DIABETES
IN THE COACHELLA VALLEY

SPECIAL REPORT

BY HARC

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HEALTH ASSESSMENT AND RESEARCH FOR COMMUNITIES

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About HARC

HARC, Inc. is the Coachella Valley's premier source for research and evaluation in the field of health and wellness.

HARC provides research driven data and recommendations to nonprofits, businesses and governments that, in turn, help create programs and policies to improve community health and well-being.

To learn more about health and wellness in the Coachella Valley, please connect with us today!

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About this report

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Maps in this report were created by David Robinson, GIS Specialist at Coachella Valley Economic Partnership (CVEP).

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EXECUTIVE SUMMARY

About Diabetes

Diabetes is an illness in that causes blood glucose—also known as blood sugar—levels to rise higher than normal. For people with diabetes, problems with insulin (either a lack of insulin production, insulin action, or both) result in a build-up of glucose in the blood. There are several types of diabetes: type 1, type 2, gestational, and prediabetes. Type 2 diabetes, formerly called "adult onset diabetes", is by far the most prevalent, accounting for more than 90% of diabetes diagnoses in the U.S.

It is estimated that 29.1 million Americans have diabetes—approximately 9.3% of the population. When untreated or not properly managed, diabetes can lead to serious health complications such as heart disease, blindness, kidney failure, lower extremity amputations, and premature death. In fact, diabetes was the seventh leading cause of death in the U.S. in 2010.

Diabetes in the Coachella Valley

Results indicate that approximately 10.3% of Coachella Valley adults have been diagnosed with diabetes—which equates to more than 36,000 people. An additional 1.9% of adults (over 6,800 people) have been diagnosed with prediabetes or borderline diabetes. There are likely an additional 13,800 people with diabetes who have not yet been diagnosed and are not captured by this data. The rate of diabetes in Coachella Valley is slightly higher than the rate in California as a whole, and significantly higher than the rate in the rest of Riverside County.

Demographics

Coachella Valley adults with diabetes are significantly more likely to be male and over the age of 55. Because of the advanced age, most people in the Valley with diabetes are retired. Diabetes impacts people of all income and education levels equally. Military veterans are disproportionately impacted by diabetes; nearly a quarter of the adults in our Valley with diabetes are veterans.

General Health

Adults with diabetes tend to rate their health as much worse than those without diabetes. Over 40% of adults with diabetes rate their health as "fair" or "poor", and less than 5% rate their health as "excellent". In contrast, nearly a quarter of adults without diabetes (24%) rate their health as "excellent".

Access

Fortunately, Coachella Valley adults with diabetes have higher rates of health insurance and prescription insurance than their counterparts without diabetes. This is an important step towards managing diabetes, as it requires regular monitoring. However, more than 4,400 adults with diabetes are uninsured, and are at risk because of it.

Utilization

Likely because of the need for routine monitoring, adults with diabetes are significantly more likely to have been to visit the doctor in the past six months than those without diabetes. Nearly all people with diabetes have visited a healthcare provider in the past year. Most cite the doctor's

office as their usual source of care, which is a positive indicator. However, over 7,200 people with diabetes cite urgent care, emergency rooms, and/or hospitals as their usual source of care, indicating that they are likely not receiving the continuity of care they need to properly manage their diabetes.

Prevention

Adults with diabetes are more likely than their counterparts without diabetes to get preventative health screenings, including cholesterol tests, eye exams, and flu shots. Most Coachella Valley adults with diabetes have had a blood cholesterol test in the past year, which is an important part of screening for diabetic complications. Fortunately, most have also had an eye exam within the past year, another important preventative measure against common diabetic complications such as retinopathy.

Health Behaviors

Over half of Coachella Valley adults with diabetes have consumed alcohol at least once in the past month (54%). Fortunately, most are drinking in moderation. People with diabetes are significantly less likely to binge drink than people without diabetes (16% versus 31%, respectively), which shows promise. However, it is concerning that over 3,600 people with diabetes have engaged in binge drinking at least once in the past month and may be experiencing issues in managing their diabetes as a result. Most adults with diabetes do not smoke (86%). However, for those who do (more than 4,500 people), smoking cessation is an important need, as it can increase the already high risk of heart disease for people with diabetes.

Major Disease

Coachella Valley adults with diabetes are significantly more likely than those without diabetes to have chronic illnesses. This holds true for nearly every single chronic illness; high blood pressure, high cholesterol, and arthritis are especially prevalent. It is clear that diabetes is not the only problem facing most of this population. Treatment must be designed carefully to take into account all of these illnesses.

Mental Health

Approximately 23% of adults with diabetes have been diagnosed with one or more mental health disorders; depression and anxiety are the most common. While this is very comparable to those without diabetes, it is worth noting that many diabetes patients may benefit from mental health treatment as well.

Disability

People with diabetes are significantly more likely than those without diabetes to need special equipment, such as a cane, wheelchair, etc., in order to get around (23% versus 9%, respectively). Some of this may be due to the limb issues and amputations that are common in advanced stages of type 2 diabetes.

Weight and Fitness

Not surprisingly, Coachella Valley adults with diabetes are significantly more likely to be obese when compared to their counterparts without diabetes. The majority of people with diabetes (83%) have a body mass index (BMI) that places them in the “overweight” or “obese” category.

This may be due in part to their lack of exercise; adults with diabetes exercise less often than those without diabetes. Over 25% of adults with diabetes engaged in no physical activity in the past week, and 69% did no strength-training in the past week. As exercise is an excellent way to manage diabetes, this is a promising avenue for improvement.

Social and Economic Needs

Approximately 12% of Coachella Valley adults with diabetes are food insecure and have to skip meals or cut the size of meals due to lack of money. Approximately 4.6% are severely food insecure, and have had to go for an entire day without eating due to lack of money. This makes diabetes management—especially healthy eating—extremely difficult.

Diabetes-Specific Information

Most Coachella Valley adults with diabetes were diagnosed after the age of 35. Less than 7% were diagnosed in childhood. More than 75% have been to their doctor in the past year to treat their diabetes, and as a result, the majority of have regular A1C checks and feet checks. Nearly a third of people with diabetes (32%) have not taken a class on diabetes self-management. This is another promising intervention point, as this education will help impact some of the destructive behavioral choices.

REPORT BACKGROUND

HARC, Inc. is a 501(c)(3) nonprofit, community-based organization developed by a collaboration of community agencies and individuals in response to a scarcity of objective, timely, and comprehensive health data for the Coachella Valley, California.

To that end, in 2007, HARC conducted the region's first community-wide survey. In addition to providing the needed data, the 2007 survey also established baseline data for several measures. HARC conducted another community-wide survey in 2010, and a third in 2013.

HARC shared the results of the most recent survey with the public in February 2014 in the form of an Executive Report. Although this Executive Report was substantial (over 100 pages of narrative, graphs, and tables), it was only the tip of the iceberg in terms of the data. To supplement the Executive Report, HARC released the data in an online database format in April 2014. This database, called HARCSearch, covered many of the variables from the survey for all three surveys. HARCSearch allows users to run specific queries, and to dissect the results further into demographic groups.

However, even HARCSearch does not encompass the entire wealth of information provided by the survey. Thus, in order to bring this valuable information to the general public, HARC sought funding to release several special reports, which provided in-depth examinations of the latest data to highlight health disparities in populations of interest.

This report represents one of several special reports. This special report focused on the health of people living with diabetes in the Coachella Valley. Results of the 2013 CHM indicated that there are approximately 36,095 people living with diabetes in the Coachella Valley.

This report focuses on the health status of the Coachella Valley. The region is composed of nine incorporated cities and a large, but sparsely populated, unincorporated area. The nine incorporated cities in the Coachella Valley are Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage. The unincorporated areas within the Coachella Valley include Bermuda Dunes, Indio Hills, Mecca, North Palm Springs, Oasis, Sky Valley, Thermal, and Thousand Palms. Several Indian reservations are home to the Cahuilla band of Indians in the Coachella Valley, including the Agua Caliente Indian Reservation, the Augustine Reservation, the Cabazon Indian Reservation, and the Torres-Martinez Desert Cahuilla Indian Reservation.

This report contains narrative text, tables, and charts to communicate information. Text descriptions that accompany the tables and charts often state something like, "People with diabetes are more likely than people without diabetes <u>have</u> health care coverage." Given that these are self-report data, it might be more appropriate to write, "People with diabetes are more likely than people without diabetes <u>to report having</u> health care coverage." For parsimony and readability, we have omitted reference to "reporting."

Differences reported in the text are "statistically significant", which means that the differences are 95% sure to be "real" differences in the entire population of the Coachella Valley (and not

just a fluke of HARC's sample of Coachella Valley residents). This means that there is a 95% likelihood that the differences described here are true differences, not just due to chance.

Most tables display both the estimated population and the weighted percent of responses for each question reported. The "Population Estimate" refers to the estimated number of people in the population (the Coachella Valley) represented by the actual number of survey respondents. The "Weighted Percent" is the proportion of people that the population estimate represents.

Charts are used in this report to visually compare the data from the people with diabetes to those who have not been diagnosed with diabetes. Given the different sample sizes, charts routinely use the weighted percent, as it is easier to compare the two populations in this manner.

METHODS

The data presented in this report are from the Community Health Monitor, a systematic survey of households in Coachella Valley to determine the health and social well-being of its adult and child residents. Telephone surveys were administered to individuals 18 years of age and older residing in randomly selected households in Coachella Valley between January and September, 2013. Surveys were conducted in English and Spanish.

Survey data were collected via a random digit dialing (RDD) sample of both landline and cellular telephones. Due to this method of phone data collection, the homeless, and persons in institutions including penal facilities, hospitals, and military barracks, are excluded from the sampling frame. Participants were screened to ensure that they were within Coachella Valley.

The survey included two samples, representing adults and children. However, only data from the adult sample are included here, as the diabetes prevalence in the child sample is not robust enough to yield reliable results. Thus, the sample size for this report is 1,962 individuals in the Coachella Valley.

The information from these participants was "weighted" in a complex statistical method that allows the actual survey responses to more accurately reflect the entire population of Coachella Valley. The weights were post-stratified to 2010 population data by age, gender, and race using U.S. Census Bureau's datasets. These were then adjusted to be consistent with total population estimates developed from figures in the "Riverside County Progress Report 2012," obtained from the Riverside County Administrative Services Department. Thus, while 1,962 adult participants actually participated in this survey, the figures you will see in this report will be closer to 350,000, the estimated adult population of the entire Coachella Valley. Weighting techniques utilized in this survey are standard practice for other major surveys, such as the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (BRFSS). Please contact HARC if you would like more detailed information about population estimates.

The survey instruments were modeled after the well-respected Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (BRFSS) and the California Health Interview Survey (CHIS). The instrument assessed topics such as access to and utilization of health care, health status indicators, health insurance coverage, and health related behaviors.

INTRODUCTION

About Diabetes

Diabetes is an illness in that causes blood glucose—also known as blood sugar—levels to rise higher than normal. Blood glucose play an important role in the body; food is broken down into glucose, and sent into the blood. Insulin then moves the glucose from the blood and into cells. This process lowers blood sugar levels, and provides the body with the energy it needs to function.[1]

In people with diabetes, this process does not run smoothly. Problems with insulin (either a lack of insulin production, insulin action, or both) result in a build-up of glucose in the blood.

There are several types of diabetes: type 1, type 2, gestational, and prediabetes.

Type 1 diabetes is often referred to as "juvenile diabetes" because it is typically diagnosed in childhood; however, this type of diabetes can also develop in adults. Type 1 diabetes accounts for about 5% of diabetes diagnoses nationwide. Type 1 diabetes occurs when the body's own immune system mistakenly destroys the cells that create insulin. The body stops making insulin, or makes too little, and thus needs to be replaced. To date, scientists are uncertain what causes type 1 diabetes; it is not related to sugar consumption or other behaviors. Type 1 diabetes is treated with insulin injections—either from a syringe, pen, or pump.[2]

Type 2 diabetes, commonly referred to as adult-onset diabetes, and is triggered by the development of insulin resistance. Type 2 diabetes is by far the most common type of diabetes, accounting for more than 90% of diabetes diagnoses in the U.S. Type 2 diabetes is caused by a variety of factors, including obesity, physical inactivity, genetics, age, high blood pressure, high cholesterol, and a history of prediabetes/gestational diabetes. Type 2 diabetes is treated with lifestyle changes (such as weight loss and changes in diet), oral medication, and/or insulin. Type 2 diabetes is typically a progressive disease—that is, it gets worse over time.[3]

Gestational diabetes is when a woman who has never had diabetes before develops it during pregnancy. The hormones that help the baby grow block the insulin action—also known as insulin resistance—resulting in diabetes. An estimated 9.2% of pregnancies result in gestational diabetes. Babies born to women with gestational diabetes are larger, resulting in more cesarean section births and/or damage to both baby and mother during the birth process. These babies also have breathing problems, and have a risk of getting type 2 diabetes later in life. Gestational diabetes typically goes away after pregnancy, although some women develop type 2 diabetes later. Treatment for gestational diabetes includes meal plans, scheduled physical activity, daily blood glucose testing, and/or insulin injections.[4]

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[1] American Diabetes Association.: Diabetes Basics. Available online at http://www.diabetes.org/diabetes-basics/
[2] American Diabetes Association: Type 1 Diabetes. Available online at: http://www.diabetes.org/diabetes-basics/type-1/
[3] American Diabetes Association: Type 2 Diabetes. Available online at: http://www.diabetes.org/diabetes-basics/type-2/
[4] American Diabetes Association: Gestational Diabetes. Available online at: http://www.diabetes.org/diabetes-basics/gestational/

Prediabetes, sometimes called borderline diabetes, typically the precursor to type 2 diabetes. In this stage, blood glucose levels are higher than normal, but not yet in the range defined for diabetes.[5]

Prevalence and Incidence of Diabetes Nationwide

It is estimated that 29.1 million Americans have diabetes—approximately 9.3% of the population. This includes 21.0 million who have a formal diagnosis, and an additional 8.1 million who have not yet been diagnosed. Approximately 1.4 million Americans are diagnosed with diabetes each year.[6]

Consequences of Diabetes

When untreated or not properly managed, diabetes can lead to serious health complications such as heart disease, blindness, kidney failure, lower extremity amputations, and premature death. In fact, diabetes was the seventh leading cause of death in the U.S. in 2010 with approximately 69,071 deaths attributable to the illness.[2] According the American Diabetes Association, "adults with diabetes have heart disease death rates about 2 to 4 times higher than adults without diabetes." As such, it is imperative to understand and address this illness to ensure the health of our population.

[5] National Institute of Diabetes and Digestive and Kidney Diseases. "Your Guide to Diabetes." Available online at: http://www.niddk.nih.gov/health-information/health-topics/Diabetes/your-guide-diabetes/Pages/index.aspx

[6] American Diabetes Association. "Statistics About Diabetes." Available online at: http://www.diabetes.org/diabetes-basics/statistics

RESULTS

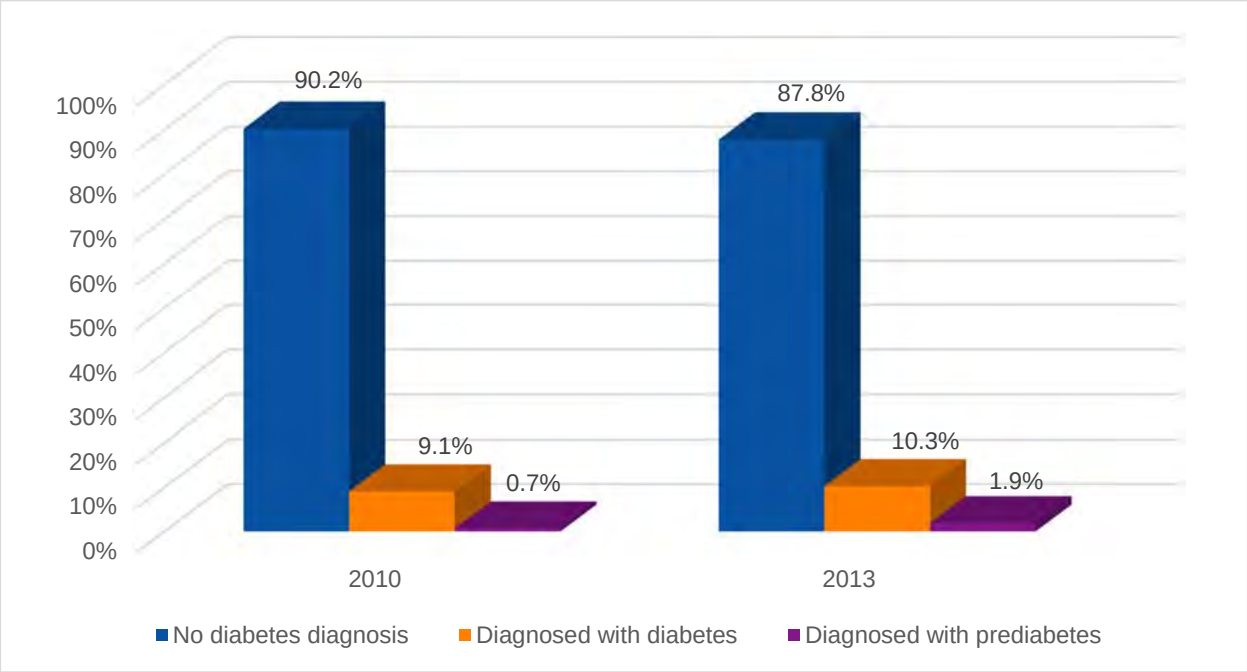
Diabetes in the Coachella Valley

To assess diabetes prevalence, participants were asked, "Other than during pregnancy, has a doctor, nurse, or other health care professional ever told you that you have diabetes or sugar diabetes?"

Results indicate that approximately 10.3% of Coachella Valley adults have been diagnosed with diabetes—which equates to more than 36,000 people. An additional 1.9% of adults (over 6,800 people) have been diagnosed with prediabetes or borderline diabetes.

Diabetes in the Coachella Valley has been relatively stable over time—in 2010, it was at 9.1%, and the rate of pre-diabetes was 0.7%, as illustrated in Figure 1.

Figure 1. Diabetes Over Time



It is important to note that there are almost certainly many people in the Valley who have diabetes, but who have not been diagnosed. For example, people without health insurance may not visit a care provider frequently, and thus, their diabetes may have gone undiagnosed for years. Nationally, about 27.8% of people with diabetes are undiagnosed[7]. Extrapolating from this, there are likely more than 13,800 adults in the Coachella Valley who have diabetes but have never been diagnosed.

[7] National Center for Chronic Disease Prevention and Health Promotion (2014). National Diabetes Statistics Report. Available online at http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf

Because of this, the report should technically read “people who have been diagnosed with diabetes” and “people who have not been diagnosed with diabetes”, however, for improved readability, this has frequently been shortened to “people with diabetes” and “people without diabetes”. The reader should remember that these findings apply to diagnosed diabetics, not all people with diabetes.

While this report does not adequately capture the experience of people who have yet to be diagnosed, this is an important point to emphasize. Outreach should be conducted in order to make these 13,800 people aware of the signs and symptoms of diabetes, as well as the serious nature of the consequences. Efforts should be made to enroll these people in care so that they may be diagnosed and begin to manage their disease. Early diagnosis is the key to prevention of the more drastic complications such as blindness, kidney failure, amputation, and premature death.

The rate of diabetes in Coachella Valley is slightly higher than the rate in California as a whole, and significantly higher than the rate in the rest of Riverside County, as illustrated in Figure 2. Thus, it is clear that this is a substantial local problem that needs localized community solutions.

Figure 2. Diabetes Diagnoses – Geographic Comparisons

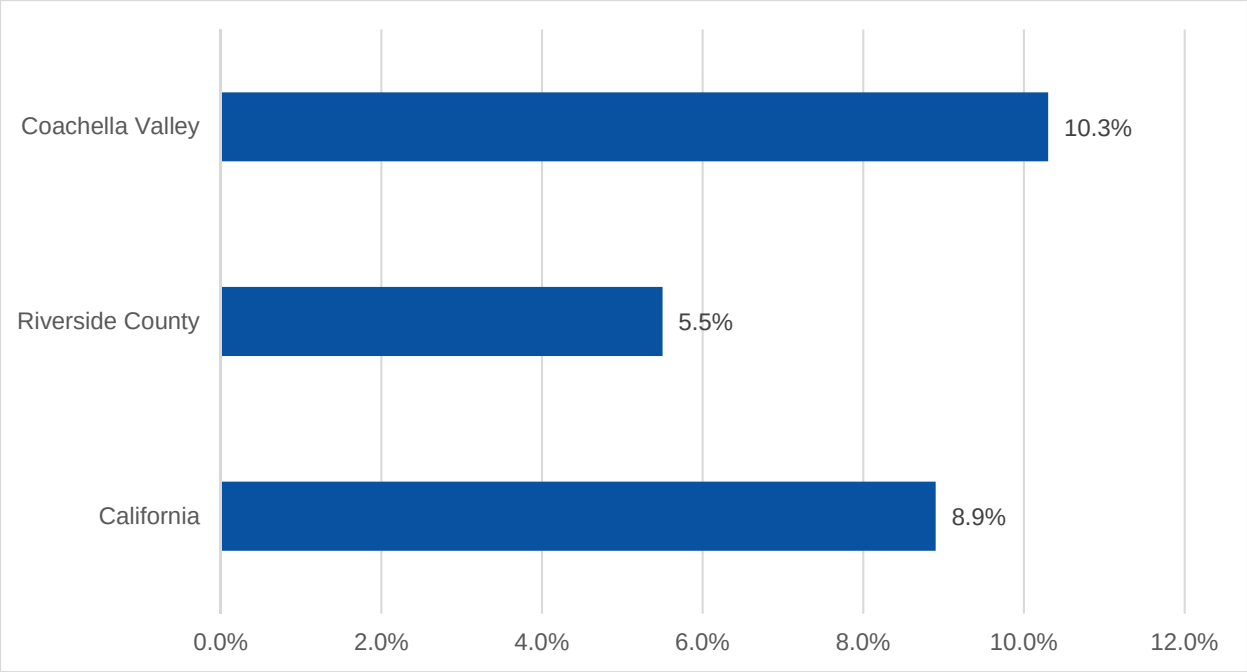
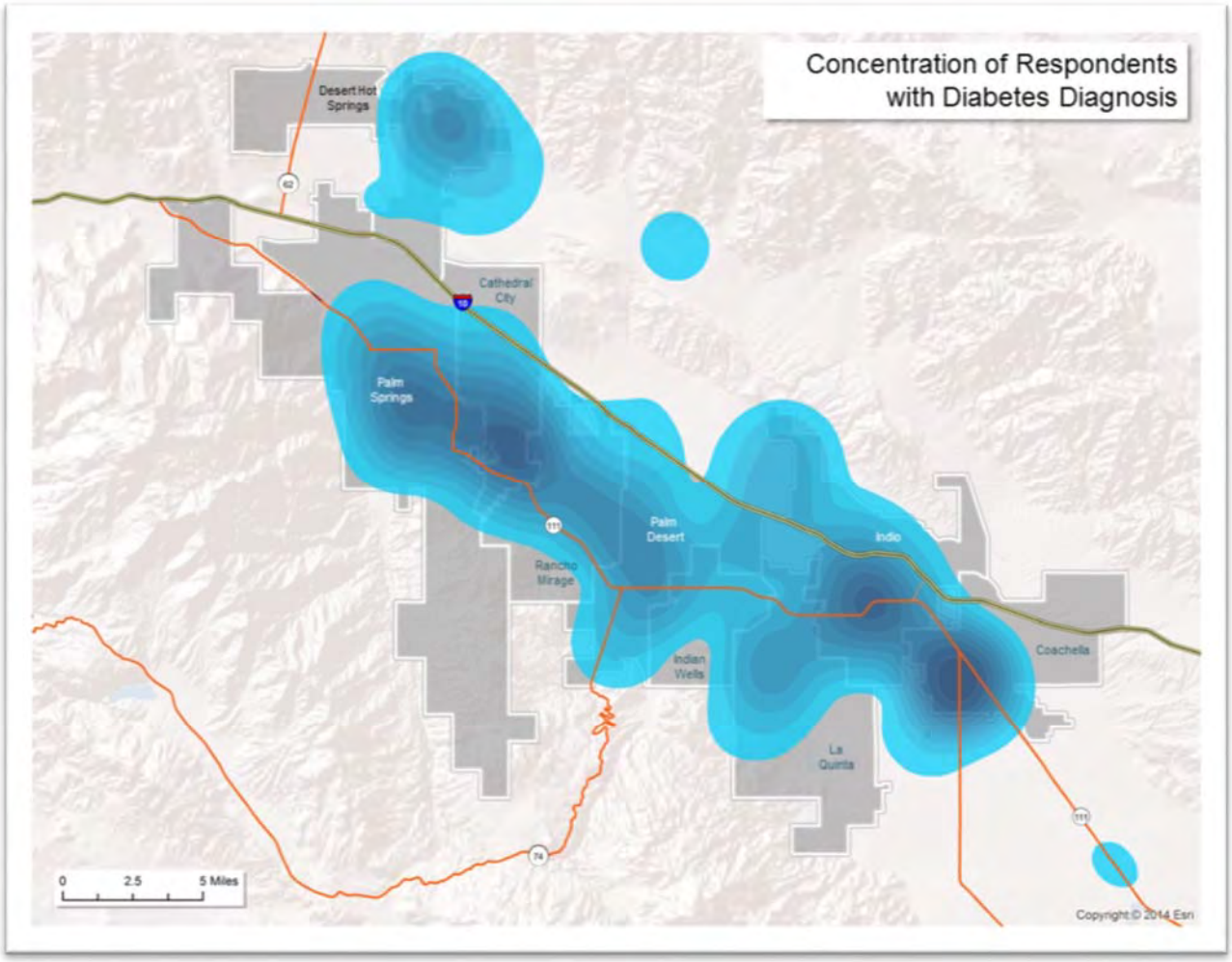


Figure 3 illustrates where people with diabetes are living throughout the region. The darker blue areas indicate especially high concentrations, with Coachella having the greatest number of diabetes diagnoses.

Figure 3. Map of People with Diabetes in Coachella Valley

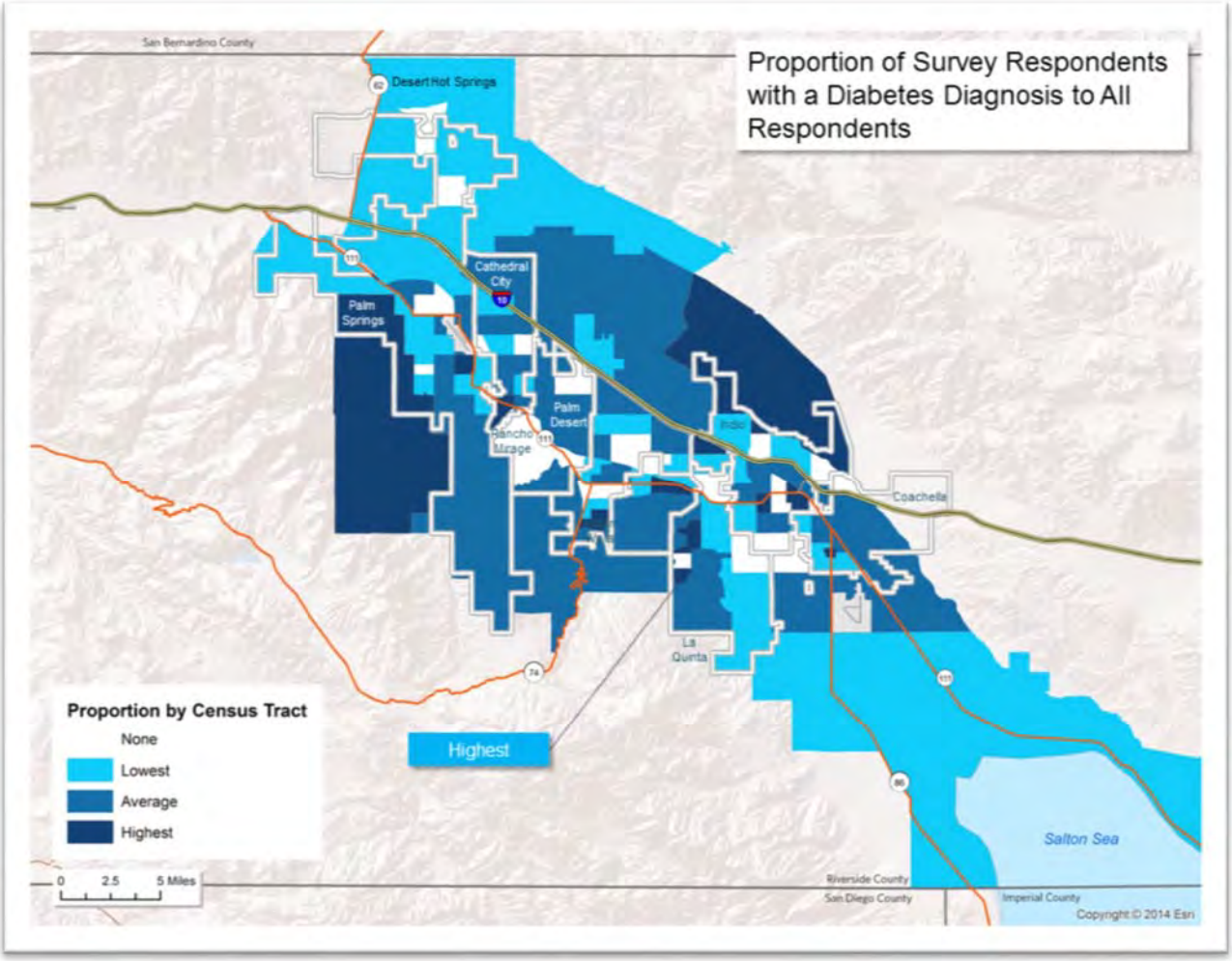


Note. This map was created by David Robinson, GIS Coordinator, Coachella Valley Economic Partnership, using HARC data.

The preceding map illustrates where the largest number of people with diabetes are living, which is very useful for care providers to focus on where their patients are likely from. However, it can also simply highlight the areas where the most people live—if more people live there, it's likely that there are more diabetes diagnoses there.

Thus, to examine areas that may have disproportionate burden of people with diabetes, Figure 4 illustrates the ratio of diabetes diagnoses to total population in each census tract. Palm Springs and North Indio have the highest per capita diabetes diagnoses, with the absolute highest found in La Quinta.

Figure 4. Map of People with Diabetes as a Proportion of Total Population



Note. This map was created by David Robinson, GIS Coordinator, Coachella Valley Economic Partnership, using HARC data.

Section 1: Demographics

Diabetes is a disease that is relevant to many groups of people—but some have a disproportionate burden.

Gender

People with diabetes are significantly more likely to be male than female, as illustrated in Table 1. The majority of people with diabetes are male, while gender is evenly divided among those who have never been diagnosed with diabetes.

Table 1. Gender and Diabetes

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Male	*58.6%*	*21139*	*50.0%*	*154582*
Female	*41.4%*	*14956*	*50.0%*	*154408*
Total	**100.0%**	**36,095**	**100.0%**	**308,989**

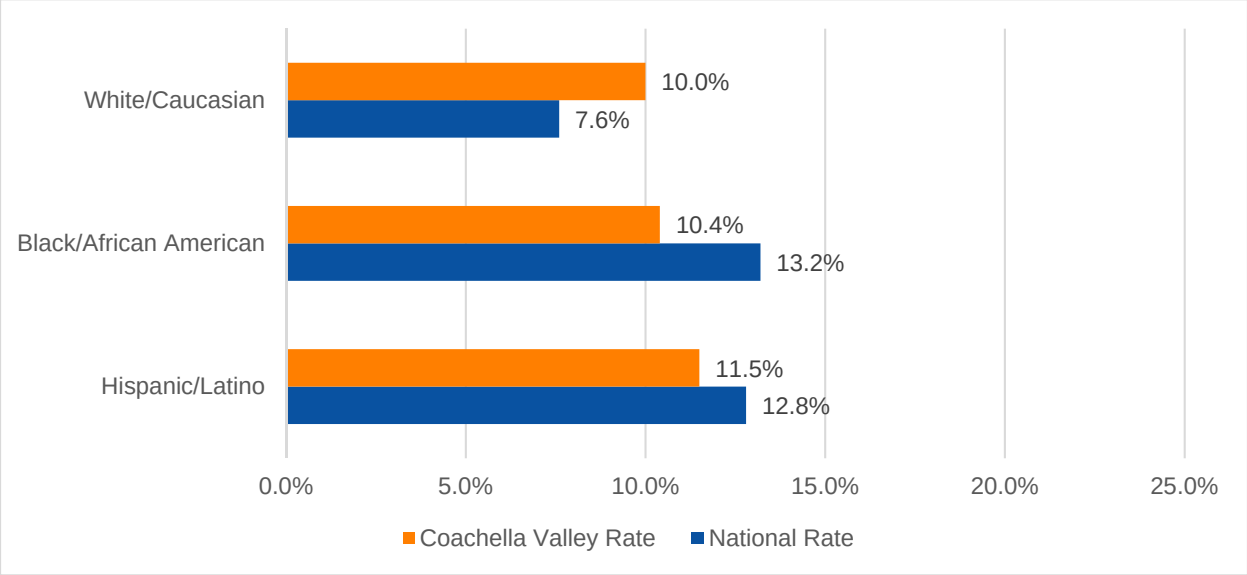
Note. Items in italics are significant at $p<.05$

Race/ Ethnicity

Nationally, the rate of diabetes tends to be higher for certain ethnic groups, including: American Indians/Alaskans (15.9%), African Americans (13.2%), and Hispanics (12.8%). The rate for diabetes tends to be somewhat lower among Asian Americans (9.0%) and whites (7.6%).[8]

As illustrated in Figure 5, diabetes diagnoses in the Coachella Valley are relatively similar to those nation-wide. There were no significant differences in diabetes diagnosis based on race/ethnicity—between 10% to 12% of all race/ethnicities have been diagnosed with diabetes.

Figure 5. Race/ Ethnicity



[8] American Diabetes Association. "Statistics about Diabetes." (2014). Available online at: http://www.diabetes.org/diabetes-basics/statistics/#sthash.pgjWWIqx.dpuf

Age

Age is strongly related to the onset of diabetes. In particular, older age groups more commonly experience Type 2 diabetes in comparison to younger age groups.[9]

This is certainly true in the Coachella Valley. Older adults are significantly more likely than their younger counterparts to have been diagnosed with diabetes. In fact, the majority of people with diabetes are age 55 and over. Of those who are 55 and older, 73% are people with diabetes while only 27% are people without diabetes. Thus, age is strongly related to diabetes diagnoses, as demonstrated in Figure 6 and Table 2.

Figure 6. Age

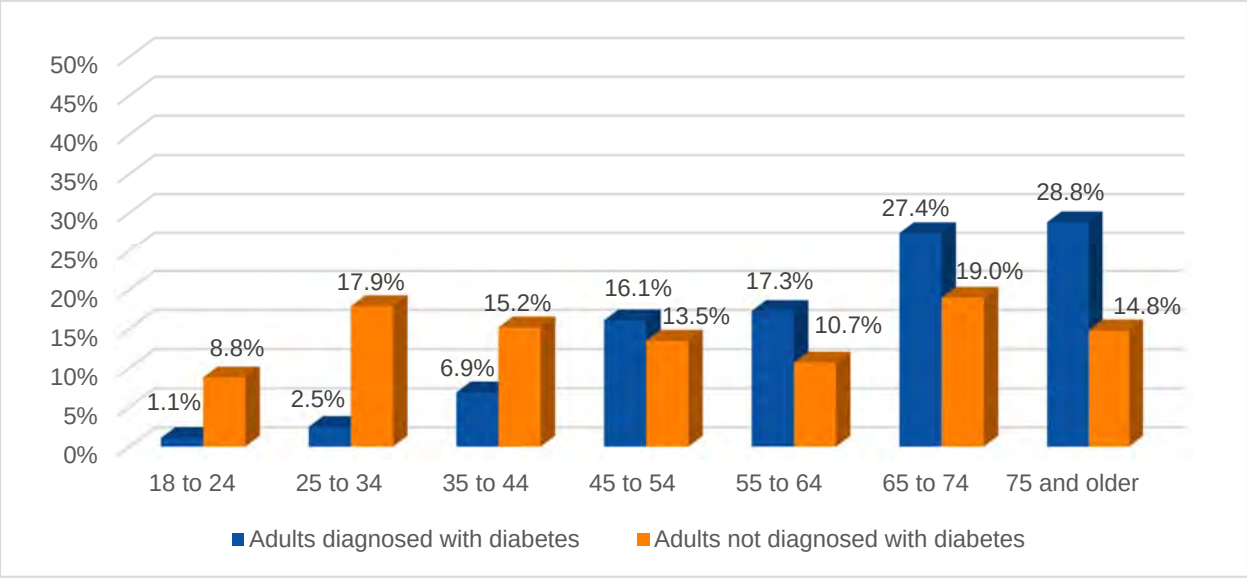


Table 2. Age

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
18 to 24	*1.1%*	*399*	*8.8%*	*27,113*
25 to 34	*2.5%*	*886*	*17.9%*	*54,895*
35 to 44	6.9%	2,473	15.2%	46,777
45 to 54	16.1%	5,809	13.5%	41,577
55 to 64	*17.3%*	*6,231*	*10.7%*	*32,865*
65 to 74	*27.4%*	*9,854*	*19.0%*	*58,366*
75 and older	*28.8*	*10,367*	*14.8%*	*45,565*
Total	**100.0%**	**3,6020**	**100.0%**	**307,158**

Note. Items in italics are significant at $p<.05$

[9] American Diabetes Association. "Facts about Type 2 Diabetes." (2014). Available online here: http://www.diabetes.org/diabetes-basics/type-2/facts-about-type-2.html?loc=db-slabnav#sthash.4cjDyBC6.dpuf

Socioeconomic Status

Socioeconomic status, or SES, has been shown to be strongly related to health and wellness. According to the American Psychological Association, adults with low socio-economic status have less access to resources and therefore are more susceptible to health problems as well as mental health problems, such as depression and stress, from poor employment conditions or no employment.

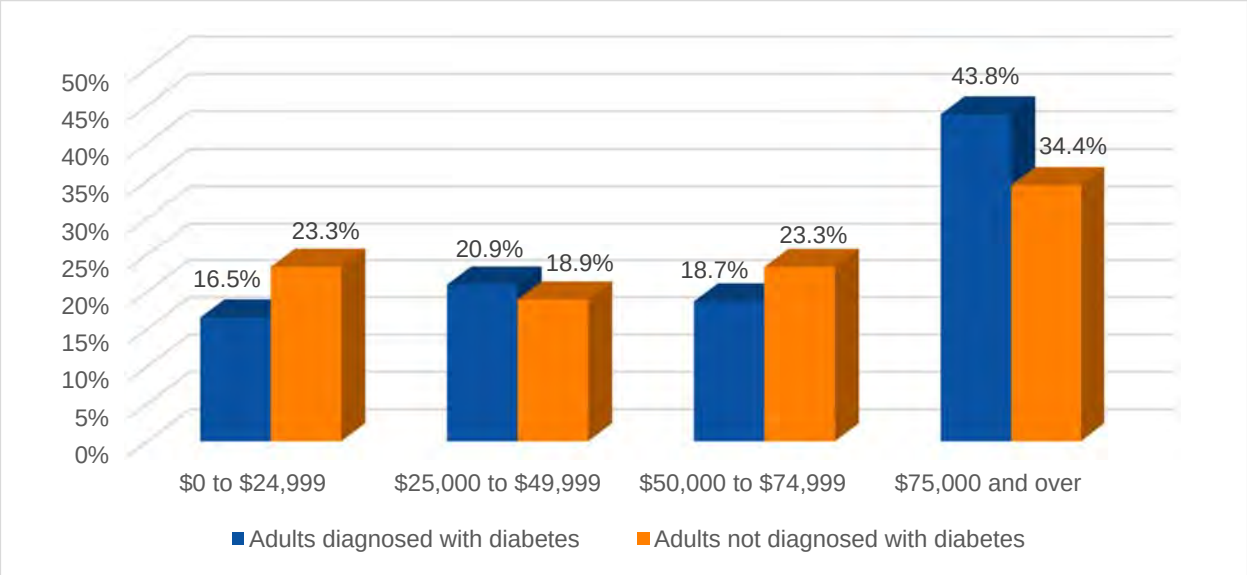
Those deprived economically and living in disadvantaged neighborhoods face a variety of chronic stressors in daily living: They struggle to make ends meet; have few opportunities to achieve positive goals; experience more negative life events such as unemployment, marital disruption, and financial loss; and must deal with discrimination, marginality, isolation, and powerlessness.[10]

This survey covered three measures of socioeconomic status: annual household income, education level, and employment status.

Income

There is no significant difference in income between people with diabetes and people without diabetes, as illustrated in Figure 7. Clearly, diabetes is a relevant worry for people of all income brackets; it is not simply a problem for lower-income groups.

Figure 7. Income

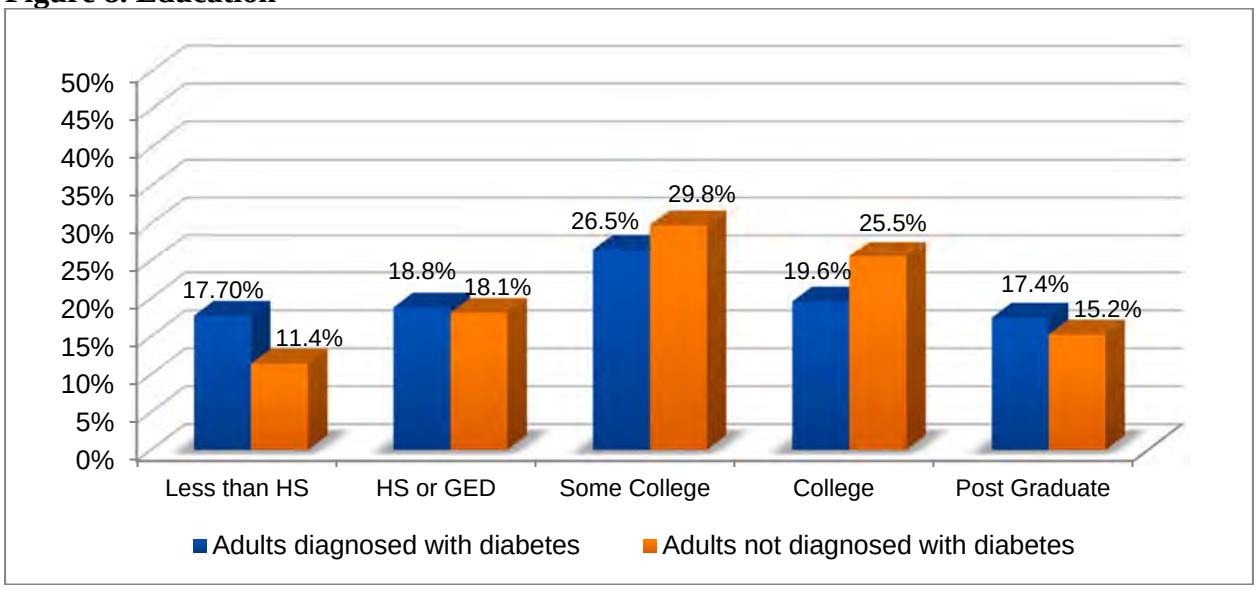


[10] Socioeconomic Disparities in Health Behaviors. (2010). U.S. National Library of Medicine. Available online at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3169799/

Education

Participants were asked to report the highest level of education they had achieved. As illustrated in Figure 8, in the Coachella Valley there is no significant difference in educational attainment between people with diabetes and people without diabetes.

Figure 8. Education



Employment

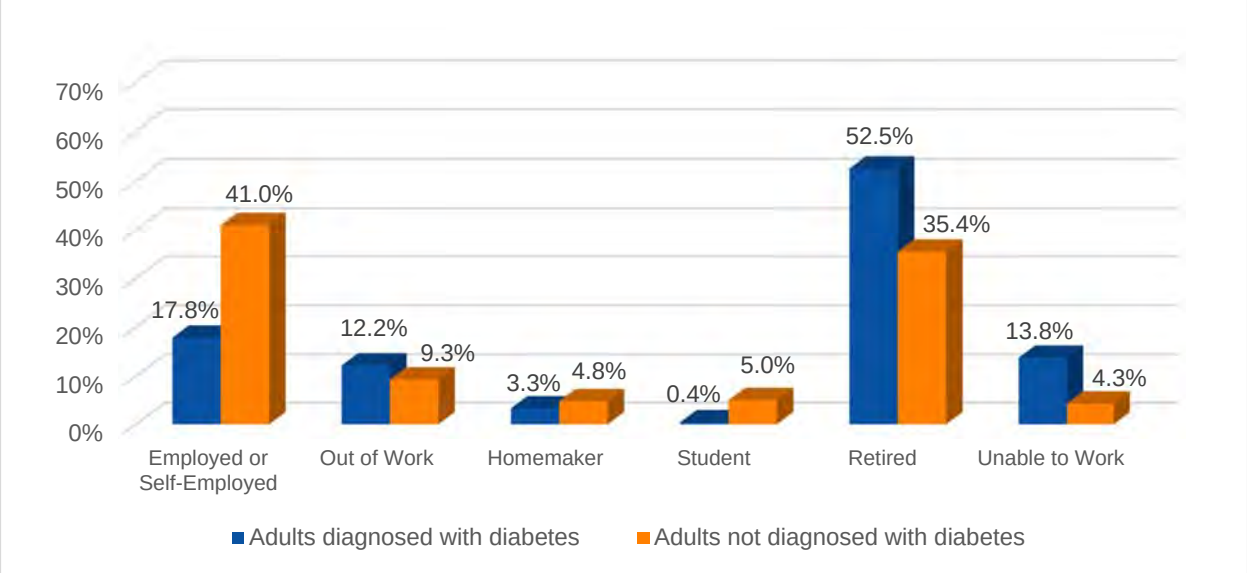
There are a few notable differences between people with diabetes and people without diabetes in employment. As illustrated in Figure 9, there are significantly more people with diabetes that are retired (52.5%) compared to people without diabetes (35.4%).

In contrast, people with diabetes are significantly less likely to employed (17.8%) in comparison to people without diabetes (41%). People with diabetes are also significantly less likely to be a student (0.4%) in comparison to people without diabetes (5.0%).

It is likely that these differences in employment type are the result of the age differences that exist between people with diabetes and people without diabetes.[11] Since people with diabetes tend to be older, it is logical that these individuals tend to be retired rather than employed or enrolled in school.

Additionally, there are significantly more people with diabetes that are unable to work (13.8%) in comparison to people without diabetes (4.3%). This may also be due to age, but could also be due to advanced progression of diabetic symptoms that make it impossible to work.

Figure 9. Employment

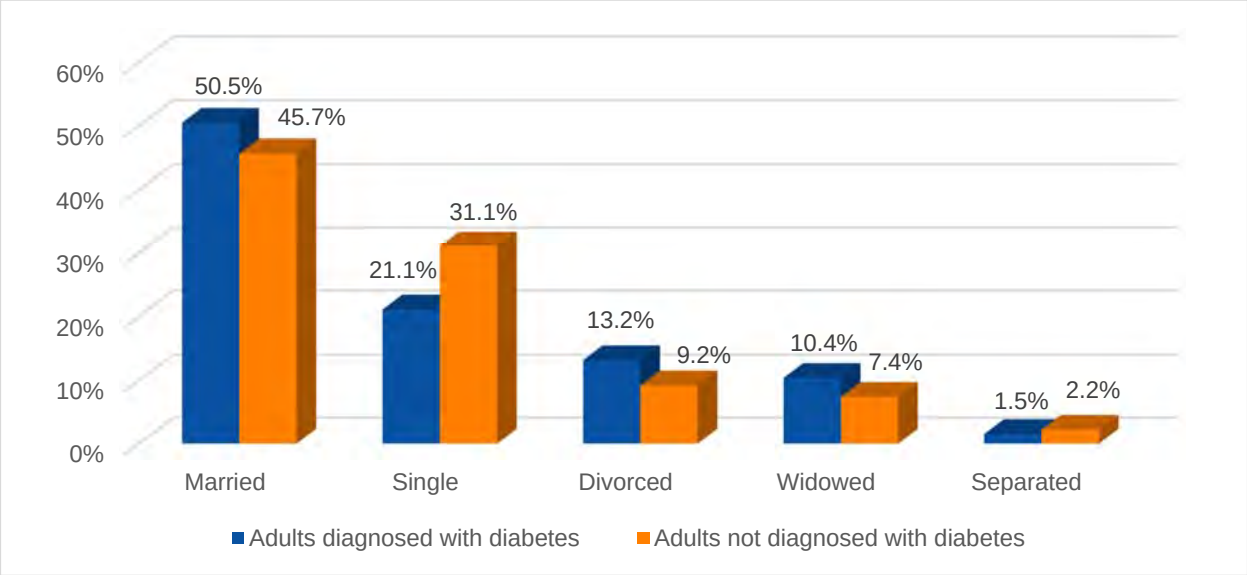


[11] American Diabetes Association. "Facts about Type 2 Diabetes." (2014). Available online here: http://www.diabetes.org/diabetes-basics/type-2/facts-about-type-2.html?loc=db-slabnav#sthash.4cjDyBC6.dpuf

Marital Status

As illustrated in Figure 10, there is no significant difference between people with diabetes and people without diabetes in marital status. In other words, diabetes is a concern for everyone, regardless of marital status.

Figure 10. Marital Status



Sexual Orientation

Table 3 demonstrates that there is no significant difference between people with diabetes and people without diabetes in sexual orientation. People of all different sexual orientations are equally likely to be impacted by diabetes.

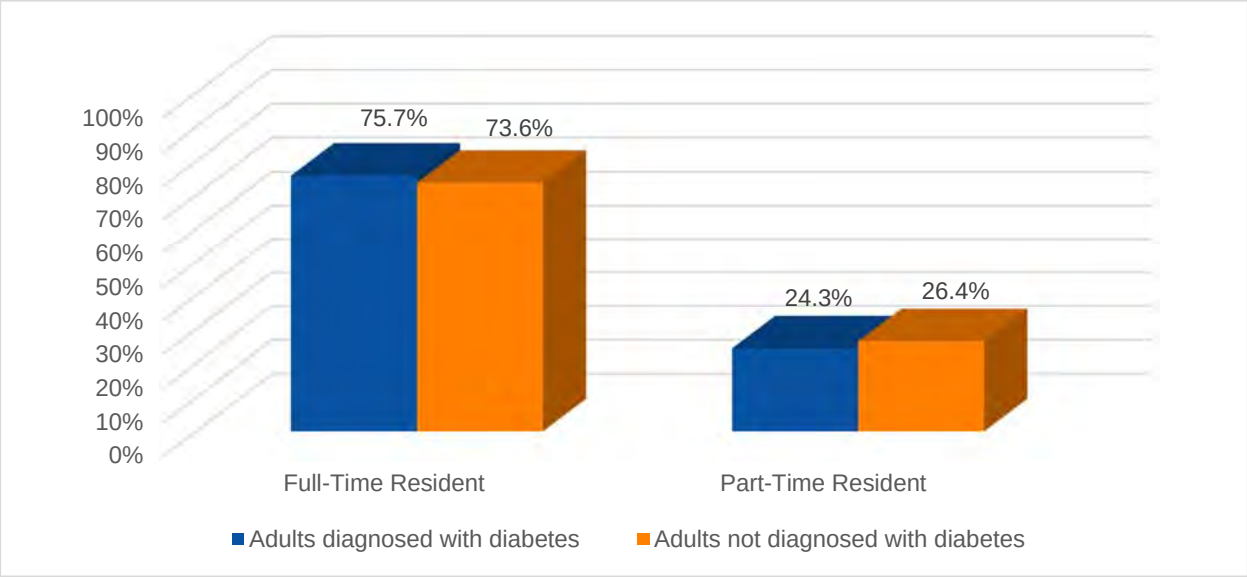
Table 3. Sexual Orientation

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Heterosexual	81.7%	29,071	87.4%	264,129
Homosexual	12.4%	4,413	9.8%	29,551
Bisexual	5.7%	2,016	2.2%	6,530
Other	0.2%	75	0.2%	559

Part-Time Residents

The Coachella Valley is home to a great many part-time residents, or "snowbirds" who live here for the winter months, but spend the hot summer months in cooler areas. As illustrated in Figure 11, snowbirds and permanent residents are equally likely to have been diagnosed with diabetes. This is clearly an issue for both snowbirds and full-time residents, and both will need treatment.

Figure 11. Residency



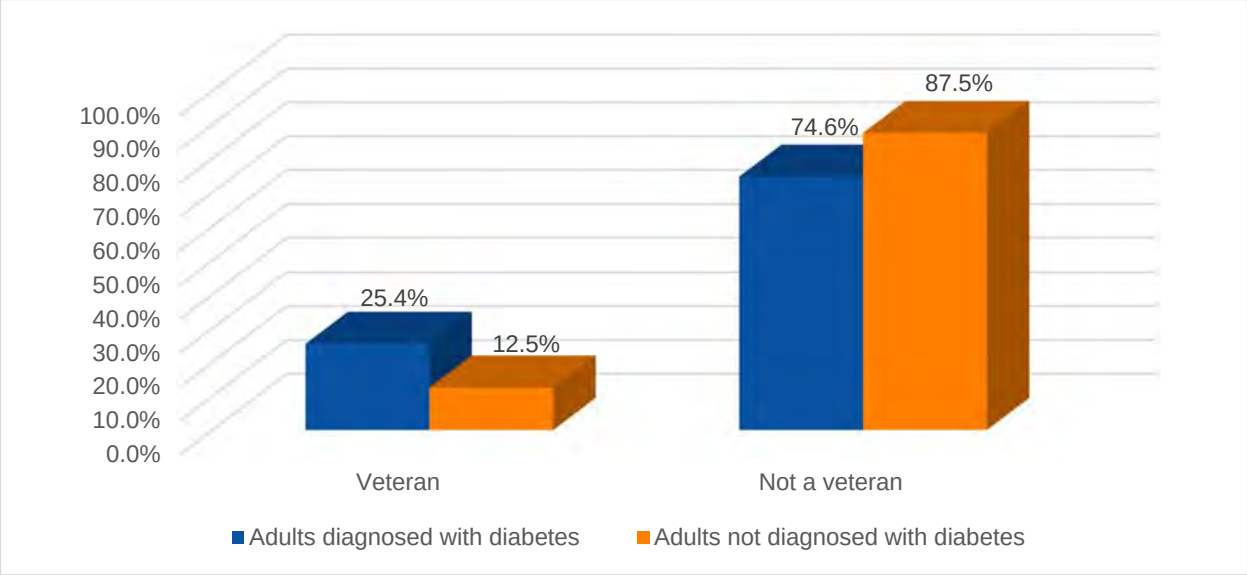
Veterans

The Coachella Valley is home to a disproportionate number of military veterans; over 14% of adults have served in the armed forces.

Type 2 diabetes has been linked to exposure to Agent Orange, the herbicide used in deforestation efforts during the Vietnam War. Vietnam veterans who have been exposed to Agent Orange have a high risk of developing diabetes, and as such they are eligible for disability compensation from the Department of Veterans Affairs.[12]

Over a quarter of the Coachella Valley adults with diabetes are veterans who have served in the armed forces, as illustrated in Figure 12. This equates to over 9,100 veterans who have been diagnosed with diabetes.

Figure 12. Veteran Status



[12] Department of Veterans Affairs: http://www.benefits.va.gov/compensation/claims-postservice-agent_orange-diabetes.asp

Section 2: General Health

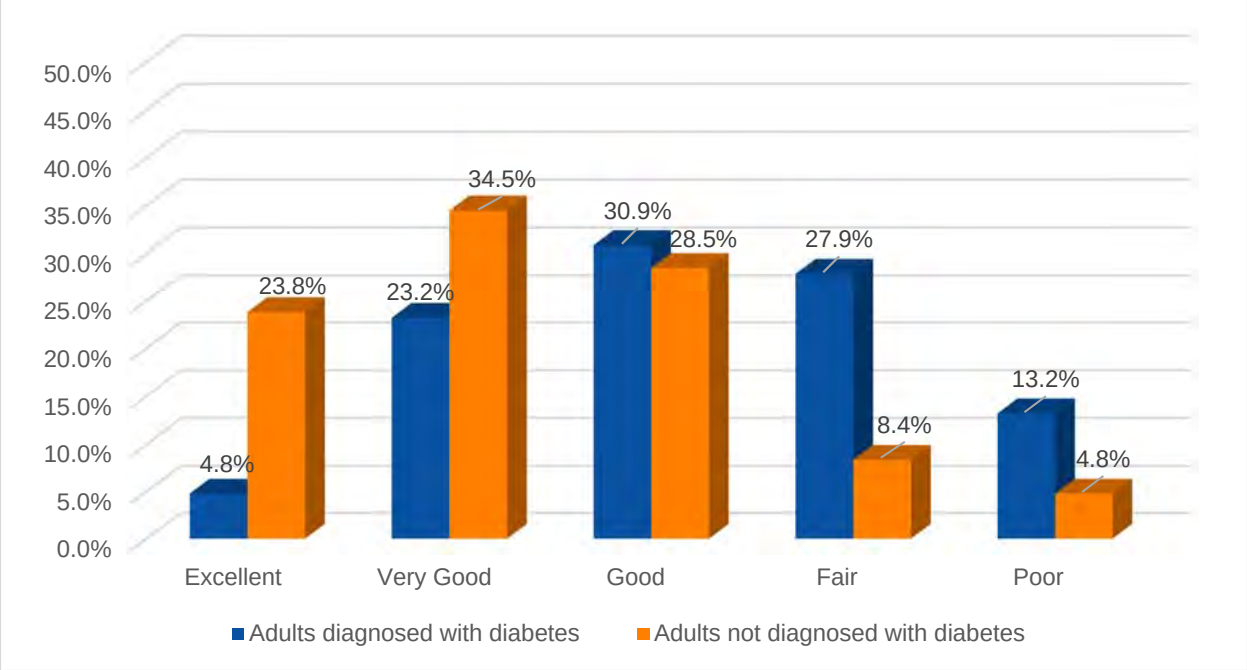
Self-rated health is a powerful predictor of outcomes. Many individuals believe that we should feel healthy to actually live healthy.

General Health

Results show that in the Coachella Valley, people with diabetes feel that their health is significantly worse than those without diabetes, as illustrated in Figure 13.

Approximately 41.1% of Coachella Valley adults with diabetes rate their health as "fair" or "poor", compared to only 13.2% of people without diabetes. It is highly likely that people living with diabetes feel that the disease has damaged their quality of life and lowered their overall health status. Less than 5% of people with diabetes feel that their health is "excellent".

Figure 13. Perceived General Health



Section 3: Access

Access to healthcare is a crucial component of health. Healthcare is provided in doctor's offices, clinics, hospitals, nursing homes, assisted living facilities, and many other types of facilities. However, as the United States has no socialized medicine, nearly all visits to all types of healthcare providers incur substantial costs. Without health insurance coverage to absorb some of the cost of these visits, many people are unable to afford healthcare, and thus, access it much less often. Thus, health insurance coverage is a key aspect to protecting and promoting health and wellness.

This is especially true for people with diabetes. Managing diabetes requires continual monitoring, which in turn requires supplies such as test strips, glucose meters, and insulin, which are all critical to the health of someone with diabetes. Having health insurance helps people with diabetes access the supplies, medications, regular check-ups, and education that they need to manage their diabetes and prevent serious complications.[13]

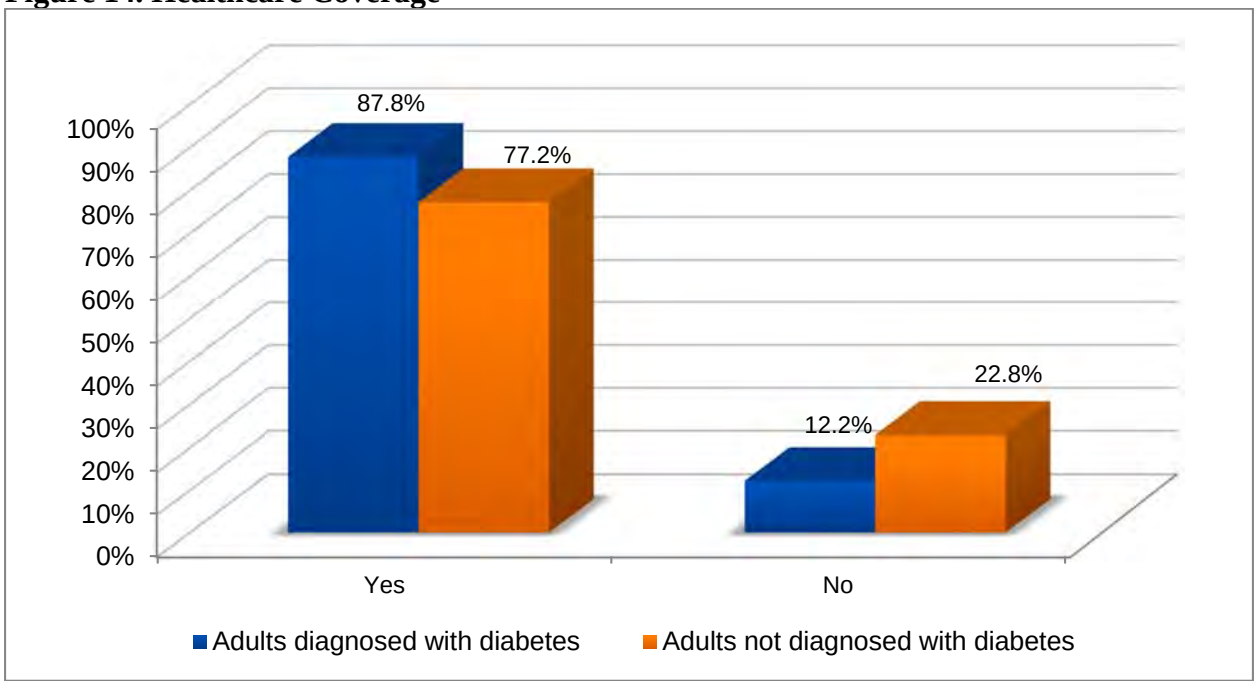
[13] American Diabetes Association: www.diabetes.org/living-with-diabetes/health-insurance

Health Insurance Coverage

As illustrated in Figure 14, people who have been diagnosed with diabetes are significantly more likely than people without diabetes to have healthcare coverage, 87.8% compared to 77.2%, respectively.

While a high percentage of people with diabetes have healthcare coverage, there remain 12.2% that do not have healthcare coverage—approximately 4,414 people with diabetes in the Coachella Valley are uninsured. It is quite likely that these people are not getting the care they need to manage their diabetes properly, which is a serious risk factor.

Figure 14. Healthcare Coverage



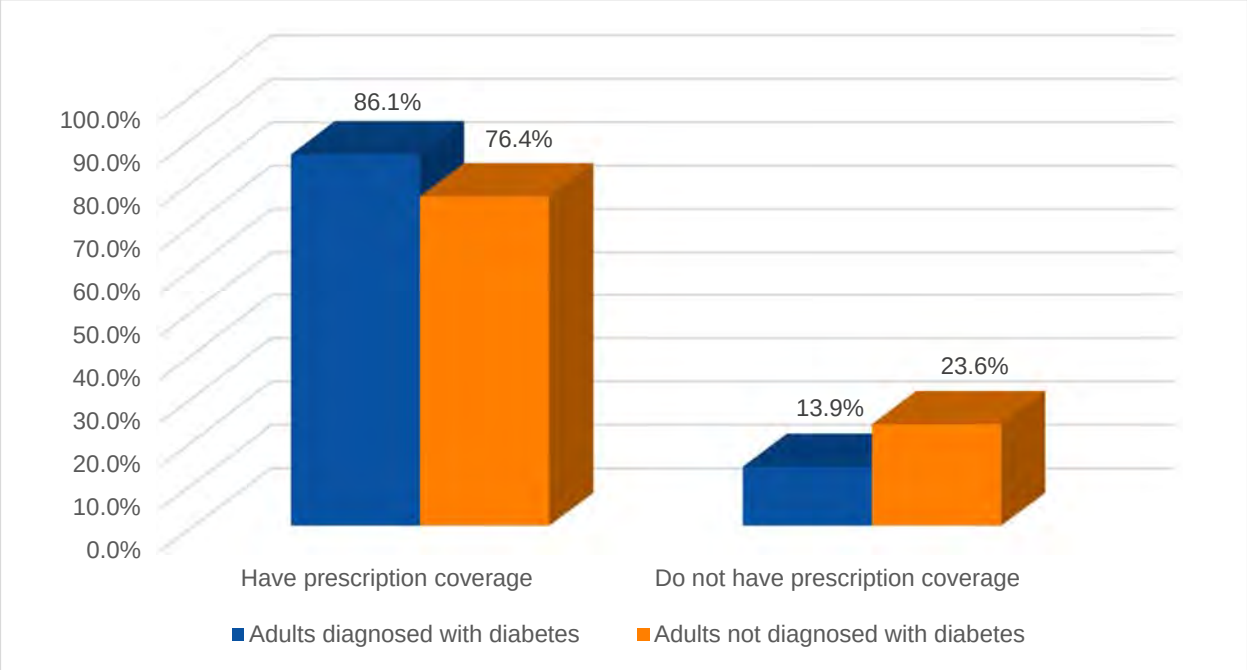
Prescription Coverage

Some healthcare plans are very basic, and do not cover the "extras" like prescription drugs. This would be a major concern for a person with diabetes, as prescription medication is a common way to help control glucose levels and avoid complications. To assess this, participants were asked, "Do you have health insurance that covers prescription drugs?"

Fortunately, most people with diabetes have prescription coverage, as illustrated in Figure 15. In fact, they are more likely than their non-diabetic counterparts to have prescription coverage. It is likely that once these people were diagnosed with diabetes, they understood the need for prescription coverage, and made sure to obtain an insurance plan that would cover the items they need to manage their diabetes.

However, more than 4,300 adults with diabetes do not have prescription coverage. It is likely extremely hard for them to manage their diabetes properly without such coverage, meaning that they likely struggle to manage their glucose levels, and are at risk for serious complications.

Figure 15. Prescription Coverage



Section 4: Utilization

Simply having insurance is not enough to improve health—to reap the benefits, one must be able to access said healthcare. Thus, utilization is an important topic in relation to healthcare—are people able to get the care they need to stay healthy? And where do they need to go to receive healthcare?

Recent Utilization

Most Coachella Valley adults have been to seen a healthcare provider within the past year, as illustrated in Figure 16 and Table 4.

Adults with diabetes in the Coachella Valley are significantly more likely to have visited a care provider in the past six months (88.1%) in comparison to those without diabetes (69.1%). Very few people with diabetes have gone for several years without seeing a healthcare provider. This indicates that most people in Coachella Valley who have been diagnosed with diabetes are in care, and getting regular medical care.

Figure 16. Time Since Most Recent Visit to Healthcare provider

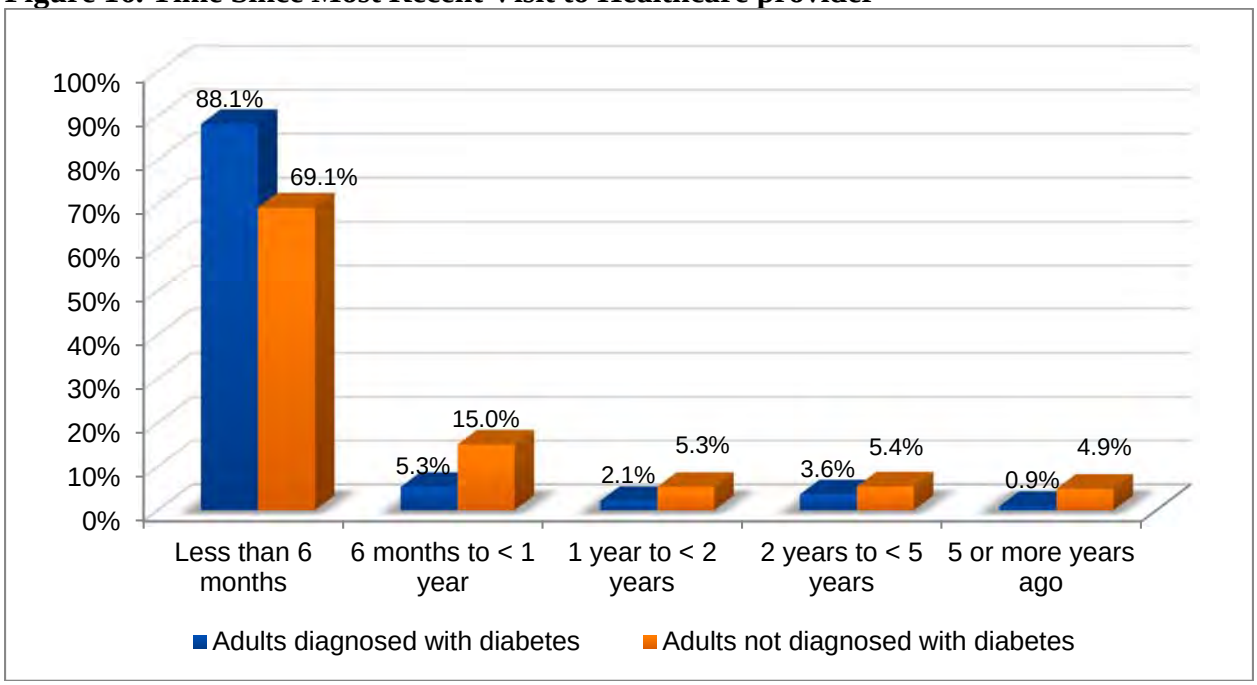


Table 4. Time Since Most Recent Visit to Healthcare Provider

Length of Time	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Less than 6 months	*88.1%*	*31,817*	*69.1%*	*212,865*
6 months to less than 1 year	*5.3%*	*1,908*	*15.0%*	*46,333*
1 year to less than 2 years	2.1%	761	5.3%	16,351
2 years to less than 5 years	3.6%	1,301	5.4%	16,741
5 or more years ago	0.9%	307	4.9%	15,112

Note. Items in italics are significant at $p<.05$

Usual Source of Care

Ideally, an adult's usual source of care would be their primary physician who, through routine checkups, could recommend preventative measures to take if needed. This is especially true for a disease like diabetes, which can progress over time and requires continued monitoring. However, it is an unfortunate truth that many adults resort to emergency rooms for their usual source of care.

People with diabetes and people without diabetes receive care from similar sources; there were no significant differences between the two groups in the usual source of care, as illustrated in Figure 17 and Table 5. However, it is concerning that over 7,200 people with diabetes are getting their routine care from urgent cares, emergency rooms, and hospitals—the continuity of care here is likely quite low, which poses a real risk to the progression of diabetes.

Figure 17. Usual Source of Care

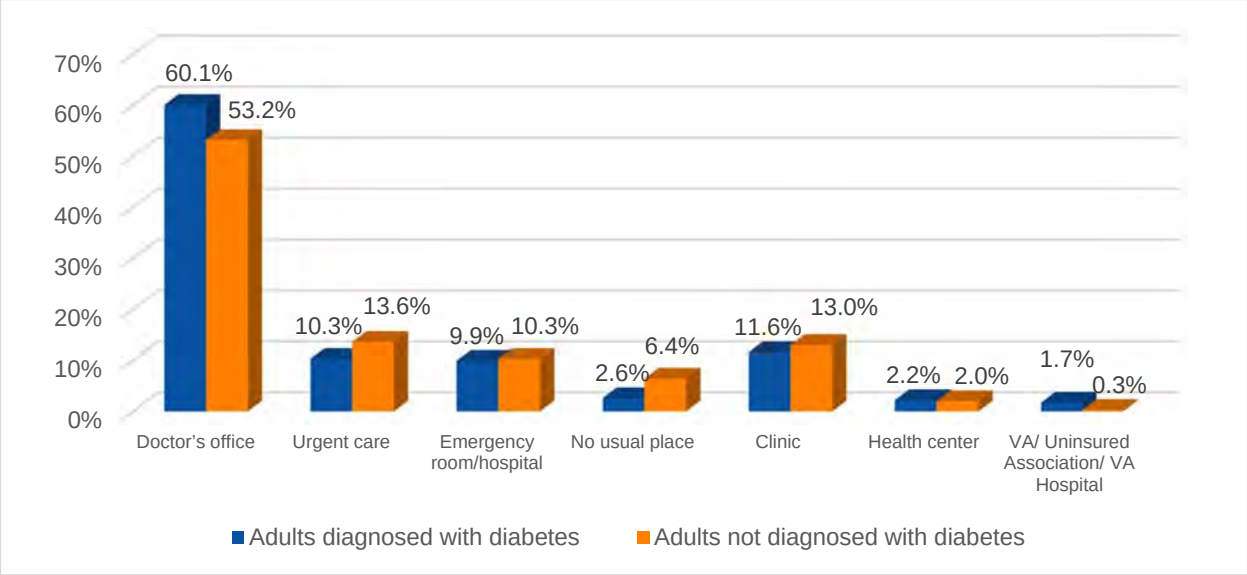


Table 5. Usual Source of Care

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Doctor's office	60.1%	21,624	53.2%	162,602
Clinic	11.6%	4,181	13.0%	39,828
Urgent care	10.3%	3,700	13.6%	41,448
Emergency room/hospital	9.9%	3,567	10.3%	31,647
No usual place	2.6%	930	6.4%	19,552
Health center	2.2%	797	2.0%	5,991
VA/VA Hospital	1.7%	628	0.3%	1,014
Other	1.5%	533	0.9%	2,863

Barriers to Care

Participants were asked whether a series of barriers consistently made it very difficult for them to receive the healthcare they needed in the past year.

Table 6 illustrates that the barriers to receiving care are not significantly different between people with diabetes and people without diabetes.

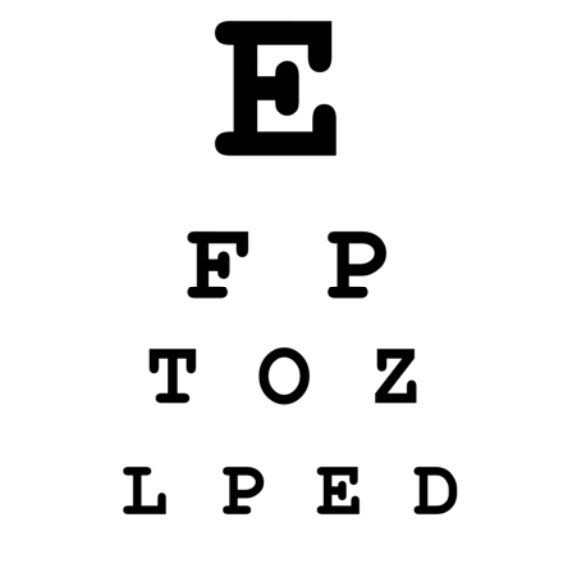
Though not statistically different, people with diabetes less frequently report that taking time off from work is a barrier to receiving care (5.7%) in comparison to people without diabetes (13.2%). Getting time off work is less often a problem for people with diabetes likely because people with diabetes are more likely to be retired or unable to work (see the data on employment on page 16).

Table 6. Barriers to Receiving Care

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Understanding what is covered by your plan	14.0%	4,909	15.7%	47,329
Hours that the healthcare provider is open to seeing patients	12.9%	4,627	13.8%	42,315
Not having authorization from an HMO	10.7%	3,668	9.7%	28,808
Transportation	10.0%	3,609	7.5%	23,278
Finding a doctor of the gender, age, ethnicity, or sexual orientation that is comfortable for you	9.5%	3,441	7.2%	3,441
Language barriers or problems	6.6%	2,396	3.3%	10,273
Taking time off work	5.7%	2,043	13.2%	40,745

Section 5: Prevention

Preventive health − or preventative health – aims to prevent major illness and injury by regular screenings for common ailments. Oftentimes, regular screening for illness can identify health problems at an early stage when they are more easily controlled and can result in a more positive prognosis. This is especially important for people with diabetes, as diabetes can affect many parts of the body, leading to serious complications such as heart disease, stroke, blindness, and kidney failure, among others.[14]



[14] National Center for Chronic Disease Prevention and Health Promotion (2014). National Diabetes Statistics Report. Available online at http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf

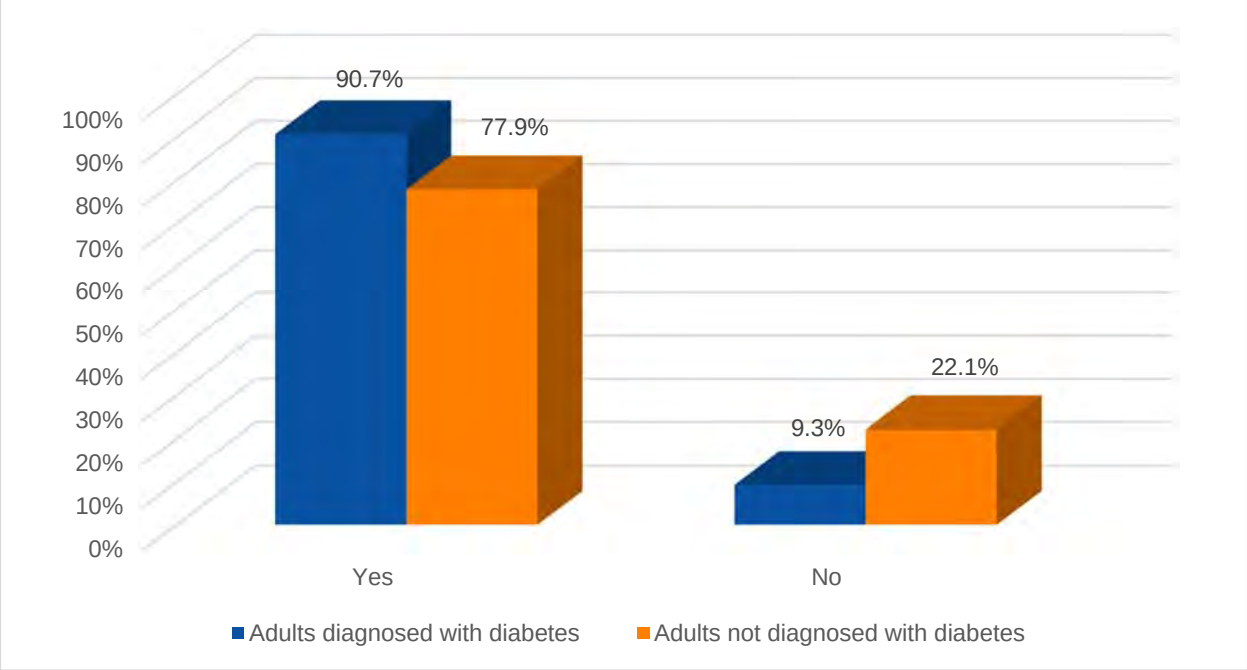
Blood Cholesterol Screening

High blood cholesterol often does not have signs or symptoms, but is a major risk factor for heart disease. A doctor's blood cholesterol screening is the only way to measure blood cholesterol.

According to the CDC and National Heart, Lung, and Blood Institute, all adults should have their cholesterol levels checked once every five years.[15] However, people with diabetes should be checked more frequently, as it is closely related to a cluster of risk factors for heart disease. Nationally, 65% of adults with diabetes had high cholesterol, putting them at very high risk for heart disease and heart attack.[16]

Fortunately, most adults with diabetes in Coachella Valley have been tested for high cholesterol, as illustrated in Figure 18. In fact, people with diabetes are significantly more likely to have had a cholesterol test (90.7%) when compared to their counterparts without diabetes (77.9%). This is likely due to proper care and management by physicians, and indicates good monitoring.

Figure 18. Blood Cholesterol Screening



Most people who have had a cholesterol test have done so within the past year (86.5% of people with diabetes, and 78.0% of people without diabetes). This is a positive sign, as it indicates regular screening, which is strongly suggested.

[15] Cholesterol: What You Can Do. (2013). Centers for Disease Control and Prevention. Available online here: http://www.cdc.gov/heartdisease/prevention.htm

[16] National Center for Chronic Disease Prevention and Health Promotion (2014). National Diabetes Statistics Report. Available online at http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf

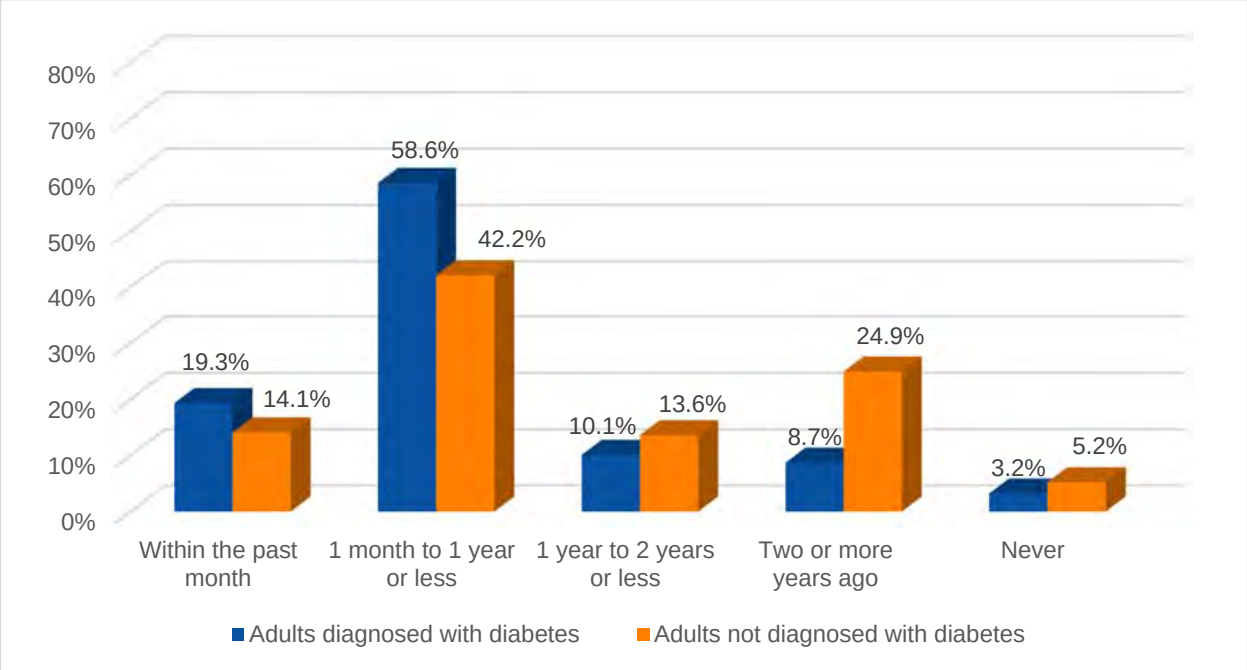
Vision Care

The American Optometric Association recommends adults 18 to 60 years get their eyes checked every two years or as recommended. For adults 61 years and older it is recommended to have an eye exam annually or as recommended.[17] It is particularly important for people with diabetes to get regular eye exams because people with diabetes often suffer diabetic retinopathy that can result in a loss of vision.

Fortunately, people with diabetes in the Coachella Valley tend to get their eyes checked more regularly than those without diabetes. As illustrated in Figure 19, local adults with diabetes are significantly more likely to have had an eye exam in the past year when compared to adults without diabetes.

Although small, it is worth noting that 3.2% of people with diabetes have never had an eye exam. This equates to over 1,160 people with diabetes who have not had their vision checked and should do so immediately.

Figure 19. Time Since Last Vision Exam



[17] Caring for Your Vision. (2014). American Optometric Association. Available online at: http://www.aoa.org/patients-and-public/caring-for-your-vision?sso=y

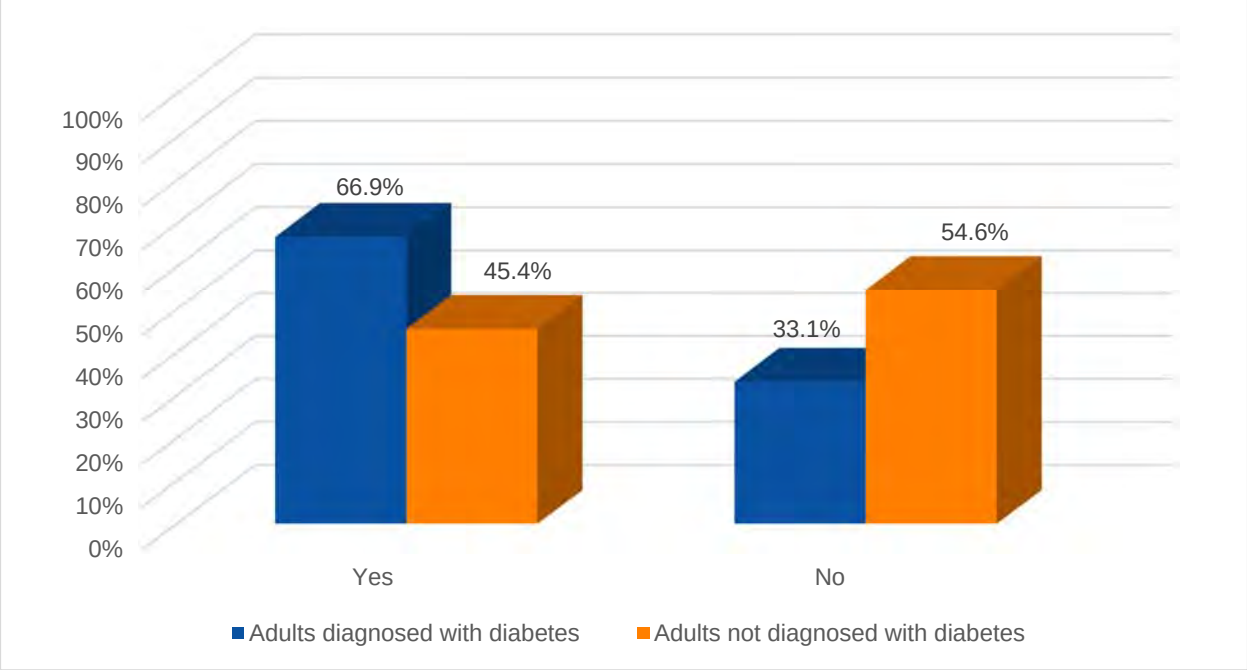
Flu Vaccination

Vaccinations are used to prevent many serious diseases. Vaccines function by using dead or weakened bacteria or viruses in order to create immunity for the specific disease.

The influenza (flu) vaccine reduces the risk of influenza-related heart attacks or other flu related complications from existing health conditions like diabetes and chronic lung disease.[18] The CDC recommends that all people older than 6 months of age should be vaccinated against influenza annually, with extremely rare exceptions.[19]

As illustrated in Figure 20, people with diabetes are significantly more likely to receive a flu vaccine (66.9%) than people without diabetes (45.4%). This may be a result of their more frequent visits to the healthcare providers.

Figure 20. Flu Vaccinations



[18] Vaccine Information for Adults. (2014) Center for Disease Control and Prevention. Available online at: http://www.cdc.gov/vaccines/adults/reasons-to-vaccinate.html

[19] CDC Seasonal Influenza (Flu): Who Should Get Vaccinated Against Influenza. Available online at: http://www.cdc.gov/flu/protect/whoshouldvax.htm

Section 6: Health Behaviors

Health is dictated not only by preventative care, but also by certain lifestyle choices and health behaviors. The health behaviors covered here can have a huge influence on individual health, especially for people with diabetes.

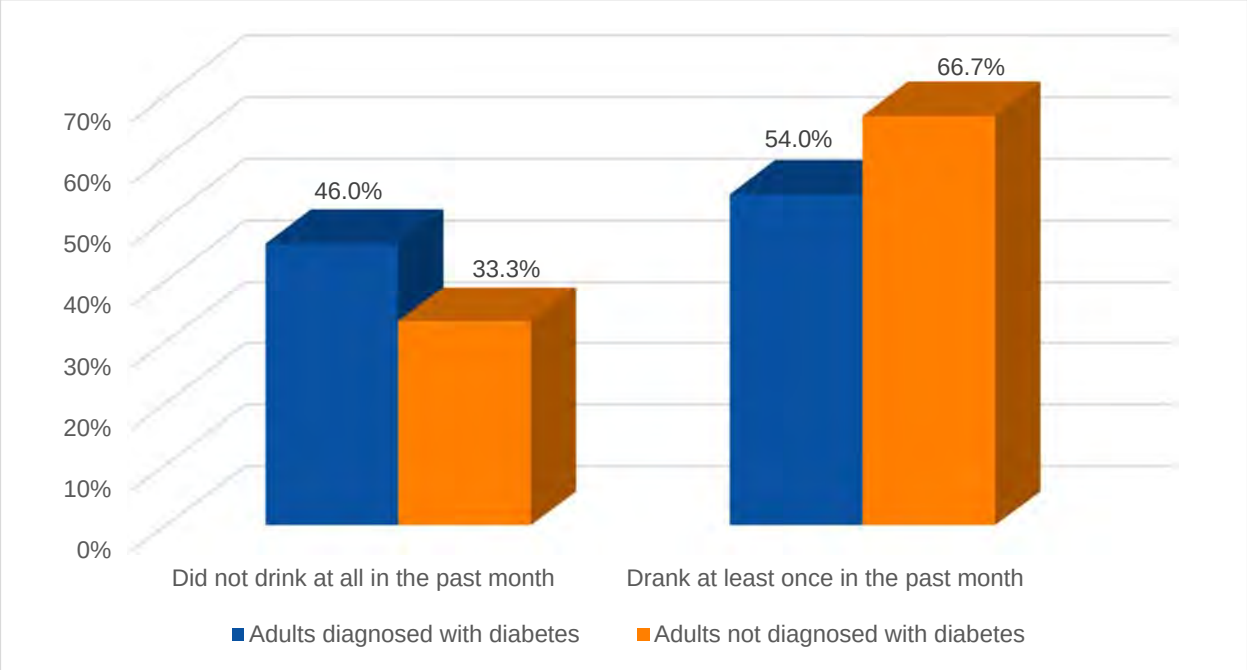
Alcohol Use

Ethyl alcohol, or ethanol, is an intoxicating ingredient found in beer, wine, and liquor. It is a central nervous system depressant that is rapidly absorbed from the stomach and small intestine into the bloodstream. Alcohol affects every organ in the drinker's body. Intoxication can impair brain function and motor skills; heavy use can increase risk of certain cancers, stroke, and liver disease.

Alcohol is not automatically off limits for people with diabetes. In fact, most people with diabetes can have a moderate amount of alcohol if they practice caution while drinking. It is important for people with diabetes to avoid drinking on an empty stomach, or when their blood glucose is low.[20]

More than half of Coachella Valley adults are active drinkers; this holds true for both people with diabetes and those without. People with diabetes drink slightly less than those without diabetes, as illustrated in Figure 21.

Figure 21. Alcohol Consumption in the Past Month



[20] American Diabetes Association: www.diabetes.org/food-and-fitness/food/what-can-i-eat/making-healthy-food-choices/alcohol.html?loc=ff-slabnav

Consuming alcohol in moderation is not necessarily detrimental to health. However, alcohol abuse—such binge drinking—*is* detrimental to health.

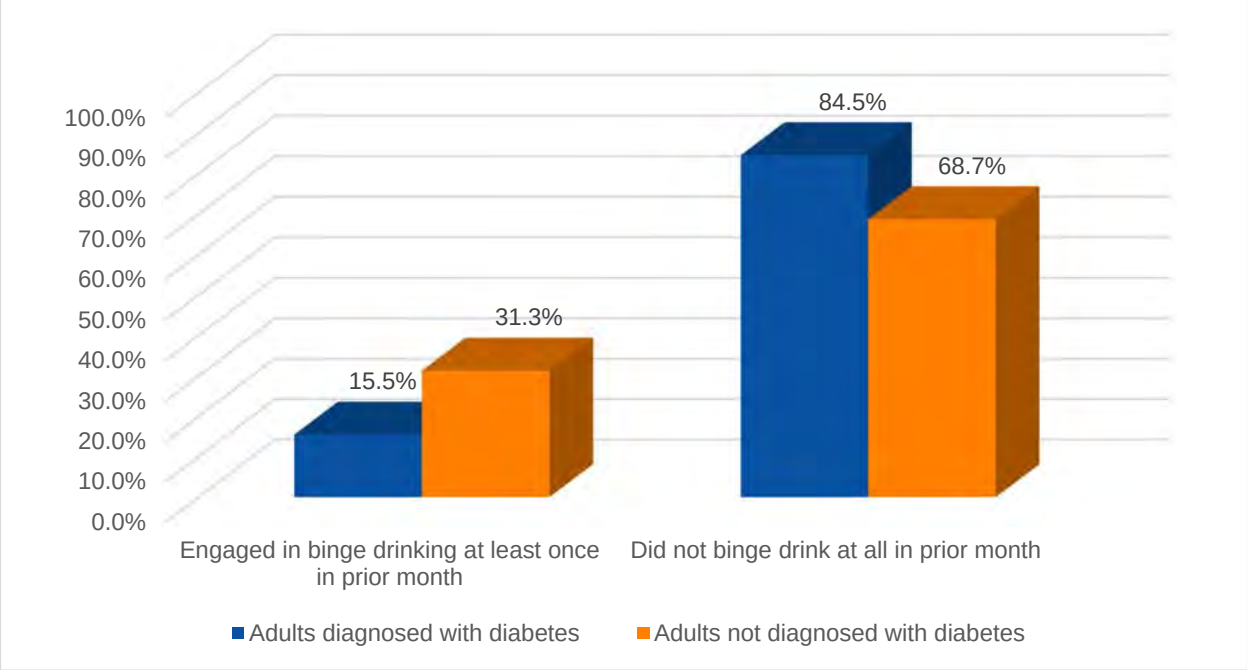
Binge drinking is defined as a pattern of drinking that brings a person's blood alcohol concentration to 0.08 grams' percent or above ("legally drunk"). Generally speaking, this can occur when men imbibe in five or more drinks, or when women imbibe in four or more drinks.[21]

Binge drinking has been linked to several health problems such as liver disease, neurological damage, cardiovascular conditions, alcohol poisoning, and physical injuries.[22] Binge drinking among people with diabetes is particularly problematic as it can cause an insulin reaction which is also referred to as hypoglycemia.[23]

To assess binge drinking, female participants were asked, "How many times in the past month have you had four or more alcoholic beverages?" while male participants were asked, "How many times in the past month have you had five or more alcoholic beverages on a single occasion?"

As illustrated in Figure 22, people with diabetes are significantly less likely to binge drink than people without diabetes. While this is encouraging, it is worth noting that over 3,600 people with diabetes are binge drinking, which may have serious consequences for their health.

Figure 22. Binge Drinking in the Past Month



[21] Fact Sheets – Binge Drinking. (2012). Centers for Disease Control and Prevention. Available online at: http://www.cdc.gov/alcohol/fact-sheets/binge-drinking.htm
[22] Ibid.
[23] American Diabetes Association. "Alcohol." Available online at: http://www.diabetes.org/food-and-fitness/food/what-can-i-eat/making-healthy-food-choices/alcohol.html?referrer=https://www.google.com/

Tobacco Use

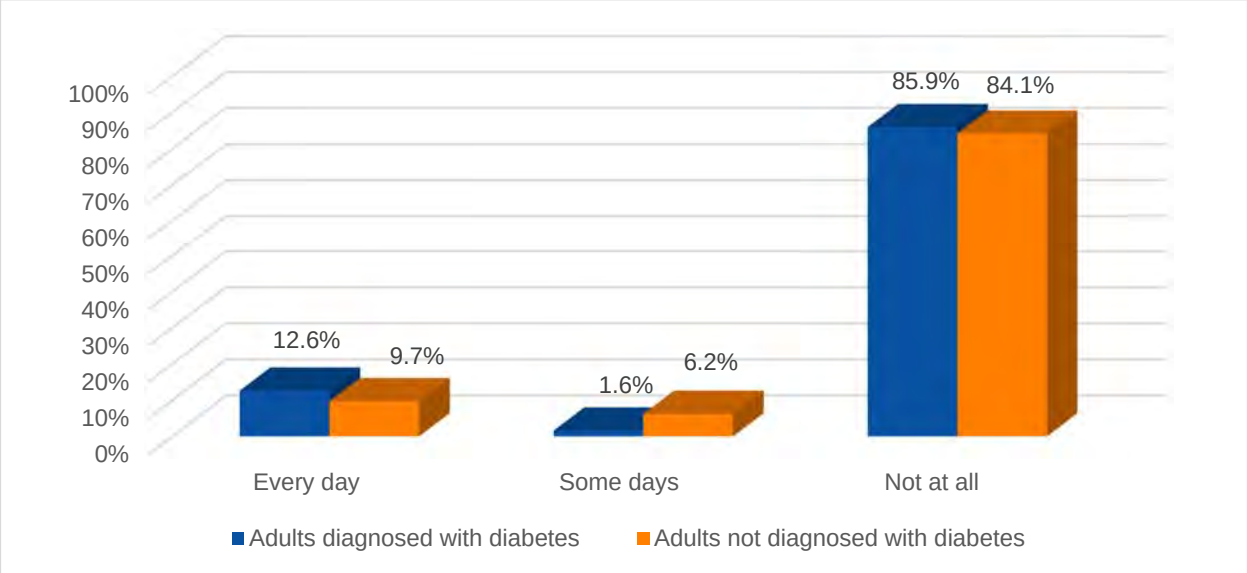
Tobacco is commonly used as a drug throughout the United States. The most common uses for tobacco are cigarettes, cigars, pipes, and for chewing. Tobacco use has been associated with heart disease, cancer, and lung diseases (such as emphysema and bronchitis). Nicotine, an addictive substance, is a major constituent of tobacco, along with thousands of other potentially harmful compounds that are often generated from tobacco smoke.[24]

Nationally, 18.1% of American adults are current smokers. Cigarette smoking is the leading cause of preventable death in the United States, accounting for more than 480,000 deaths, or one of every five deaths, each year.[25]

People with diabetes have a drastically increased risk of cardiovascular disease, which is also triggered by smoking. As such, people with diabetes who smoke are at extremely high risk for heart disease and strokes, and smoking cessation is critically important.[26]

Figure 23 demonstrates little difference between people with diabetes and people without diabetes in tobacco use, and fortunately, Coachella Valley has a lower smoking rate than the nation. However, tobacco cessation is still important for the more than 4,500 current smokers with diabetes, as smoking is demonstrated to make diabetes more difficult to control and increases the risk of serious health problems.[27]

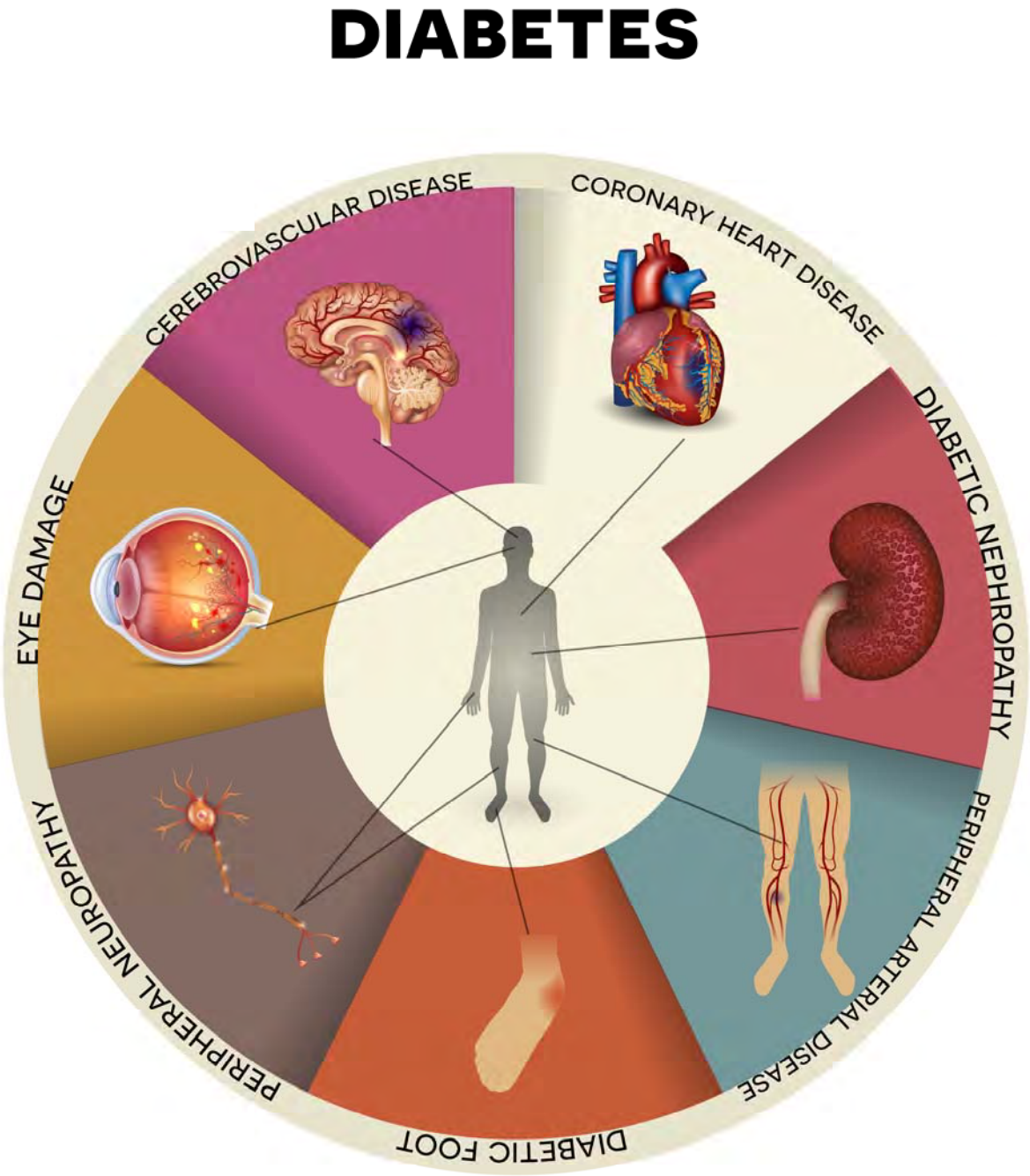
Figure 23. Cigarette Use



[24] Smoking & Tobacco Use. (2014). Centers for Disease Control and Prevention. Available online at: http://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm
[25] Ibid.
[26] National Center for Chronic Disease Prevention and Health Promotion (2014). National Diabetes Statistics Report. Available online at http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf
[27] Smoking and Diabetes (2015). Centers for Disease Control and Prevention. Available online at: http://www.cdc.gov/tobacco/campaign/tips/diseases/diabetes.html

Section 7: Major Disease Comorbidities

Chronic illnesses – the leading cause of death and disability in the nation – are diseases that generally take years or decades to progress, are persistent, and can last for long periods of time. These illnesses are the cause of seven out of ten deaths in the U.S., and approximately 133 million Americans have at least one chronic illness. These conditions diminish one's quality of life and often result in continuous health care costs.



Major Disease

Nationally, it is well-established that people with diabetes often experience high blood pressure, cardiovascular disease, heart attacks, strokes, and kidney disease as a result of their diabetes.[28]

This holds true in the Coachella Valley as well: people with diabetes experience a higher incidence of nearly all chronic illnesses and major diseases in comparison to people without diabetes. Thus, it appears that most people with diabetes are also coping with many other comorbidities, especially high blood pressure, high cholesterol, and arthritis, as illustrated in Figure 22 and Table 7.

Figure 24. Major Disease Diagnoses

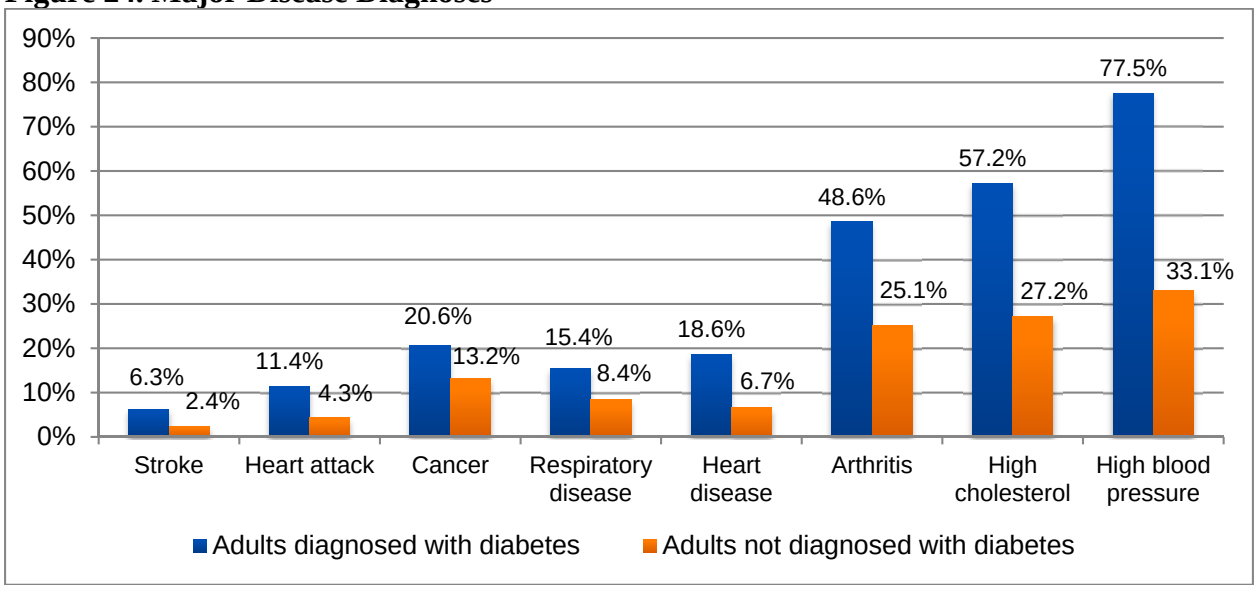


Table 7. Major Disease Diagnoses

	Adults with diabetes	Adults without diabetes	Significant Difference?
High blood pressure	*77.5%*	*33.1%*	*Yes*
High cholesterol	*57.2%*	*27.2%*	*Yes*
Arthritis	*48.6%*	*25.1%*	*Yes*
Cancer	*20.6%*	*13.2%*	*Yes*
Heart disease	*18.6%*	*6.7%*	*Yes*
Respiratory Disease	*15.4%*	*8.4%*	*Yes*
Heart attack	11.4%	4.3%	No
Stroke	*6.3%*	*2.4%*	*Yes*

Note. Items in italics are significant at $p < .05$

[28] American Diabetes Association. "Statistics about Diabetes." (2014). Available online here: http://www.diabetes.org/diabetes-basics/statistics/

Section 8: Mental Health

Mental health is a state of psychological well-being in which an individual can enjoy life and can cope with everyday situations and stressors. It is not simply the lack of a mental disorder, but also the presence of positive mental states such as happiness and satisfaction. One's mental health can be affected by environmental, genetic, and/or psychological factors.

Mental Health Disorder

To assess the prevalence of mental health disorders, participants were asked if they had ever been diagnosed by a healthcare professional with any of several major mental health issues. Approximately 23.2% of adults with diabetes reported having been diagnosed with one or more major mental health disorders; this equates to over 8,300 people with diabetes.

As illustrated in Table 8, depression and anxiety disorder are the most common mental health disorders. There were no significant differences in prevalence of mental health disorders by diabetes diagnoses.

Table 8. Mental Health Disorders

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Depression	14.2%	5,122	10.4%	32231
Anxiety disorder	10.3%	3690	7.6%	23312
Post-traumatic stress disorder (PTSD)	6.1%	2198	3.6%	11144
Phobia	5.9%	2130	4.4%	13580
Panic disorder	4.4%	1591	3.8%	11601
Bipolar disorder	2.7%	960	1.7%	5,275
Obsessive Compulsive Disorder (OCD)	2.2%	786	2.5%	7851
Schizophrenia	1.6%	568	1.0%	2965

Mental Health Concerns

To assess undiagnosed mental health issues, participants were asked, “Have you had any emotional, mental, and behavioral problems such as stress, anxiety, or depression that concerned you during the past 12 months?”

As illustrated in Table 9, about a quarter of all adults had such concerns. This did not differ based on diabetes diagnoses; people with diabetes had similar rates of mental health concerns as their counterparts without diabetes.

Table 9. Mental Health Concerns

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Have experience a mental health concern in past year	25.5%	9,136	24.7%	76,077
Have not experienced a mental health concern in the past year	74.5%	26,705	75.3%	232,069
Total	**100.0%**	**35841**	**100.0%**	**308145**

Section 9: Disability

Disability is an impairment that limits or prevents a person's ability to function in one or more areas. Disabilities could be visible or non-visible. The term disability refers to any of a wide range of types: physical, mental/intellectual, emotional, developmental, or sensory. Disabilities can prevent a person from performing a specific task or action.

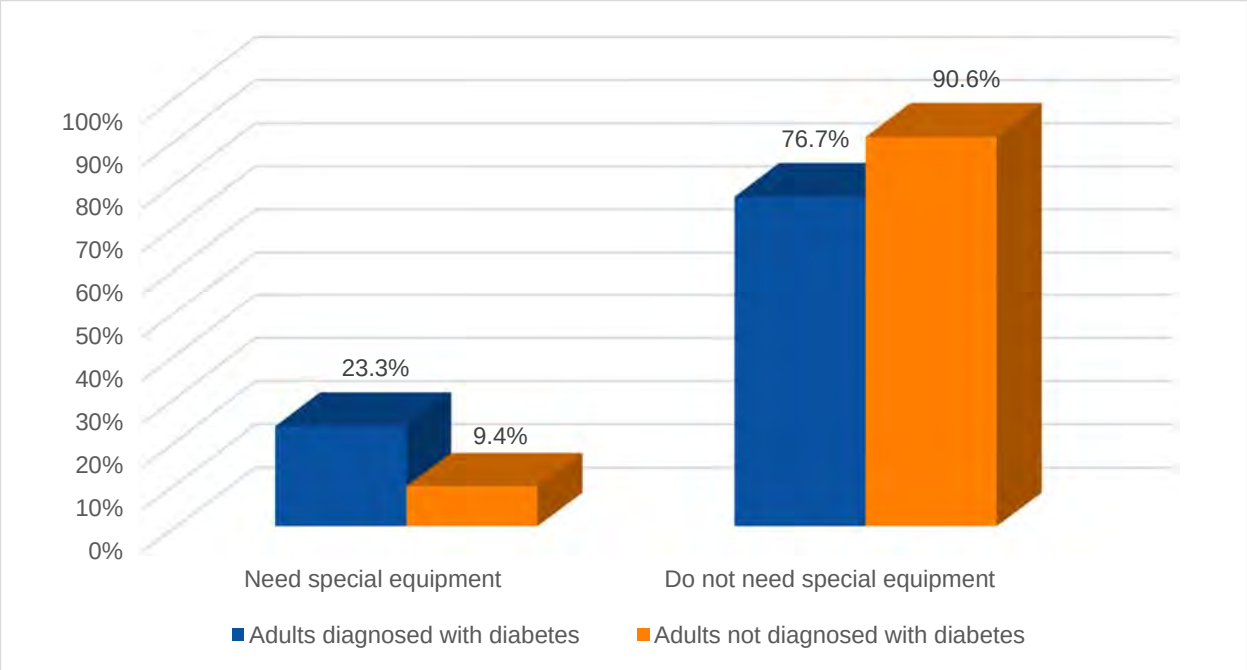
Assistive Technology Use

HARC's survey measured assistive technology use, which is closely related to disability. Participants were asked, "Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?"

People with diabetes are significantly more likely to indicate they require special equipment because of a health problem. Approximately 23.3% of people with diabetes need special equipment (8,413 people) while only 9.4% of people without diabetes need equipment, as illustrated in Figure 25. This is likely related to their age, diabetes, and the other common chronic illnesses they are experiencing.

Nationally, over 73,000 non-traumatic lower-limb amputations were performed on adults with diabetes in 2010; this accounts for about 60% of all non-traumatic lower-limb amputations.[29] Thus, it is plausible that the assistive technology needed by people with diabetes includes mobility aids such as wheelchairs and walkers for those who have been through an amputation as a part of their diabetes progression.

Figure 25. Special Equipment Required



[29] National Center for Chronic Disease Prevention and Health Promotion (2014). National Diabetes Statistics Report. Available online at: http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf

Section 10: Weight and Fitness

Weight regulation, exercise and proper nutrition are important for maintaining good health—especially for people with diabetes.

Body Mass Index (BMI)

Body mass index (BMI) is a calculated value based on an individual's height and weight. For most people, BMI correlates strongly with body fat percentage, and thus, it is used as one reliable indicator of obesity. A BMI test is one of the widely accepted tools used to determine obesity or other weight problems in adults.

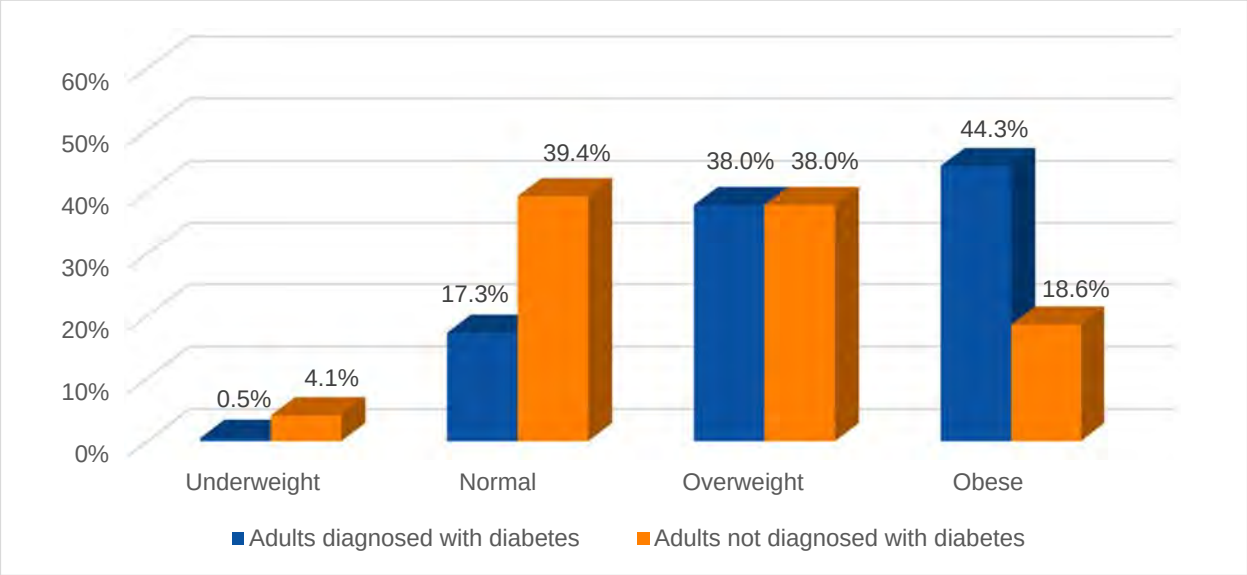
According to the World Health Organization, a person with a BMI value higher than 30 is considered to be obese. Obesity has serious medical consequences. It can lead to an increased risk for various diseases such as hypertension, heart disease, and stroke. The CDC ranks obesity, after tobacco use, as the second leading cause of preventable death in the United States. It accounts for approximately 300,000 deaths each year.

Diabetes and obesity are closely linked. Nationally, over 85% of people with type 2 diabetes are overweight or obese.[30] People with diabetes who are overweight or obese have an increased risk of serious complications.[31]

To assess obesity, HARC calculated BMI for participants based on their self-reported height and weight.

Results show that people with diabetes in the Coachella Valley are significantly more likely than people without diabetes to be obese, 44.3% compared to 18.6% respectively. People with diabetes are also significantly less likely to be normal weight or underweight, as illustrated in Figure 26.

Figure 26. BMI Categories



[30] Centers for Disease Control and Prevention (2003). Morbidity and Mortality Weekly Report (MMWR). See the "Fast Facts – Data and Statistics About Diabetes" for more information: http://professional2.diabetes.org/admin/UserFiles/0%20-%20Sean/Documents/Fast_Facts_12-2015a.pdf

[31] American Diabetes Association: www.diabetes.org/food-and-fitness/weight-loss/?loc=ff-slabnav

Physical Activity

Maintaining a healthy weight is achieved through living a healthy lifestyle which includes a healthy diet, regular exercise and consuming only the calories your body needs and uses. According to the Centers for Disease Control and Prevention, it is recommended that adults get two hours and 30 minutes of moderate-intensity aerobic activity a week and muscle-strengthening activities on two or more days a week.[32]

Exercise is particularly important for people with diabetes. Both aerobic and strength-training exercise are considered useful in improving insulin sensitivity, and are particularly beneficial when used together.[33]

To assess aerobic activity, participants were asked, "During the last 7 days, on how many days did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"

People with diabetes tend to exercise less frequently than people without diabetes, as illustrated in Table 10. Specifically, people with diabetes are significantly less likely to report they exercised 'every day' in the past week (30.6%) compared to people without diabetes (36.1%).

Table 10. Frequency of Physical Activity in Past Week

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
None	25.4%	9,149	15.6%	47,586
1 to 2	13.4%	4,829	12.0%	41,402
3 to 4	20.1%	7,222	23.3%	71,189
5 to 6	10.6%	3,803	13.0%	39,660
Every day	*30.6%*	*11,004*	*36.1%*	*110,370*

Note. Items in italics are significant at $p<.05$

[32] Physical Activity. (2011). Centers for Disease Control and Prevention. Available online at: http://www.cdc.gov/physicalactivity/everyone/guidelines/adults.html

[33] "Exercise for the Management of Type 2 Diabetes: A Review of the Evidence." (2010). Zanuso, S. Jimenez, A., Corigliano, G., Balducci, S. Acta Diabetol, 47, 15-22.

To assess strength-building activities, participants were asked, "During the last 7 days, on how many days did you do activities to strengthen your muscles, such as lifting weights or other strength-building exercises?"

Generally, people with diabetes less regularly engage in strength-building exercises than their counterparts without diabetes. A higher percentage of people with diabetes indicated they engaged in no strength-training in the past week (69.0%) compared to people without diabetes (49.4%); however, these percentages are not significantly different. People with diabetes are significantly less likely than people without diabetes to indicate they engaged in strength training one to two times per week, and three to four times per week.

Table 11. Frequency of Strength-Building Exercises in Past Week

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
None	*69.0%*	*24,903*	*49.4%*	*150,561*
1 to 2	*6.9%*	*2,484*	*14.7%*	*44,866*
3 to 4	*9.3%*	*3,370*	*18.6%*	*56,832*
5 to 6	1.7%	625	6.3%	19,179
Every day	13.1%	4,712	11.0%	33,412

Note. Items in italics are significant at $p<.05$

Section 11: Social and Economic Needs

Many adults need assistance with the basic components of a healthy lifestyle. In order to be truly healthy, individuals need shelter, food, and basic utilities at a bare minimum. If people are unable to obtain these things, health is severely threatened. Ideally, those who need assistance in these areas would have programs and people they could rely on for help. However, for those who have unmet needs in these areas, interventions are needed to provide these important services.

Food Insecurity

It is especially hard to follow a healthy diet designed to fight diabetes if you are food insecure. The World Health Organization defines food security as, "access to sufficient, safe, nutritious food to maintain a healthy and active life."[34]

To assess food insecurity, participants were asked, "In the past year, did you ever cut the size of your meals or skip meals because you didn't have enough money for food?" As illustrated in Table 12, food insecurity rates were similar between adults with diabetes and those without—both around 12% of the total adult population. It is very concerning that more than 4,200 people with diabetes are food insecure—they are likely struggling more than most to maintain a healthy diet that will control their blood glucose.

Table 12. Skipping Meals/Cutting Meal Size due to Lack of Money

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Yes (food insecure)	11.9%	4,292	11.5%	35,581
No (likely food secure)	88.1%	31,803	88.5%	273,066
Total	**100.0%**	**36,095**	**100.0%**	**308,647**

Food insecurity can range from occasional cutting down the size meals to save money all the way to not eating for an entire day or more due to a lack of money. To assess this severe level of food insecurity, participants were asked, "In the past year, did you ever not eat for a whole day because you didn't have enough money for food?" As illustrated in Table 13, nearly 5% of Coachella Valley adults with diabetes went through such an experience. This type of fasting can wreak havoc with blood glucose levels, and can be very dangerous.

Table 13. Not Eating for an Entire Day due to Lack of Money

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Yes (severely food insecure)	4.6%	1,663	3.4%	10,417
No	95.4%	34384	96.6%	298484
Total	**100.0%**	**36,047**	**100.0%**	**308,901**

Fortunately, about 12.8% of Coachella Valley adults with diabetes have utilized an emergency food source (such as a food pantry or food distribution site) at least once in the past year. This indicates that resources are out there to address this issue, but it is a precarious situation at best. While food insecurity is a major concern for everyone—no one should go hungry—it is especially dangerous for people with diabetes who are attempting to regulate their blood glucose.

[34] Food Security. (2010). World Health Organization. http://www.who.int./trade/glossary/story028/en/

Other Needs

Food is not the only important need for a healthy community. To measure other needs, participants were asked if they needed assistance with any of the categories listed in Table 14.

The most common need was still for assistance with food. The need for assistance with these things was relatively similar between people with diabetes and those without, as illustrated in Table 14. The one exception to this was the need for home health care—people with diabetes have a higher need for this service (7.5%) than those without diabetes (3.1%). This likely due to the debilitating health consequences associated with advanced type 2 diabetes.

Table 14. Need for Assistance

	Adults with diabetes		Adults without diabetes	
	Weighted Percent	Population Estimate	Weighted Percent	Population Estimate
Food assistance	15.7%	5,633	10.4%	32,099
Utility assistance	14.5%	5,224	8.4%	25,832
Transportation assistance	12.0%	4,326	7.4%	22,811
Financial assistance	10.6%	3,817	6.5%	20,034
Home health care	*7.5%*	*2,691*	*3.1%*	*9,624*
Rental assistance	4.7%	1,689	4.0%	12,422
Housing assistance	3.5%	1,266	4.6%	14,115

Note. Items in italics are significant at $p < .05$

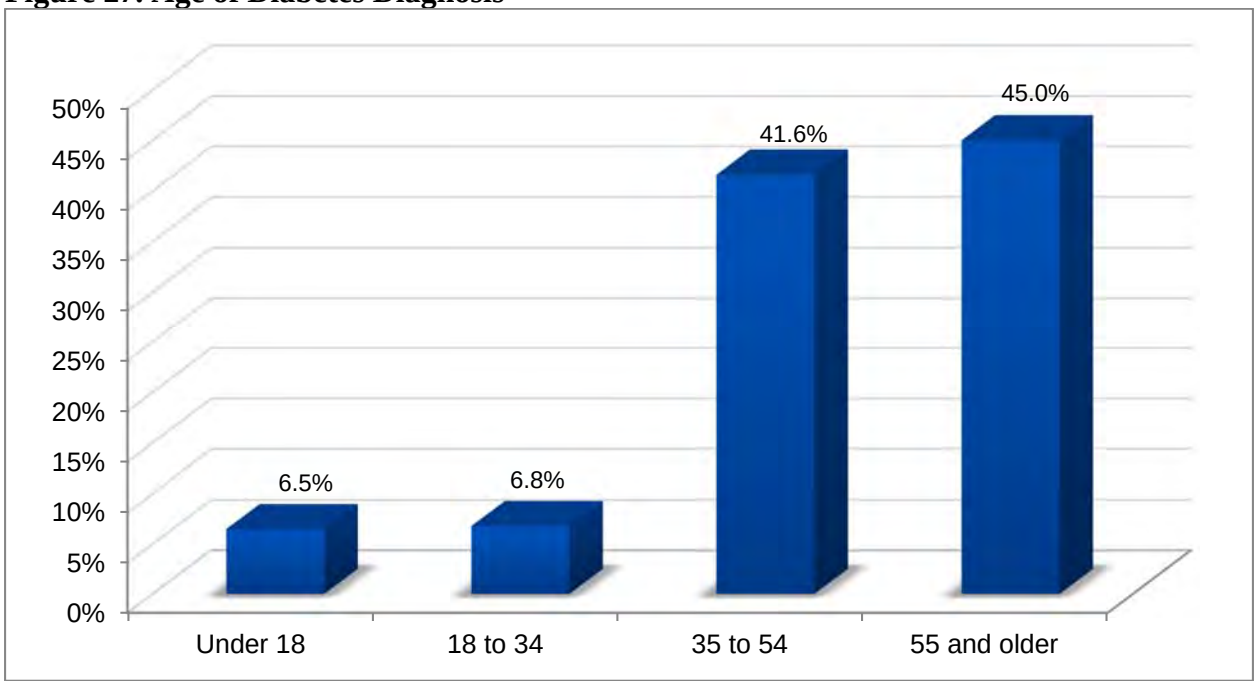
Section 12: Diabetes-Specific Information

People with diabetes were asked several unique questions specific to the treatment of their diabetes. To this end, a section of the survey was directed only at people that had been diagnosed with diabetes. Thus, for this last section, there are no comparison graphs to compare people with diabetes to those without—these questions were not asked of people who had not been diagnosed with diabetes.

Age of Diagnosis

The majority of people with diabetes in the Coachella Valley were diagnosed after the age of 35, indicating it is most likely type 2 diabetes that impacts them. As illustrated in Figure 27, only 6.5% of people with diabetes were diagnosed during childhood.

Figure 27. Age of Diabetes Diagnosis



Visits to Provider for Diabetes

Results indicate that most people with diabetes in Coachella Valley are getting regular care for their diabetes. More than 75% of people with diabetes have visited their care provider at least once in the past year for care related to their diabetes, as illustrated in Table 15.

Table 15. Number of Diabetes-Related Healthcare Provider Visits in Past Year

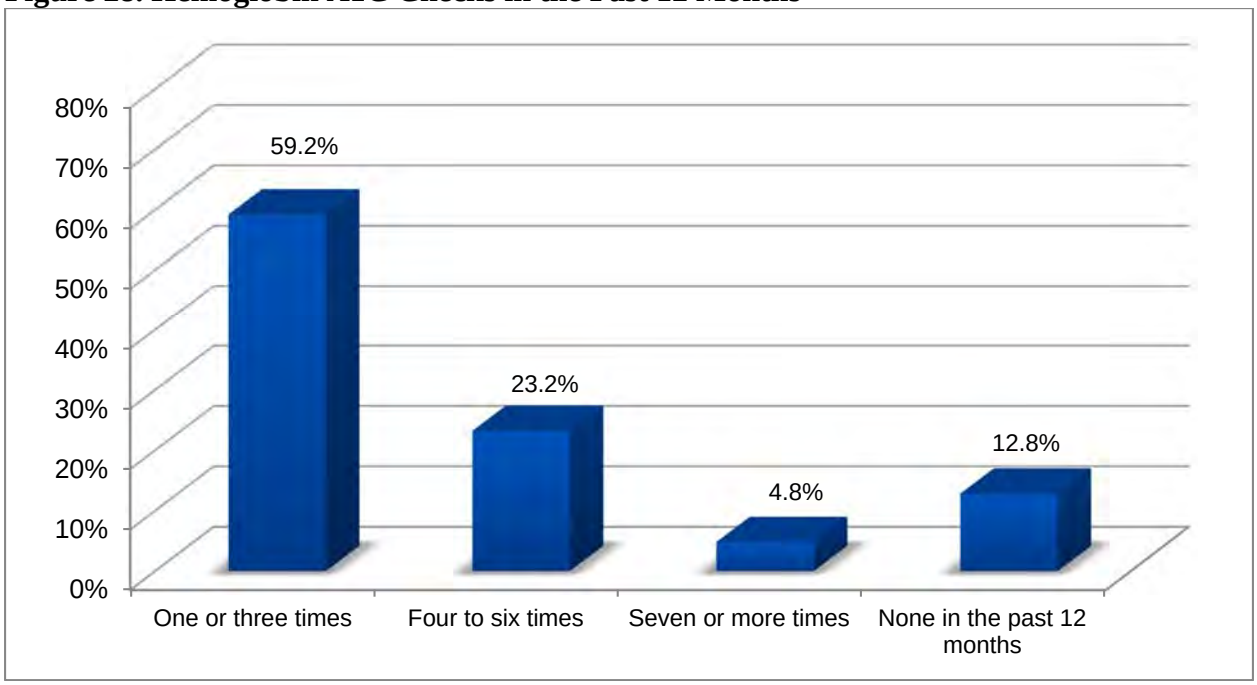
Number of visits	Weighted Percent	Population Estimate
No visits to provider for diabetes in the past year	22.5%	5,413
1 to 3 visits	54.4%	13,101
4 to 6 visits	13.7%	3,291
7 or more visits	9.5%	2,296

These regular visits seem to be allowing for frequent hemoglobin A1C tests. A1C tests can help a healthcare provider to assess a diabetic's ability to manage their blood sugar levels successfully, and can provide the care provider with the information they need to design a

successful treatment plan for the patient. Thus, it is very important that healthcare providers regularly check their diabetic patients' A1C levels.

Results show that more than 85% of people with diabetes have had A1C tests in the past year, as illustrated in Figure 28. Only 12.8% have not had their hemoglobin checked in the past year--approximately 4,269 people with diabetes. These people are overdue for an A1C test and should get one as soon as possible to monitor their diabetes.

Figure 28. Hemoglobin A1C Checks in the Past 12 Months



Additionally, as people with diabetes are at risk for foot sores and limb loss, feet should be checked by a healthcare provider frequently as well. The majority of people with diabetes have had their feet checked by a healthcare provider at least once in the past year, as demonstrated in Table 16.

Of some concern is that 29% of people with diabetes—roughly 12,204 people— have not had their feet checked in the past year. These people should get a check as soon as possible.

Table 16. Number of Feet Checks in the Past 12 Months

	Weighted Percent	Population Estimate
One to three times	50.9%	11,877
Four to six times	15.8%	3,662
Seven or more times	3.5%	1,246
No feet	0.8%	269
None in the past 12 months	29.0%	10,204

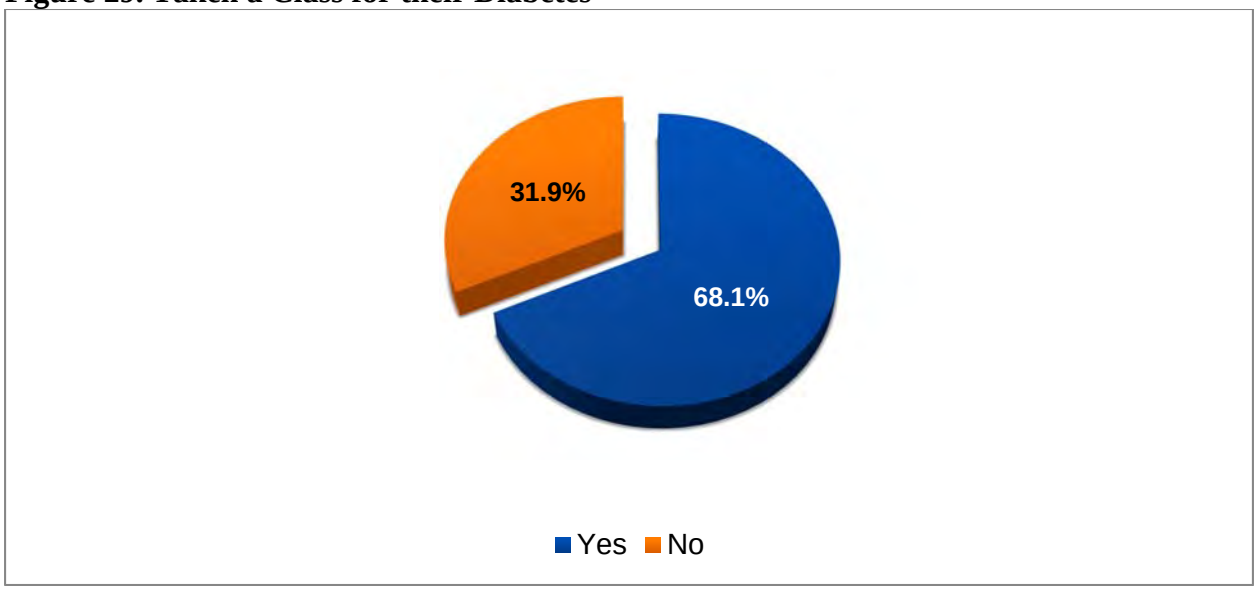
Self-Management Classes

Although diabetes is a serious and sometimes fatal disease, it can be treated and managed. For example, many cases of diabetes can be managed with healthy eating, regular physical activity, and medications that lower glucose levels.[35] Self-management training for people with diabetes includes topics such as understanding how foods impact glucose levels, encouraging exercise, learning coping skills, understanding medication and the importance of treatment adherence, and monitoring glucose levels. Many local insurance providers and healthcare providers, including Kaiser Permanente and IEHP, offer these courses at no charge to their members.

To assess whether people with diabetes had any such self-care training, participants with a diabetes diagnosis were asked if they had ever taken a class on how to manage their diabetes.

As illustrated in Figure 29, approximately 68.1% of people with diabetes have taken a class in how to manage diabetes. However, 31.9% of people with diabetes, roughly 11,503 people in the Coachella Valley, have not taken a class in how to properly care for their diabetes. The lack of education could possibly explain some of the poor behavioral choices illustrated throughout this report, such as binge drinking, cigarette smoking, and lack of exercise.

Figure 29. Taken a Class for their Diabetes



[35] National Center for Chronic Disease Prevention and Health Promotion (2014). National Diabetes Statistics Report. Available online at http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf

CONCLUSION

Results indicate that approximately 10.3% of Coachella Valley adults have been diagnosed with diabetes—which equates to more than 36,000 people. Males, older adults, and veterans bear a disproportionate burden when it comes to diabetes.

Diabetes care providers should be aware that their patients likely come from all over the Valley, and are from all income and educational levels. As such, programs and written materials need to be designed to be understandable and accessible for all.

Care providers should also take note that most adults with diabetes are also living with other chronic diseases as well as mental health disorders. A treatment plan for someone with diabetes should not neglect these other concerns.

Fortunately, most people with diabetes are insured and in care and getting the regular exams they need to manage their diabetes. Those who are not in care are a serious concern. Efforts should be made to find those who are not in care—especially those who are low income—and get them insured and in care. Outreach will be necessary for this effort.

For those who are already in care, they are still experiencing obesity problems, and not getting enough exercise. Educating them on the benefits of exercise, providing free and local exercise classes, and emphasizing the diversity of ways to exercise may be of assistance in this effort.

Thousands of Coachella Valley adults with diabetes have never taken a class on how to manage their diabetes. These courses are typically considered to be extremely helpful, and might help reduce poor behavioral choices, such as binge drinking, smoking, and lack of exercise.

RESOURCES

HARC has identified the following resources as especially useful in protecting and promoting health, both in the Coachella Valley and in general. This list is by no means comprehensive. The resources listed here are provided solely as a service to our community. Inclusion on this list does not indicate endorsement of any organization by HARC and none should be inferred. HARC is not responsible for the content of the organization's webpages.

General Resources

American Diabetes Association
Website: www.diabetes.org
Description: The American Diabetes Association's mission is to prevent and cure diabetes and to improve the lives of all people affected by diabetes.

Centers for Disease Control and Prevention- Diabetes
Website: www.cdc.gov/diabetes/home/
Description: The CDC's website on diabetes provides information on diabetes prevention and control. The website also has information on diabetes basic information, statistics and programs and research.

National Diabetes Education Program
Website: http://ndep.nih.gov/
Description: National Diabetes Education Program was started by the NIH and CDC in 1997 to educate the public about the risks of diabetes. NDEP's goal is to reduce the illness and death caused by diabetes and its complications.

Coachella Valley Resources

Clinicas de Salud del Pueblo
Website: http://www.cdsdp.org/
Description: Clinicas de Salud del Pueblo is a private nonprofit clinic that provides primary care services throughout Imperial and Riverside Counties. Clinicas de Salud del Pueblo provides free one-on-one diabetes counseling from licensed health educators for patients with diabetes.
Contact Information:

- **Coachella Medical Clinic**
  - 49111 Highway 111, Coachella, CA 92236
  - Phone: (760) 393-0555
- **Mecca Medical Clinic**
  - 91275 66th Avenue, Suite 500, Mecca, CA. 92254
  - Phone: (760) 396-1249
- **Indio Health Center**
  - 83791 Date Avenue, Indio, CA. 92201
  - Phone: (760) 848-7351

Desert Oasis Healthcare: Diabetes Education
Website: www.mydohc.com/Members/HealthEducation
Description: Desert Oasis Healthcare offers professional health education courses on diabetes self-management. Classes are offered in English and Spanish in both Palm Springs and Indio, and no referral is needed.
Contact Info:

- Call 760-328-4499 to schedule a class
- Indio Site: 81-880 Dr. Carreon Blvd, Suite 8108, Indio, CA 92201
- Palm Springs Location: 275 N. El Cielo Rd, Suite D-414, Palm Springs, CA 92262

Eisenhower Medical Center- Diabetes Classes
Website: http://www.emc.org/
Description: Eisenhower Medical Center is the Coachella Valley's only nonprofit hospital. EMC provides classes and resources on a variety of health topics including diabetes.
Diabetes Classes and Contact Information

- Rancho Mirage Location: Eisenhower Medical Center: Diabetes Program Office, Probst Building, Suite 100B, 39000 Bob Hope Drive, Rancho Mirage, CA 92274
  - Free Diabetes Class (English), every Monday from 3-4 pm, reservation is required: (760) 773-1403
  - Free Diabetes Class (Spanish), every 4th Thursday of the month from 3-4 pm, reservations required: (760) 837-8718
  - Insulin Therapy and You Class, second Monday of the month, 10-11 am, reservation is required: (760) 773-1403

    - Desert Diabetes Club at Eisenhower Medical Center: Support group for individuals impacted by diabetes
- La Quinta Location: Eisenhower George and Julia Argyros Health Center, 45280 Seeley Dr, La Quinta, CA
    - Class: Free Diabetes Class, second Wednesday from 9-10 am, reservations required: (760) 423-4855, reservations@emc.org

El Sol Neighborhood Educational Center
Website: http://www.elsolnec.org/
Description: El Sol strives to provide the Latino community in the Inland Empire with health education, prevention, and early intervention. El Sol utilizes Community Health Workers to provide these services in the community. Much of their programming relates to diabetes prevention and treatment.
Contact Information:
- 53990 Enterprise Way, Coachella CA 92236
- (760) 398-8758

IEHP Diabetes Self-Management Program
Website: ww3.iehp.org/en/members/health-and-wellness/diabetes-self-management-program/
Description: IEHP offers members a free multi-session program designed to teach people with diabetes about monitoring blood sugar, foot and leg care, creating healthy meal plans, and how to spot diabetes-related health problems. Participants receive a free glucometer to test blood sugar. The program is offered in English and Spanish.
Contact Info: To sign up, call IEHP Member Services at 1-800-440-IEHP (4347) or 1-800-718-4347 for TTY users.

Kaiser – Living Well with Diabetes
Website:
https://healthy.kaiserpermanente.org/health/care/!ut/p/a0/DcdBDoAgDATAF5m9e_MVSm9rbZAECsHG9-vcBoID4nxLZpTurP-TmofN9So8LezBDoGMydyI5H1R6m0YrW0fNQGb3w!!/
Description: Kaiser offers members a free multi-session program to provide the support and skills needed to manage diabetes. Topics include choosing healthy foods, physical activity, medications, and blood sugar checks. Kaiser also provides the Emmi® online program to help people understand diabetes. This includes several modules related to diabetes, including checking blood sugar, injecting insulin, filling prescriptions, carbohydrate counting, and interpreting A1C tests.
Contact Information:
- Classes are offered at the Palm Desert Medical Offices in Palm Desert: University Park Centre 75-036 Gerald Ford Drive, Palm Desert, CA 92211
- Please call for dates and times: 1-866-883-0119 (toll free)

APPENDIX

Appendix. ZIP Codes Included in 2013 Community Health Monitor

ZIP Code	City	Other Areas Included
92234	Cathedral City	--
92236	Coachella	--
92240	Desert Hot Springs	--
92241	Desert Hot Springs	Sky Valley
92210	Indian Wells	
92201	Indio	
92203	Indio	Bermuda Dunes
92253	La Quinta	--
92254	Mecca	North Shore
92258	North Palm Springs	--
92211	Palm Desert	--
92260	Palm Desert	--
92262	Palm Springs	Barona Rancheria, Smoke Tree
92264	Palm Springs	--
92270	Rancho Mirage	--
92275	Salton Sea	Mecca
92274	Thermal	Desert Shores, One Hundred Palms, Sandy Korner, Torres Martinez Indian Reservation,
92276	Thousand Palms	--