

## G-ii. CHRONIC DISEASE (DIABETES)

<p><b>Importance</b></p>	<p>Diabetes was the 7<sup>th</sup> leading cause of death in the United States in 2006.<sup>1</sup> It is estimated that nearly 24 million people in the United States (8%) have diabetes, an increase of more than 3 million in two years.<sup>1</sup> Approximately 186,000 (0.2%) are younger than 20 years of age.<sup>1</sup> In 2007, nearly 1.6 million new cases of diabetes were diagnosed in people ages 20 years or older.<sup>1</sup> In 2007, the estimated cost of diabetes in the United States was approximately \$174 billion.<sup>1</sup></p>
<p><b>Highlights</b></p>	<ul style="list-style-type: none"> <li>▪ 70% of the diabetic population residing in the Santa Cruz County in 2005 were either overweight or obese.<sup>2,3</sup></li> <li>▪ Santa Cruz County compared to all other counties in California has the lowest rate of people among the diabetic population in 2005 for not having a regular health care provider.<sup>2,3</sup></li> <li>▪ Santa Cruz County is one of the counties in California who has the highest number of people among the diabetic population in 2005 who consumes more than five fruits and vegetables per day.<sup>2,3</sup></li> </ul>
<p><b>Definitions</b></p>	<p><u>Diabetes:</u> Diabetes is a group of diseases marked by high levels of blood glucose resulting from defects in insulin production, insulin action, or both. Diabetes can lead to serious complications and premature death, but people with diabetes can take steps to control the disease and lower the risk for complications.<sup>4</sup> If the diabetes trend continues unchanged, one out of three children born in 2000 will develop diabetes in their lifetime.<sup>4</sup></p> <p><u>Type 2 diabetes:</u> Type 2 diabetes was previously called non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes. In adults, type 2 diabetes accounts for about 90% to 95% of all diagnosed cases. Type 2 diabetes used to be uncommon in children, but the rate of diagnosis of type 2 diabetes in children and adolescents is increasing at an alarming rate. The incidence of type 2 diabetes in adolescents has increased 10-fold over the last decade.<sup>4</sup> It usually begins as insulin resistance, a disorder in which the cells do not use insulin properly. As insulin rises, the pancreas gradually loses the ability to produce it. Type 2 diabetes is associated with older age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical activity, and race/ethnicity.<sup>4</sup></p>
<p><b>Healthy People 2010 Objective</b></p>	<p>“Through prevention programs, reduce the disease and economic burden of diabetes, and improve the quality of life for persons who have or are at risk for diabetes.”<sup>5</sup></p> <ul style="list-style-type: none"> <li>▪ Increase the proportion of adults with diabetes whose condition has been diagnosed (Target: 80%) (Baseline: 68% of adults aged 20 years and older with diabetes had been diagnosed in 1988-1994).<sup>5</sup></li> <li>▪ Increase the proportion of persons with diabetes who receive formal diabetes education (Target: 60%) (Baseline: 45% of persons with diabetes received formal diabetes education in 1988).<sup>5</sup></li> <li>▪ Reduce diabetes-related deaths among persons with diabetes (Target: 7.8 deaths per 1000 persons with diabetes) (Baseline: 8.8 deaths per 1,000, listed anywhere on the death certificate, occurred in 1997).<sup>5</sup></li> </ul>

## DIABETES (CONT.)

Figure VGii-1 shows the trends in diabetes rates from 2004 to 2008 on the national, state, and local levels. The nation is in the midst of an unprecedented epidemic of diabetes. Far more adults and children have the disease than ever before.<sup>6</sup> The increase in diabetes among adults and the emergence of Type 2 diabetes in children are associated with the dramatic rise in obesity and overweight in recent years.<sup>6</sup> The prevalence of diabetes may be up to twice as high in low-income populations as in high-income populations.<sup>7</sup> In patients with diabetes, low income is associated with an increased rate of hospitalizations for acute diabetes-related complications.<sup>7</sup> In 2007, Santa Cruz County had the second lowest rate among all California counties of diagnosed diabetes among adults (at least 20 years of age).<sup>1</sup>

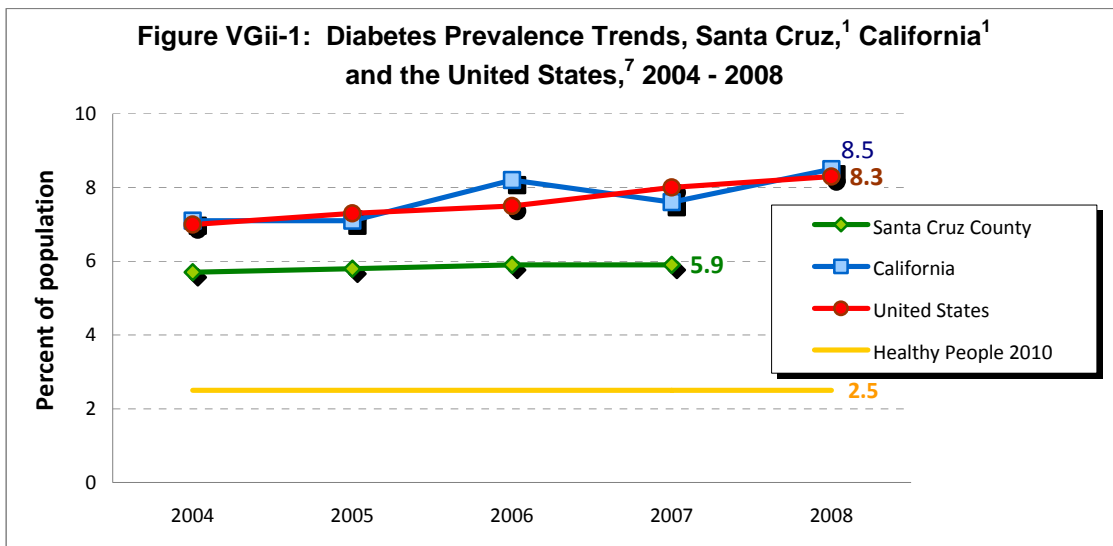
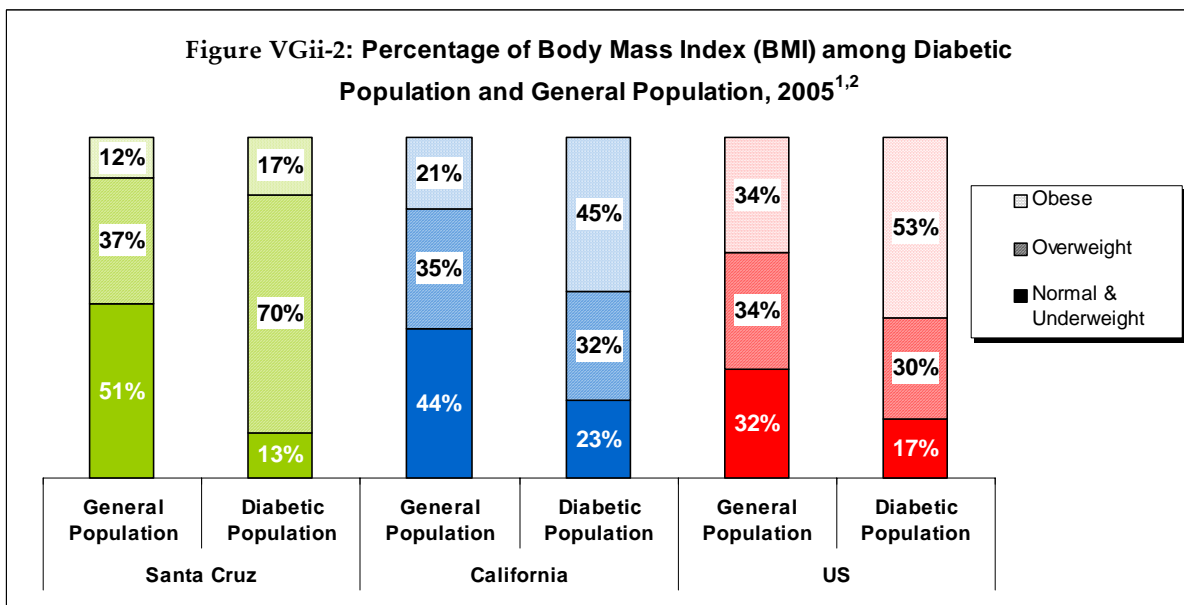


Figure VGii-2 compares the percentages of overweight and obesity among the diabetic population and the general population. From 1991 to 2001, obesity among adults rose 74% nationally; 65% of adults in the U.S. were overweight or obese, including 59% of Californians.<sup>8,9</sup> The risk of developing diabetes increases with modest weight gain; a gain of 11 to 18 pounds doubles the risk.<sup>8,9</sup> Studies have shown that type 2 diabetes increases strongly in prevalence with increasing weight class among both younger and older age groups.



## DIABETES (CONT.)

Figure VGii-3 compares the health status among the diabetic population and the general population in Santa Cruz County. Data was obtained by the California Health Interview Survey (CHIS) 2005. Many diabetic complications (35-75%) can be attributed to hypertension.<sup>10</sup> The prevalence of hypertension among diabetics appears to be double that among non-diabetics.<sup>10,11</sup> Treatment of hypertension reduces the progression of diabetic renal disease. Likewise, improved glycemic control reduces vascular disease.<sup>11</sup> Individuals with diabetes are at increased risk of vascular disease.<sup>10</sup>

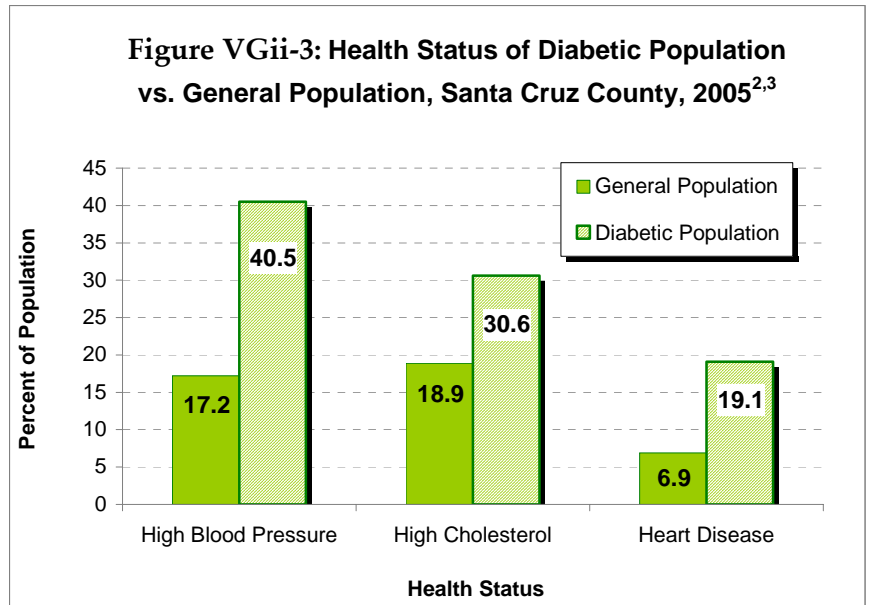
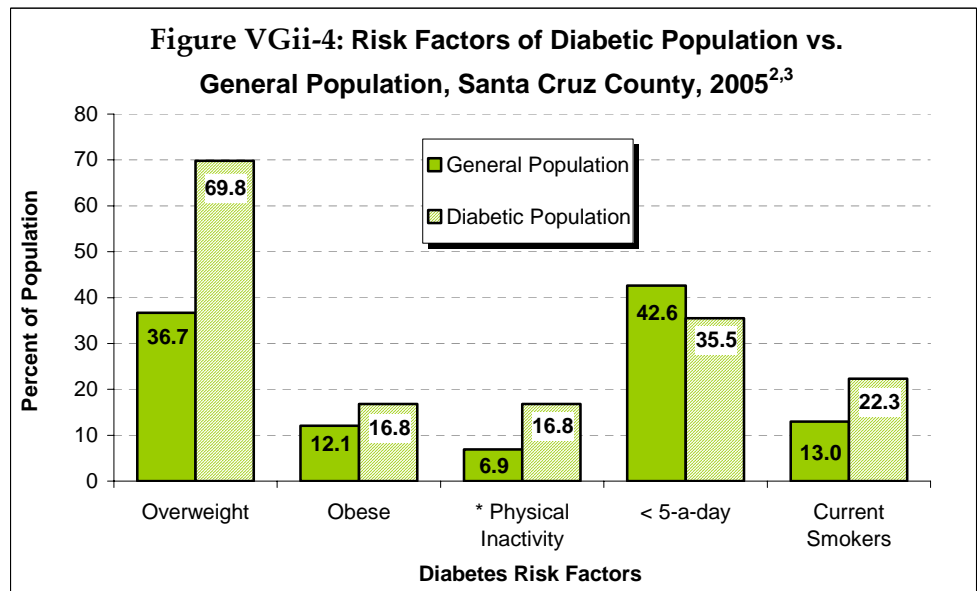


Figure VGii-4 describes general risk factors for the development of diabetes. Smoking raises blood sugar levels and reduces the body's ability to use insulin. Smoking only one cigarette can reduce the body's ability to use insulin by 15%.<sup>12,19</sup> A recent study depicted as smoking increased, the rates of diabetes had also increased for both men and women.<sup>13</sup> Among those who smoked greater than 2 packs of cigarettes per day, men had a 45% higher diabetes rate than men who had never smoked; the comparable increase for women was 74%.<sup>13</sup> Obesity and diabetes among U.S. adults continue to rise in both sexes, all ages, all races, all educational levels, and all smoking levels.<sup>14</sup> Moreover, adults with less than a high school education had the highest rate (13.0%) of developing diabetes among all educational levels.<sup>14</sup> Both overweight and obese adults were 7.37 times more likely to develop diabetes than adults with normal weight.<sup>14</sup> Both obesity and type 2 diabetes are preventable. Changes in lifestyle are effective in preventing both diabetes and obesity. Increasing physical activity, improving diet, and sustaining these lifestyle changes can reduce both body weight and the risk of developing diabetes.<sup>14</sup>



**DIABETES (CONT.)**

Figure VGii-5 describes some medical tests that should be performed by doctors who manage diabetes. Overall, there has been a significant increase in the percentage of Californians with diabetes who received formal diabetes management and education, from 51.4% in 2000 to 64.2% in 2006.<sup>15</sup> Females had slightly higher rates of formal diabetic education and management than males, 65.8% versus 63.1% respectively.<sup>15</sup> The percentage of the White population who received formal education and management of their diabetes rose from 51.4% in 2000 to 66.5% in 2006, while the percentage among Hispanics increased from 49.5% in 2000 to 63.8% in 2006.<sup>15</sup>

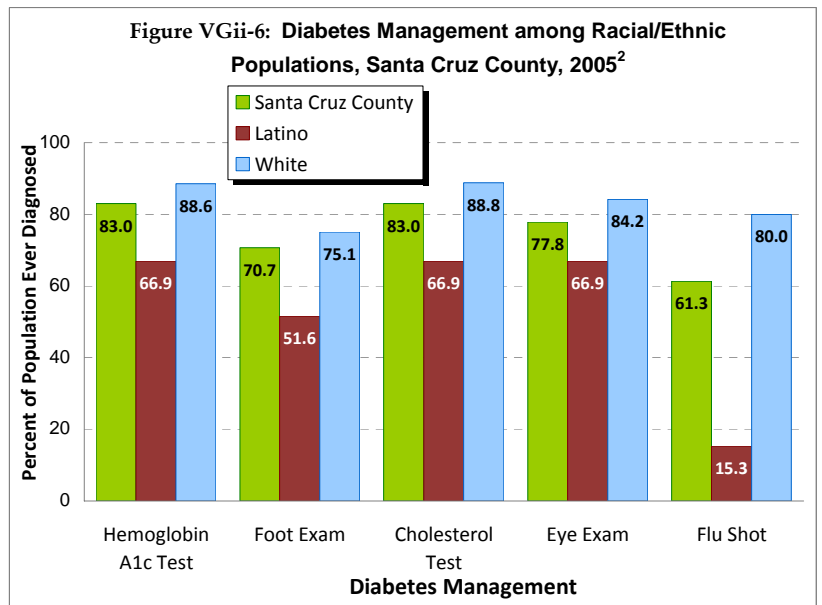
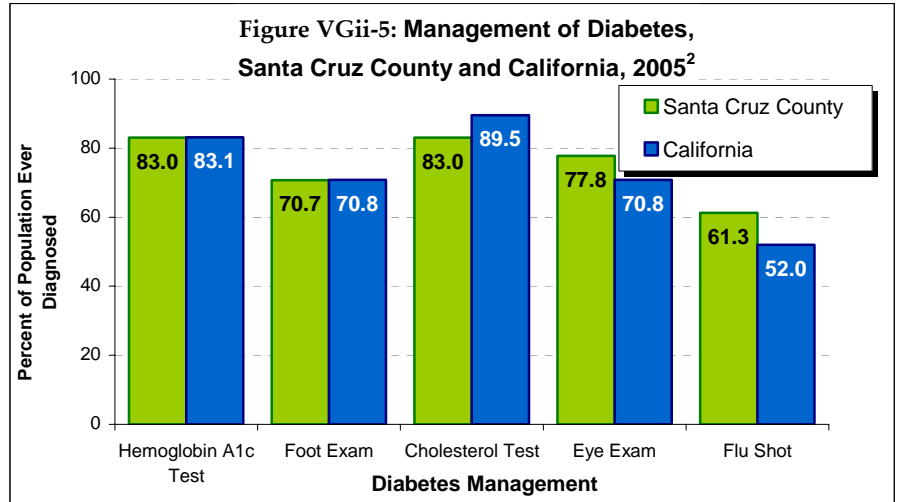
Blacks, Latinos, American Indians, some Asian Americans, and Pacific Islanders are at particularly high risk for developing type 2 diabetes and further complications.<sup>4</sup> Type 2 diabetes in children and adolescents is being diagnosed more frequently among American Indians, Blacks, Latinos, and Asian/Pacific Islanders.<sup>4</sup> After adjusting for age, the 2004-2006 national survey data aged 20 years or older showed that 6.6% of Whites, 7.5% of Asian Americans, 10.4% of Latinos, and 11.6%

of Blacks were diagnosed with diabetes. Among just the Latino population, rates for diagnosed diabetes were 8.2% for Cubans, 11.9% for Mexican Americans, and 12.6% for Puerto Ricans.<sup>4</sup> The rate of new cases of type 1 diabetes was higher than the rate for type 2 diabetes among White youth aged 10-19 years. Among Black and Latino youth aged 10-19 years, the rates of new cases of type 1 and type 2 diabetes were similar.<sup>4</sup>

**Complications of Diabetes:**

Diabetes can lead to serious complications and premature death, but people with diabetes can take steps to control the disease and lower the risk of complications.<sup>4</sup> Diabetes can lead to blindness, kidney damage, cardiovascular disease, and lower-limb amputations.<sup>4</sup> Diabetes is the leading cause of new cases of blindness among adults.<sup>1,4,16</sup> Diabetes is the leading cause of kidney failure, accounting for 44% of all new cases in 2005.<sup>1,4,16</sup> More than 60% of non-traumatic lower-limb amputations occur in people with diabetes.<sup>1,4,16</sup> Persons with poorly controlled diabetes (A1c > 9%) were three times more likely to have severe periodontitis than those without diabetes.<sup>1,4,16</sup>

Diabetics are more likely to die with pneumonia or influenza than people who do not have diabetes.<sup>1,4</sup> Diabetes mellitus (DM) has been associated with increased rates of infection, which may be partially explained by a decreased T cell-mediated immune response.<sup>17</sup> People with diabetes can lower the occurrence of these and other diabetes complications by controlling blood glucose, blood pressure, and blood lipids.<sup>4</sup> People with diabetes are three times as likely to die of cardiovascular diseases. Smoking and diabetes together make a person 11 times more likely to die of a heart attack or stroke.<sup>12,19</sup>



## Primary Prevention Activities

- **Regional Diabetes Collaborative (RDC).** The mission of the RDC is to promote, support, and coordinate efforts to prevent and manage diabetes in Santa Cruz, San Benito, and Monterey Counties. The Regional Diabetes Collaborative was founded in 2002. For more information, please consult their website: [www.pyhealthtrust.org](http://www.pyhealthtrust.org)<sup>17</sup>
- **Go for Health** is a broad-based collaborative in Santa Cruz County with over 150 members. The collaborative was first convened in August 2003 by the United Way of Santa Cruz County, the Children's Network, the Children's Food and Fitness Coalition, and the Pajaro Valley Health Trust to address the childhood obesity crisis in Santa Cruz County. Go for Health's goal is to increase healthy eating and regular physical activity among children and youth in Santa Cruz County.<sup>18</sup>

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