | **4.6** | (3.4-5.8) |
| EL DORADO | **3.7** | (2.6-4.8) | **3.2** | (2.2-4.2) |
| **SAN JOAQUIN VALLEY** | | | | |
| FRESNO | **7.3** | (5.9-8.8) | **7.5** | (6.1-8.9) |
| KERN | **6.7** | (5.3-8.0) | **6.8** | (5.5-8.1) |
| SAN JOAQUIN | **7.6** | (6.2-9.1) | **7.5** | (6.1-8.8) |
| STANISLAUS | **6.1** | (4.6-7.6) | **6.1** | (4.6-7.5) |
| TULARE | **9.9** | (8.0-11.9) | **10.2** | (8.3-12.1) |
| MERCED | **7.7** | (6.1-9.4) | **7.8** | (6.2-9.4) |
| KINGS | **8.0** | (6.3-9.7) | **8.8** | (7.0-10.6) |
| MADERA | **6.7** | (5.2-8.2) | **6.3** | (4.9-7.7) |
| **CENTRAL COAST** | | | | |
| VENTURA | **4.9** | (3.8-6.0) | **4.7** | (3.7-5.8) |
| SANTA BARBARA | **5.6** | (4.3-6.8) | **5.4** | (4.3-6.6) |
| SANTA CRUZ | **3.9** | (2.8-5.0) | **4.0** | (2.9-5.1) |
| SAN LUIS OBISPO | **5.5** | (4.2-6.9) | **4.9** | (3.7-6.2) |
| MONTEREY, SAN BENITO | **4.9** | (3.6-6.2) | **5.0** | (3.7-6.3) |
| **LOS ANGELES** | | | | |
| LOS ANGELES | **6.3** | (5.9-6.7) | **6.6** | (6.2-7.0) |
| **OTHER SOUTHERN CALIFORNIA** | | | | |
| ORANGE | **4.3** | (3.6-5.0) | **4.4** | (3.7-5.2) |
| SAN DIEGO | **5.2** | (4.4-5.9) | **5.2** | (4.5-6.0) |
| SAN BERNARDINO | **7.0** | (5.8-8.2) | **7.5** | (6.3-8.7) |
| RIVERSIDE | **7.5** | (6.2-8.9) | **7.1** | (5.8-8.3) |
| IMPERIAL | **9.0** | (7.0-11.0) | **8.7** | (6.9-10.6) |
| **STATEWIDE** | **5.9** | **(5.7-6.1)** | **5.9** | **(5.7-6.1)** |

* The 90% confidence interval (CI) provides a more reliable prevalence estimate for persons in the population group than does the "point estimate." Estimates with narrower ranges are more precise or reliable than those with wider ranges.

** The age-adjusted prevalence provides an estimate of the prevalence for a county as if that county had the same age distribution as the state of California.

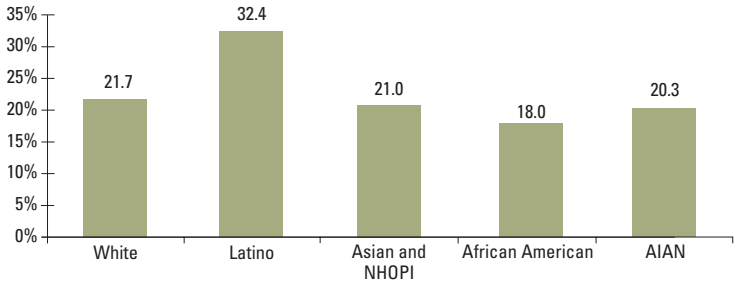
*Exhibit 2: Diabetes Prevalence and Age-Adjusted Prevalence in California Counties or County Groups, Adults Ages 18 and Over, 2001*

Source: 2001 California Health Interview Survey

*The risk of diabetic complications… is increased by obesity, lack of physical activity, and smoking.*

*Exhibit 3: Percent Not Taking Any Diabetes Medications by Race/Ethnicity, Adults with Diabetes, Ages 18 and Over, California, 2001*

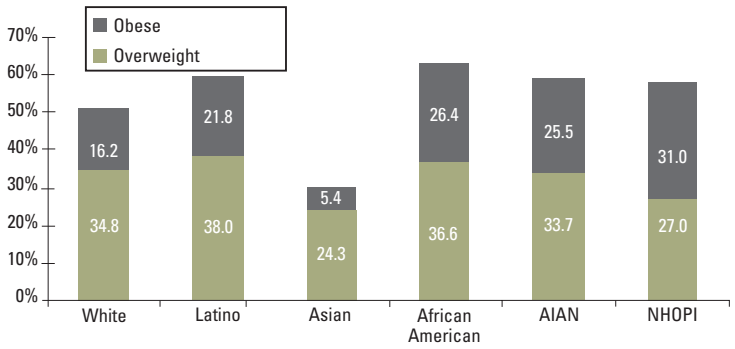
Source: 2001 California Health Interview Survey




Note: Native Hawaiian and other Pacific Islander is abbreviated NHOPI and American Indian and Alaska Native is abbreviated AIAN.

*Exhibit 4: Prevalence of Overweight and Obesity by Race/Ethnicity, Adults Not Diagnosed with Diabetes, Ages 18 and Over, California, 2001*

Source: 2001 California Health Interview Survey




Note: *Overweight* is defined as having a Body Mass Index (BMI) between 25.0 and 29.9. *Obese* is defined as having a BMI of 30.0 or higher. Native Hawaiian and other Pacific Islander is abbreviated NHOPI and American Indian and Alaska Native is abbreviated AIAN.

Only 48.0% of California adults with diabetes report that they measure their blood glucose levels at least once a day, with those who have a usual source of care being more than twice as likely to do so as those who do not (49.8% vs. 19.5%). In addition, people using insulin to treat their diabetes should be measuring their blood glucose level more than once each day. However, one in five (20.4%) of California's insulin-using adults with diabetes reports doing so *less* frequently than once per day.

The risk of diabetic complications such as end-stage renal disease, blindness, amputation, heart attack and stroke is increased by obesity, lack of physical activity, and smoking. In California, 40.8% of adults with diabetes are obese, and an additional 34.4% are overweight.[4, 5] A total of 27.8% report being sedentary, and 14.7% are current smokers.

## Rates of Overweight and Obesity, Sedentary Behavior, Identify High-Risk Groups

For adults and adolescents, being obese or overweight and not engaging in regular physical activity significantly elevates the risk of developing Type 2 diabetes. Obesity, the major risk factor for Type 2 diabetes, has reached epidemic proportions in this country among adults, adolescents, and children.

Among California adults who have not been diagnosed with diabetes, 17.0% are obese and another 34.6% are overweight. Rates of obesity vary by race and ethnicity (Exhibit 4). Among adults not diagnosed with diabetes, nearly one in three NHOPIs, one in four African Americans and AIANs, and more than one in five Latinos are obese, compared with one in 20 Asians.

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4 Obesity and overweight are based on Body Mass Index (BMI), a standardized measure of weight and height that is used to classify adults as *underweight*, *normal weight*, *overweight*, or *obese*. *Overweight* is defined as having a BMI between 25.0 and 29.9. *Obese* is defined as having a BMI of 30.0 or higher.

5 There is evidence that respondents may underestimate their weight and overestimate their height when self-reporting this information. Although self-reported height and weight are highly correlated with measured height and weight, BMI derived from self-reported height and weight may underestimate the true prevalence of overweight and obesity (Kuczmarski MF, Kuczmarski RJ, Najjar M. Effects of age on validity of self-reported height, weight, and body mass index: findings from the Third National Health and Nutrition Examination Survey, 1988-1994. J Am Diet Assoc, 2001; 101: 28-34).

| | OBESITY PREVALENCE (ADULTS AGES 18+) | | AGE-ADJUSTED OBESITY PREVALENCE** (ADULTS AGES 18+) | |
|---|---|---|---|---|
| **NORTHERN AND SIERRA COUNTIES** | **%** | **(90% CI*)** | **%** | **(90% CI*)** |
| BUTTE | **19.1** | (16.4-21.8) | **19.6** | (16.8-22.3) |
| SHASTA | **21.0** | (18.3-23.8) | **21.0** | (17.9-24.0) |
| HUMBOLDT, DEL NORTE | **20.8** | (17.9-23.7) | **20.9** | (18.0-23.8) |
| SISKIYOU, LASSEN, TRINITY, MODOC | **23.2** | (20.3-26.1) | **22.8** | (19.7-26.0) |
| MENDOCINO, LAKE | **22.9** | (20.1-25.7) | **22.4** | (19.3-25.6) |
| TEHAMA, GLENN, COLUSA | **22.9** | (20.2-25.7) | **22.4** | (19.7-25.2) |
| SUTTER, YUBA | **24.7** | (21.7-27.6) | **24.8** | (21.8-27.8) |
| NEVADA, PLUMAS, SIERRA | **15.4** | (12.7-18.0) | **15.9** | (12.5-19.2) |
| TUOLOMNE, CALAVERAS, AMADOR, INYO, MARIPOSA, MONO, ALPINE | **16.8** | (14.3-19.3) | **15.8** | (13.2-18.4) |
| **GREATER BAY AREA** | | | | |
| SANTA CLARA | **14.5** | (12.8-16.2) | **14.5** | (12.9-16.2) |
| ALAMEDA | **17.5** | (15.3-19.5) | **17.3** | (15.2-19.3) |
| CONTRA COSTA | **19.7** | (17.5-21.9) | **19.4** | (17.2-21.6) |
| SAN FRANCISCO | **11.2** | (9.7-12.6) | **11.4** | (9.9-12.8) |
| SAN MATEO | **16.9** | (14.4-19.5) | **16.7** | (14.1-19.3) |
| SONOMA | **13.5** | (11.3-15.7) | **12.8** | (10.6-15.0) |
| SOLANO | **22.4** | (20.4-24.4) | **22.2** | (20.1-24.2) |
| MARIN | **11.5** | (9.1-13.8) | **10.5** | (7.9-13.0) |
| NAPA | **16.2** | (13.7-18.7) | **15.3** | (12.8-17.8) |
| **SACRAMENTO AREA** | | | | |
| SACRAMENTO | **21.1** | (19.0-23.3) | **21.1** | (18.9-23.2) |
| PLACER | **15.8** | (13.3-18.2) | **15.4** | (12.8-18.1) |
| YOLO | **17.5** | (14.8-20.2) | **18.8** | (16.0-21.5) |
| EL DORADO | **17.5** | (14.7-20.4) | **16.9** | (14.0-19.7) |
| **SAN JOAQUIN VALLEY** | | | | |
| FRESNO | **25.2** | (22.6-27.9) | **25.7** | (23.1-28.2) |
| KERN | **24.6** | (22.2-27.1) | **24.7** | (22.3-27.1) |
| SAN JOAQUIN | **25.5** | (22.9-28.2) | **25.5** | (22.9-28.2) |
| STANISLAUS | **24.1** | (21.1-27.0) | **24.0** | (21.1-27.0) |
| TULARE | **22.7** | (19.9-25.5) | **23.1** | (20.4-25.7) |
| MERCED | **28.5** | (25.3-31.7) | **28.8** | (25.7-31.9) |
| KINGS | **26.3** | (23.2-29.3) | **26.9** | (24.0-29.8) |
| MADERA | **23.8** | (20.8-26.8) | **23.8** | (20.8-26.8) |
| **CENTRAL COAST** | | | | |
| VENTURA | **16.3** | (13.9-18.6) | **16.1** | (13.8-18.5) |
| SANTA BARBARA | **15.9** | (13.8-18.0) | **16.5** | (14.4-18.6) |
| SANTA CRUZ | **14.4** | (11.8-16.9) | **14.2** | (11.8-16.6) |
| SAN LUIS OBISPO | **15.2** | (12.7-17.6) | **15.4** | (12.8-17.9) |
| MONTEREY, SAN BENITO | **24.5** | (21.3-27.6) | **24.6** | (21.5-27.7) |
| **LOS ANGELES** | | | | |
| LOS ANGELES | **18.8** | (18.1-19.5) | **18.9** | (18.2-19.6) |
| **OTHER SOUTHERN CALIFORNIA** | | | | |
| ORANGE | **14.5** | (13.1-15.9) | **14.6** | (13.2-15.9) |
| SAN DIEGO | **15.3** | (14.1-16.6) | **15.6** | (14.3-16.8) |
| SAN BERNARDINO | **23.0** | (21.0-25.1) | **23.1** | (21.0-25.1) |
| RIVERSIDE | **19.4** | (17.4-21.5) | **19.5** | (17.5-21.6) |
| IMPERIAL | **27.0** | (23.8-30.2) | **27.2** | (24.1-30.4) |
| **STATEWIDE** | **18.4** | **(18.0-18.7)** | **18.4** | **(18.0-18.7)** |

Note: *Obesity* is defined as body mass index of 30.0 or higher.

* The 90% Confidence Interval (CI) provides a more reliable prevalence estimate for persons in the population group than does the "point estimate." Estimates with narrower ranges are more precise or reliable than those with wider ranges.

** The age-adjusted prevalence provides an estimate of the prevalence for a county as if that county had the same age distribution as the state of California.

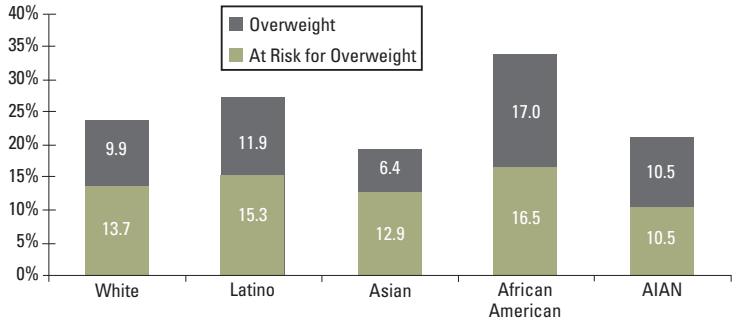
*Exhibit 5: Obesity Prevalence and Age-Adjusted Prevalence in California Counties or County Groups, Adults Ages 18 and Over, 2001*

Source: 2001 California Health Interview Survey

*Obesity…has reached epidemic proportions in this country among adults, adolescents, and children.*

*Exhibit 6: Prevalence of "Overweight" and "At Risk for Overweight" by Race/Ethnicity, Adolescents Not Diagnosed with Diabetes, Ages 12-17, California, 2001*

Source: 2001 California Health Interview Survey




Note: The sample size of adolescent Native Hawaiians and other Pacific Islanders is too small to make reliable estimates for rates of overweight and at risk for overweight. *At risk for overweight* is defined as 85th to 94th percentile for gender- and age-appropriate height and weight. *Overweight* is defined as 95th percentile or greater for gender- and age-appropriate height and weight. American Indian and Alaska Native is abbreviated AIAN.

Exhibit 5 shows the prevalence of obesity among all adults in California, broken down by county. There is considerable variation in age-adjusted prevalence of obesity by county, ranging from 10.5% in Marin County to 28.8% in Merced County. These obesity rates provide guidance for local health departments for developing appropriately targeted programs.

Type 2 diabetes is found increasingly among children and adolescents in the United States. In California, 10.8% of adolescents ages 12-17 who have not been diagnosed with diabetes are overweight, and another 14.3% are at risk for being overweight. African-American and Latino adolescents have higher rates of overweight than whites and Asians (Exhibit 6).

*In California, 10.8% of adolescents...who have not been diagnosed with diabetes are overweight and another 14.3% are at risk for being overweight.*

Despite the importance of regular physical activity, 15.4% of California adults not diagnosed with diabetes do not participate in any physical activity, and only 27.4% participate in regular physical activity. One-fifth of African-American, Asian, and Latino adults report being sedentary.

Among adolescents not diagnosed with diabetes, 27.3% do not participate in regular physical activity, and 5.2% participate in *no* physical activity. White and African-American adolescents are the most likely to report high rates of regular physical activity, while Latino adolescents report the highest rates of no physical activity. Adolescents with family incomes below 200% FPL are three times as likely to be sedentary as those with families whose incomes are at or above 300% FPL.

All told, 1.8 million California adults not diagnosed with diabetes (8.2%) are at significant risk for developing diabetes because they are sedentary in conjunction with being overweight or obese. In addition, 176,000 adolescents not diagnosed with diabetes (6.0%) are at risk for being obese as adults because they do not participate in regular physical activity and are overweight or at risk for being overweight.

## Policy Recommendations

Efforts to prevent diabetes and to effectively manage the condition among those who are diagnosed should focus on the following:

### Preventing Obesity

Primary prevention for diabetes must begin during childhood and continue through adolescence and adulthood. Regular physical activity and nutritious eating can prevent the development of obesity and reduce the risk of Type 2 diabetes. Public policy and community action are needed to facilitate and encourage these healthy choices:

- Increase the availability of affordable fresh fruits and vegetables and other healthy food choices in all neighborhoods.
- Provide healthier food choices for children and adolescents at school and promote physical activity programs in schools.
- More fully engage community-based organizations, schools, and health care professionals to develop culturally appropriate interventions that promote healthier diets and regular physical activity among all groups.
- Develop community policies and practices, as well as legislation where necessary, to promote safe environments for physical activity.

### Ensuring Access to Preventive Health Care

Particular racial and ethnic groups, those with family histories of diabetes, and people who are obese should be educated about their elevated

risk for developing Type 2 diabetes and about lifestyle changes they can make to prevent or delay the onset of diabetes. In addition, these groups should be screened regularly so that if diabetes develops they can begin receiving care as soon as possible.

In California, 3.6 million nonelderly adults not diagnosed with diabetes (18.4%) have no health insurance coverage, a major barrier to their ability to access the health care system. Many of those who are insured have limited coverage for health education and preventive care. Thus, serious efforts to reduce the incidence of diabetes should include the following:

- Ensure access to trained health care providers who are knowledgeable about patients' diabetes risks, vigilant in their screening for signs and symptoms of pre-diabetes and diabetes, and able to counsel and screen at-risk patients.
- Expand public and private health insurance packages to provide adequate coverage for preventive care and to increase access to care for the uninsured.
- Increase public education about diabetes risk, targeting groups at higher risk for diabetes through state and local health departments, schools, and voluntary agencies.

**Promoting Effective Diabetes Management**

Early diagnosis and effective management of diabetes limit the extent of complications. However, early diagnosis and effective management are unlikely if individuals do not have health insurance coverage and a usual source of care. Thus, the following steps are recommended:

- Ensure access to medical care for people with diabetes so that they can receive appropriate management of their condition.
- Ensure adequate prescription drug coverage for people with diabetes. In 2000, California enacted legislation that specifies that diabetes medications must be covered by insurance plans—but only those plans that already offer prescription drug coverage.
- Conduct culturally appropriate multilingual education for people with diabetes. For example, people with diabetes should know how often to monitor their blood glucose levels and should have the supplies and knowledge to do this monitoring at home. For this education to be culturally competent, health care professionals should focus on the diversity of people with diabetes.
- Continue surveillance at the state and local levels. Timely data on diabetes are needed to support the design and implementation of effective public health and clinical interventions.

### Data Source

*All statements in this report that compare rates for one group with another group reflect statistically significant differences ($p < 0.05$) unless otherwise noted. The findings in this report are based on data from the 2001 California Health Interview Survey (CHIS). CHIS 2001 covers a broad range of public health concerns including health status and conditions, health-related behaviors, health insurance coverage, and access to health-care services. CHIS 2001 interviewed 55,428 households randomly drawn from every county in California for its random-digit dial (RDD) telephone survey, providing a sample that is representative of the state's noninstitutionalized population living in households. Data were weighted to the 2000 Census. CHIS 2001 interviewed one sample adult in each household. In households with children, CHIS interviewed one adolescent ages 12-17 (a total of 5,801), and obtained information for one child under age 12 by interviewing the adult who was most knowledgeable about the child (a total of 12,592). The interviews, available in six languages, were conducted between November 2000 and September 2001.*


The California Health Interview Survey (CHIS) is a collaboration of the UCLA Center for Health Policy Research, the California Department of Health Services, and the Public Health Institute. Funding for CHIS 2001 was provided by the California Department of Health Services, The California Endowment, the National Cancer Institute, the California Children and Families Commission, the Centers for Disease Control and Prevention (CDC), and the Indian Health Service. For more information on CHIS, visit *www.chis.ucla.edu.*

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*Primary prevention of diabetes must begin during childhood and continue through adolescence and adulthood.*

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