

# Colorectal Cancer Profile

## Nevada - 2012



Office of Public Health Informatics and Epidemiology | Nevada Central Cancer Registry  
Bureau of Health Statistics, Planning, Epidemiology, and Response  
Nevada State Health Division  
Department of Health and Human Services

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## Purpose

This profile is designed to meet the educational needs of the public, health care providers, and policy makers; and to assist health professionals, volunteers, and staff of colorectal cancer control organizations, community groups, and others who work to reduce the burden of colorectal cancer throughout Nevada.

### **The goals of this profile include:**

- Providing accurate and up-to-date information about colorectal cancer in Nevada.
- Providing a foundation for effective and productive discussion and advocacy for colorectal cancer control.
- Providing a resource guide to readers.

### **This profile focuses on:**

- Education: raising awareness and providing education about colorectal cancer incidence, mortality, risk factors, and potential benefits of early detection.
- Prevention: helping the public understand the root causes of the disease and decrease the modifiable risk factors that may increase the chances of developing colorectal cancer.
- Early Detection: explaining the availability and reliability of current screening tests.

This colorectal profile describes the burden of colorectal cancer in Nevada and includes the most recent numbers of new colorectal cancer cases and deaths (incidence and mortality rates), stage of disease at time of diagnosis, and how these relate to colorectal cancer screenings.

## Data Sources

Data sources used in this profile include the Nevada Central Cancer Registry (NCCR) and the Behavioral Risk Factor Surveillance System (BRFSS).

The NCCR is a population-based registry that maintains data on all cancer patients in Nevada. The NCCR receives data from hospitals, outpatient facilities, and pathology laboratories throughout the state. The NCCR collects data on all reportable cancers. In accordance with National Program of Cancer Registries (NPCR) and the North American Association of Central Cancer Registries (NAACCR) standards, the NCCR strives to achieve and maintain 95% complete case ascertainment within 24 months of diagnosis date. The data is compiled, aggregated, and submitted to federal agencies annually. Once submitted, NCCR data is reviewed by each diagnosis year for completeness, accuracy, and timeliness.

The BRFSS is the largest telephone health survey in the world. In Nevada, the BRFSS survey is conducted among adults aged eighteen years or older. There are limitations to BRFSS data in terms of the representations of all regions in the state and all population groups. The frequency of responses by particular population groups such as rural counties may be rather small, so in some instances multiple counties of the state were combined to achieve reliable frequencies.

## Technical Notes

Crude rates shown in this report are per 100,000 population.

Age-adjusted rates shown in this report are adjusted to the 2000 U.S. standard population and are per 100,000 population.

Interim 2009 population estimates were used to calculate rates in this report. Interim 2009 population estimates are based on the 2005 population and 2009 county population estimates, provided by the Nevada State Demographer. The interim 2009 population estimates were updated in April 2011 by the Nevada State Health Division, Bureau of Health Planning, Statistics, Epidemiology, and Response.

Due to changes in methodology, rates for subgroups published in this report may not match or be directly comparable to other reports and should be used with caution when compared to other published rates.

For the purposes of this profile, benign and borderline cases are not included in these data.

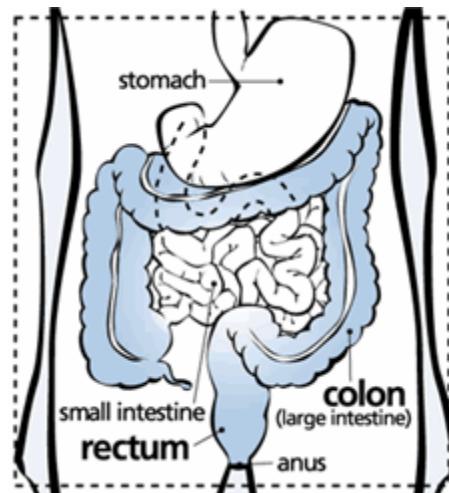
The cancer staging in this report uses the Derived Surveillance, Epidemiology, and End Results (SEER) Summary Stage 2000, which is derived from the Collaborative Staging (CS) algorithm, effective with 2004 diagnosis. The Collaborative Stage Data Collection System was designated by a joint task force to provide a single uniform set of codes and rules for coding extent of disease and stage information to meet the needs of all the participating standard setters. When CS data items are coded, a computer algorithm provides the derivation of T, N, M, and stage-based on American Joint Committee on Cancer (AJCC) Cancer Staging Manual 6<sup>th</sup> and 7<sup>th</sup> editions, SEER Summary Stage 1977, and SEER Summary Stage 2000.

Cancer cases can be ‘unstaged,’ meaning that the stage of cancer has not been reported at time of diagnosis for a number of reasons. According to the Collaborative Stage Data Collection System, staging can be based on “all information through completion of surgery(ies) in the first course of treatment or all information available within four months of the date of diagnosis in the absence of disease progression, whichever is longer.” In addition, a patient may refuse further work-up, treatment, surgery, etc, which could hinder staging.

“All other counties” includes Carson City, Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lincoln, Lyon, Mineral, Nye, Pershing, Storey, and White Pine.

## Colorectal Cancer

Colorectal cancer is cancer that occurs in the colon or rectum. The colon is the large intestine or large bowel. The rectum is the passageway that connects the colon to the anal canals<sup>1</sup>.



## Colorectal Cancer Risk Factors and Clinical Manifestations

The risk of developing colorectal cancer increases with advancing age. More than 90% of cases occur among individuals aged 50 or older. Non-modifiable risk factors for developing colorectal cancer include:

- Inflammatory bowel disease
- Personal and/or family history of colorectal cancer or colorectal polyps
- Genetic syndromes such as familial adenomatous polyposis or the hereditary non-polyposis colorectal cancer (Lynch syndrome)

Modifiable risk factors for colorectal cancer include behaviors and lifestyles that may contribute to increasing the risk of developing colorectal cancer such as:

- Lack of regular physical activity
- Low fruit and vegetable intake
- A low-fiber and high-fat diet
- Overweight and obesity
- Alcohol consumption
- Tobacco use

Colorectal polyps and cancer are not always symptomatic, especially during early stages. Individuals could have polyps or colorectal cancer and not know it. That is why getting screened regularly for colorectal cancer is so important.

Colorectal cancer symptoms may include:

- Blood in stool
- Persistent stomach pain, aches, or cramps
- Unexplained weight loss<sup>1</sup>

## **Prevention and Screenings**

According to the Centers for Disease Control and Prevention (CDC), regular colorectal cancer screening among individuals age 50 years and older can prevent as many as 60% of deaths from colorectal cancer. Precancerous lesions can be present in the colon for years before invasive cancer develops.

Colorectal cancer screenings can detect precancerous polyps so that they can be removed before they become malignant<sup>1</sup>. Screenings also help find the cancer at an earlier stage, when treatment is more likely to lead to a cure.

Nationally, about nine out of 10 individuals whose colorectal cancer is found early and treated are still alive five years later<sup>1</sup>.

The three most commonly utilized colorectal cancer screening tests are:

- High sensitivity fecal occult blood stool test (FOBT)
- Flexible sigmoidoscopy
- Colonoscopy

An FOBT involves using a home test kit every 1 to 2 years. Stool samples are checked at the laboratory for the presence of blood.

Sigmoidoscopy and colonoscopy are colorectal cancer screening procedures recommended every 10 years.

## **Colorectal Cancer in Nevada**

Colorectal cancer is the fourth most commonly reported cancer in Nevada, after prostate, breast, and lung. Colorectal cancer accounted for over 9% of all new cancer cases in 2009.

In 2009, there were 1,150 newly diagnosed cases and 435 deaths due to colorectal cancer in Nevada.

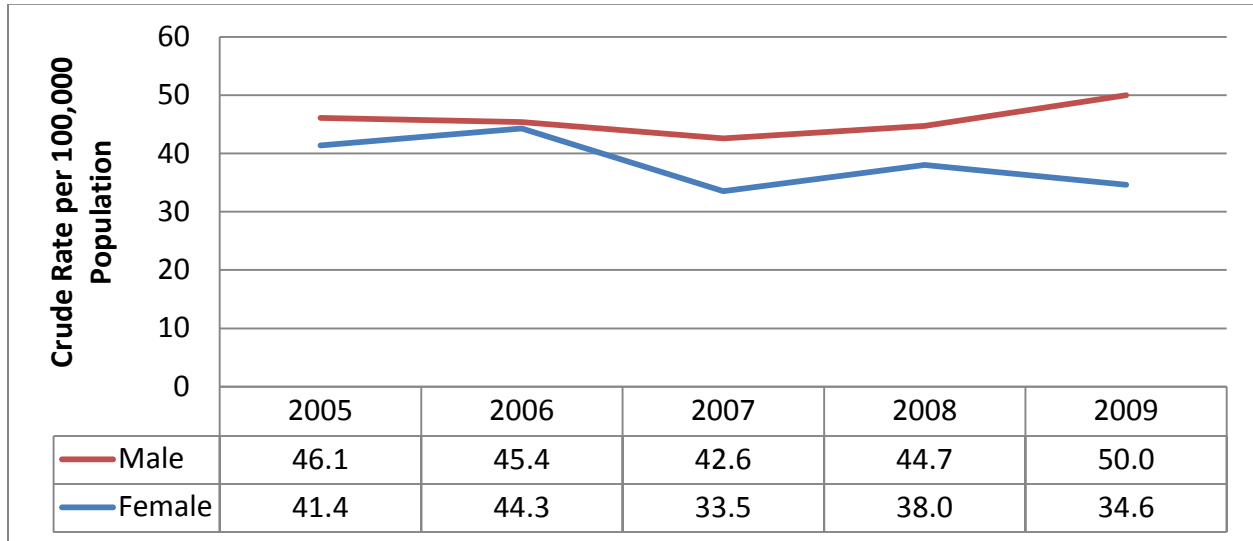
The crude colorectal cancer incidence rate was 42.4 per 100,000 Nevada residents in 2009, and had not shown any significant change in the past five years.

The crude colorectal cancer mortality rate was 16.0 per 100,000 Nevada residents in 2009, and similarly to the incidence rate, had not shown a significant increase or decrease in the past five years.

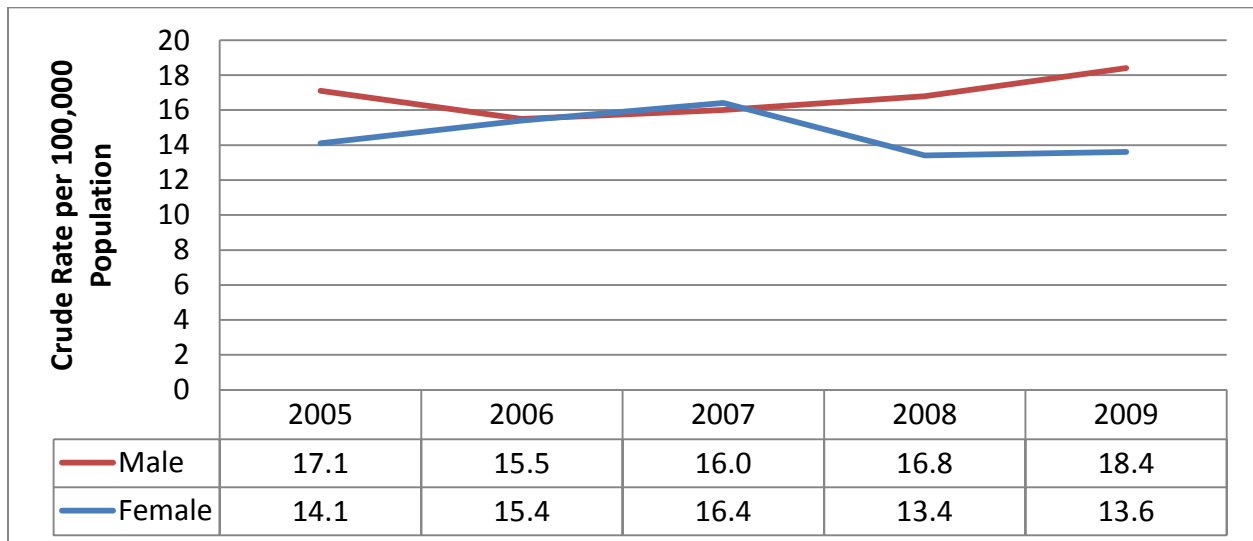
## A Closer Look at Sex

Nevada's most recent crude morbidity and mortality rates show that both incidence and death due to colorectal cancer are slightly higher among males. Statistically significant sex-related differences are specifically observed in 2009.

**Crude Colorectal Cancer Incidence Rates by Sex, Nevada Residents, 2005-2009**

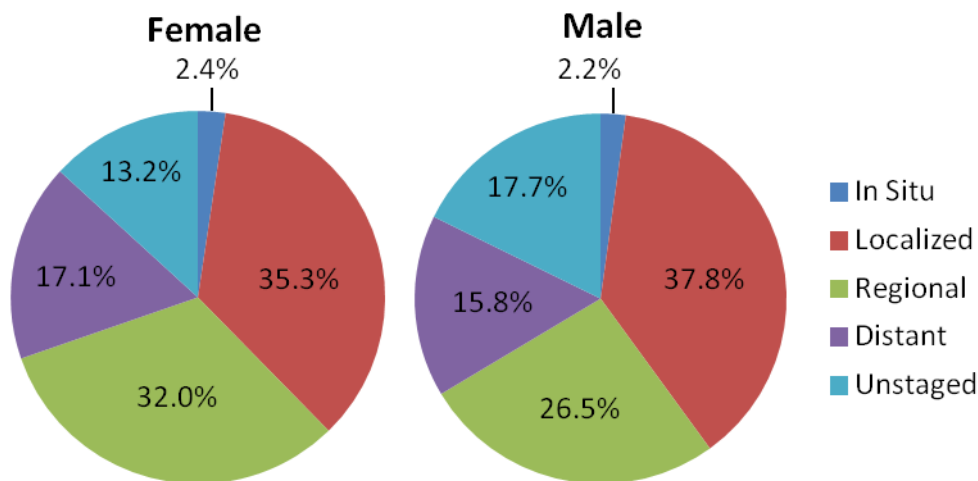


**Crude Colorectal Cancer Mortality Rates by Sex, Nevada Residents, 2005-2009**



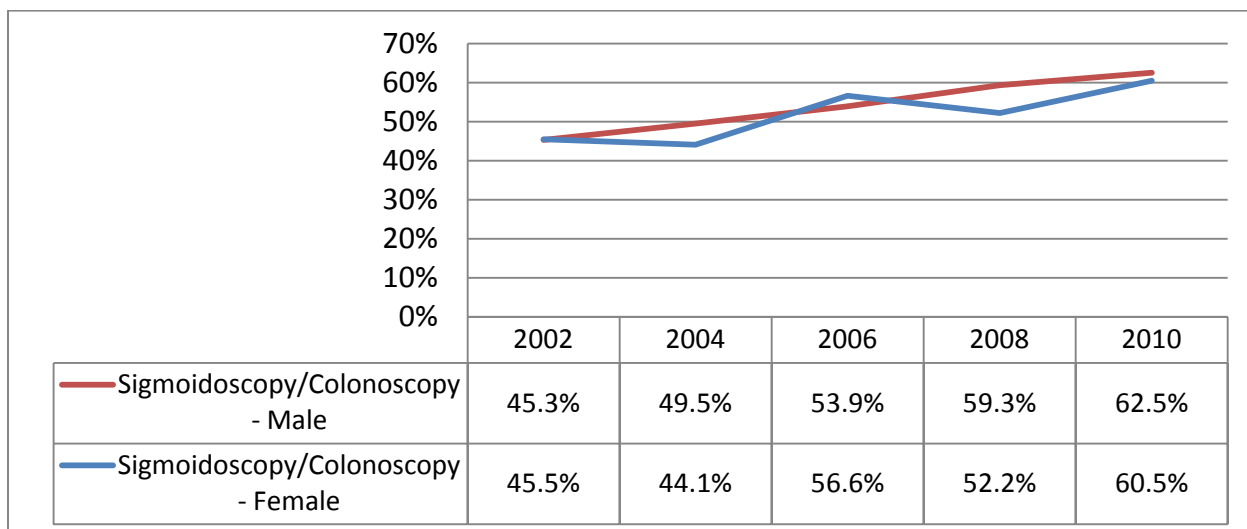
Analyzing the stage of cancer at time of diagnosis among newly diagnosed colorectal cancer cases in 2009 revealed no statistically significant sex-related differences in the distribution of stages. The proportion of colorectal cancer cases diagnosed as *in situ* (early stage of cancer) was small among both sexes in 2009, at only 2.4% and 2.2% for females and males respectively.

**Proportion of Colorectal Cancer, by Stage at Diagnosis, by Sex, Nevada Residents, 2009**



Regular colorectal screening is the best way to detect colorectal cancer at its earliest stages, before it has spread. From 2002 to 2010 there was a significant increase in the percentage of Nevada adults aged 50 years and older who had ever received a sigmoidoscopy or colonoscopy.

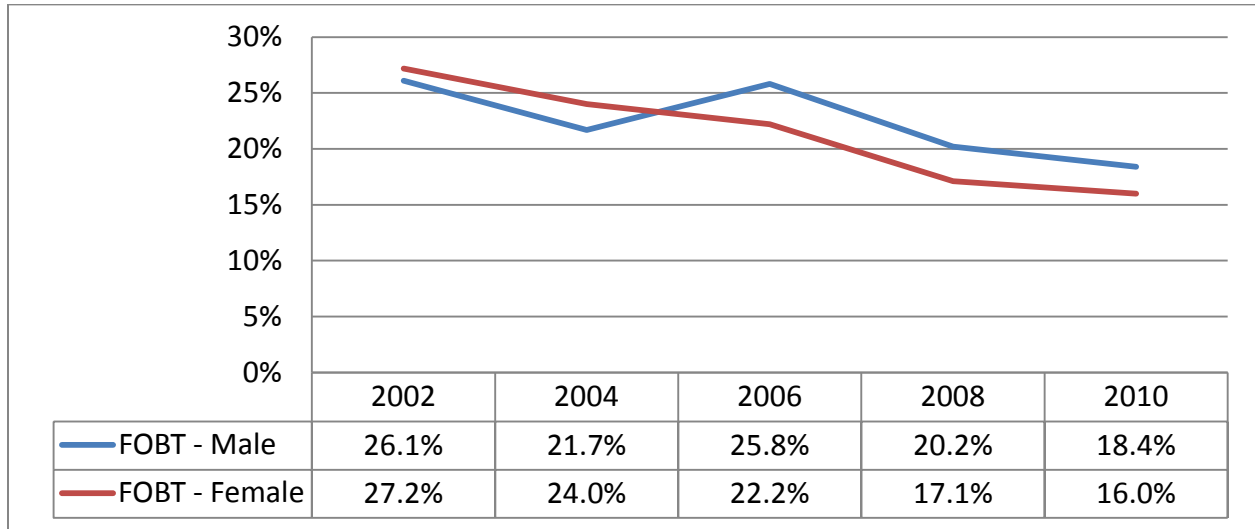
**Percentage of Nevada Residents Aged 50+ Who Have Ever Received a Sigmoidoscopy or Colonoscopy, by Sex, BRFSS, 2002-2010**



However, since 2005 the percentage of those who had received an FOBT started to decline among both sexes. Although the absolute reason for the decline is unclear, there could be several potential causes; one being that sigmoidoscopy and colonoscopy are more widely advertised and

known to the public. Additionally, sigmoidoscopies and colonoscopies are done every 10 years, rather than every 1-2 years, so they might seem like a more convenient option. Also, there may be personal preference to having a professional administer the screening.

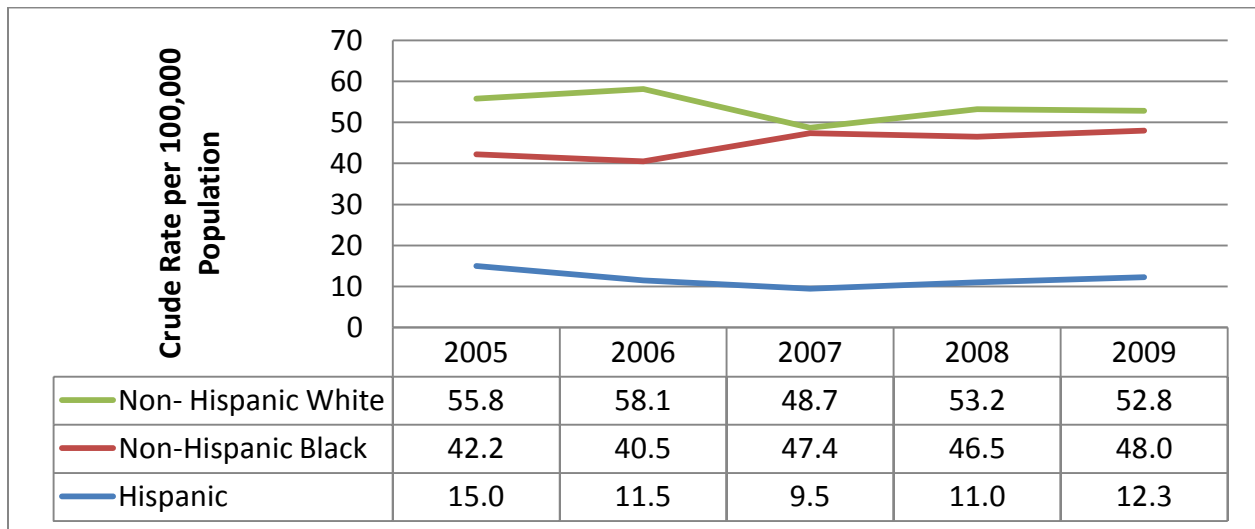
**Percentage of Nevada Residents Aged 50+ Who Have Received an FOBT Within the Past 2 Years, by Sex, BRFSS, 2002-2010**



**A Closer Look at Race/Ethnicity**

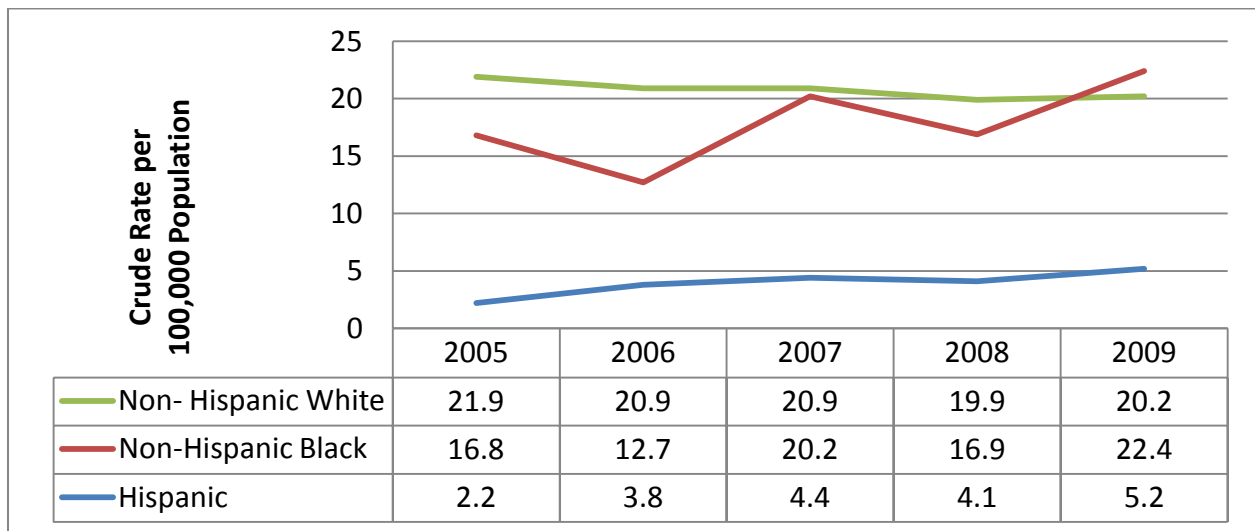
Nevada’s Hispanic population had significantly lower crude colorectal cancer incidence and mortality rates than non-Hispanic Whites and non-Hispanic Blacks from 2005 to 2009.

**Crude Colorectal Cancer Incidence Rates by Race/Ethnicity, Nevada Residents, 2005-2009**



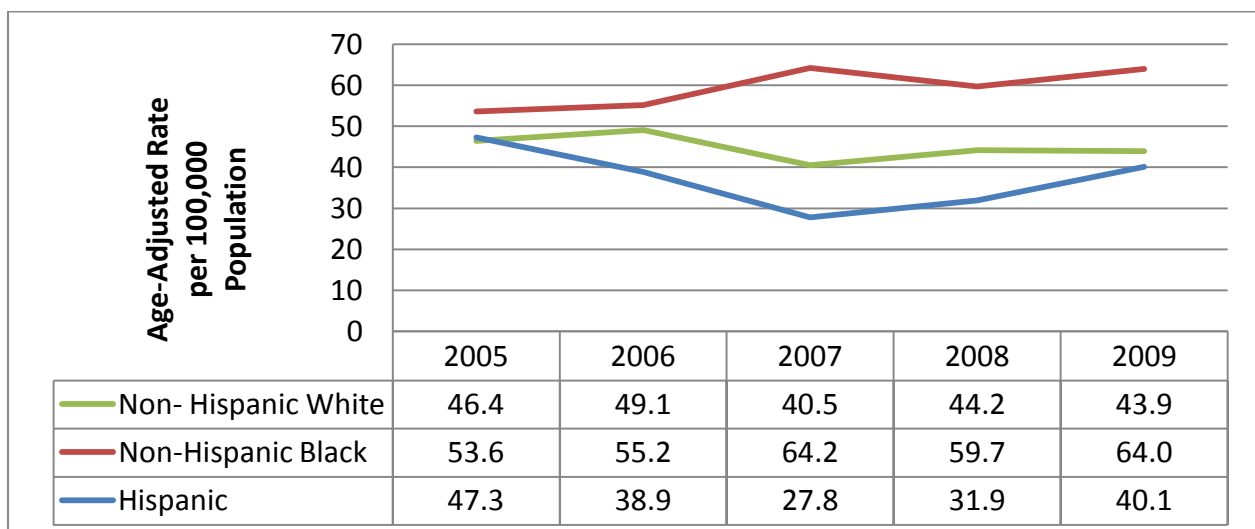


### Crude Colorectal Cancer Mortality Rates by Race/Ethnicity, Nevada Residents, 2005-2009



This pattern among Hispanics is not paralleled in national data and is likely due to the age distribution of Nevada’s Hispanic population. In 2009, 90% of Nevada’s Hispanic population was under the age of 50, while 90% of all colorectal cancer cases occur in people over the age of 50. Comparatively, only 64% and 78% of Nevada’s non-Hispanic White and Black populations were under the age of 50 respectively. In order to examine the true effect of racial and ethnic identities on colorectal cancer in Nevada, regardless of the discrepancies in age distributions, we use age-adjusted rates.

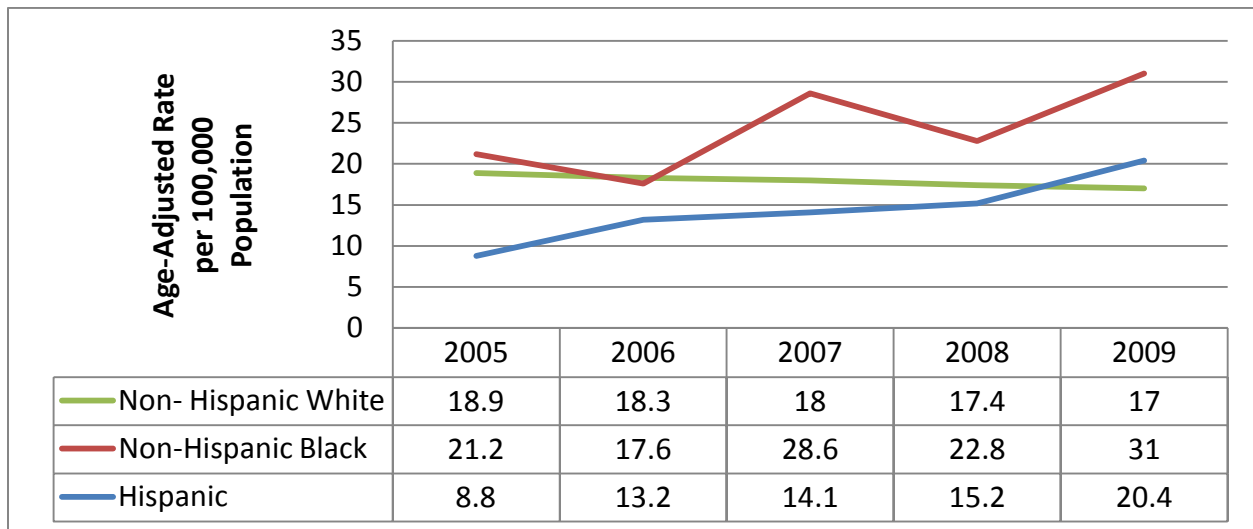
### Age-Adjusted Colorectal Cancer Incidence Rates by Race/Ethnicity, Nevada Residents, 2005-2009



Even after we adjust for the different age distributions, Hispanics continued to show significantly lower age-adjusted incidence rates than non-Hispanic Blacks. However, we cannot conclude from the current data that there are significant differences in the colorectal cancer age-adjusted

incidence rates between Hispanics and non-Hispanic Whites or between non-Hispanic Whites and non-Hispanic Blacks.

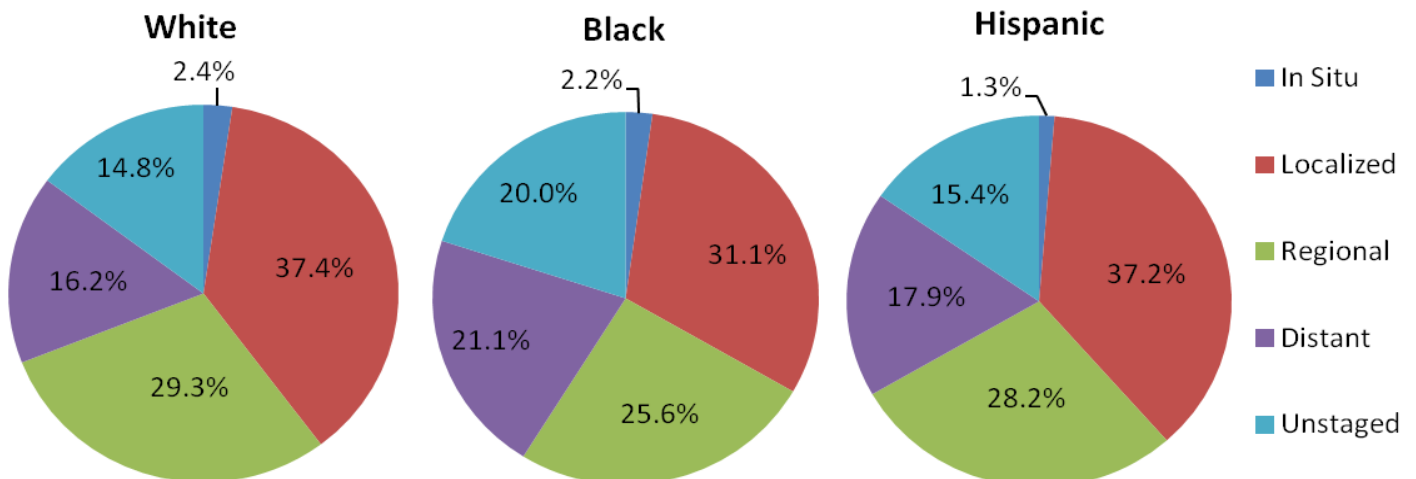
**Age-Adjusted Colorectal Cancer Mortality Rates by Race/Ethnicity, Nevada Residents, 2005-2009**



The age-adjusted mortality rate among non-Hispanic Whites was significantly lower than that of non-Hispanic Blacks for the first time in 2009. There was no evidence to suggest a significant difference between Hispanics and either of the other racial/ethnic groups.

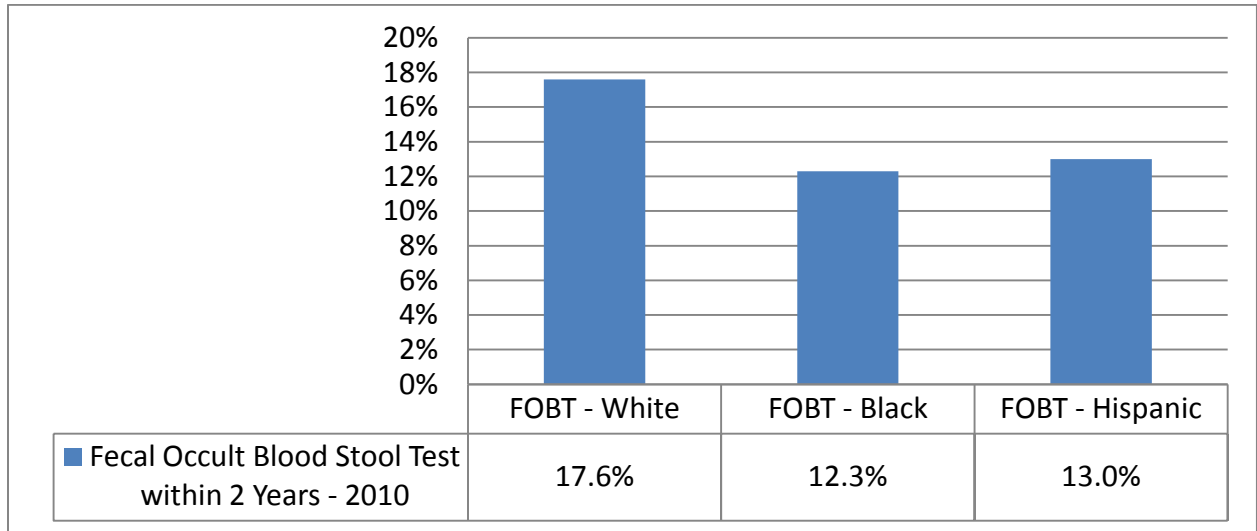
When we look at cancer stage at time of diagnosis among new colorectal cancer cases in 2009, we don't see any statistically significant race/ethnicity-related differences in the distribution of stages. Again, only a small proportion of cases were diagnosed as *in situ* across all racial and ethnic groups. A slightly higher proportion of blacks were unstaged at time of diagnosis, although our data does not suggest that this difference is large enough to be statistically significant.

**Proportion of Colorectal Cancer, by Stage at Diagnosis, by Race/Ethnicity, Nevada Residents, 2009**



The late stage of cancer at time of diagnosis among non-Hispanic Blacks could be attributed to a lack of screening among this population. Unfortunately, available data is inadequate for a more in-depth analysis due to a small sample size among the minority populations surveyed regarding colorectal cancer screening before 2010.

**Percentage of Nevada Residents Aged 50+ Who Have Received an FOBT Within the Past 2 Years, by Race/Ethnicity, BRFSS, 2010**

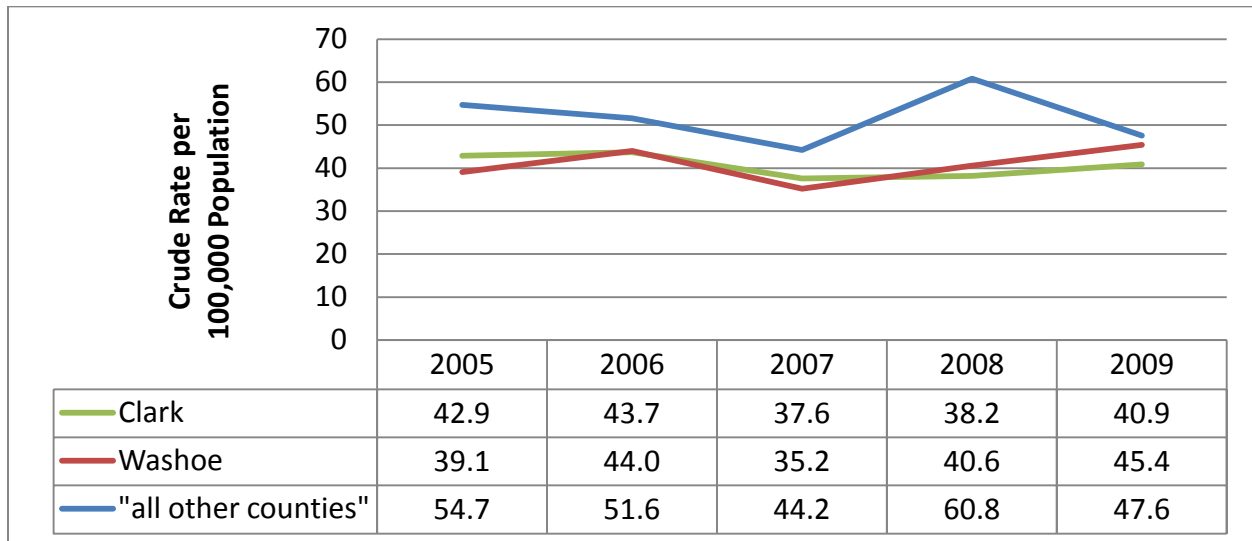


A closer look at the proportion of Nevada residents who had been screened for colorectal cancer with a home blood stool test kit in 2010, showed that a higher percentage of non-Hispanic Whites had been screened using this kit within the past two years compared to non-Hispanic Blacks and Hispanics.

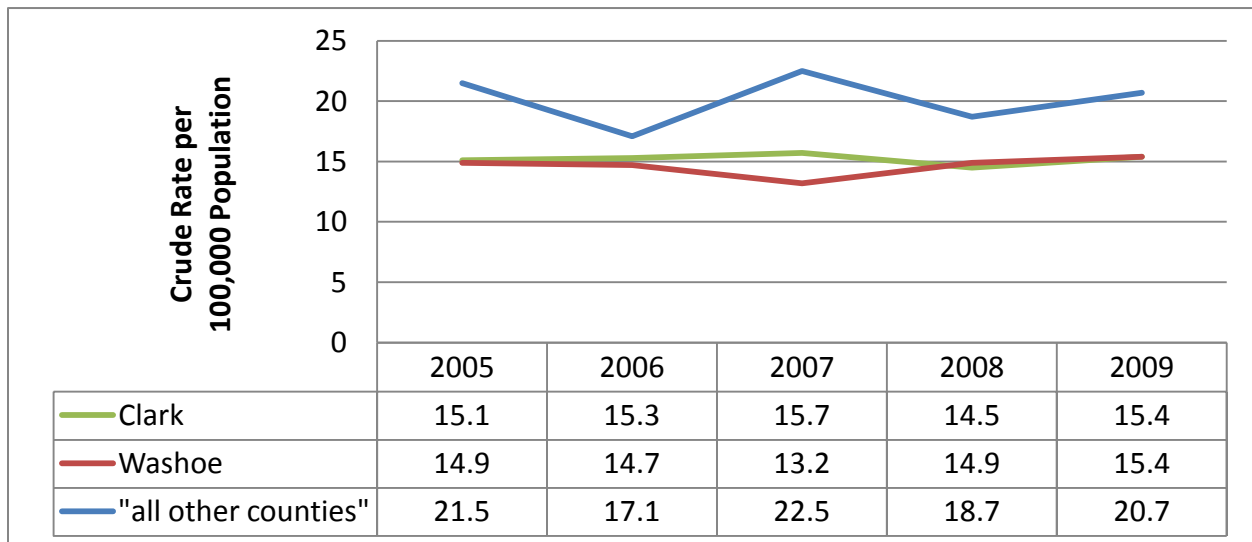
## A Closer Look at Region

Although Nevada's rural and frontier populations showed slightly higher crude colorectal cancer incidence and mortality rates than Clark or Washoe from 2005 to 2009, we cannot conclude from the current data that this difference is significant. Furthermore, no significant changes in colorectal cancer incidence or mortality rates occurred in any one region over this time period.

### **Crude Colorectal Cancer Incidence Rates by Region, Nevada Residents, 2005-2009**



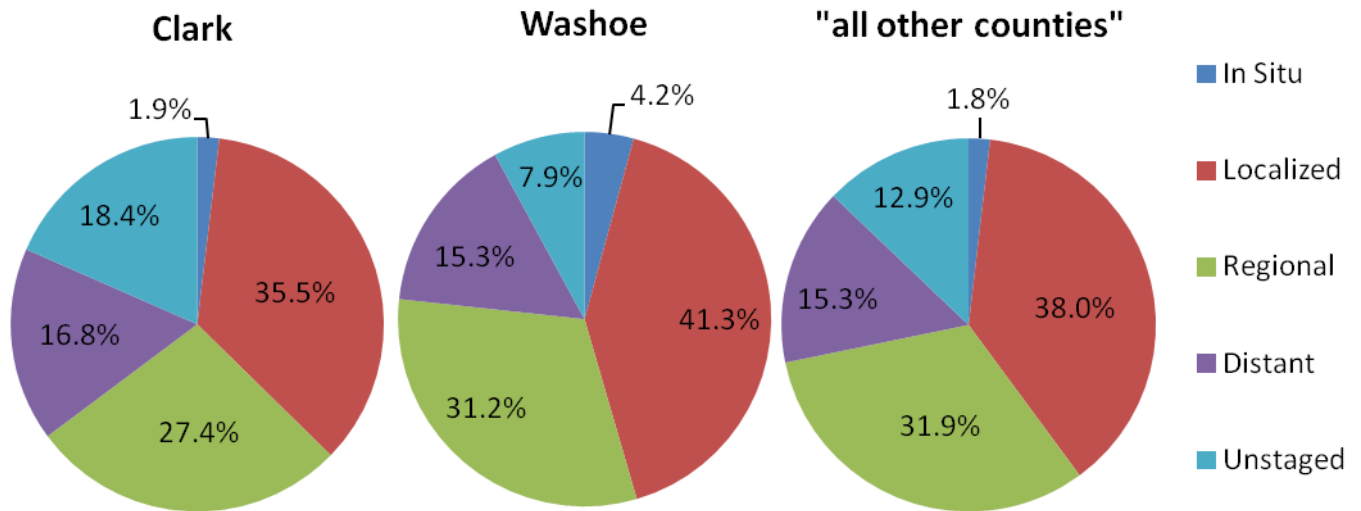
### **Crude Colorectal Cancer Mortality Rates by Region, Nevada Residents, 2005-2009**



Analyzing the stage of cancer at time of diagnosis among newly diagnosed colorectal cancer cases in 2009 revealed no statistically significant region-related differences in the distribution of stages.

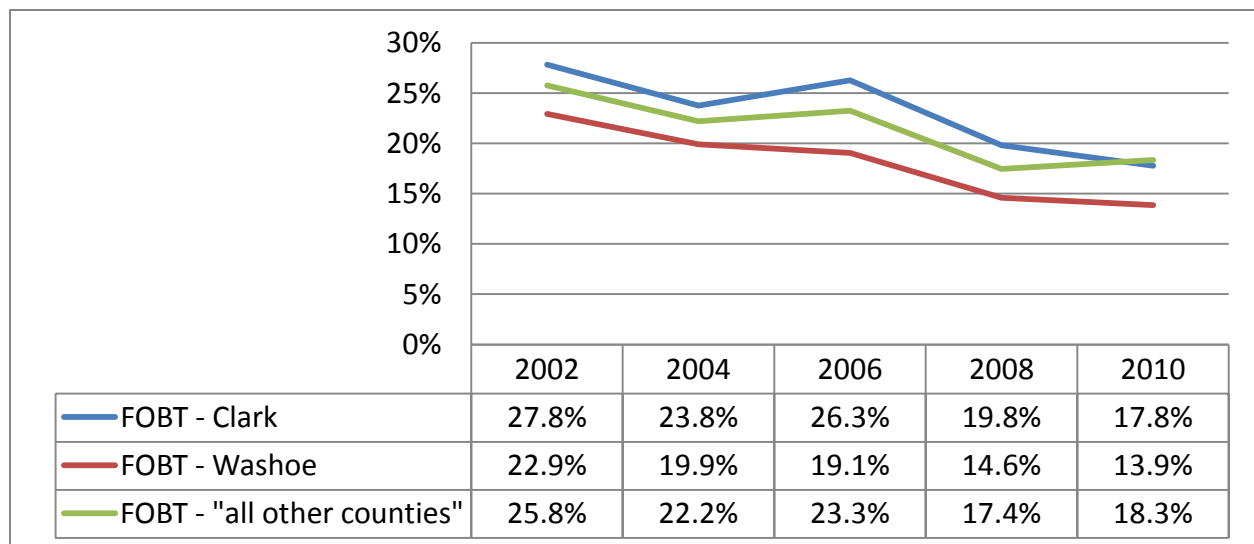
However, we can conclude from examining the colorectal cancer incidence in each region by stage at time of diagnosis, that Washoe had a significantly higher proportion of cases in which the stage was known and reported at time of diagnoses than Clark, with only 7.9% of all cases unstaged in Washoe, compared to 18.4% in Clark in 2009.

**Proportion of Colorectal Cancer, by Stage at Diagnosis, by Region, Nevada Residents, 2009**

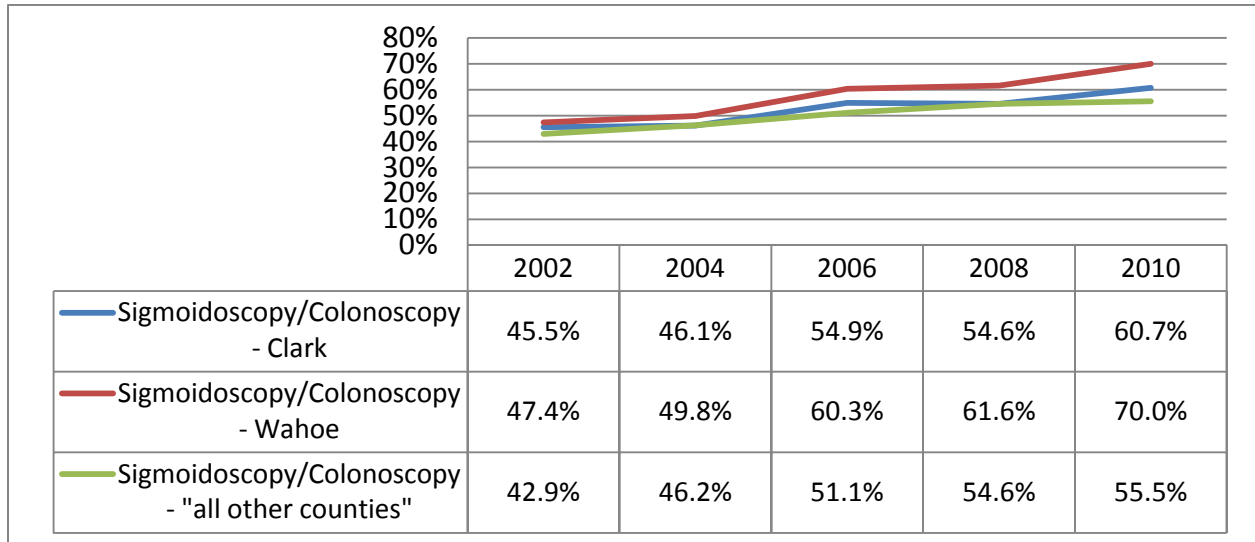


From 2002 to 2010, the percentage of those who had received an FOBT within the past two years decreased, and the percentage of those who had ever received a sigmoidoscopy or colonoscopy increased in all three regions.

**Percentage of Nevada Residents Aged 50+ Who Have Received an FOBT Within the Past 2 Years, by Region, BRFSS, 2002-2010**



**Percentage of Nevada Residents Aged 50+ Who Have Ever Received a Sigmoidoscopy or Colonoscopy, by Region, BRFSS, 2002-2010**



However, in 2010, the percentage of adults aged 50 years and older who had ever received a sigmoidoscopy or colonoscopy was significantly higher in Washoe than in Clark or “all other counties.”

## Conclusions

- There has been a divergence in the crude colorectal cancer incidence and mortality rates between men and women from 2005 to 2009, specifically in 2009 where we see a significantly higher crude rate of colorectal cancer among Nevada's male population. At this time, the cause of this divergence is undetermined. However, screening rates did not mirror this sex-related difference. There was no significant difference in stage at time of diagnosis across sexes, with very few cases being staged as *in situ* at time of diagnosis for both males and females.
- Hispanics have considerably lower crude colorectal incidence and mortality rates than any other race/ethnicity in Nevada. This is due, in large part, to the age distribution of Nevada's Hispanic population. Even when we adjusted for age, Hispanics have a significantly lower age-adjusted incidence rate than non-Hispanic Blacks.
- In 2009, a slightly higher proportion of blacks were unstaged at time of diagnosis, although our data does not suggest that this difference is large enough to be statistically significant. Non-Hispanic Whites were screened more often than non-Hispanic Blacks or Hispanics. Non-Hispanic Blacks had the lowest percentage of people screened for colorectal cancer, which could explain the high proportion of cases already advanced to later stages of cancer at time of diagnosis.
- Though there were no significant differences in colorectal cancer incidence or mortality rates across the regions considered, there were significantly fewer unstaged colorectal cancer cases in Washoe compared to Clark in 2009. It is also worth noting that the percentage of adults aged 50 years and older who had ever received a sigmoidoscopy or colonoscopy was significantly higher in Washoe than in either Clark or "all other counties" in 2010.

## What Is Nevada Doing?

In July 2010, the Nevada State Health Division (NSHD) launched the Colorectal Cancer Control Program (CRCCP) funded by the Centers for Disease Control and Prevention (CDC). The purpose of the program is to establish colorectal cancer screening services for persons in Nevada 50-64 years of age who are uninsured or underinsured and have rarely or never been screened.

An additional component of the CDC grant includes funds to educate health care providers and increase public awareness on the importance of early detection and screening. Access to Healthcare Network was awarded a sub-grant to develop a provider network and administer case management and patient navigation services.

The NSHD collaborated with the Nevada Colon Cancer Partnership (NCCP) to develop and disseminate a provider toolkit to educate primary care providers on colorectal cancer screening and activities. This toolkit is currently being distributed to 3,500 physicians across the state. In October 2011, the NCCP, the NSHD, and Access to Healthcare Network conducted provider

trainings and CRCCP services expanded to include southern Nevada and rural locations. In January 2011, screening services began in northern Nevada. By June 2011, 224 colorectal cancer screenings had been performed.

## Resources

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Nevada Colorectal Control Program  
Nevada State Health Division  
4150 Technology Way, Suite 210,  
Carson City, NV 89706  
775-684-4285

Nevada Colon Cancer Partnership  
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1. Centers for Disease Control and Prevention (CDC). Colorectal (Colon) Cancer. *Basic Information About Colorectal Cancer* [Internet]. [accessed 2012 Feb 10]. Available from: [www.cdc.gov/cancer/colorectal/basic\\_info/index.htm](http://www.cdc.gov/cancer/colorectal/basic_info/index.htm).