



# **Chronic Disease and Associated Risk Factor Disparities Among Populations in Clark County, Nevada**

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# Chronic Disease and Associated Risk Factor Disparities Among Populations in Clark County, Nevada

This report was prepared as part of an internship under the affiliation agreement between **Touro University** and **Southern Nevada Health District**.

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# Executive Summary

Chronic disease is the leading cause of death and disability in the United States (Centers for Disease Control and Prevention [CDC], 2016a). In Clark County, Nevada, chronic disease has continued to be among the top ten causes of mortality (Southern Nevada Health District, 2016). Among Clark County residents, different groups show higher rates of disease. These health disparities found among Clark County residents are important to understand. They can help us to identify which groups need to be targeted in future interventions. The goal of this report is to identify which populations among Clark County residents have the highest percentage of chronic disease and which have the highest risk for chronic disease.

In this report we identify which race/ethnicity, gender, and age groups have the highest rates and percentages of chronic disease and associated risk factors. Chronic diseases evaluated include heart disease, stroke, chronic lower respiratory lung disease, diabetes, and cancer. Risk factors evaluated include obesity, overweight, high cholesterol, high blood pressure, tobacco use, sedentary lifestyle, nutrition, and management of diabetes and blood pressure. Data queried through the Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Survey (YRBS), and CDC WONDER were used to develop this report.

## ■ MAJOR FINDINGS

### Race/Ethnicity

#### NON-HISPANIC BLACKS

Non-Hispanic Blacks had the highest chronic disease morbidity and mortality. They had the highest rates and percentages of heart disease, diabetes, and stroke. They also had among the highest rates and percentages of chronic lower respiratory disease and cancer. Additionally, they had some of the highest chronic disease risk factors.

##### Highlights

- In 2015, heart disease caused 264.4 deaths per 100,000 persons among non-Hispanic Blacks compared to 232 deaths per 100,000 persons among non-Hispanic Whites. Other groups had almost half the mortality rates.
- In 2015, 9.5% of non-Hispanic Blacks were diagnosed with a past stroke compared to only 1.7% among non-Hispanic Whites.
- Non-Hispanic Blacks had almost 3X higher death rates caused by diabetes than non-Hispanic Whites.
- Non-Hispanic Blacks had the highest percentage that smoke at 28.7% followed by non-Hispanic other at 17.5%, non-Hispanic Whites at 15.9%, and Hispanics at 13.8%.
- The percentage of high blood pressure among non-Hispanic Blacks is 37.3% compared to 30.7% among non-Hispanic Whites.
- Non-Hispanic Blacks had the highest percent of high cholesterol at 48.3%, followed by non-Hispanic Whites at 37.6% and Hispanics at 33.9%. Non-Hispanic Blacks had an 11.3% increase since 2011.

#### NON-HISPANIC WHITES

Although non-Hispanic Whites did not have the highest health disparities found in Clark County, they were still struggling. This population has had the highest chronic lower respiratory disease and cancer morbidity and mortality for many years.

##### Highlights

- In 2015, non-Hispanic Whites had 67.7 deaths per 100,000 compared to 34.8 per 100,000 non-Hispanic Blacks caused by chronic lower respiratory disease.

- In 2015, 7.6% of non-Hispanic Whites reported having had cancer (excluding skin cancer) compared to 5.9% among non-Hispanic Blacks. These percentages exclude skin cancer.
- In 2015, non-Hispanic Whites had 174.9 deaths per 100,000 caused by cancer, followed by 171.9, 109.6, and 93.9 deaths per 100,000 among non-Hispanic Blacks, Asians, and Hispanics, respectively.

### HISPANICS

Although Hispanics had some of the highest risk factors for chronic disease, they consistently have had some of the lowest chronic disease morbidity and mortality.

#### Highlights

- Hispanics had the highest obesity and some of the poorest fruit consumption and physical activity compared to other groups.
- In 2015, 36.0% of Hispanics were obese, followed by 26.1% non-Hispanic Blacks and 25.7% non-Hispanic Whites. Since 2011, Hispanics and non-Hispanic Whites had more than a 5% increase in obesity prevalence, while non-Hispanic Blacks had a 6% decrease.

### Gender

Males continued to have the highest health disparities compared to females. They consistently had the highest mortality rates from heart disease, diabetes, and cancer. However, females had higher disease morbidity, except for diabetes. Both genders had about equal rates of chronic disease risk factors. Females had higher percentages of high cholesterol and high blood pressure, and lower physical activity, while males had poorer nutrition, were more obese, and used more tobacco.

#### Highlights

- Males have had about 100 more deaths caused by heart disease per 100,000 persons than females in 2015.
- In 2015, diabetes caused 13.4 deaths per 100,000 persons among males, compared to 9.6 deaths per 100,000 persons among females. This trend has been consistent from 2004 to the most recent data in 2015.
- Males had 29.7 more deaths caused by cancer per 100,000 persons compared to females. Since 2008 this gap has decreased by over 50%. However, the gap still persists.
- Females had a higher proportion of chronic obstructive pulmonary disease (COPD) than males. In the most recent data, 8.2% of females versus 4.6% of males had COPD in Clark County.
- In 2015, the percentage of stroke among females was 2.5% compared to 1.8% among males.
- Females had higher percentages of high cholesterol than males with 38.9% and 32.4% respectively. This changed from 2011 when males had higher percentages. From 2011 to 2015, high cholesterol among males decreased 6.2%, while it increased among females 2.6%.
- Males were more obese than females, 28.9% versus 25.2% in 2015. Both genders have become more obese since 2011. Males had the larger increase at 4.2%.

### Age

As expected, older adults were faced with higher chronic disease morbidity and mortality. Older adults had some of the highest risk factors for chronic disease, such as high blood pressure, high cholesterol, and poor nutrition and physical activity. However, a big risk factor that was not seen very much in older adults was cigarette smoking. Younger adults had a higher percentage of cigarette use. However, older individuals that did smoke cigarettes tried to quit less than the younger generation.

## Highlights

- Individuals aged 55 and older consistently had lower physical activity in 2011 and 2015 compared to younger age groups. In 2015, 29.9% of 55- to 64-year-olds compared to 17.2% of 18- to 24-year-olds did not participate in any exercise outside of their employment in the past 30 days.
- Adults aged 25- to 34-year-olds had the highest percentage that smoked cigarettes at 24% followed by 35- to 44-year-olds at 21%. Only 13% of 65 and older adults smoked cigarettes.
- Individuals aged 65 and older have the lowest percentage that tried to quit smoking cigarettes at 52%. This group also had the least improvement compared to all other age groups.

## ► HIGH SCHOOL

### RACE/ETHNICITY

Overall, there is no one ethnic or racial group with the highest amount of poor health behaviors. However, among these groups there are specific groups that had the poorest nutrition, physical activity, and high tobacco use.

### Highlights

- 83% of Asian students did not meet the recommended physical activity guidelines compared to 68% of non-Hispanic White students. This percentage has not improved since 2013, while it has in other groups.
- 49% of Asian students spend three or more non-educational hours in front of the computer or playing video games compared to 33% of non-Hispanic White students.
- 25% of non-Hispanic Black students did not eat vegetables. This percentage is 17% higher than found in 2013. Other groups also saw a large increase but not to the extent found among the non-Hispanic Black population.
- Over 14% of Hispanic students were obese followed by 13% of non-Hispanic Black students. While the rate of obesity for non-Hispanic Blacks improved by 4% since 2013, the rate for Hispanic students showed no improvement.
- 12% of non-Hispanic White students reported using tobacco followed by 9% of Hispanic students.
- Close to 27% of Hispanics reported vaping, followed by 25% of non-Hispanic Blacks, 23% of non-Hispanic Whites, and 17% of Asians.

### GENDER

Male students consistently made unhealthy choices. They had the poorest diet, tobacco use and were more obese. However, females exercised less than males. Electronic vaping was high among both genders.

When referring to youth in this report, tobacco use is defined as use of cigarettes, smokeless tobacco, or cigars on one or more of the past 30 days.

### Highlights

- Over 20% of male students did not eat vegetables on a daily basis compared to 16% of females.
- 12.6% of male students were obese compared to 10.2% of female students.
- 10.4% of male students smoked tobacco compared to 8.3% of female students.
- 25% of males versus 24% of females reported using electronic vapor products.
- Over 40% of males spent three or more hours playing video games or using the computer for non-educational uses. However, this percentage increased among females and is almost equal.

- About 80% of female students did not meet the youth physical activity guidelines created by the U.S. Department of Health and Human Services compared to 66% of male students.

### AGE

The youngest and oldest students had some of the poorest health behaviors. A large proportion of 9th graders were not eating vegetables and were spending too much time sitting in front of the computer or playing video games. A large proportion of 12th graders reported using tobacco and not exercising.

#### Highlights

- Over 22% of 9th graders are not eating vegetables. This number increased more than 15% since 2013.
- Over 44% of 9th graders were spending three or more non-educational hours in front of the computer or playing video games. This increased by 10% since 2013, while this behavior has decreased among 11th and 12th graders.
- 12th graders consistently have had the highest percentage of individuals that smoke cigarettes, smoke cigars, chew tobacco, and used electronic vaping products. Sixteen percent of 12th graders reporting using tobacco compared to 5% of 9th graders.
- 76% of 12th graders versus 71% of 9th graders reported exercising less than recommended by the U.S. Department of Health and Human Services.

## RECOMMENDATIONS

First, among the non-Hispanic Black population the Health District recommends continued chronic disease monitoring, risk factor reduction — especially focusing on cigarette smoking and high cholesterol — and identifying which determinants of health are leading to these poor health outcomes. We believe that by improving these risk factors, as well as tackling other determinants of health, the large health disparities gap found among the non-Hispanic Blacks will close. Second, among the non-Hispanic White population we suggest further research to better understand their higher rates of chronic lower respiratory disease and cancer morbidity and mortality. Research can include their daily cigarette use and exposure to secondhand smoke compared to other groups. Third, we suggest monitoring chronic disease morbidity and mortality among the Hispanic population, especially stroke and heart disease. Although Hispanics have some of the lowest chronic morbidity and mortality compared to other groups, they have some of the highest risk factors, which may lead to poorer health outcomes in the future. Fourth, among genders, we suggest further research to explain why males have higher chronic disease mortality, while females have higher morbidity. We suggest evaluating if males are utilizing medical services as much as females. Lastly, we have several recommendations related to Clark County high school students. Improving the sedentary lifestyle among Asian students is needed. We suggest reducing their time in front of the computer or playing video games and improving their daily physical activity. Other efforts should be focused on improving vegetable intake among 9th graders and male students, reducing tobacco use among 12th graders, and reducing electronic vaping among all high school students.

## Introduction

Chronic disease is the leading cause of death and disability in the United States (CDC, 2016a). It is also among the top preventable and costliest health issues today (CDC, 2016a). Heart disease leads as the top cause of death with over 600,000 people dying every year (CDC, 2015). Other chronic diseases that are causing high mortality include cancer, chronic lower respiratory disease, stroke, diabetes, Alzheimer's disease, and kidney disease.

A closer look revealed that certain populations across America are more burdened with these chronic diseases than others. These differences, referred to as health disparities, have been commonly found among the non-Hispanic Black population for decades (Mays, Cochran, & Barnes, 2007). The non-Hispanic Black population has had the highest heart disease, stroke and diabetes mortality and morbidity for years (Noonan, Velasco-Mondragon & Wagner, 2016). Currently, deaths caused by preventable heart disease and stroke are twice as likely among non-Hispanic Blacks as among non-Hispanic Whites (CDC, 2016b). Other health disparities can be found among other groups as well, such as certain cancers among the different sexual orientation subpopulations (Griggs et al., 2017). Furthermore, these health disparities may be explained by better understanding how the determinants of health play a role in this population's health. Determinants of health are a multitude of economic, personal, social, and environmental factors that influence health status (U.S. Department of Health and Human Services, 2017). This includes health behaviors such as smoking cigarettes, sedentary lifestyle, and poor diet. These poor health behaviors are risk factors for chronic disease and need to be identified. Other determinants of health may also be important to help explain health disparities. For example, among the non-Hispanic Black population social determinants of health play a large role in their health disparities. Noonan, Velasco-Mondragon & Wagner, (2016) explain that these social determinants that are negatively influencing the non-Hispanic Black population's health include poverty, education, housing, racism, access to healthy foods, environmental exposures, violence, and criminal justice. Thus, it is important to identify determinants of health to help explain why certain populations have health disparities. Additionally, these identified factors can be used to develop stronger interventions.

In Clark County, health disparities of chronic disease have not been extensively studied. The goal of this report is to identify which populations among Clark County residents have the highest health disparities of and risk for chronic disease. Identifying health disparities of chronic disease and its risk factors among a population is important. It enables interventions to be customized for these burdened populations, which provides a step towards creating a society where everyone has the same opportunity to live a long, healthy life.

## Methods

This report used data queried from the Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Survey (YRBS), and CDC WONDER. This data was used to identify which race and ethnicity, gender, and age have the highest chronic disease morbidity and mortality and the highest risk factors for chronic disease. Chronic diseases evaluated include heart disease, stroke, chronic lower respiratory lung disease, diabetes, and cancer. Risk factors evaluated include obesity, overweight, high cholesterol, high blood pressure, tobacco use, sedentary lifestyle, nutrition, and management of diabetes and blood pressure.

# Results

## ■ BEHAVIORAL RISK FACTORS

### Nutrition

Overall, compared to the United States, residents of Clark County had better nutrition behaviors. The latest data from 2015 shows that 37.2% of Clark County adults consumed fruits less than one time per day and 19.2% consumed vegetables less than one time per day; compared with the national average at 40.1% and 22.3%, respectively.

#### VEGETABLE CONSUMPTION

In Clark County, males consistently consume less vegetables than females. In 2015, 20.6% of males were not eating vegetables, compared to 17.8% of females (Figure 1). Fortunately, males have significantly improved their vegetable intake of 12.2% since 2011. Among racial and ethnic groups, non-Hispanic Blacks have consistently had the higher percentage of poor vegetable intake compared with non-Hispanic Whites and Hispanics (Figure 2). Among age groups, the oldest and youngest age groups have consistently had the poorest vegetable intake. In 2015, 27.5% of adults aged 65 and older consumed no vegetables, followed by 23.5% of 18- to 24-year-olds. Since 2011 all age groups had large improvements, except for the 65 and older age group, which only had a 2% improvement.

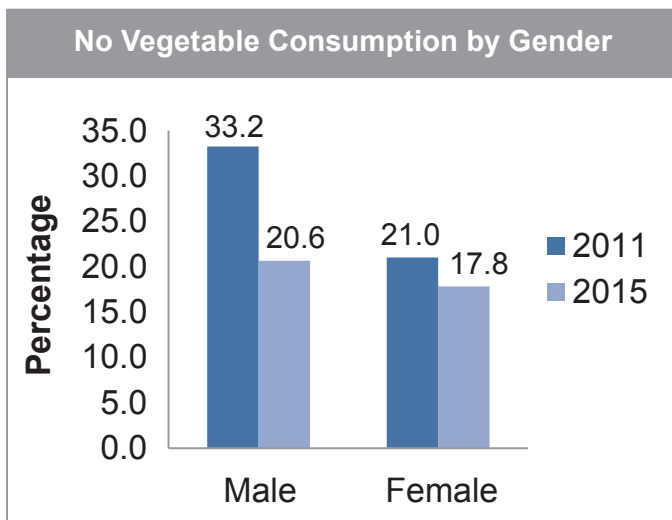


Figure 1: Percentage of adults that consume less than one vegetable per day by gender, Clark County, 2011-2015

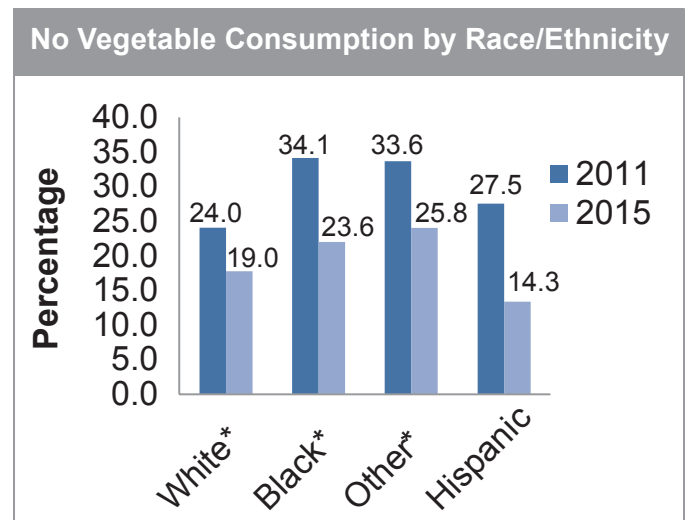


Figure 2: Percentage of adults that consumed less than one vegetable per day by race/ethnicity, Clark County 2011-2015. \*Non-Hispanic

#### FRUIT CONSUMPTION

In Clark County, males consistently consume less fruits than females. In 2015, 38.1% of males reported that they ate fruit less than one time per day compared to 36.2% of females. While males have improved their fruit consumption since 2011, females have not. Among racial and ethnic groups, non-Hispanic Whites had the poorest fruit consumption at 39.7%, eating fruit less than one time per day, followed by Hispanics at 37.2%. While all groups improved their fruit intake since 2011, non-Hispanic Whites' fruit consumption declined. Among age groups, all groups had over a third of individuals that did not regularly consume fruits, with individuals aged 45 to 54 years old with the highest percentage at 39.3%.



## ► HIGH SCHOOL

### VEGETABLE CONSUMPTION

Clark County high school students have a significantly higher percentage of students that do not eat vegetables compared to the national average. In 2015, 18.7% of Clark County students reported that they did not consume any vegetables within a one week period, compared to 6.7% of the national average. Since 2013 there has been a large increase in the proportion of Clark County students that do not eat vegetables, from 6.8% to 18.7%. The percentage of Clark County students that eat vegetables three times a day has also decreased since 2013 by 1.1%. In 2015, only 10.7% of Clark County students ate vegetables three times a day. Among genders, males consumed less vegetables than females (Figure 3). In 2015, 20.6% of males did not consume any vegetables within one week, compared to 16.5% of females. Among age groups, the younger students had higher percentages of poor vegetable consumption. More than 22% of 9th graders did not consume vegetables within seven days compared to 17.5% of 12th graders. Among ethnic groups Blacks had the highest percentage of poor vegetable intake at 25.5%, followed by Hispanics at 19.4% and Whites at 16.7%.

### FRUIT CONSUMPTION

Clark County has fewer high school students with very poor fruit consumption than the United States. In 2015, 5.2% of high school students across the United States ate less than one fruit per week compared with 4.8% of Clark County students. In Clark County, fruit consumption has improved. Since 2013 there has been a 0.9% decrease in students that do not eat fruits. Males consistently had poorer fruit consumption than females. In 2015, 6.4% of males did not eat fruits within a week period versus 3% of females. Younger students tended to consume less fruits than older students. Among ethnic groups, Whites had the highest percentage of students that did not eat fruits regularly at 5.8%, followed closely by Asians and Blacks at 5.7%. All ethnic groups have improved their fruit consumption, except for Whites. Since 2013, Whites had an additional 0.8% of students that did not eat fruits. Blacks had the biggest improvement since 2013 with a 4.7% reduction in the proportion of students that did not eat fruits.

Although Clark County students don't have the poorest fruit consumers, they also do not have the best fruit consumers. In 2015, 20% of the high school students across the United States ate or drank three or more fruits a day compared to only 16.6% in Clark County. Among genders, males consume more fruits by 1.5%. Eleventh graders had the highest percentage of best fruit consumers at 17.8%, however, no trends were found in either 2013 and 2015. Among ethnic groups, Blacks had the highest percentage of best fruit consumers at 20.5%, followed by Hispanics at 18%, Asians at 14.6%, and Whites at 13.6%.

### SODA CONSUMPTION

Clark County high school students drank less soda than the average high school student in the United States. In 2015, 14.5% of Clark County high school students reported drinking one soda or more a day compared to 20.4% of high school students across the U.S. Clark County students have improved their soda consumption over the last several years. From 2013, 0.5% less students drank soda every day in Clark County. Among genders, males drank more soda than females. In 2015, 16.6% of males versus 12.3% of females drank soda. Older students generally drank more soda than younger students. In 2015, 18.1% of students 18 years old or older versus 11% of 14-year-olds drank soda. Among ethnicities, there was a larger percentage of Blacks that drank soda compared to other ethnicities. In 2015, 17.2% of Black students drank soda compared to 15.2% of White and 14.5% of Hispanic students.

No Vegetable Consumption Among High School Students by Gender

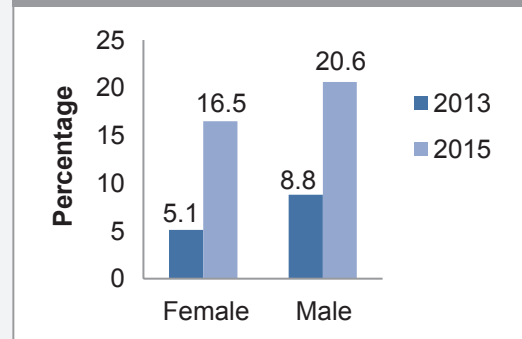


Figure 3: Percentage of high school students who did not eat their vegetables by gender, Clark County, 2013-2105

## Sedentary Lifestyle

Clark County adults are more physically active outside their jobs than the average American. In 2015, 74.5% of Clark County adults exercised at least once in the past month compared to only 73.8% of adults across the United States. In Clark County, the amount of exercise remained about the same overall from 2011 to 2015. Among genders, females consistently had less physical activity compared to males (Figure 4). In 2015, 30.2% of female adults had sedentary lifestyles compared to only 20.6% of male adults. It is important to point out that while males have improved their physical activity from 2011 to 2015, females became even more sedentary. Hispanics and non-Hispanic Blacks continued to have the poorest physical activity (Figure 5). Both groups consistently had the lowest number of individuals that exercised in 2011 and 2015. In 2015, non-Hispanic Blacks had the poorest physical activity with only 72% of individuals exercising compared to 74.5% of adults in Clark County. Most ethnic groups improved physical activity from 2011 to 2015, except for non-Hispanic Whites which had a 5.1% decrease in physical activity. Overall, older adults had less physical activity than younger adults. Individuals aged 55 and older consistently had lower physical activity in 2011 and 2015 compared to younger age groups. In 2015, 29.9% of 55- to 64-year-olds compared to 17.2% of 18- to 24-year-olds did not participate in any exercise outside of their employment in one month.

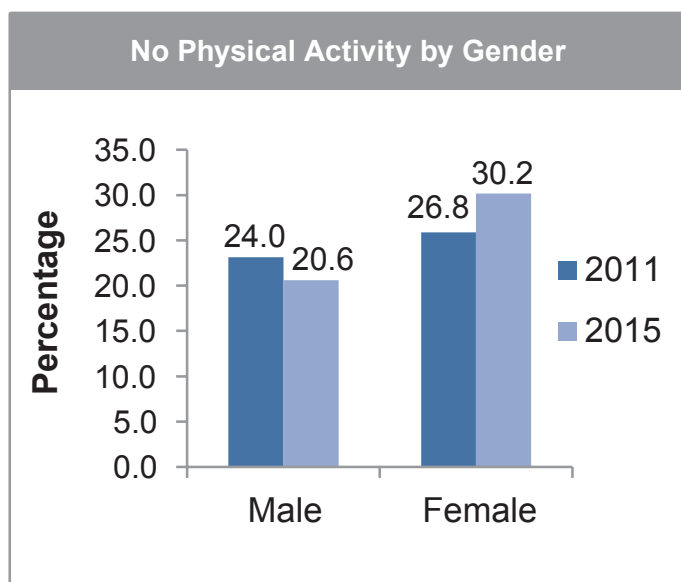


Figure 4: Percentage of adults who reported no physical activity or exercise during the past 30 days other than their regular job by gender, Clark County, 2013-2015.

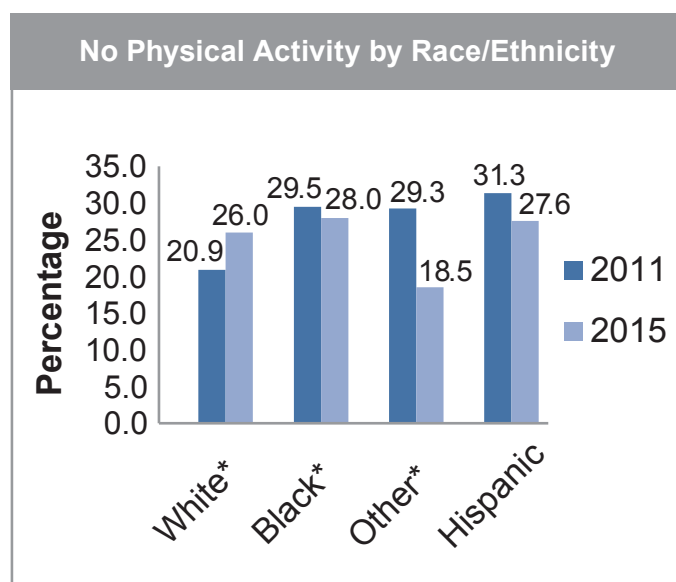


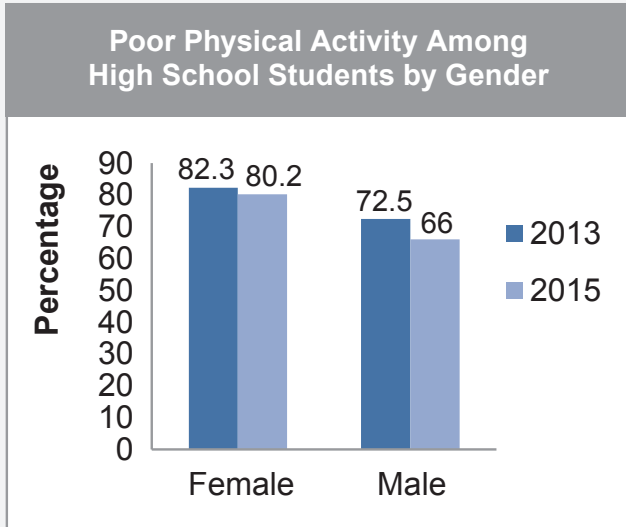
Figure 5: Percentage of adults who reported doing no physical activity or exercise during the past 30 days other than their regular job by race/ethnicity, Clark County, 2011-2015. \*Non-Hispanic

## ► HIGH SCHOOL

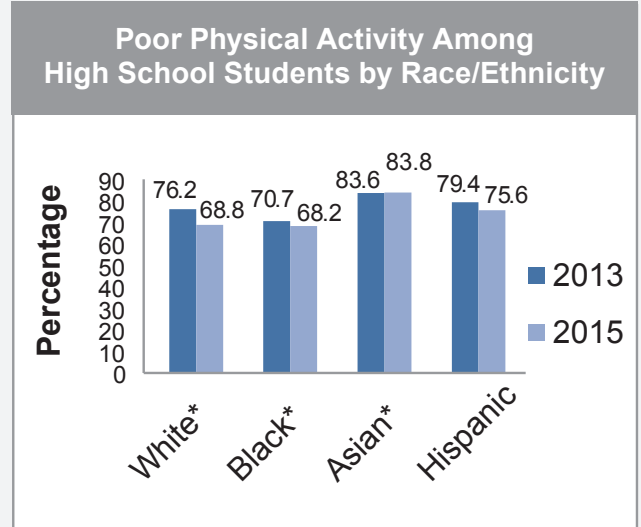
### YOUTH PHYSICAL ACTIVITY GUIDELINES

Only 27.1% of Clark County high school students met the physical activity guidelines created by the U.S. Department of Health and Human Services. These guidelines recommend that children and adolescents should have more than 60 minutes of physical activity daily. Clark County students have the same low percentage as the national average. This percentage was reduced from 77.6% to 72.9% from 2013 to 2015. Among genders, there was a significantly higher percentage of females that did not meet this guideline compared to males (Figure 6). In 2015, 80.2% of females versus 72.9% of males exercised less than 60 minutes a week. Among ethnic groups, Asians had the least physical activity at 83.8%, followed by Hispanics at 75.6%, Whites at 68.8%, and Blacks at 68.2% (Figure 7). Among age groups, older stu-

dents had a higher percentage of students that did not meet the physical activity guidelines. In 2015, 76.1% of 12th graders versus 71.3% of 9th graders did not meet the physical activity guidelines.



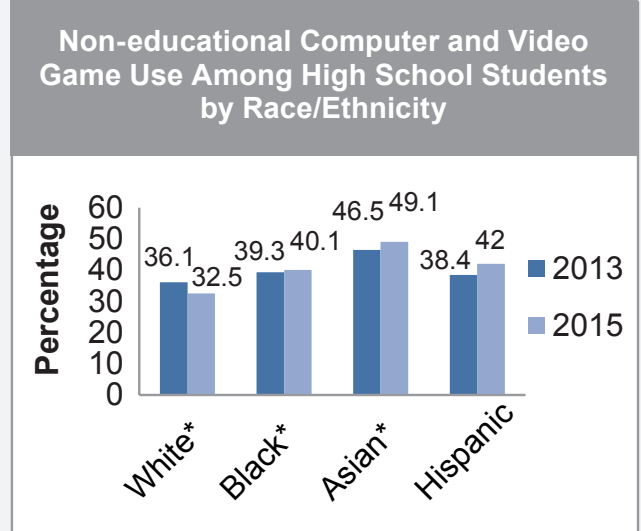
**Figure 6: Percentage of high school students who were physically active less than 60 minutes/day for seven days by gender, Clark County, 2013-2015.**



**Figure 7: Percentage of high school students who were physically active less than 60 minutes/day for seven days by race/ethnicity, Clark County, 2013-2015.**

**NON-EDUCATIONAL COMPUTER OR VIDEO GAME USE**

Clark County high school students spent slightly less time on the computer for non-educational purposes or playing video games than the national average. In 2015, 40.2% of Clark County high school students spent three or more leisure hours on the computer or playing video games compared to 41.7% across the United States. In Clark County, this percentage has increased since 2013 by over 1.3%. Males spent slightly more leisure time in front of the computer or playing video games than females. However, this gap has decreased since 2013 from 7.6% to 1.2% and now almost the same percentage of females is spending a large amount of time on these sedentary activities. Among age groups, the older students used to spend more time at the computer or playing video games, but this has changed in recent years. Ninth graders had 7.5% more students that spent three or more leisure hours at the computer or playing video games than 12th graders. Among ethnic groups, the Asian group and Hispanic group had the highest percentage at 49.1% and 42%, respectively (Figure 8). All groups had increases in percentages since 2013 except for the White group, which decreased by 3.6%.



**Figure 8: Percentage of high school students who played video or computer games or used a computer for three or more hours/day by race/ethnicity, Clark County, 2013-2015. \*Non-Hispanic**

## Tobacco Use

### SMOKING CIGARETTES

In 2015, 17.5% of Americans are currently smokers compared with 16.9% of Clark County residents. Since 2011, the percentage of Clark County residents that are current smokers has decreased from 22.2% to 16.9%. In Clark County males consistently have had more individuals that smoke than females (Figure 9). Over 20% of males smoked cigarettes, compared to 13% of females. Since 2011 there has been a decrease in cigarette smoking among both genders. Males decreased by 5% and females decreased by 6%. Among ethnic groups non-Hispanic Blacks had the highest percentage that smoke at 28.7% (Figure 10). Since 2011 all groups have reduced the percentage of individuals that smoke, with non-Hispanic Whites having the largest reduction at 9.6%. Hispanics consistently had the least percentage of individuals that smoke. Among age groups, 25- to 34-year-olds had the highest percentage of current smokers at 24% followed by 35- to 44-year-olds at 21%. The lowest percentages were seen among 18- to 24-year-olds at 12% and the 65-year-olds and older at 13%. Overall, cigarette smoking has decreased among each age group with the largest reductions found in the 45- to 54-year-olds and the 55- to 64-year-olds with reductions of 10% and 8%, respectively.

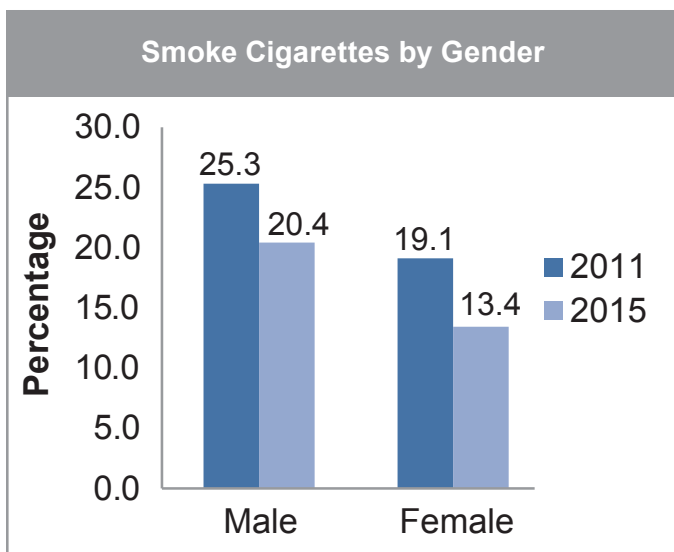


Figure 9: Percentage of adults who smoke cigarettes by gender, Clark County, 2011-2015.

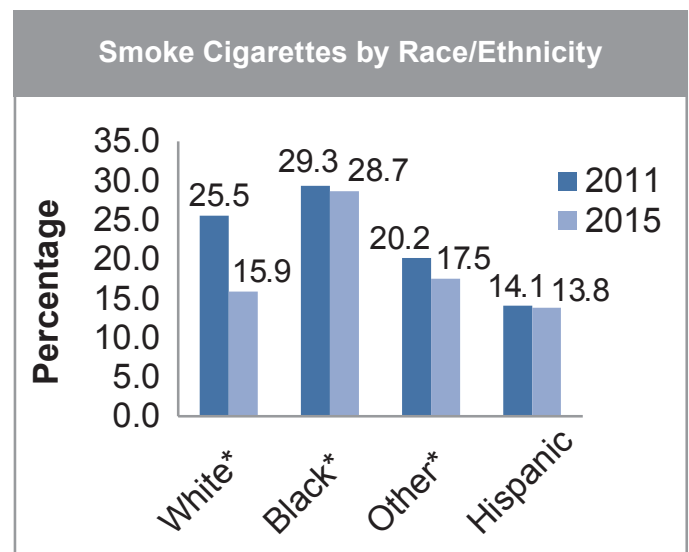


Figure 10: Percentage of adults who smoke cigarettes by race/ethnicity, Clark County, 2011-2015. \*Non-Hispanic

### CHEWING TOBACCO

Clark County residents chew less than the average American. In 2015, 4.1% of adults across the United States compared to only 2.2% of Clark County adults chew tobacco. However, this number has increased by 0.5% in Clark County since 2011. Males consistently chewed more tobacco than females. In 2015, 3.1% of males chewed tobacco compared to only 1.4% of females. However, there were increases in the number that chew tobacco in both genders from 2011 to 2015. Most ethnic groups had an increase in tobacco chewing. Non-Hispanic Blacks had the biggest increase in chewing from 1.2% to 6.8% in 2011 to 2015 and had the highest chew percent in 2015. Hispanics had the largest reduction in chewing from 2.1% to 0.3% from 2011 to 2015. Among age groups, younger adults generally chewed more tobacco. In 2015, 18- to 24-year-olds had the highest number of individuals that chewed tobacco at 5.7%, compared with 0.3% of 65-year-olds.

**SMOKING CESSATION**

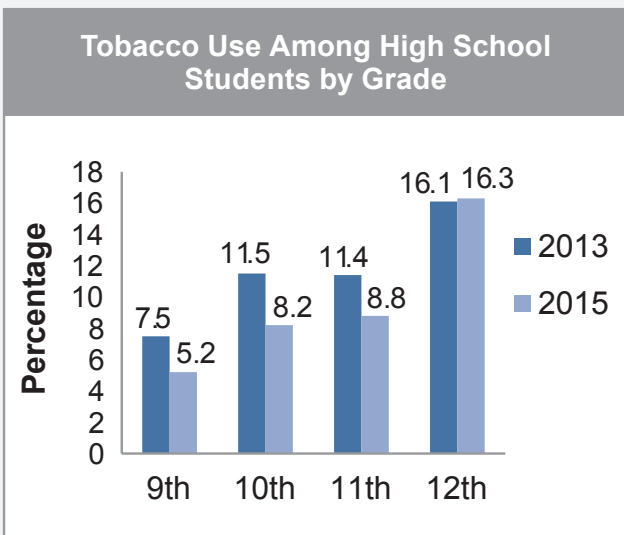
In Clark County, there has been an increase in the number of adults that try to quit smoking cigarettes. From 2011 to 2015, the percentage of adults who tried to quit smoking cigarettes increased from 48.9% to 68.1%. These trends are similar across all genders, ethnicities, and age groups. The percentage of males that tried to quit smoking cigarettes increased from 46.3% to 72% from 2011 to 2015. In the same year non-Hispanic Blacks and Hispanics had large increases in smoking cessation. Hispanics increased from 45.3% to 77% and the non-Hispanic Blacks increased from 62.2 % to 95.1%. In addition, all age groups showed improvements with 45- to 54-year-olds showing the largest increase at 39% from 2011 to 2015. However, there were still some groups with lower percentages of smoking cessation. These groups included females, non-Hispanic Whites, and individuals aged 65 and older. Females consistently had lower number of individuals that attempted to quit smoking cigarettes. In 2015, only 62.3% females attempted to quit smoking compared to 72% of males. In addition, non-Hispanic Whites consistently had one of the lowest smoking cessation percentages with no recent improvement. Lastly, in 2015, individuals aged 65 and older had the lowest percentage that tried to quit smoking cigarettes at 52%. This group also had the smallest improvement compared to all other age groups.

**▶ HIGH SCHOOL**

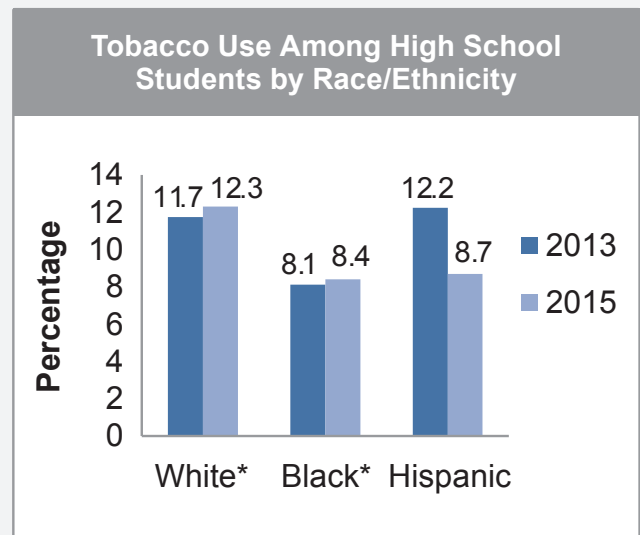
**TOBACCO USE**

Overall, Clark County high school students used significantly less tobacco than the average U.S. high school student. In 2015, 9.4% of Clark County high school students used tobacco compared to 31.4% of the average high school student in the nation. In Clark County, the percentage of tobacco use has decreased since 2013 by 2.2%. Males used more tobacco than females (Figure 11). In 2015, 10.4% of males versus 8.3% of females used tobacco.

Among age groups, older high school students used more tobacco. About 16% of 12th graders use tobacco compared with only 5% of 9th graders. Students at all grade levels showed less tobacco use, except for 12th graders which slightly increased use since 2013 by 0.3%. Among ethnic groups, Whites had the highest percentage that used tobacco at 12.3% followed by Hispanics at 8.7%, and Blacks at 8.4% (Figure 12).



**Figure 11: Percentage of high school students who currently used tobacco by grade, Clark County, 2013-2015**



**Figure 12: Percentage of high school students who currently used tobacco by race/ethnicity, Clark County, 2013-2015. \* Non-Hispanic**

### SMOKE CIGARETTES

Clark County high school students smoked less cigarettes than the average U.S. high school student. In 2015, 5.9% of Clark County students smoked versus 10.8% of the average U.S. high school student. Females smoked slightly more than males, however, this difference was reduced in recent years. In 2015, females only smoked 0.5% more than males. The older the high school student the higher the percentage that smoked. Approximately 9% of 12th graders smoked, while only 3% of 9th graders smoked. Among ethnic groups, Hispanics had the highest percentage at 6.7%, followed by Whites at 6.4 %.

### SMOKE CIGARS

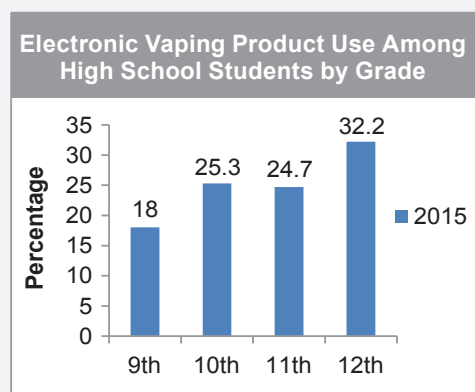
Clark County high school students smoked significantly less cigars than the average high school student in the United States. In 2015, 5.7% of Clark County high school students smoked cigars compared to 10.3% of U.S. high school students. In Clark County, the percentage of students that smoked cigars was reduced from 8.6% to 5.7% from 2013 to 2015. In Clark County, male students smoked cigars significantly more than female students. In 2015, 7.2% of males smoked cigars compared with only 4.1% of females. Among age groups, older students smoked more cigars. About 9% of 12th graders smoked cigars versus 3.6% of 9th graders. Among ethnic groups, Whites, Hispanics, and Blacks all had similar percentages that smoked cigars (6.1%, 6%, 5.8% respectively). All groups smoked less cigars from 2013 to 2015. The largest reduction was found among non-Hispanic Black students, which had the highest percentage of cigar smoking in 2013. This group reduced from 11.4% to 5.8% from 2013 to 2015.

### CHEWING TOBACCO

In 2015, 7.3% of high school students in the United States used chewing tobacco, snuff, or dip compared to 3% of high school students in Clark County. Among Clark County high school students, male students chewed more than female students by 3.7%. Also, trends show older ages and higher grade levels tend to have higher percentages of students that chewed. Only 1.2% of 9th graders chewed compared to 4.5% of 12th graders. White and Hispanic groups had higher chew percentages compared with other groups, 3.9% and 2.7% respectively.

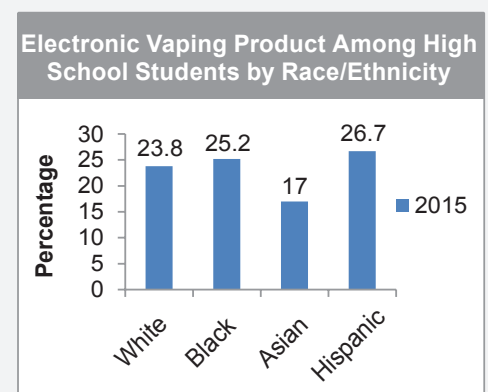
### ELECTRONIC VAPING

Clark County high school students had similar percentages of adolescents that used electronic vaping products as the average U.S. adolescent. In 2015, 24.8% of high school students in Clark County vaped compared to 24.1% of U.S. high school students. Male students had slightly higher use of electronic vaping products than female students (by 1%). The older the students the higher percentage of electronic vaping product use.



**Figure 13: Percentage of high school students who currently use electronic vaping products by grade, Clark County, 2015**

**Figure 14: Percentage of high school students who currently use electronic vaping products by race/ethnicity, Clark County, 2015.**



Over 32% of 12th graders used electronic vaping products compared with only 18% of 9th graders (Figure 13). Among ethnicity groups, the largest percentage of electronic vaping was found among Hispanic students at 26.7%, followed by Blacks at 25.2%, and Whites at 23.8%.

## ■ CHRONIC CONDITION RISK FACTORS

### High Blood Pressure

Clark County had lower high blood pressure prevalence compared to the national average. In 2015, 26.7% of Clark County residents had high blood pressure compared to 31.9% among the average American. In Clark County, the percentage of high blood pressure decreased by 3.7% since 2011. In 2015, females had slightly higher percentages of high blood pressure than males (28.2% vs. 25.3%). This changed from 2011 when males had higher percentages (33.1% vs. 27.7%). From 2011 to 2015, high blood pressure among males reduced 7.8%, while it increased among females by 0.5%. In 2015, non-Hispanic Blacks had the highest proportion of high blood pressure followed by non-Hispanic Whites (Figure 15). The percentage of high blood pressure among non-Hispanic Blacks was 37.3% compared to 30.7% among non-Hispanic Whites. In recent years, there has been a reduction of high blood pressure among all racial/ethnicity groups. Older individuals have higher percentages of high blood pressure. All age groups had a reduction in high blood pressure.

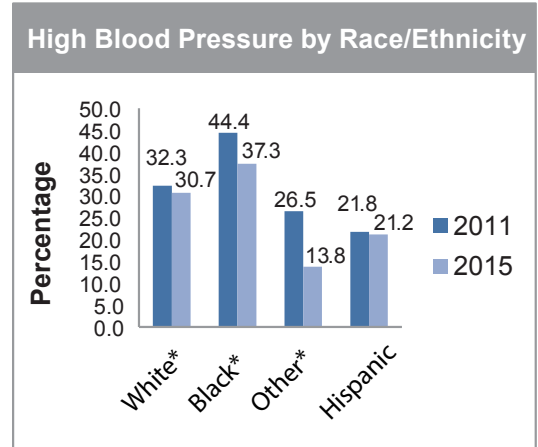


Figure 15: Percentage of adults that were told they have high blood pressure by race, Clark County, 2011-2015. \*Non-Hispanic.

### HIGH BLOOD PRESSURE MEDICATION

Among individuals with high blood pressure, Clark County had a smaller percentage of individuals that take blood pressure pills than among the average American. In 2015, 72.1% of Clark County residents compared to 77.2% of the U.S. average took blood pressure medication. There was an overall increase in the proportion of taking medication from 2011 to 2015. Females consistently had higher percentages of individuals that took blood pressure medication. However, in recent years males have increased the percentage of taking blood pressure medication by 8.9% while females have slightly decreased the percentage by 3.6%. In 2015, 79.9% of non-Hispanic Whites took blood pressure medication, and non-Hispanic Blacks at 74%. The older population had higher percentages of individuals taking blood pressure medication. In 2015, 93.8% of hypertensive individuals aged 65 and older were taking blood pressure medication. From 2011-2015, the proportion of individuals ages 45-54 taking medication dropped from 80.8% to 62.7%.

### High Cholesterol

Clark County had a slightly lower proportion of individuals with high cholesterol compared with the national average. In 2015, 35.8% of Clark County residents versus 36.2% of the U.S. population had high cholesterol. Individuals with high cholesterol decreased slightly by 1.6% since 2011. In 2015, females had higher percentages of high cholesterol than males with 38.9% and 32.4% respectively. This changed from 2011 when males had higher percentages (38.6% vs. 36.3%). From 2011 to 2015, high cholesterol among males decreased 6.2%, while it increased among females by 2.6%. Non-Hispanic Blacks had the highest percentage of high cholesterol at 48.3%, followed by non-Hispanic Whites at 37.6%, and Hispanics at 33.9%. Non-Hispanic Blacks had an 11.3% increase since 2011 (Figure 16). Older individuals had higher percentages of high cholesterol. Individuals aged 45-54 had a large increase at 7.9% while most other age groups improved.

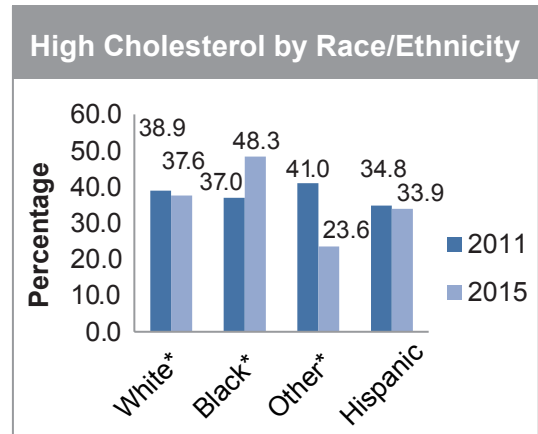


Figure 16: Percentage of adults that were told they have high cholesterol by race, Clark County, NV, 2011-2015. \*Non-Hispanic

## Overweight

Clark County had a higher percentage of individuals that were overweight compared to the national average. Over 38% of Clark County residents are overweight compared to 36% of the total U.S. population. In Clark County, the percentage increased since 2011 from 35.5% to 38.4%. Males were consistently more overweight than females. In 2015, 43.3% of males were overweight while 33.1% of females were overweight. The percentage of overweight males stayed the same since 2011, while overweight females increased by 5.9%. Hispanics were more overweight than non-Hispanics. In 2015, 46.2% of Hispanics were overweight followed by 40.5% non-Hispanic Blacks, and 36.3% non-Hispanic Whites (Figure 17). Since 2011, the percentage of overweight Hispanics and non-Hispanic Blacks both increased by 11.2% and 5.6 % respectively, while non-Hispanic Whites stayed the same. In 2015, individuals aged 35 to 44 had the highest percentage of overweight individuals at 43.1%, followed by 55- to 64-year-olds at 42.3%, and 65 and older at 40.5%. Since 2011 the percentage of overweight individuals increased among the majority of age groups with 35- to 44-year-olds having the highest increase from 34.9% to 43.1%.

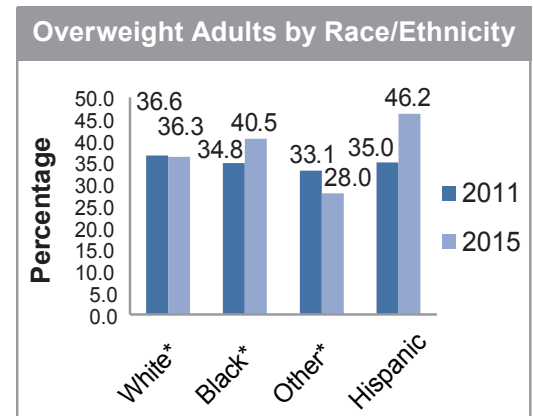


Figure 17: Percentage of overweight adults by race in Clark County, 2011-2015. \*Non-Hispanic

## ► HIGH SCHOOL

Clark County high school students had similar percentages of overweight individuals compared to the national average, which is close to 16%. This percentage increased by 1% in Clark County. Among genders, males became more overweight than females. Since 2013, the proportion of males that are overweight has increased, while the percentage of overweight females has decreased. In 2015, 17.9% of male students compared to 14.4% of female students were overweight. Among age groups, 9th graders had the lowest percentage of overweight students, while no consistent trends were found among the other grades. Among ethnicities, Hispanics had the highest percentage of overweight students at 18.3%, followed by Blacks at 16.8%, and Asians at 15.5%. All ethnicities improved their weight except for Black and Asian students, which became more overweight.

## Obesity

Clark County had a lower percentage of obese individuals than the national average. 2015 data shows that 27.1% of Clark County residents were obese compared with 28.9% of the U.S. population. In Clark County males were more obese than females, 28.9% versus 25.2%, respectively. Both genders had become more obese since 2011. Males had the larger increase at 4.2%. Among ethnic groups, Hispanics were the most obese (36.0%), followed by non-Hispanic Blacks (26.1%), and non-Hispanic Whites (25.7%) (Figure 18). Since 2011, Hispanics and non-Hispanic Whites both had more than 5% increase in obesity, while non-Hispanic Blacks had a 6% decrease. The age group 25 to 34 has had consistently higher proportions of obesity at 30% and 32% in 2011 and 2015. However, in 2015 the 45 to 54-year-old population increased by 11% and became the most obese group at 37%. The 18- to 24-year-olds had the lowest percent that were obese.

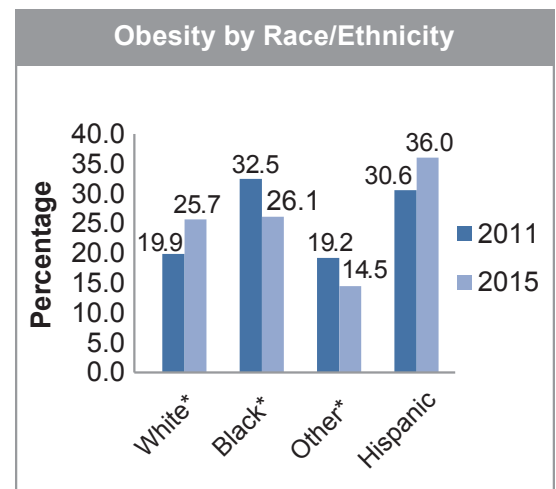


Figure 18: Percentage of obese adults by race in Clark County, 2011-2015. \*Non-Hispanic



## ► HIGH SCHOOL

Clark County high school students were less obese than the national average. In 2015, 11.4% of Clark County high school students were obese compared with 13.9% of students across the United States. Males were consistently more obese than females. In 2015, 12.6% of males versus 10.2% of females were obese. Among age groups, younger students were more obese in 2015; however, no trend exists from 2013 to 2015. Among ethnicities, Hispanics had the highest percentage of obesity at 14.5%, and Blacks at 13.1%. Black and Asian students improved the most from 2013, while Hispanics did not improve.

## ■ CHRONIC DISEASE MORTALITY AND MORBIDITY

### Chronic Lower Respiratory Disease

#### MORTALITY

Overall, Clark County had higher mortality rates caused by chronic lower respiratory disease than U.S. average. This trend continued from 2004 to the most recent data gathered in 2015. In 2015, the death rate in Clark County was 53 deaths per 100,000 persons compared to 42 deaths per 100,000 persons among the whole United States. Males and females had similar mortality rates from 2006 to 2015. Among Clark County residents, non-Hispanic Whites consistently have had the highest mortality rates followed by non-Hispanic Blacks (Figure 19). In 2015, non-Hispanic Whites had 67.7 deaths per 100,000 compared to 34.8 per 100,000 non-Hispanic Blacks. However, it is important to note that non-Hispanic Blacks have had increased mortality since 2010 to 2015, from 21.7 to 34.8 deaths per 100,000 persons.

#### MORBIDITY

In Clark County, the percentage of individuals with chronic obstructive pulmonary disease (COPD) decreased from 2011 to 2015 from 7.2 % to 6.4%. Females had a higher proportion of COPD than males (Figure 20). In 2015, non-Hispanic Whites had the highest percentages of COPD at 9.7%, followed by non-Hispanic Blacks (6.5%). Older ages had higher percentages of COPD. In 2015, 16% of Clark County residents aged 65 and older had COPD compared to 8.2% of 55- to 64-year-olds.

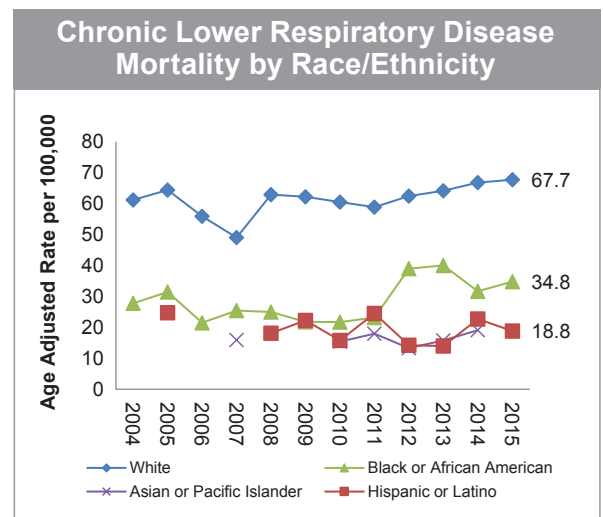


Figure 19: Chronic Lower Respiratory Disease Mortality Rates by Race/Ethnicity, Clark County, 2004-2015

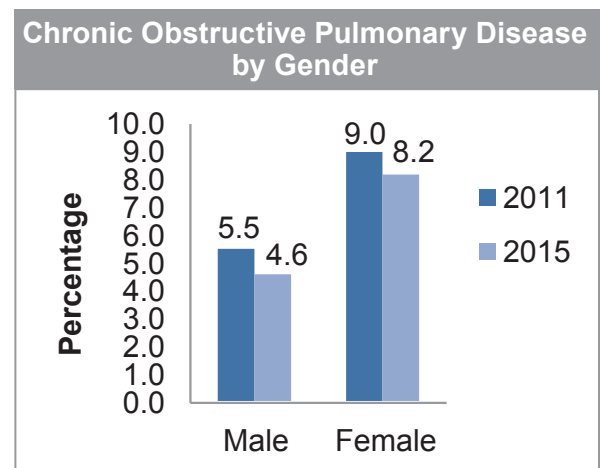


Figure 20: Percentage of Adults told that they chronic obstructive pulmonary disease, emphysema or chronic bronchitis by gender, Clark County, 2011-2015

## Diabetes

### MORTALITY

Clark County had about half the mortality rates caused by diabetes than found across the United States. In 2015, Clark County residents had 11.4 deaths per 100,000 persons compared to 21.3 deaths per 100,000 persons of the United States. This trend was consistent from 2004 to the most recent data shown in 2015. Mortality rates remained steady in Clark County for the past 10 years. Males had higher rates of mortality than females. This trend was consistent from 2004 to the most recent data in 2015. In 2015, males had 13.4 deaths per 100,000 persons compared to 9.6 deaths per 100,000 persons among females. Non-Hispanic Blacks have consistently had higher rates of mortality compared to other racial/ethnic groups (Figure 21). In 2015, non-Hispanic Blacks had almost 2.5 times death rates as high as non-Hispanic Whites. In 2015, 85-year-olds and older had almost 10 times more deaths per 100,000 persons than 45- to 54-year-olds.

### MORBIDITY

Diabetes prevalence declined in Clark County from 10.4% to 9.4% from 2011 to 2015. Males consistently had higher proportions of individuals with diabetes than females, 10.2% versus 8.7% in 2015 respectively. In the most recent data, non-Hispanic Blacks had the highest percentage of diabetes at 14.2%, while Hispanics had the lowest at 5.9% (Figure 22). Older groups had a higher proportion of diabetes than younger populations.

### DIABETES MANAGEMENT

In Clark County, there has been an overall increase in percent of adults taking diabetes self management classes from 2011 (50.3%) to 2015 (62.3%). Increased management has been shown among all genders, age groups and some ethnic groups. Among these groups there are a few differences observed. Females consistently had lower diabetes management from 2011 to 2015. In 2015, only 54.5% of females reported ever taking a diabetes management class compared to 68.9% of males. There is too little data to show differences among ethnic groups. In addition, individuals aged 65 and older consistently had less diabetes management compared to younger age groups.

## Heart Disease

### MORTALITY

Clark County had higher rates of heart disease than found among average Americans. The most recent data shows that in Clark County, 207.9 per 100,000 persons were dying from heart disease compared to 168.5 deaths per 100,000 persons in the United States. While U.S. rates have steadily declined, rates in Clark County have begun to rise. In 2015 there were 19.7 additional

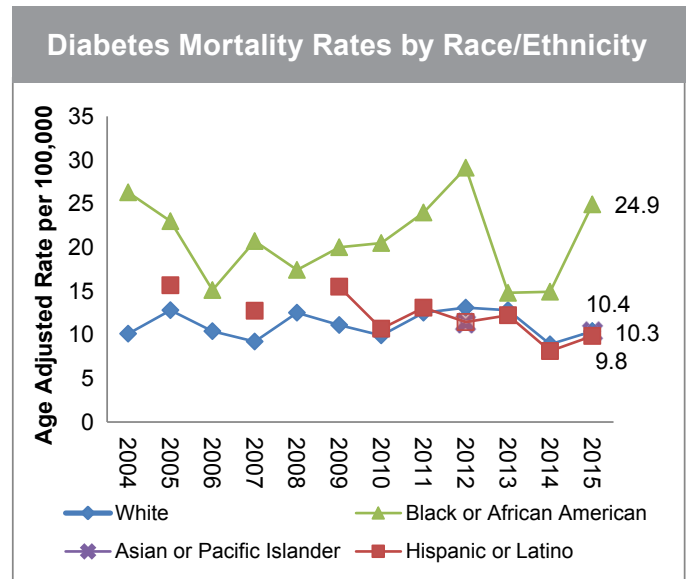


Figure 21: Diabetes Mortality Rates by Race/Ethnicity in Clark County, 2004-2015

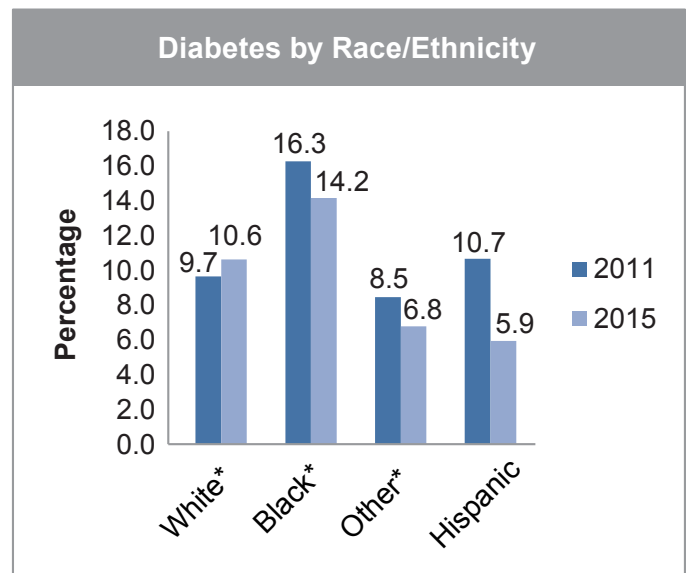


Figure 22: Percentage of adults told they have diabetes by Race/Ethnicity, Clark County, 2011-2015. \*Non-Hispanic

deaths per 100,000 persons in Clark County compared to 2012. Males had higher mortality rates than females. Males have had about 100 more deaths per 100,000 than females each year over the last 10 years. The most recent data found that in 2015 males had 260.6 compared to 160.5 female deaths per 100,000 persons. Non-Hispanic Blacks had the highest mortality rates (Figure 23). Closely following were non-Hispanic Whites. In 2015, non-Hispanic Blacks had 264.4 compared to 232.0 deaths per 100,000 persons among non-Hispanic Whites. The other groups had almost half the mortality rates.

**MORBIDITY**

Persons live with angina or coronary heart disease in Clark County remained stable in recent years (3.8% in 2015). Females had a higher proportion of heart disease (4.6% in 2015) compared to males (3.0% in 2015). From 2011 to 2015 the percentage of males with heart disease decreased by 1.1% while females increased by 0.9%. Non-Hispanic Blacks had the highest percentages of heart disease (4.5%) in 2015 followed by non-Hispanic Whites (4.2%). Individuals aged 45-54 showed a slight rise in heart disease, from 2.9% in 2011 to 4.4% in 2015, as is the case for 35-44 year old (0.9% in 2011 to 2.6% in 2015), while other age groups decreased.

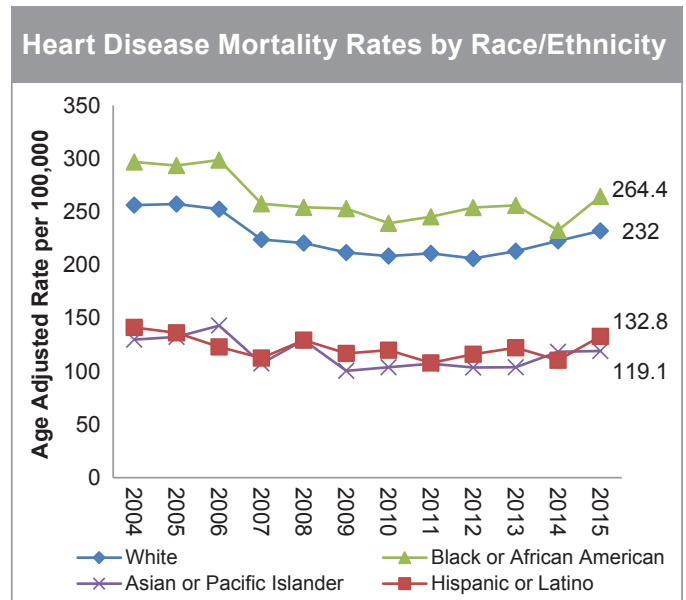


Figure 23: Heart Disease Mortality Rates by Race/Ethnicity Clark County, 2004-2015

**Stroke**

**MORTALITY**

Since 2006 Clark County has had lower stroke mortality rates compared to the rest of the United States. Mortality rates in the United States have decreased since 2004. Clark County has followed this trend until 2010 when rates slowly increased and were about equal to the mortality rates found among the average American in 2005. Males and females had similar rates of stroke over the last 10 years. In 2015, both genders had 37.0 deaths per 100,000 persons. Non-Hispanic Blacks had the highest mortality rates (40.8 per 100,000), followed by non-Hispanic Whites (37.1 per 100,000), Asian/ Pacific Islanders (36.0 per 100,000), and Hispanics (34.5 per 100,000) (Figure 24). In recent years this gap was reduced. In 2004, non-Hispanic Blacks had 25.5 more deaths per 100,000 than non-Hispanic Whites, while in 2015 this gap reduced to only 3.7 more deaths per 100,000.

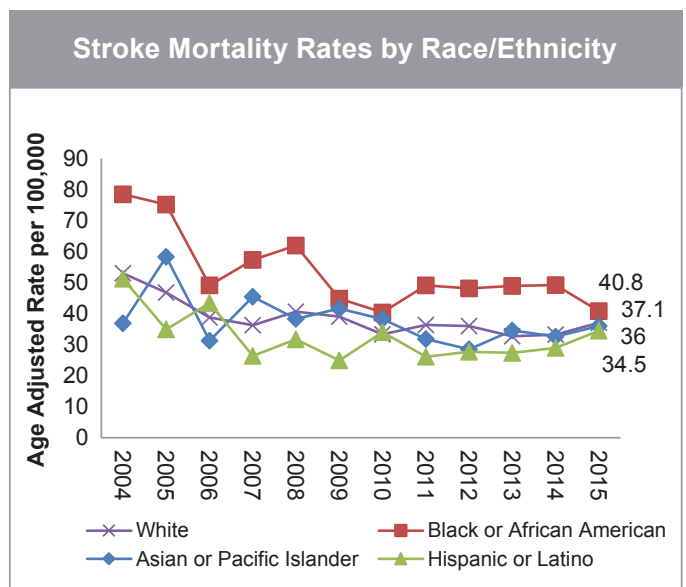


Figure 24: Stroke Mortality Rates by Race/Ethnicity, Clark County, 2004-2015

**MORBIDITY**

In Clark County the percentage of adults who had a stroke was reduced by 1% since 2011 to 2.1% in 2015. Stroke decreased among both females and males. Females consistently had higher percentages of stroke than males. In 2015, the percentage of stroke among females was 2.5% compared to 1.8% among males. Non-Hispanic Blacks consistently had the highest percentage of stroke followed by non-Hispanic Whites. In 2015, 9.5% of non-Hispanic Blacks were diagnosed with a past stroke compared to 1.7% among non-Hispanic Whites. In recent years, stroke increased among non-Hispanic Blacks (from 6.8% to 9.5%), while it decreased among non-Hispanic Whites (from 2.8% to 1.7%). Individuals aged 65 and older had about a 5.6% decrease in stroke from 2011 to 2015 (from 10.2% to 4.6%).

**Cancer**

**MORTALITY**

Cancer mortality rates steadily decreased over the past 10 years.

These rates were similar for both Clark County and the United States. From 2004 to 2015, mortality rates decreased by 36 deaths per 100,000 persons in Clark County. Among genders, males had higher cancer mortality rates. However, since 2008 this gap has decreased by close to 50%. Males (172.2 per 100,000) had 29.7 more deaths per 100,000 persons compared to females (142.5 per 100,000). Among ethnic groups, non-Hispanic Whites (174.9 per 100,000) and non-Hispanic Blacks (171.9 per 100,000) had the highest cancer mortality rates (Figure 25). Both groups had similar cancer mortality rates during the past 10 years. The other ethnic groups had much lower mortality rates. Individuals aged 85 and older had the highest cancer mortality rates. More individuals in this age group died of cancer in Clark County compared to the United States. The most recent data showed that individuals aged 85 years and older in Clark County had 100 more deaths per 100,000 persons than across the United States.

**MORBIDITY (EXCLUDES SKIN CANCER)**

The percentage of cancer among Clark County residents was slightly reduced in Clark County by 0.8% from 2011 to 2015 when it was 5.6%. Females consistently had higher percentages of cancer. In 2015, 6.2% of females compared to 5.0% of males had cancer. In recent years, the percentage of cancer has decreased among both genders. Non-Hispanic Whites and non-Hispanic Blacks had some of the highest proportions of cancer compared to other groups. In 2015, non-Hispanic Whites had 7.6% of cancer compared to 5.9% among non-Hispanic Blacks.

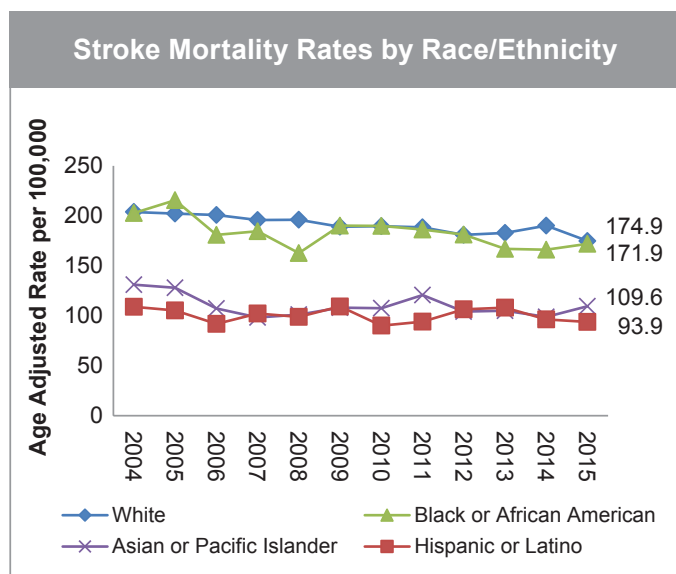


Figure 25: Cancer Mortality Rates by Race/Ethnicity, Clark County, 2004-2015

## Discussion

### Race/Ethnicity

#### NON-HISPANIC BLACKS

Overall, non-Hispanic Blacks had the greatest health disparities in Clark County. For many years, non-Hispanic Blacks had some of the highest morbidity and mortality caused by chronic disease compared to other ethnic and racial groups. They had the highest rates of heart disease, diabetes, and stroke, and had some of the highest rates of chronic lower respiratory disease and cancer. Non-Hispanic Blacks also had some of the highest risk factors for chronic disease. These included smoking cigarettes, poor nutrition, poor physical activity, high cholesterol, high blood pressure, and obesity. These trends seen in Clark County have been ubiquitous across the United States for years (Mays, Cochran, & Barnes, 2007). For example, over the previous 10 years, the rate of heart disease was 30% higher among non-Hispanic Blacks than among non-Hispanic Whites (William & Jackson, 2005). These higher health disparities found among non-Hispanic Blacks in Clark County is discussed in more detail below.

In Clark County, the highest disparity found among non-Hispanic Blacks was that of heart disease (see Figure 23). Non-Hispanic Blacks had close to 100% more deaths caused by heart disease than among Hispanics and Asians and 14% more deaths compared to non-Hispanic Whites. These high mortality rates could be explained by the high number of risk factors seen among this population, such as smoking, high blood pressure, high cholesterol, and diabetes. Fortunately many of these risk factors have improved in the last few years. Since 2011, large improvements have been seen in nutrition, smoking cessation, and weight reduction. Fruit and vegetable intake increased by 10%, smoking cessation attempts have increased by 30%, and obesity was reduced by over 6%. These risk factor improvements may be due in part to the large grant funded projects that were awarded to SNHD's Office of Chronic Disease Prevention and Health Promotion beginning in 2010. These include the Communities Putting Prevention to Work (CPPW) grant, the Community Transformation Grants (CTG) program, and the Partnerships to Improve Community Health (PICH) grant. Over \$27 million have been received through these grants with 75% of these funds have been distributed to community partners. In order to continue to improve these risk factors and to eventually see improvements in heart disease mortality rates, sustainable funding is required. In addition, the Affordable Care Act (ACA) passed in 2010, providing millions of low income individuals with health insurance, and may have helped improve some of these risk factors. By gaining access to health services many beneficial resources became available, such as smoking cessation medications and classes, dietitian counseling, diabetes self-management classes, as well as overall risk factor management by health care providers, such as controlling high cholesterol, high blood pressure, high blood sugar, etc.

Besides heart disease, non-Hispanic Blacks were also burdened with high diabetes mortality and morbidity. Over the past decade, non-Hispanic Blacks have had close to two times more deaths caused by diabetes than other racial or ethnic groups (see Figure 23). Although the number of deaths caused by diabetes had increased in recent years, the percentage of non-Hispanic Blacks with diabetes was reduced. Since 2011 there was 6% less diabetes among this population. This reduction in diabetes morbidity may have been due to the recent risk factor improvements discussed above, especially obesity reduction and nutrition improvement. Diabetes management has also improved in recent years. Since 2011 there was a 20% increase in the number of individuals that had taken a diabetes class. However, it still remains unknown why there is this discrepancy between increases in mortality, despite improvements in morbidity and diabetes management. It may be possible that as the majority of the population becomes healthier, there exists a small population that has poorer diabetes control, which may, in severe cases, lead to death. This warrants additional research to better understand why this is occurring to help reduce future deaths among this population.

Another health disparity found in the non-Hispanic Black population was the high rate of stroke. Stroke mortality and morbidity among this group has consistently been high compared to other racial and ethnic groups (see Figure 24). The large risk of stroke present in this population is most likely due to the high number of risk factors discussed previously, such as high blood

pressure, high cholesterol, diabetes, poor nutrition, obesity, and smoking cigarettes. Fortunately, in recent years there has been a drop in mortality rates to about the same rate as other groups. This may be due to several possibilities. First, this could be due to the increase in certified stroke centers in Southern Nevada. Studies have shown that the incidence of survival and recovery is higher among stroke patients that are treated at primary stroke centers than those treated in hospitals without specialized stroke care (Douglas et al., 2005 & Gropen et al., 2006). Second, there have been recent improvements in stroke education provided to patients. Nevada Stroke Registry: 2015 Data Summary published in 2016 showed that the percentage of patients that received stroke education improved by 7% from 2011 to 2015. This recent improvement may explain why there has been recent mortality declines from 2014 to 2015. However, although mortality rates have dropped, stroke morbidity continued to rise. This increase may be explained by the consistently high use of tobacco and other major stroke risk factors found among this population. Smoking tobacco is a major risk factor for stroke. Studies have shown that the risk of stroke can increase as high as four-fold in individuals that smoke tobacco (Wolf, D'Agostino Belanger, Kannel, 1991; Feigin, et al., 2005). In addition, high cholesterol is another risk factor that has been increasing in recent years. Lastly, although other stroke risk factors have improved in recent years, they still remain high in comparison to other race and ethnicity groups. In the future additional efforts are needed to reduce stroke risk factors, especially targeting tobacco use, cholesterol, blood pressure, and diabetes. These reductions could lead to future decreases in stroke morbidity and continued decreases in stroke morbidity. Also, continued research is warranted to observe if any other factors may be causing this increase in morbidity as well as why other groups have recent increases in stroke mortality.

It should be mentioned that non-Hispanic Blacks had some of the highest chronic lower respiratory diseases and cancer behind non-Hispanic Whites. Since 2011 there was a 40% increase in mortality caused by chronic lower respiratory disease. Close monitoring is warranted especially given their high rates of tobacco smoking, which is a major risk factor for the development of lung disease. In addition, for many years non-Hispanic Blacks have had similar cancer mortality rates compared to non-Hispanic Whites. Unfortunately, mortality rates have not been improving recently. This should also be monitored, again due to the large percentage of individuals smoking cigarettes, especially since studies have shown that tobacco smoking contributes up to 30% of all cancers.

Although there have been great improvements in chronic disease risk factors among non-Hispanic Blacks, additional work is warranted. In the future, high cholesterol, physical activity, and smoking cessation require additional focus. High cholesterol increased by 11% since 2011. This high percentage may be explained by recent increases in fast food consumption, or recent decreases in cholesterol medication compliance. These questions, and/or others should be researched to answer why we are seeing higher cholesterol percentages despite the recent increase in vegetable and fruit intake. In addition, despite the large increase in smoking cessation attempts, there has only been a 0.5% decrease in current tobacco smokers. This warrants additional research to better understand what barriers these individuals are facing when it comes to successful smoking cessation. Finally, physical activity has only improved by 1% since 2011. Again, understanding why non-Hispanic Blacks are not as active as other groups is important. This may be due to reduced access to safe parks and sidewalks, or many other possible causes.

Overall, why are these health disparities occurring among the non-Hispanic Black population? These health disparities may be explained by better understanding how the determinants of health play a role in this population's health. While risk factor behaviors have been addressed in this report, other important determinants of health should be further observed, such as social factors, policymaking, and health services. These factors together may help explain why the non-Hispanic Black population continues to be burdened by chronic disease more than other groups. Thus, future research is warranted to identify these determinants of health, which may bring us one step closer to closing this health disparities gap.

### NON-HISPANIC WHITES

Although, non-Hispanic Whites did not have the highest health disparities found in Clark County they were still struggling. This population has had some of the highest chronic lower respiratory disease and cancer mortality and morbidity for many years. The largest disparity was found among chronic lower respiratory diseases where they had close to 100% higher mortality rates

than all other racial and ethnic groups. Several explanations may explain this finding. First, individuals may be smoking more cigarettes per day than other groups. Studies have shown a general dose-response curve among smoking cigarettes and the development of lung disease (Han, Dransfield, & Martinez, 2017). These studies suggest that the more an individual smokes the more severe the disease. This may be occurring in the non-Hispanic White population and requires additional research. Second, individuals may be exposed to poorer air quality, such as secondhand smoke, than other groups. Several studies suggest that secondhand smoke may cause acute respiratory morbidity (Han, Dransfield, & Martinez, 2017). Thus, determining if this population is exposed to more second-hand smoke compared to other groups may be warranted.

### HISPANICS

It is important to mention that although Hispanics had some of the highest risk factors for chronic disease, they consistently had some of the lowest chronic disease mortality rates. Several hypotheses exist that explain this finding. The most prevalent hypothesis is the ‘healthy worker’ effect, which postulates that healthier individuals are more likely to immigrate than individuals with poor health (Abraido-Lanza, Dohrenwend, Ng-Mak, and Turner, 1999; Palloni and Arias, 2004). Another hypothesis is the “salmon bias” effect where immigrants may return to their country of origin when they become ill (Abraido-Lanza, Dohrenwend, Ng-Mak, and Turner, 1999; Palloni and Arias, 2004). These same phenomena may be occurring in Clark County. In addition, other explanations may explain this trend. First, undocumented Hispanics may be less likely to access medical services and participate in large health surveys, such as the BRFSS. This would result in low morbidity reporting. Second, protective factors may exist among this group that help to reduce mortality and morbidity, such as increased work-related physical activity levels and family support. However, if Hispanics continue to have poor health behaviors we may begin to see higher morbidity and mortality in the future. This may already be evident by the recent increases in disease mortality, especially in stroke and heart disease. It will be important to monitor chronic disease morbidity and mortality among this group due to the high-risk factors with when they are faced.

### Gender

Males continued to have higher health disparities compared to females. They consistently had the highest chronic disease mortality rates of heart disease, diabetes, and cancer. Although males had higher chronic disease, females had higher morbidity, except for diabetes. This trend may be explained by the possible differences in health care utilization. Studies have shown that males see the doctor less (Courtenay, 2000a; Courtenay 2000b; & Tudiver and Talbot, 1999). This may be happening in Clark County. If males are going to the doctor less, then two potential phenomena are happening: 1) males may actually have more chronic disease, but it is being missed because they are not going to the doctor to be diagnosed; or 2) males do have less disease, but since they are not going to the doctor their diseases are not being managed appropriately. These possibilities warrant future research.

In addition, poor risk factors were seen among both males and females. While males had higher rates of obesity and tobacco use, females exercised less and had higher rates of high cholesterol and high blood pressure. However, due to the possible under-utilization of the health care system by men, men may have higher amounts of high cholesterol and high blood pressure than captured by the recent morbidity data. Thus, additional research is warranted to observe whether men in Clark County are under utilizing the health care system and determining their accurate chronic disease morbidity and risk factors.

### Age

Older adults were faced with the highest health disparities compared to other age groups. As expected, older adults were burdened with higher chronic disease morbidity and mortality. Older adults, especially 65 and older, had some of the highest risk factors for chronic disease, such as high blood pressure, high cholesterol, and poor nutrition and physical activity. They also had the highest percentage of individuals that had not attempted to quit smoking compared to other age groups. Fortunately, most of these risk factors have improved since 2011 and hopefully we will see an overall healthier older population in the future.

It is important to mention that younger age groups had some of the highest tobacco use. Individuals aged 25-34 had the highest

percentage of individuals that smoke cigarettes. Fortunately, this percentage has dropped by 5% since 2011. This may be due to the successful smoking prevention and cessation efforts established by the CPPW grant in 2010. However, it is important to point out that while smoking tobacco percentages have decreased, there are a higher percentage of younger individuals that chew tobacco. This needs to be followed to ensure that these percentages do not increase.

### ► HIGH SCHOOL

High school students in Clark County had important chronic disease risk factor trends that need to be addressed. The high school students in Clark County with the highest risk factors included males, and 9th and 12th graders. There are no specific racial or ethnic groups with the poorest health, however, there are some important patterns found among these groups.

#### RACE/ETHNICITY

Overall, there was no one ethnic or racial group with the highest rate of poor health behaviors. However, among these groups there were specific groups that had the poorest nutrition, physical activity, and high tobacco use. Asian students had a large proportion of individuals that did not get adequate exercise. Over 83% of Asian students did not meet the recommended physical activity guidelines compared to 68% of non-Hispanic White students. This percentage had not improved since 2013, while it did in other groups. A possible explanation for this poor physical activity may be from the large amount of time this population is spending playing video games or streaming the internet. Over 49% of Asian students spend three or more non-educational hours in front of the computer or playing video games compared to 33% of non-Hispanic White students. This increased by 2.5% since 2013. Future efforts may be needed to better understand why Asian students are more sedentary than other high school students. This understanding can then guide future programs in helping these students get outside and become more physically active.

In regards to diet, non-Hispanic Black students had the poorest nutrition. Over 25% of non-Hispanic Black students did not eat vegetables. This percentage was 17% higher than found in 2013. Other groups also saw a large increase, but not to the extent found among the non-Hispanic Black population. Additional efforts to increase vegetable intake among this population is needed.

Hispanic and non-Hispanic Black students had some of the highest percentages of obesity. Over 14% of Hispanic students were obese, followed by 13% of non-Hispanic Black students. While non-Hispanic Blacks improved by 4% since 2013, Hispanic students had no improvement. This may warrant future research to why Hispanic students are not improving.

Additionally, non-Hispanic White and Hispanic students had the highest percentage of individuals that used tobacco. Over 12% of non-Hispanic White students were using tobacco, followed by 9% of Hispanic students. Non-Hispanic White students had the highest percentage that chewed tobacco and smoked cigars, while Hispanics had a higher proportion of students that smoked cigarettes and used electronic vaping products. Unfortunately, the proportion of individuals that used tobacco increased among Whites, while it fortunately decreased among Hispanics. It should be highlighted how popular electronic vaping had become among high school students. While vaping was most popular among the Hispanic groups, many other ethnic groups were using these products. Close to 27% of Hispanics were vaping, followed by 25% of non-Hispanic Blacks, 23% of non-Hispanic Whites, and 17% of Asians. This is concerning, especially with multiple studies now showing how electronic cigarettes may have harmful effects on the respiratory system (Heydari, Ahmady, Chamyani, Masjedi, Fadaizadeh, 2017). Thus, the use of electronic vaping products needs to be monitored and efforts to reduce it need to be enhanced.



It is important to point out that Hispanic students exhibited consistent poor health behaviors. They had the highest percentage of obesity and had the second poorest physical activity, vegetable intake, and tobacco use. This warrants close monitoring. Hopefully future efforts will be made to try to reduce these risk factors among these high school students. If not, there may be large increases in chronic disease morbidity and mortality among the Hispanic population in years to come.

### GENDER

Among genders, male students were consistently making unhealthy choices. They had the poorest diet and tobacco use and were more obese. Male students were not eating fruits and vegetables and were drinking more soda than females. They were also smoking more cigars, chewing more tobacco, and vaping more than females. Fortunately, in recent years fruit and soda consumption and tobacco use had improved, however, vegetable intake had significantly declined. Over 20% of male students did not eat vegetables on a daily basis. This is concerning and additional research needs to be conducted to understand why this is occurring. Although male students had some of the poorest health behaviors, female students also had several poor health behaviors. First, female students were not getting enough exercise compared to males. About 80% of female students compared with 66% of male students were not meeting the youth physical guidelines created by the U.S. Department of Health and Human Services. These guidelines recommend that children and adolescents should have more than 60 minutes of physical activity daily. Unfortunately, this percentage of female students not meeting the guidelines was 6.5% higher than found in recent years. Second, females were now spending a large amount of time in front of the computer or playing video games, almost as much as male students. These two trends may be why there has been a small rise in the percentage of females that are considered obese. This should be closely monitored in case we begin seeing any additional rises in obesity. Third, although a larger percentage of male students used tobacco compared to females, a slightly larger percentage of females have been smoking cigarettes for years. Fortunately, this percentage had decreased, and only 6% of females were smoking cigarettes compared to approximately 8% in 2013. Also, more males were using electronic vapor products than females; however, this difference was only 1%. Twenty-five percent of males versus 24% of females were using electronic vaping products. This was a significant finding and needs to be closely monitored.

### AGE

Among high school age groups, the youngest and oldest students had some of the poorest health behaviors. A large proportion of 9th graders were not eating their vegetables and were spending too much time sitting in front of the computer or playing video games. More than 22% of 9th graders were not eating vegetables. This number had increased by over 15% since 2013. This was a significant increase and requires additional research to understand why this occurred. Additionally, more than 44% of 9th graders were spending three or more non-educational hours in front of the computer or playing video games. This increased among 9th graders by 10% since 2013, while this behavior had decreased among 11th and 12th graders. This increase may explain why 9th graders are slightly less physically active than they were in the past.

Additionally, 12th graders also had some of the poorest health behaviors. A larger proportion of 12th graders were using tobacco and were not exercising. The large use of tobacco among 12th graders had been occurring for years. They consistently have had the highest percentage of individuals that smoke cigarettes, smoke cigars, chew tobacco, and use electronic vaping products. This may be explained by the fact that many 12th graders turn age 18 by the time they graduate, which is the legal age to purchase cigarettes in Nevada. Efforts to reduce this trend should be in place. Also, 12th graders consistently had the highest percentage of individuals that did not meet the youth physical activity guidelines. Fortunately, this trend has improved since 2013 by more than 8%.

### ■ RECOMMENDATIONS

Overall, our recommendations focus on risk factor education, additional monitoring, and further research to explain why some of these trends are occurring. Future research needs to identify which social determinants of health are leading to these risk behaviors and poor health outcomes. Healthy People 2020 defines social determinants of health as conditions in the environments in which people live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. Examples of social determinants contributing to poor health include economic instability; lack of social connections; limited or no access to appropriate health care; and conditions within neighborhoods of residence such as crime, limited or no access to fresh, healthy food, and limited or no access to sidewalks and bicycle lanes that are in good repair. Many studies have documented that lack of education is a strong predictor of poor health. The Centers for Disease Control and Prevention has noted that poverty limits access to healthy foods and safe neighborhoods. Differences in health are striking in communities with unstable housing, low income, unsafe neighborhoods, or substandard education. While a review of indicators related to social determinants of health was beyond the scope of the analysis included in this report, we recommend that future efforts include such analysis.

We believe that by addressing risk factors and tackling other determinants of health, the disparities noted in this report can be reduced. Continued chronic disease monitoring is needed among the non-Hispanic Black population to track progress toward closing the large health disparities gaps identified in this report. Continued efforts to reduce risk factors are important, especially focusing on tobacco use and high cholesterol. In addition, future research among non-Hispanic Whites is also needed. This includes identifying why they have higher chronic lower respiratory disease and cancer morbidity and mortality. We suggest researching the amount of tobacco used daily and exposure to secondhand smoke compared to other groups. Furthermore, we suggest monitoring chronic disease morbidity and mortality among the Hispanic population, especially stroke and heart disease. Although Hispanics have some of the lowest chronic disease morbidity and mortality compared to other groups, they have some of the highest risk factors which may lead to poorer health outcomes in the future. Thus, we also suggest risk factor improvements, especially focusing on obesity reduction. Among genders, we suggest further research to explain why males have higher chronic disease mortality, while females have higher morbidity. We suggest evaluating if males are utilizing medical services as frequently as females.

We also have several recommendations related to Clark County high school students. First, efforts towards improving sedentary lifestyle among Asian students are needed. These include reducing their time in front of computers or playing video games and increasing their daily physical activity. Other efforts should be focused on improving vegetable intake among 9th grade and male students, reducing tobacco use among 12th grade students, and reducing the use of electronic vaping products among all high school students.

The interrelationships among risk factors and social determinants of health determine individual and population health. Because of this, interventions that target multiple determinants of health are most likely to be effective. The SNHD Office of Chronic Disease Prevention and Health Promotion staff has worked with community partners to implement interventions such as healthy vending policies, acceptance of Electronic Benefit Transfer at local farmers' markets, smoke-free apartment building policies, and Complete Streets policies which make it easier and safer to walk and bike on area roads.

Determinants of health reach beyond the boundaries of traditional health care and public health sectors; sectors such as education, housing, transportation, agriculture, and environment can be important allies in improving population health. By working together across sectors to address and monitor chronic disease risk factors and social determinants we can not only improve individual and population health but can also advance health equity.

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