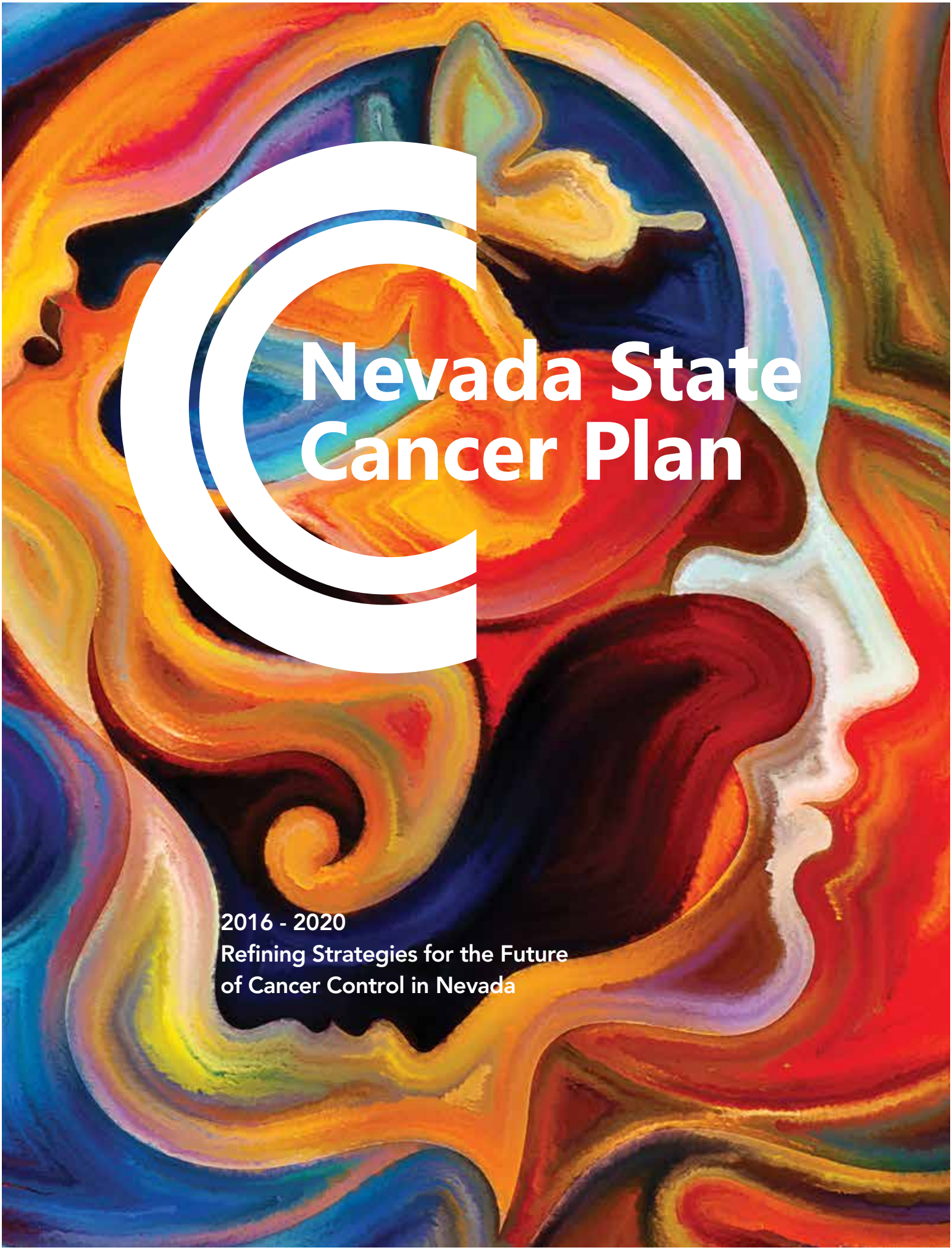

Nevada State Cancer Plan

2016 - 2020

Refining Strategies for the Future of Cancer Control in Nevada

NEVADA Wellness

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DIVISION OF PUBLIC AND BEHAVIORAL HEALTH

May 4, 2015

Dear Nevada cancer community:

The Division of Public & Behavioral Health is pleased to share with you the State of Nevada Comprehensive Cancer Plan 2016–2020. The Nevada Comprehensive Cancer Control Program created this plan in partnership with the Nevada Cancer Coalition and cancer community stakeholders, with funding from the Centers for Disease Control and Prevention. This five-year plan serves to address the cancer burden in Nevada and plans to reduce cancer incidence and mortality.

Cancer is the second leading cause of death in Nevada and in the United States, however, it is expected to become the number one cause of death in the next decade. In 2013 alone, an average of 15,198 Nevadans received a new diagnosis of cancer, and 4,430 Nevadans died from cancer.

Fortunately, every Nevadan can help fight against cancer. By improving diet, increasing physical activity, and maintaining healthy weight, striving to eliminate tobacco use, mitigating harmful environmental exposure to ultraviolet light and radon, and increasing adherence to recommended early detection cancer screening tests, the cancer burden in Nevada could be greatly alleviated. In order to accomplish these things, the battle against cancer will require a continued collaborative effort between Nevada's clinical communities, public and private organizations, and individual citizens. Our hope is that this plan will serve as a guide to a statewide approach to cancer control. In the collective effort of creating this plan, Nevadans are already making great strides in the areas of cancer prevention, early detection, and treatment. The Comprehensive Cancer Control Plan enhances and expands current efforts in order to improve the quality of life for all Nevada citizens.

Sincerely,

Tracey D. Green, M.D.
Chief Medical Officer

Special Thanks

The 2016-2020 Nevada Comprehensive Cancer Control Plan was created with contributions and input from a diverse group of dedicated and compassionate individuals who volunteered their time and expertise to further the impact of this integrated and coordinated approach to cancer control. Initiated by the Research and Data Committee of the Nevada Cancer Coalition, many more organizations, coalitions, and individuals united together to develop an informed and well-rounded plan. The Steering Committee played a critical role in refining the valuable input from these partners and experts to ensure priority areas in cancer control were identified and addressed within this document.

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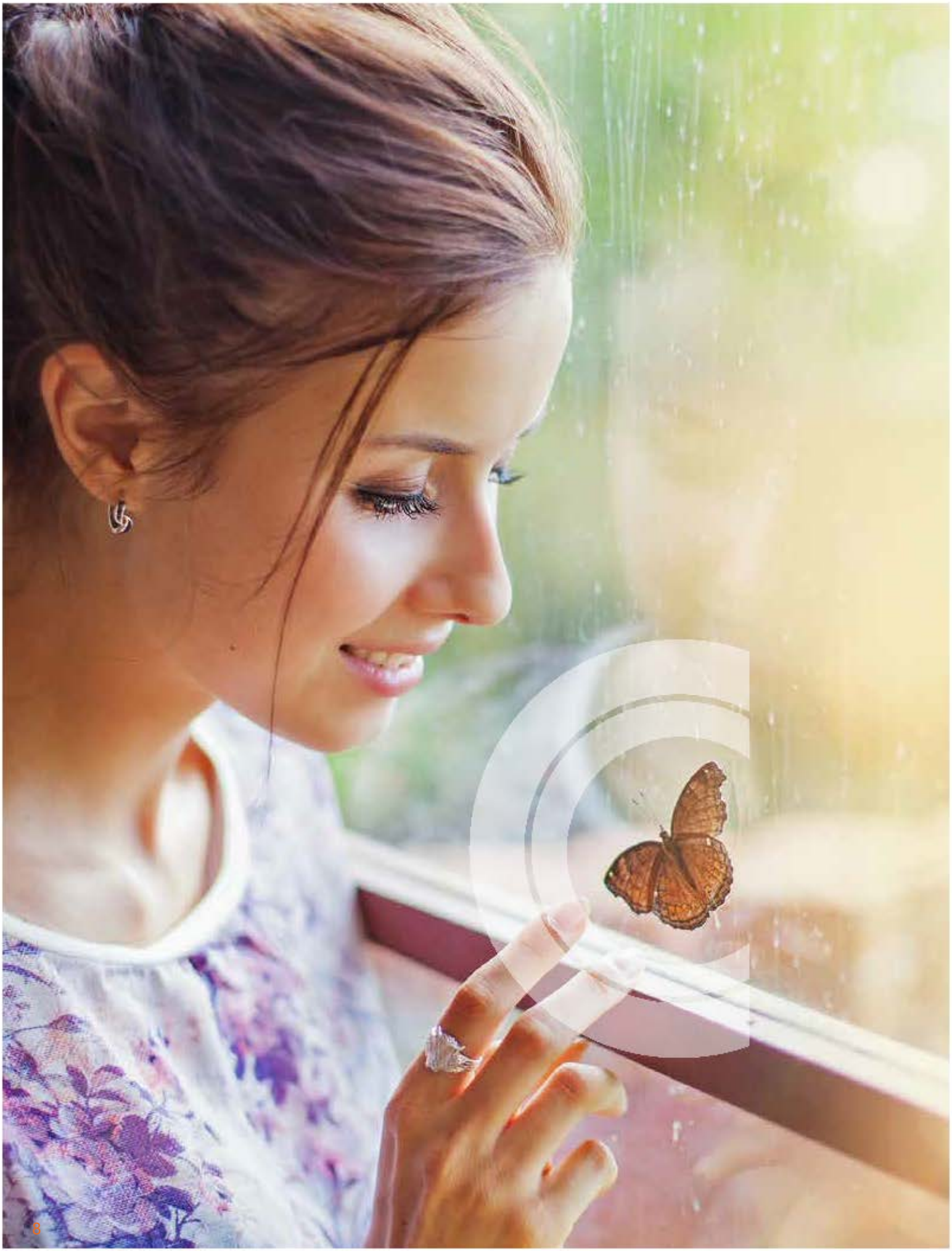


Introduction

The past decade has brought breathtaking advances in cancer research, prevention, treatment, and survivorship. Yet cancer remains a complex disease requiring relentless coordinated and comprehensive efforts in its prevention and control. The 2016-2020 Nevada Comprehensive Cancer Control Plan (the Plan), provides a roadmap focused on improving the systems and policies to prevent disease, improve the care of our loved ones, and ultimately save lives. The proceeding pages of goals and objectives will guide Nevada's efforts and direction of resources in the immediate future, but is by no means an exhaustive list. As science and practical experience grow, new challenges, innovative tools, and more effective strategies will emerge.

What is Comprehensive Cancer Control?

Comprehensive cancer control is based on the collaboration of communities and partner organizations to pool resources in order to prevent cancer and ultimately reduce the burden of this disease. The priorities of comprehensive cancer control efforts are aimed at: 1) emphasizing the primary prevention of cancer; 2) supporting early detection and treatment activities; 3) addressing the public health needs of cancer survivors; 4) implementing policy, systems, and environmental changes to guide sustainable cancer control; 5) promoting health equity as it relates to cancer control; and 6) demonstrating outcomes through evaluation.[i]

Nevada Cancer Coalition

The Centers for Disease Control and Prevention (CDC) created the National Comprehensive Cancer Control Program (NCCCP) to help states, tribes, and territories form or support existing coalitions to conduct comprehensive cancer control. In 2002, the state of Nevada received funding from the CDC to develop a state comprehensive cancer control plan, and the Nevada Cancer Council was thus formed to lead the development and implementation of Nevada's Plan. Today, the renamed Nevada Cancer Coalition (NCC) is a non-profit collaboration of state and local government, health, medical, and business leaders, researchers, cancer survivors, caregivers, and advocates in Nevada. NCC works in partnership with the State of Nevada Comprehensive Cancer Control Program to develop, implement, and manage the Plan.

Comprehensive Cancer Control in Nevada

Comprehensive cancer control efforts in Nevada are partially funded through a grant received by the Nevada Division of Public and Behavioral Health (NDPBH) from the CDC. Nevada's Comprehensive

Cancer Control Program is seated within the Chronic Disease Prevention and Health Promotion (CDPHP) section of the NDPBH and promotes collaboration through its structure, which encompasses other programs related to the goals of comprehensive cancer control including tobacco prevention and control; breast, cervical, and colorectal cancer screening and early detection; and school health and obesity prevention.[ii] CDPHP has aligned with the goals of the CDC through its mission.

The mission of the Chronic Disease Prevention and Health Promotion section is to maximize the health of Nevadans by improving systems, policies, and environments that influence quality of life.

Outside of Nevada's state programs there are numerous stakeholders that form the basis of the infrastructure and provide the capacity for comprehensive cancer control in Nevada. Many of these stakeholders are members of NCC and represent the different facets of comprehensive cancer control as well as the unique geographic, economic, cultural, racial, and ethnic make-up of the state. These stakeholders include health care providers, hospitals and health systems, non-profit organizations, researchers, government entities and programs, insurance providers, advocates, religious organizations, community organizations, and private businesses.

Collaboration between various coalitions has been especially successful for comprehensive cancer control activities. Partner organizations include Nevada Tobacco Prevention Coalition (NTPC), Nevada Colon Cancer Partnership (NCCP), Immunize Nevada, and the Nevada Statewide Coalition Partnership, which unites community coalitions throughout Nevada's rural and frontier communities.

2011-2015 Comprehensive Cancer Plan Progress

The focus of the 2011-2015 Plan was to build infrastructure with an emphasis on creating partnerships and collaboration. While Nevada did not achieve all of the goals set forth in the Plan, substantial progress was made in several areas.

NCC has grown to include over 100 member organizations from across the state collaborating on cancer control initiatives. Statewide work groups specific to breast cancer, skin cancer, research and data, education, and policy have been established. In addition, the Coalition established an active collaboration with NTPC to decrease smoking initiation and smoking rates, and to increase smoke-free meeting sites across the state. NTPC's efforts have helped to reduce the incidence of teen smoking from 18.3 percent in 2005 to 10.3 percent in 2013 per the Youth Risk Behavior Surveillance System (YRBSS).[iii] In 2009, NCCP, NCC, and the Nevada Colorectal Cancer Program (NCRCCP) began a partnership to increase colorectal cancer screening rates. This collaborative initiative has elicited increased screening rates for colorectal cancer in Nevada, with colonoscopy screening rates increasing from 45.4 percent in 2002 to 60.6 percent in 2012, per the Behavioral Risk Factor Surveillance System (BRFSS) data.

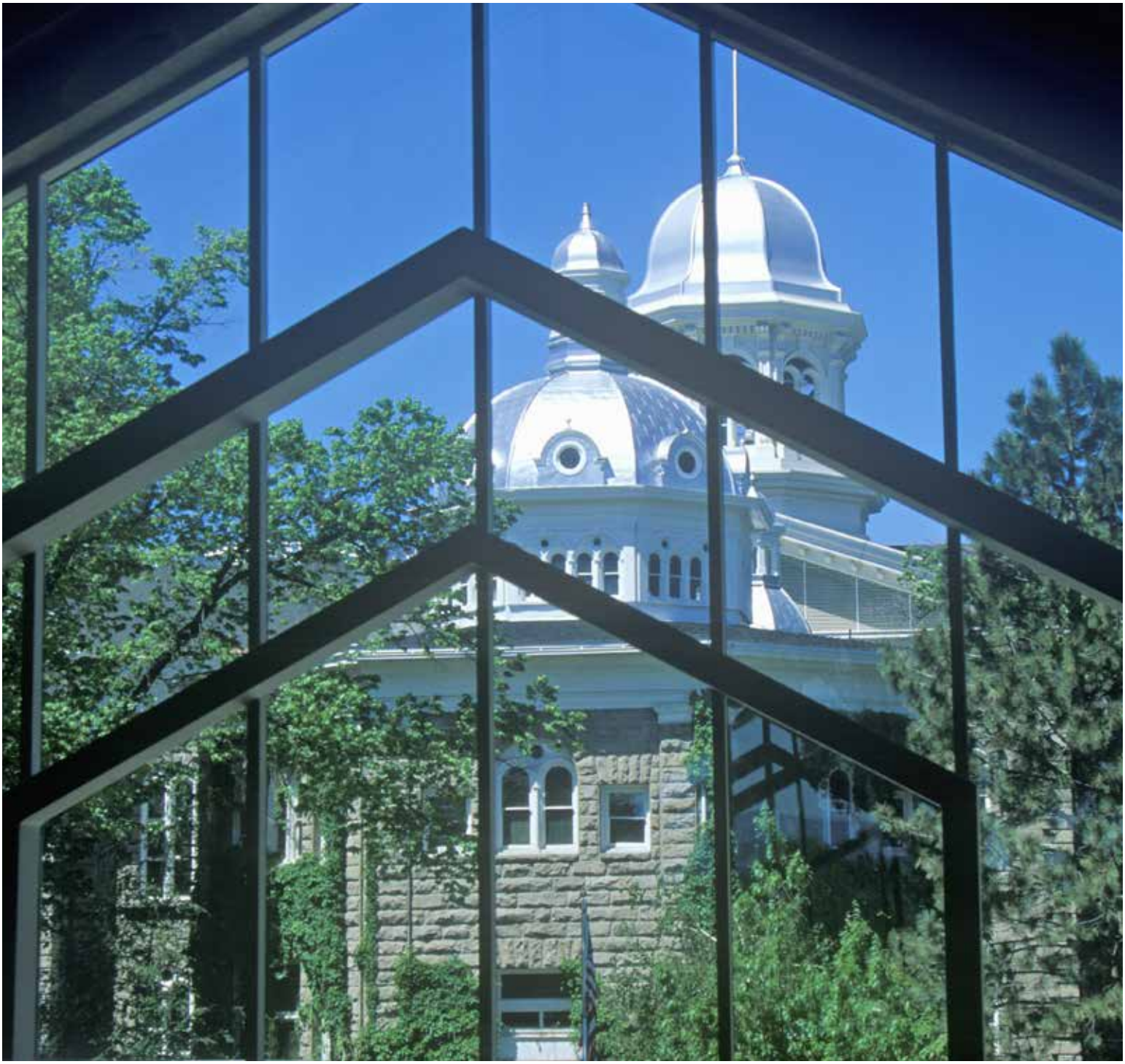
During the 2013 legislative session, Nevada became the fourth state to pass legislation prohibiting minors under the age of 18 from using indoor tanning devices. In addition, the new law included safety measures and education for adults who tan indoors. During that same session, access to cancer medications was substantially improved with the passage of Senate Bill 266 which requires a patient's cost-sharing – including co-payments, co-insurance, and deductibles – for any orally administered cancer medications be limited to $100 per prescription. Numerous partners and Coalition members worked together to accomplish these achievements.

The 2015 legislative session also added a number of successes. Partners, led by NTPC, worked to increase the state tobacco tax by one dollar per pack of cigarettes, from eighty cents, totaling $1.80 per pack. This moved Nevada from number 35 to number 18 nationally in tobacco tax rates and will likely increase smoking cessation and decrease initiation among adult and youth populations. Partners also collaborated

to draft and champion Assembly Bill 42, which updated and aligned Nevada Revised Statutes (NRS) Chapter 457 regarding the reporting and analysis of cancer data with national standards, ultimately improving the quality, quantity and validity of Nevada's cancer data.

"Advances in tobacco control policy in Nevada over the past decade – most notably the statewide smoking ban and the dollar per pack increase in cigarette taxes – represent evidence-based policy wins that will reduce the burden of cancer in our state in the future. Safeguarding and extending science-based policy measures hold considerable potential to simultaneously improve the public's health and reduce downstream health care costs associated with cancer in Nevada."

- John Packham, PhD, Director of Health Policy Research, Office of Statewide Initiatives, University of Nevada School of Medicine

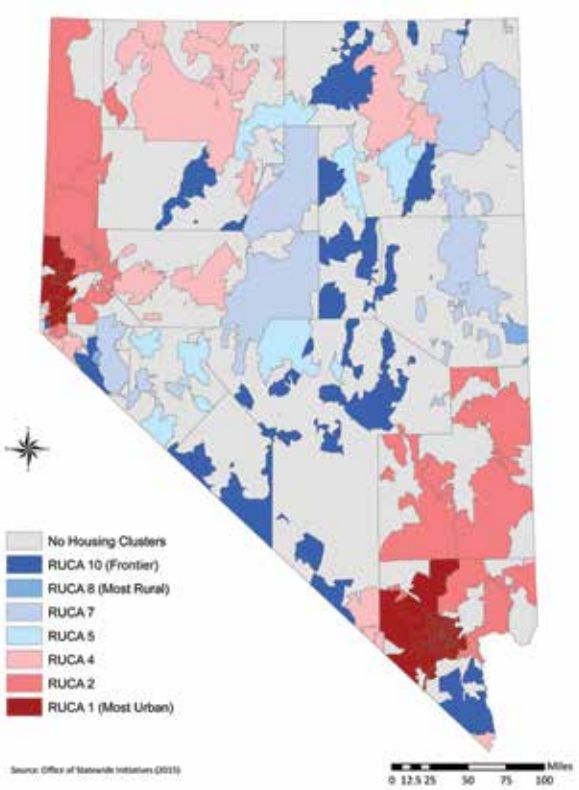


The Cancer Burden in Nevada

Nevada Demographics

Nevada is the seventh largest state geographically and is among the fastest growing states in the nation. The population of Nevada increased by 12.96 percent between 2006 and 2015 for a total of 2.8 million residents in 2015. Of the 17 counties, only Clark, Washoe, and the state capital, Carson City, are considered urban. The remaining 14 counties are rural or frontier, creating pronounced geographic disparities (Map 1).[iv]

Nevada Population by Rural-Urban Commuting Areas (Map 1)



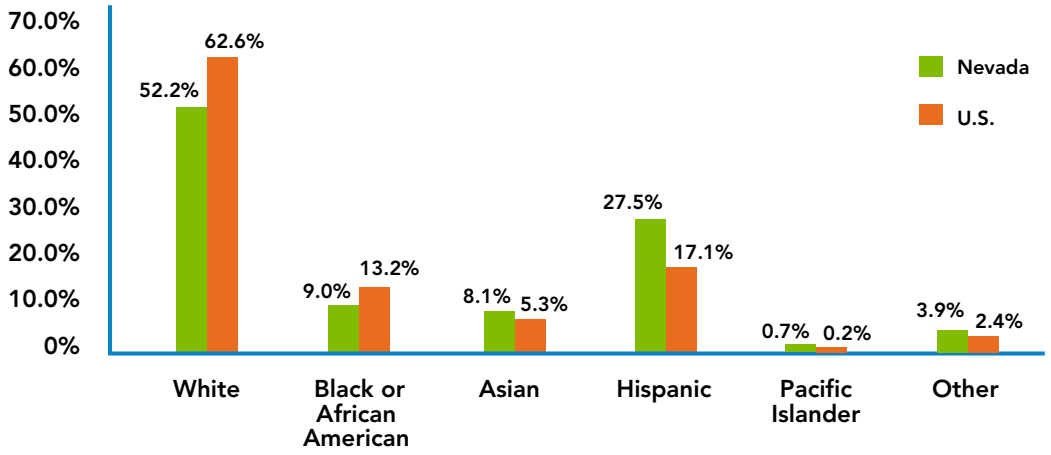
Map 1: Rural-Urban Commuting Areas (RUCA) represent population density. The large geographic size of Nevada and the extreme population diversity create extensive health care delivery challenges.

Healthcare Resources in Nevada (Map 2)

Map 2: Many rural Nevada communities are far from medical care or medical care is insufficient for the needs of the population.

The geographic distribution creates many health care delivery challenges in serving the residents of Nevada, especially those in rural and frontier areas. The average distance between acute care hospitals in rural Nevada, and the next level of care or tertiary care hospitals is 115 miles.[v]

Nevada is also becoming a more diverse state. The percentage of minority races and ethnicities has increased over the past few years. Currently, the greatest percentage of residents identify as white, followed by Hispanic and Black or African American.



Source: United States Census Bureau (2013)

Figure 1: The greatest percentage of Nevada residents identify as white, followed by Hispanic, Black or African American, Asian, and Pacific Islander.

As a Medicaid expansion state, Nevada's enrollment in Medicaid and Children's Health Insurance Program (CHIP) programs increased 66 percent from an average of 221,450 in July through September 2013 to 554,010 in April 2015, far exceeding the national increase of 21 percent. Medicaid expansion is expected to improve quality of life for many Nevadans, however, provider shortages, low health literacy, and navigation of the health care system remain substantial challenges for all citizens.[vii]

Understanding Cancer Surveillance Data Terms

National Cancer Institute, 2015

Incidence refers to the number of newly diagnosed cases during a specific time period.

Mortality refers to the number of deaths during a specific time period.

A **cancer incidence or mortality rate** is the number of newly diagnosed cancers or number of reported cancer deaths of a specific site/type occurring in a specified population during a year (or group of years), usually expressed as the number of cancers per 100,000 population at risk.

Age-adjusted rate is a statistical method allowing comparisons of populations that takes into account age-distribution differences between populations. Age adjusting takes the 2000 United States population distribution and applies it to the other periods under consideration. For the purpose of this plan, age-adjusted rates are per 100,000 persons (19 age-groups –Census P25-1130).

Confidence interval shows the statistical probability that a characteristic is likely to occur within a defined population by providing an estimated range for that characteristic. The most commonly used confidence interval is 95 percent.

Limitations

Due to poor reporting practices in health care facilities within Nevada, the completeness or quality of cancer abstracts and the timeliness of reporting has declined. In terms of completeness, although required by Nevada Administrative Code (NAC), submission of patients' race has not been included in 12.8 percent of cases reported to Nevada Central Cancer Registry (NCCR) for cancers diagnosed in 2011. For Hispanics, "Race" is underreported due to the misunderstanding between "Race" and "Ethnicity." For example, if "Hispanic" is written in the race or ethnicity field after reporting, the ethnicity field is classified as "Hispanic" and the race field is left empty. This results in poorly-reported race data. In addition, the number of reports received is lower than expected. In terms of timeliness, the majority of abstracts were submitted outside of health care facilities' reporting window for each abstract.

Nevada has two large urban population concentrations and counties which are among the greatest population dispersion in the nation. This demographic distribution phenomenon results in similar rates between urban counties and the state, and unreliable rates or rates with large variability (large confidence intervals) in smaller, rural, and frontier counties. This is primarily due to low-frequency cancer cases and small populations.

American Indian/Alaska Natives are underrepresented in the NCCR. "Studies that estimate misclassification among American Indians/Alaska Natives using cancer registry data report these rates are underreported by 40 to 57 percent, depending on the region of the country."[viii, ix, x]

Reliable survival data depend on the accuracy, completeness, and timeliness of mortality data and cancer data linkages with the state, the National Death Index, and cancer data sharing between other states. The NCCR is actively improving processes in order to attain the data quality necessary for survival calculations.

Cancer in Nevada

In 2015 the estimated new cases of cancers in Nevada totaled 13,640 with an estimated 4,880 deaths.[xi] In Nevada, prostate, lung, and colorectal cancers are the most commonly diagnosed cancers among men, as demonstrated in Table 1. They are also the leading causes of cancer-related death among men. Similarly, breast, colorectal, and lung cancers are the most commonly diagnosed cancers among women, as well as being the leading causes of cancer-related deaths.

CANCER INCIDENCE, BOTH SEXES				CANCER MORTALITY, BOTH SEXES			
Rank	**Site**	**Rate**	**Count**	**Rank**	**Site**	**Rate**	**Count**
1	Prostate (Male Only)	127.1	8,452	1	Lung and Bronchus	49.9	6,451
2	Breast (Female Only)	113.6	8,097	2	Breast (Female Only)	22.9	1,625
3	Lung and Bronchus	64.0	8,559	3	Prostate (Male Only)	22.0	1,094
4	Colorectal	42.2	5,619	4	Colorectal	17.1	2,189
5	Urinary Bladder	22.7	2,962	5	Pancreas	10.7	1,408
TOTAL			**33,689**	**TOTAL**			**12,767**

CANCER INCIDENCE, MALES				CANCER MORTALITY, MALES			
Rank	**Site**	**Rate**	**Count**	**Rank**	**Site**	**Rate**	**Count**
1	Prostate (Male Only)	127.1	8,452	1	Lung and Bronchus	57.3	3,412
2	Lung and Bronchus	71.7	4,398	2	Prostate (Male Only)	22.0	1,094
3	Colorectal	49.8	3,121	3	Colorectal	21.5	1,261
4	Urinary Bladder	38.2	2,260	4	Pancreas	12.6	767
5	Non-Hodgkin Lymphomas	19.7	1,249	5	Liver and Intrahepatic Bile Ducts	8.8	566
6	Kidney and Renal Pelvis	18.2	1,206	6	Leukemias	8.8	491
7	Melanoma of the Skin	17.8	1,122	7	Urinary Bladder	8.8	456
8	Leukemias	17.7	1,082	8	Esophagus	8.2	520
9	Lip, Oral Cavity and Pharynx	15.8	1,081	9	Non-Hodgkin Lymphomas	7.0	400
10	Pancreas	13.5	841	10	Brain and Other Nervous System Neoplasms	5.4	347
TOTAL			**24,812**	**TOTAL**			**9,314**

CANCER INCIDENCE, FEMALES				CANCER MORTALITY, FEMALES			
Rank	**Site**	**Rate**	**Count**	**Rank**	**Site**	**Rate**	**Count**
1	Breast (Female Only)	113.6	8,097	1	Lung and Bronchus	43.0	3,039
2	Lung and Bronchus	58.1	4,160	2	Breast (Female Only)	22.9	1,625
3	Colorectal	35.6	2,496	3	Colorectal	13.5	928
4	Thyroid Gland	24.7	1,678	4	Pancreas	9.0	641
5	Corpus and Uterus, NOS (Female Only)	19.1	1,410	5	Ovarian (Female Only)	6.9	490
6	Non-Hodgkin Lymphomas	14.2	1,002	6	Leukemias	4.5	315
7	Brain and Other Nervous System Neoplasms	13.9	971	7	Non-Hodgkin Lymphomas	4.1	281
8	Melanoma of the Skin	11.7	813	8	Liver and Intrahepatic Bile Ducts	4.0	285
9	Ovarian (Female Only)	10.6	758	9	Corpus and Uterus, NOS (Female Only)	3.2	230
10	Urinary Bladder	10.0	701	10	Brain and Other Nervous System Neoplasms	2.9	207
TOTAL			**22,086**	**TOTAL**			**8,041**

Data Source: Preliminary data, Nevada Comprehensive Cancer Report, January 2015, Office of Public Health Informatics and Epidemiology.

Table 1: Demonstrates the Leading Causes of Cancer Incidence and Mortality for Males, Females and Both Sexes Combined using Age-Adjusted Rates from 2008-2012

Stage at Diagnosis

Stage at diagnosis summarizes how far a cancer has spread when it is first discovered. In addition to helping physicians plan the appropriate treatment and identify possible clinical trials, staging can be used in estimating a person's prognosis. Generally, patients diagnosed with early stage tumors (in situ or localized) have a better prognosis than patients diagnosed with late-stage tumors (regional or distant). Screening tests can diagnose some cancers at an early stage, such as those of the breast, cervix, colon and rectum, lung, skin, and prostate.[xii]

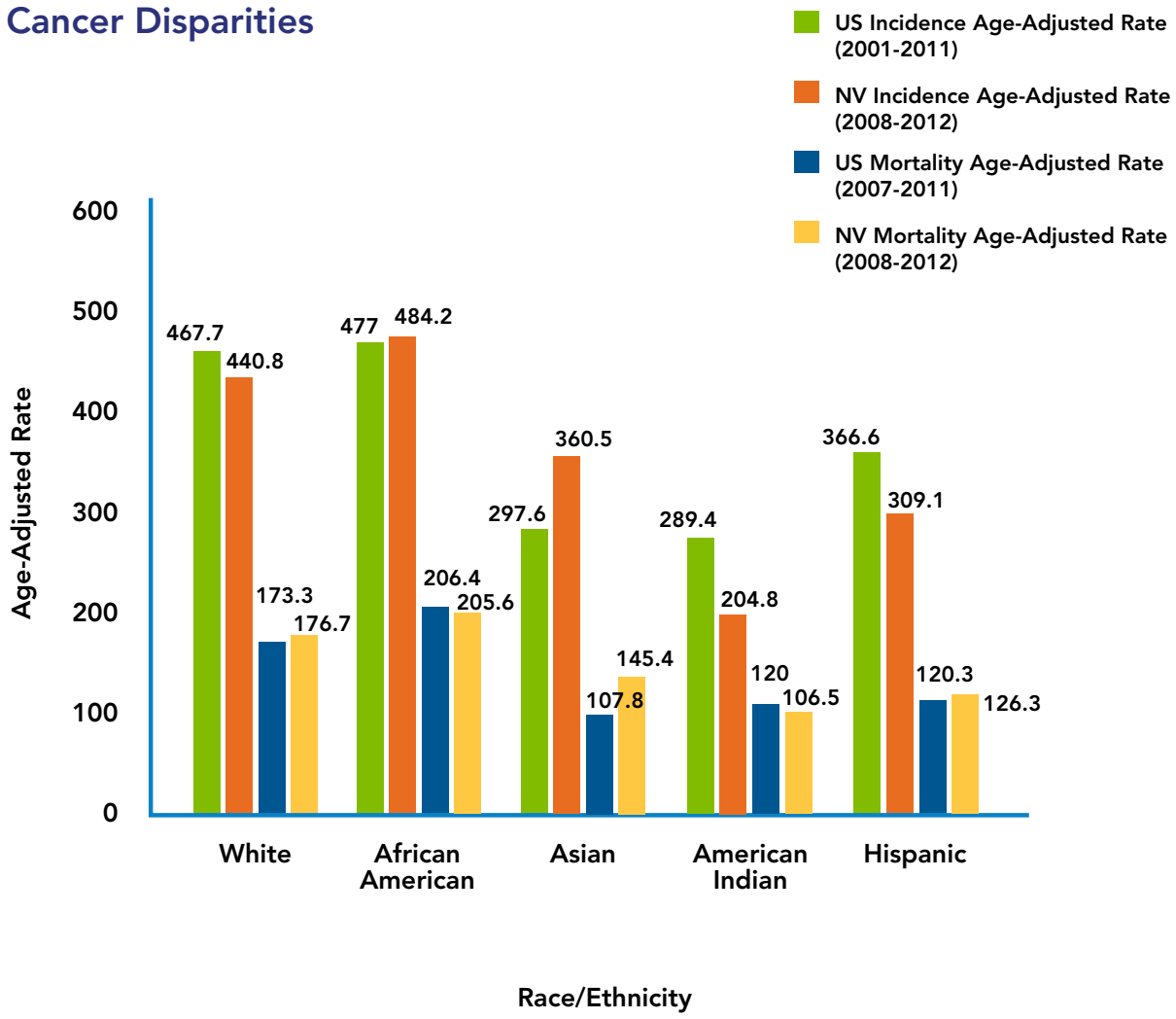
Among the top 10 causes of cancer incidence in Nevada, both lung and colorectal cancers have higher rates of late-stage versus early-stage diagnosis, as shown in Table 2. While much lower in incidence, and thus not reflected in Table 2, cervical cancer also has a higher rate of late-stage diagnosis among Nevadans. Increasing screening rates for these and other cancers may help to increase diagnoses at earlier, more treatable stages.

	Early Stage at Diagnosis	%	Late Stage at Diagnosis	%	Unstaged	(%)	Total
Lung and Bronchus	1,383	20.8	5,262	79.2	1,914	22.4	8,559
Prostate	6,343	88.1	856	11.9	1,256	14.9	8,455
Breast	4,776	62.5	2,861	37.5	549	6.7	8,186
Colorectal	1,911	40.4	2,822	59.6	887	15.8	5,620
Urinary Bladder	2,435	88.5	315	11.5	212	7.2	2,962
Non-Hodgkin Lymphoma	512	31.3	1,125	68.7	614	27.3	2,251
Thyroid Gland	1,379	69	620	31	168	7.8	2,167
Melanoma of the Skin	1,253	78.9	336	21.1	346	17.9	1,935
Kidney and Renal Pelvis	1,244	70.4	523	29.6	151	7.9	1,918
Leukemia	4	0.2	1,774	99.8	1	0.1	1,779

Data Source: Preliminary data, Nevada Comprehensive Cancer Report, January 2015, Office of Public Health Informatics and Epidemiology.

Table 2: Nevada's 10 leading causes of cancer incidence by stage at diagnosis, counts, 2008-2012. Lung and Bronchus cancer had both the highest cancer incidence and rate of late-stage diagnosis. Prostate cancer, while high in incidence, was often found at an earlier stage.

Cancer Disparities



Data Source: Preliminary data, Nevada Comprehensive Cancer Report, January 2015, Office of Public Health Informatics and Epidemiology.

Figure 2: Cancer Incidence and Mortality Age-Adjusted Rates by Race/Ethnicity, Nevada vs. United States. African Americans and Asians in Nevada have higher incidence rates in Nevada than seen nationally. Both Asians and Hispanics in Nevada have higher mortality rates than seen nationwide.

Nevada's incidence and mortality rates for cancer mirror those of the United States. However, as demonstrated in Figure 2, the burden of cancer does not fall equally on all Nevadans and the risk for developing cancer varies by race and ethnicity. Incidence and mortality from cancer is highest among African Americans followed by non-Hispanic whites. Persons of Asian origin rank third for cancer incidence and mortality in Nevada, and are the only race/ethnicity to have rates above those of the United States.[xiii] Nevada's high rates of cancer among Asians may be a factor of the ethnic mix within the state. Filipinos are a large portion of the state's Asian population and have higher incidence rates for cancer than other Asians, except for Japanese.[xiv, xv] Of those cancers with the highest incidence and mortality in Nevada, African American men have the highest rates of prostate cancer, African American women have the highest rates of breast cancer, and African Americans of both genders combined have the highest rates of lung and colorectal cancers. National data suggests these same disparities.[xvi]

The Economic Burden of Cancer

Cancer is not only a financial burden for patients, but also for national and local public health systems. In Figure 3 below, Part A estimates the national expenditures for cancer care in the United States in 2010 (in billions of dollars), by cancer site and phase of care. Part B estimates the proportion of national expenditures for cancer care in the United States in 2010 (in billions of dollars), by cancer site and phase of care. This chart was adapted from a study on the economic burden of cancer in the United States.[xvii]

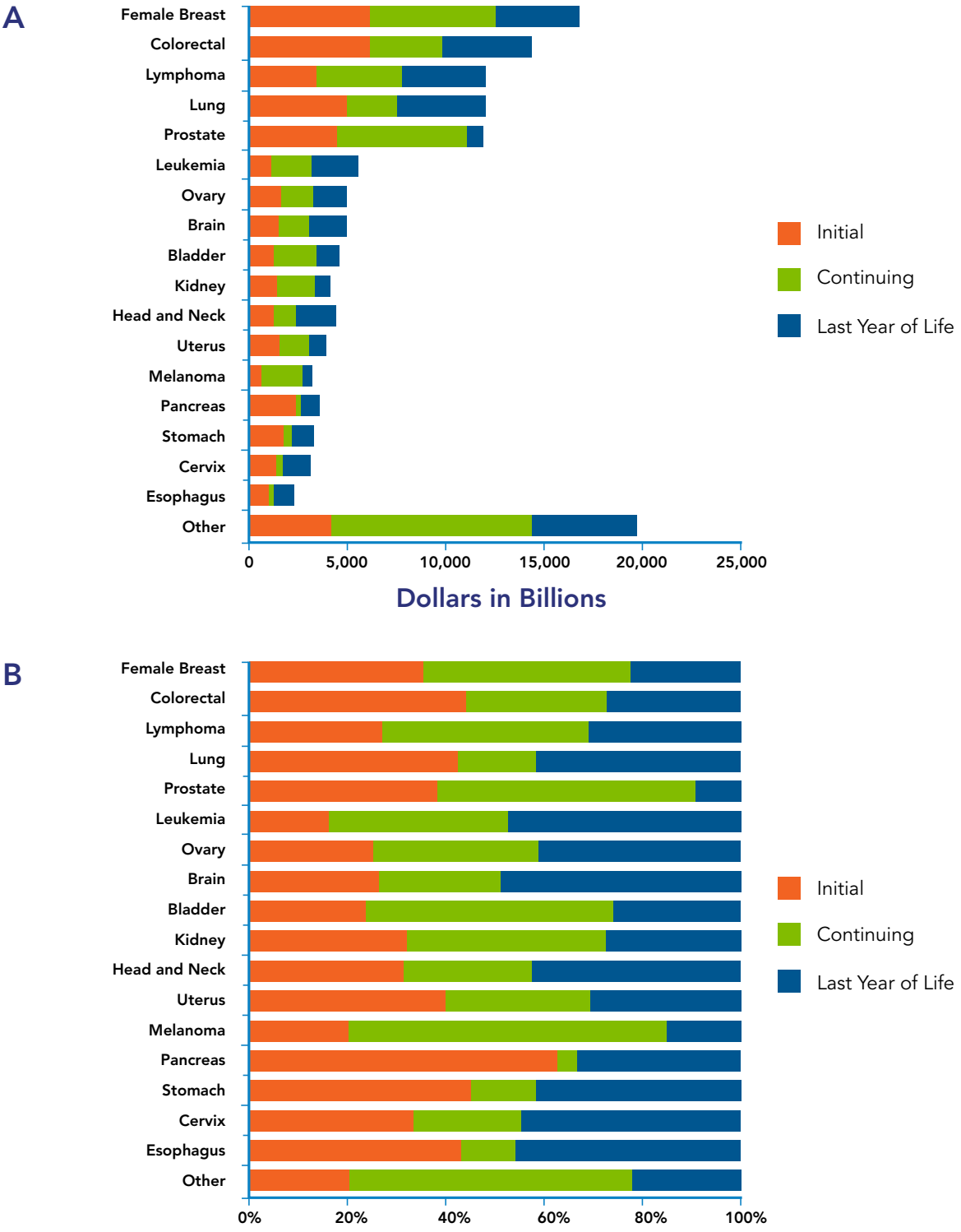


Figure 3: Estimates of National Expenditures for Cancer Care 2010 (in billions of dollars) for Phase of Care. Expenditures often increase over time.

Researchers have identified the economic burden of cancer for the three most prevalent cancers to be $20,238 for colorectal, $14,202 for breast, and $9,278 for prostate per year for individuals ages 18 to 64. Patients aged 65 years and older also see significant costs associated with cancer at $18,860 for colorectal, $14,351 for breast, and $16,851 for prostate.[xviii]

The Agency for Healthcare Research and Quality (AHRQ) estimates that the direct medical costs (total of all health care costs) for cancer in the United States in 2011 totaled $88.7 billion.

- 50 percent for hospital outpatient or doctor office visits
- 35 percent for inpatient hospital stays
- 11 percent for prescription drugs[xix]

In Nevada, between 2008 and 2012 the average charge per hospitalization for cancer was $71,023, and over those five years hospitalization charges for cancer in Nevada totaled more than $3.5 billion.[xx] Years of life lost due to cancer, shown by cancer type in Table 3, contribute to the economic burden of cancer in Nevada as well, through lost wages and lost work productivity.

PERSON-YEARS OF LIFE LOST IN NEVADA, DUE TO CANCER, ALL RACES, ALL GENDERS, 2008-2012	
Type of Cancer	**Person-years of life lost**
All Causes of Cancer	168,800
Lung and Bronchus	40,438
Breast (Female Only)	16,978
Colorectal	16,212
Pancreas	10,193
Liver and Intrahepatic Bile Ducts	7,703
Leukemias	7,687
Brain and Other Nervous System Neoplasms	7,384
Esophagus	5,255
Non-Hodgkin Lymphomas	5,118
Ovary (Female Only)	4,380
Kidney and Renal Pelvis	4,275
Melanoma of the Skin	3,810
Prostate (Male Only)	3,242
Stomach	3,015
Lip, Oral Cavity and Pharynx	3,010
Cervix Uteri	2,820
Urinary Bladder	2,448
Soft Tissue Including Heart	2,085
Corpus Uteri and Uterus NOS	1,865
Myeloma	1,735
Endocrine System	1,125
Larynx	1,114
Bones and Joints	950
Non-Epithelial Skin	918
Hodgkin Lymphoma	753
Mesothelioma	**
Eye and Orbit	**
Kaposi Sarcoma	**
Miscellaneous Malignant	**

** Values were not calculated for specified types of cancer.

Data Source: Preliminary data, Nevada Comprehensive Cancer Report, January 2015, Office of Public Health Informatics and Epidemiology.

Table 3: Person-years of Life Lost (PYLL) in Nevada, Due to Cancer, All Races, All Genders, 2008-2012. The top three cancers for PYLL, lung and bronchus, breast, and colorectal, also lead in incidence and mortality for Nevadans.

Survivors of cancer who have completed treatment face economic burdens due to time away from work and reduced productivity, as well as ongoing and residual medical costs and bills. A national study by the Centers for Disease Control and Prevention (CDC) stated that female cancer survivors had $8,400 in annual medical costs per person and $4,000 in productivity losses compared to those without cancer.[xxi]

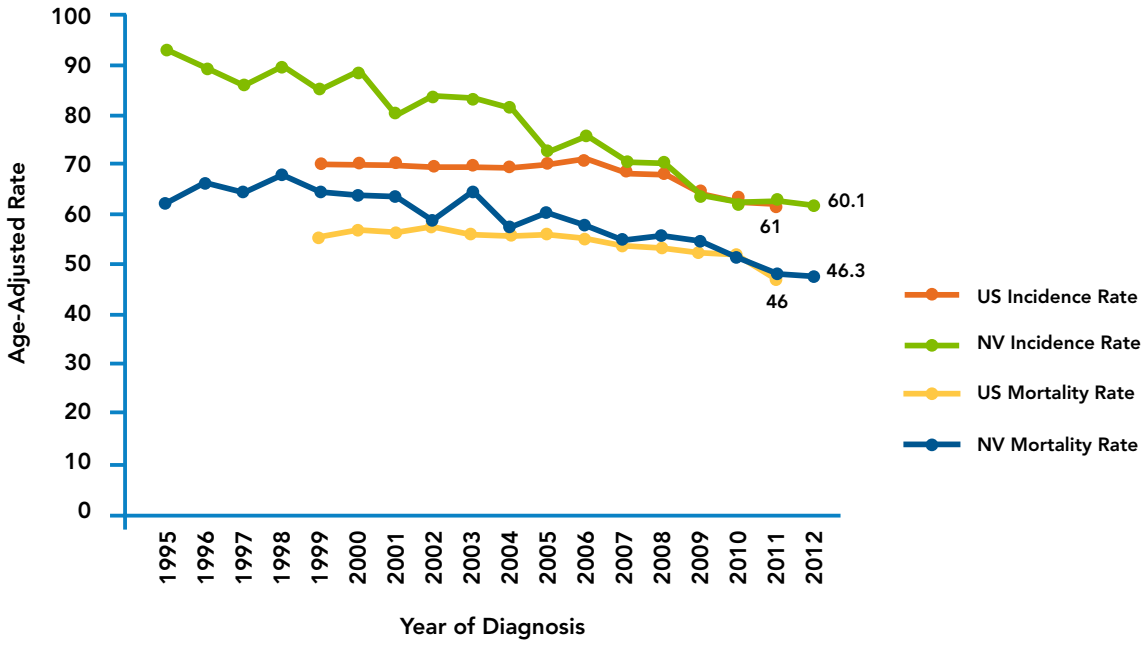
Study findings indicate:[xxii]

- Cancer survivors are more likely to be female, non-Hispanic white, have multiple chronic conditions, or to be in fair or poor health.
- Employment disability accounted for an estimated 75 percent of lost productivity among cancer survivors.
- Among survivors who were employed at the time of their diagnosis, cancer and its treatment interfered with physical tasks (25 percent) and mental tasks required by the job (14 percent); almost 25 percent of cancer survivors felt less productive at work.

Cancer Profiles

Lung Cancer

Lung cancer is the leading cause of cancer death among men and women both in Nevada and nationwide. The overall United States mortality rate for lung and bronchus cancers rose steadily through the 1980s, peaked in the early 1990s, and has slowly declined since 2001.[xxiii] Nevada's mortality and incidence rates follow this national trend.



Data Source: Preliminary data, Nevada Comprehensive Cancer Report, January 2015, Office of Public Health Informatics and Epidemiology.

Figure 4: Lung and Bronchus Cancer Incidence and Mortality Age-Adjusted Rates by Year of Diagnosis, Nevada and United States, 1995 – 2012. Nevada's trend is similar to the US, both incidence and mortality are in decline.

Smoking causes about 90 percent of lung cancer cases, either through smoking directly or through secondhand smoke,[xxiv] making many cases of lung cancer preventable. In Nevada, 19.4 percent of adults identify as smokers, compared to the national rate of 19 percent.[xxv] Nevada's rate of secondhand smoke exposure may be greater than that of other states as well. The Nevada Clean Indoor Air Act was passed in 2006 making most workplaces in Nevada smoke-free. The law, designed to protect children and adults from secondhand smoke, limits smoking tobacco within many public places and indoor places of employment. However, two additional exemptions have been added to the law since its enactment, limiting its effectiveness. The largest group of non-governmental employees in Nevada are casino workers who are exposed to secondhand smoke throughout their typical workday due to these exemptions.[xxvi]

Another preventable source of lung cancer is radon exposure, which contributes to an estimated 21,000 cases of lung cancer deaths each year in the United States. The Environmental Protection Agency estimates

that radon exposure causes seven times more lung cancer deaths than secondhand smoke, and annually kills more people nationally than drunken driving, home fires, or drowning.[xxvii] Radon levels vary from home to home, often within the same neighborhood. Radon concentration cannot be determined without comprehensive testing.

Disparities

When comparing lung cancer incidence and mortality in Nevada to the United States, both rates are slightly lower among men and slightly higher among women in Nevada.[xxviii] The national incidence rate for lung cancer from 1975 to 2011 dropped 28 percent for men. During the same timeframe it rose 98 percent for women, peaking in 1998, and is now beginning to decline.[xxix]

In Nevada, as in the United States as a whole, African Americans followed by non-Hispanic whites have the highest incidence and mortality rates for lung cancer. Asians in Nevada have a higher incidence of lung cancer than national rates. Both Asian and Hispanic populations have higher lung cancer mortality rates in Nevada versus the nation.[xxx]

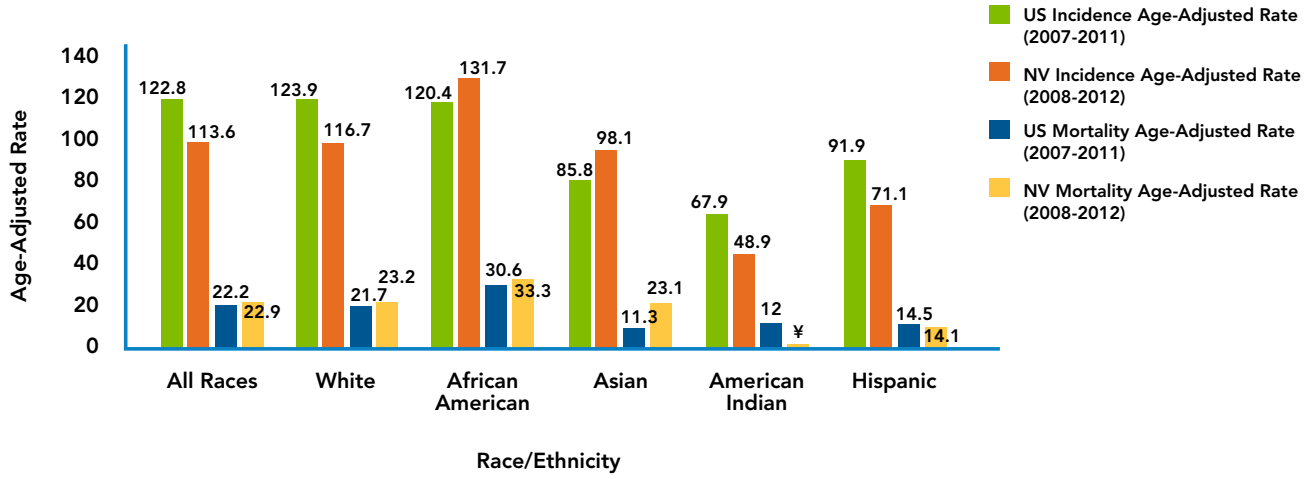
Stage at Diagnosis

Nearly 80 percent of lung and bronchus cancers in Nevada are late-stage diagnoses. Early-stage diagnosis suggests a 54.8 percent five-year relative survival rate, versus less than a 28 percent five-year relative survival rate for lung cancers diagnosed at later stages.[xxxi] Recommendation for lung cancer screening is relatively new with guidelines released in December 2013 by the United States Preventive Services Task Force (USPSTF). The USPSTF issued a B-grade recommendation (a high likelihood of moderate net benefit) for annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 55-80 years who have a 30 pack per year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.[xxxii] More extensive use of lung cancer screening by high-risk populations may help to reduce the percentage of late-stage diagnoses of this cancer.

Breast Cancer

In Nevada, between 2008 and 2012, approximately 1,600 women were diagnosed with breast cancer each year and an average 325 women died from the disease each year.[xxxiii] The survival rate for breast cancer has improved with four of every five women now diagnosed surviving the disease. The mortality rate for breast cancer has declined over the past decade and can be partially attributed to earlier diagnosis due to improved screening and treatment. While this is an improvement, Figure 5 shows the rate of breast cancer diagnoses among white and African American populations are still much higher than other races/ethnicities,[xxxiv] and there are challenges concerning access to screening and treatment for American Indian and many Nevadan women.

Diagnosis rates help explain the distribution of cancer in a population; however, it is important to consider a person must have access to screening services, in order to receive an early diagnosis and to receive quality treatment.



Data Source: Preliminary data, Nevada Comprehensive Cancer Report, January 2015, Office of Public Health Informatics and Epidemiology. ¥ indicates data has been removed due to counts more than zero but less than or equal to five due to confidentiality and reliability issues.

Figure 5: Breast Cancer Incidence and Mortality Age-Adjusted Rates by Race/Ethnicity, 5-Year Period, Nevada vs. United States. High rates of incidence and mortality persist in Nevada populations.

Stage at Diagnosis

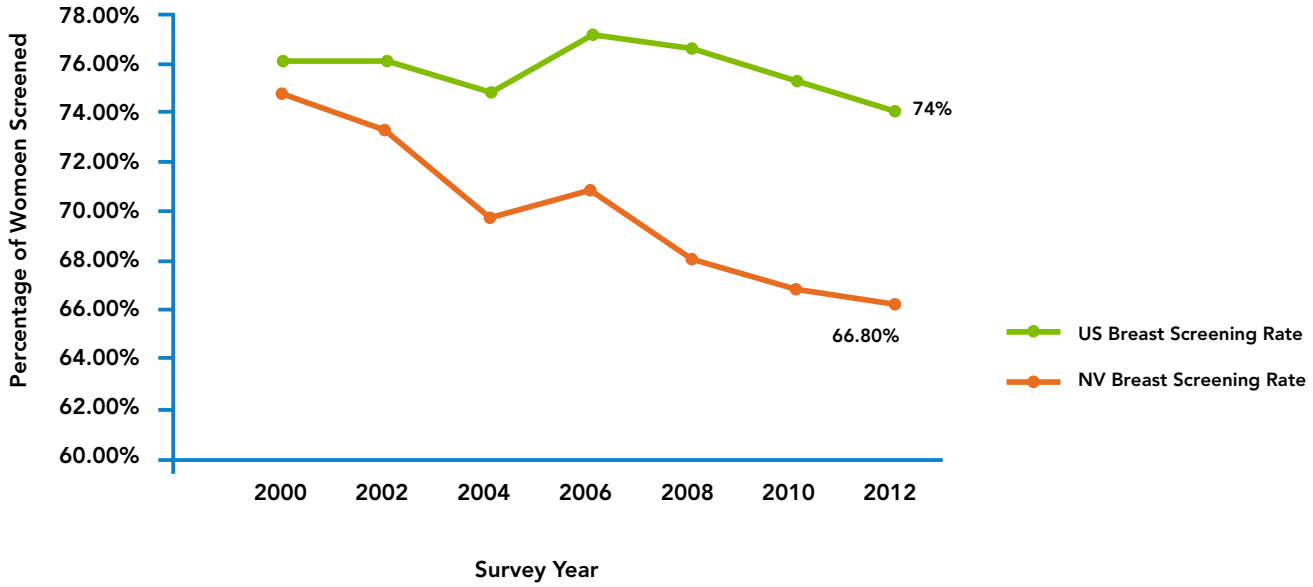
National statistics show of breast cancer cases, 61.1 percent are diagnosed at the local or early stage and approximately 38 percent are diagnosed as late-stage, either regional or distant. The five-year relative survival rate for early-stage localized breast cancer is 98.6 percent, but drops to just 25.9 percent when diagnosed at a later, distant stage.[xxxv] In Nevada, data for stage at diagnosis is similar to national rates, with 62.5 percent of breast cancers diagnosed as early-stage and 37.5 percent diagnosed as late-stage.[xxxvi]

Breast Cancer Screening

Regular mammograms are the most effective method to find breast cancer early, sometimes up to three years before it can be felt.[xxxvii] Most major health organizations agree breast cancer screening with mammography saves lives. However, there is still much debate as to when women should begin screening with mammography and whether the benefits of earlier screening outweigh the possible risks of additional testing and unnecessary biopsies for breast cancer. In 2009 the United States Preventive Services Task Force (USPSTF) published a B-grade recommendation (a high likelihood of moderate net benefit) for biennial screening mammography for women ages 50-74 years. This recommendation replaces the organization's 2002 B-grade recommendation for women ages 40 and older to receive screening with mammography every one to two years.[xxxviii]

Some health organizations, including the American Cancer Society, have concluded that the modest survival benefits of mammography in women ages 40-49 outweigh the risks of false-positive results and recommend screening begin at age 40. Insurance coverage compliant with the Affordable Care Act (ACA) includes breast cancer screening with mammography for women with no cost-sharing using the 2002 recommendation. Meanwhile, other organizations, including the American College of Physicians, recommend women begin screening at age 50 and that women ages 40-49 discuss the benefits and risks of mammography screening with their health care providers and together make an informed decision about when to begin screening.[xxxix]

The debate of when to begin screening for breast cancer and at what intervals to screen, may partially have contributed to a recent decline in screening rates demonstrated in Figure 6. While trends in breast cancer screening among women ages 40 and over have gone down from 2000 to 2012 both in Nevada and nationwide, the reduction in screening rates cannot be solely attributed to this confusion.

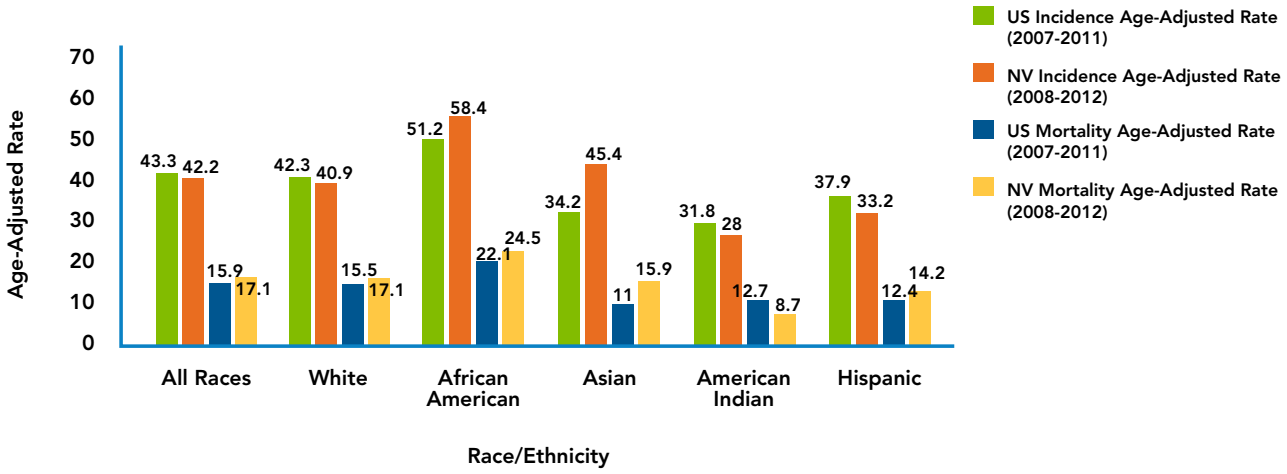


Data Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2015. Rates are at 95 percent confidence interval for percent.

Figure 6: Women Aged 40+ Who Have Had a Mammogram Within the Past Two Years, 2000 - 2012, Nevada vs. United States. Nevada screening rates are far below the US, though both have begun to decline.

Colorectal Cancer

Colorectal cancer is the fourth most commonly diagnosed cancer and second leading cause of cancer death among men and women combined in Nevada. An average of just over 1,100 Nevadans were diagnosed with colorectal cancer each year from 2008 to 2012, and an average of 438 Nevadans died each year of colorectal cancer. Incidence and mortality rates for colorectal cancer in Nevada are somewhat similar to those across the United States with several disparities to note. Figure 7 demonstrates how incidence rates among African Americans and Asians are higher in Nevada than in the United States, as are the mortality rates for all races/ethnicities except American Indians.



Data Source: Preliminary data, Nevada Comprehensive Cancer Report, January 2015, Office of Public Health Informatics and Epidemiology.

Figure 7: Colorectal Cancer Incidence and Mortality Age-Adjusted Rates by Race/Ethnicity, 5-Year Period, Nevada vs. United States. Incidence and mortality rates remain high among Nevada minorities.

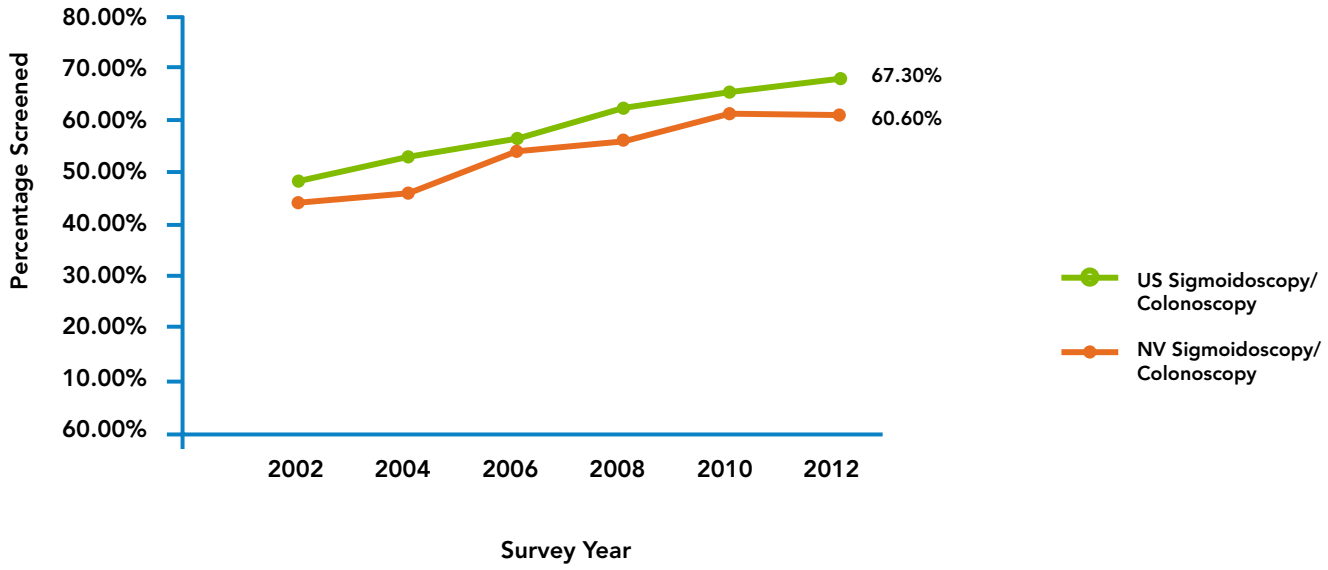
Stage at Diagnosis

National statistics indicate that for colorectal cancers, 39.5 percent are diagnosed at the localized or early stage and approximately 56 percent are diagnosed as late-stage, either regional or distant. The five-year relative survival rate for earlier stage or localized colorectal cancer is 90.1 percent. Colorectal cancers diagnosed at a later, distant stage have a 31.1 percent five-year relative survival rate.[xl] In Nevada more cases of colorectal cancer are diagnosed as late-stage, 59.6 percent, versus early stage, 40.4 percent.[xli]

Colorectal Cancer Screening

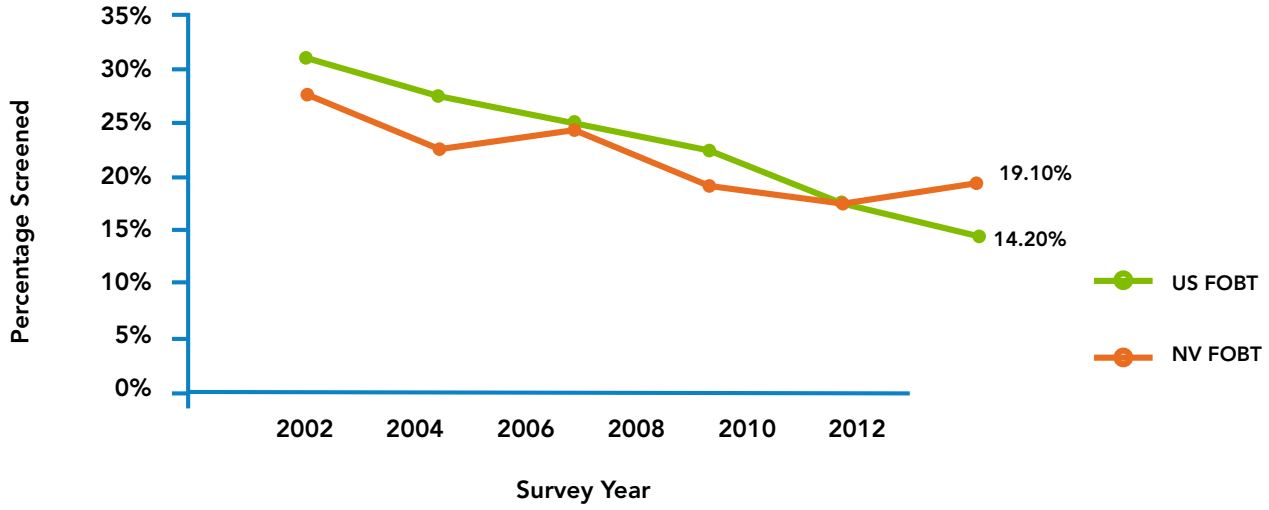
The United States Preventive Services Task Force (USPSTF) offers an A-grade recommendation (high likelihood of substantial net benefit) for colorectal cancer screening for men and women ages 50-75. Colorectal cancer screening can be accomplished by several different tests with varying intervals. The USPSTF recommends fecal occult blood testing (FOBT, often also called fecal immunochemical test or FIT) annually, flexible sigmoidoscopy every five years, or colonoscopy every 10 years.[xlii] The Centers for Disease Control and Prevention (CDC) advises that regular colorectal cancer screening among those ages 50-75 can prevent up to 70 percent of deaths from colorectal cancer.[xliii]

From 2002 to 2012 there was a significant increase in the percentage of adults aged 50 years and older who had ever received a sigmoidoscopy or colonoscopy, both in Nevada and in the United States, as shown in Figure 8. During the same time period the percentage of adults aged 50 years and older who had completed an FOBT within the past two years declined both in Nevada and nationwide, as show in in Figure 9. Suggested potential causes for the decline in FOBT and increase in sigmoidoscopy and colonoscopy include that the latter are more widely advertised and publicly recognized as well as less frequently required based on screening intervals and may therefore seem to be the more convenient option.[xlv]



Data Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2015. Rates are at 95 percent confidence interval for percent.

Figure 8: Percentage of Adults Aged 50+ Who Have Ever Received a Sigmoidoscopy or Colonoscopy, 2002-2012, Nevada vs. United States. Screening rates by sigmoidoscopy or colonoscopy have increased in both Nevada and the US.

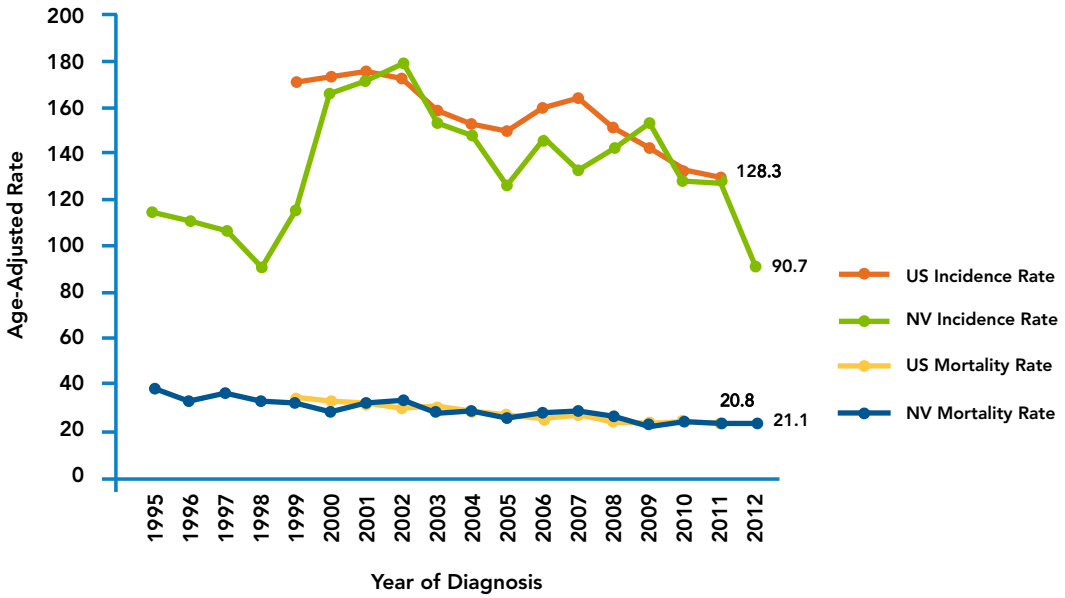


Data Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2015. Rates are at 95 percent confidence interval for percent.

Figure 9: Percentage of Adults Aged 50+ Who Have Received an FOBT Within the Past Two Years, 2002-2012, Nevada vs. United States. Screening rates by FOBT have declined in both Nevada and the US.

Prostate Cancer

Prostate cancer is the most commonly diagnosed cancer among men in Nevada. An average of nearly 1,700 men were diagnosed with prostate cancer each year from 2008 to 2012, almost double the incidence rate of lung cancer in men. However, mortality from prostate cancer ranks third in cancers among men, behind both lung and colorectal cancers, with just over 17 percent of those diagnosed dying from the disease. Figure 9 shows how Nevada's prostate cancer incidence and mortality rates trend closely with those of the United States.



Data Source: Preliminary data, Nevada Comprehensive Cancer Report, January 2015, Office of Public Health Informatics and Epidemiology.

Figure 10: Prostate Cancer Incidence and Mortality, Age-Adjusted Rates by Year, Nevada vs. United States, 1995-2012. Incidence and mortality rates for prostate cancer have declined in both Nevada and the US.

Prostate Cancer Screening

Research has not yet proven if the potential benefits of prostate cancer screening outweigh the limitations of the testing and treatment. The American Cancer Society and other major health organizations recommend men make an informed decision with their doctor about whether to be tested for prostate cancer. It is recommended starting at age 50 men talk to a doctor about the potential benefits and risks associated with prostate cancer screening to decide if testing is the right choice for them. Men at higher risk, those who are African American or have a father or brother who had prostate cancer before age 65, should talk with a doctor starting at age 45. If men decide to be tested, they should have the prostate-specific antigen (PSA) blood test with or without a rectal exam. How often they are tested will depend on their PSA level and should be discussed with a physician.[xlvi]

Cervical Cancer

While neither a leading cause of cancer incidence or mortality in Nevada, cervical cancer is worth some discussion for several reasons. Most cervical cancers are preventable through human papillomavirus (HPV) vaccination and are easily detected through screening,[xlvii] yet in Nevada 58.4 percent of cervical cancers are diagnosed as late-stage.[xlviii]

HPV Vaccination

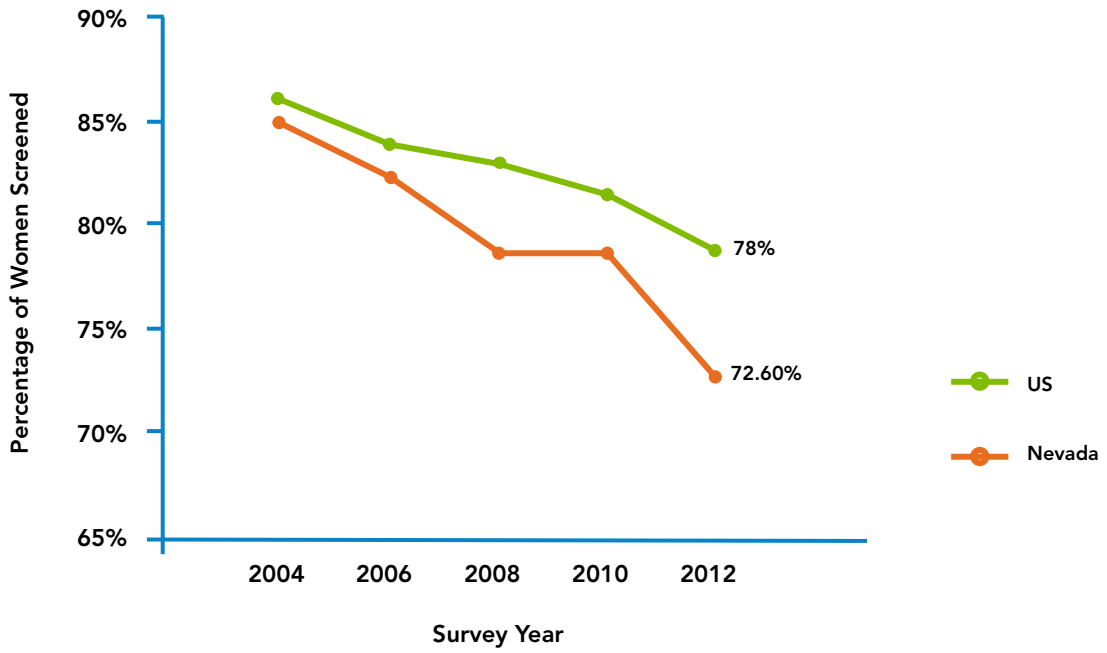
According to the Centers for Disease Control and Prevention (CDC), cervical cancer is the most common HPV-related cancer, with nearly all cases of cervical cancer caused by HPV. Most of the time HPV goes away on its own within two years and does not cause health problems. It is only when certain types of HPV do not go away over a period of years that it can cause cancer. There is no way to identify who will develop cancer from HPV.[xlix]

Since HPV vaccination was first recommended in 2006, the number of HPV infections in teen girls decreased by 56 percent nationally.[l] Since then HPV vaccination for boys has also been recommended. The CDC recommends completion of the three-dose HPV vaccine for boys and girls ages 11-12 years old to prevent cervical cancer, as well as numerous other types of cancer caused by HPV, such as vaginal, penile, and oropharyngeal cancers. Women who do not receive vaccination at the recommended age can receive the vaccine up to 26 years of age, and men can do so up until 21 years of age.[li]

Of Nevada youth ages 13-17 years-old, only 27 percent of girls and 7 percent of boys have received the full three-dose vaccination series for HPV. The national average for this same age group is 38 percent for girls and 14 percent for boys.[lii]

Cervical Cancer Screening

Two screening tests can help prevent cervical cancer or find it early. The Pap test (or Pap smear) looks for pre-cancerous cell changes on the cervix which may become cervical cancer if they are not treated appropriately. The HPV test looks for the virus (human papillomavirus) which can cause cell changes.[liii] The United States Preventive Services Task Force (USPSTF) offers an A-grade recommendation (a high likelihood for substantial net benefit) for screening for cervical cancer in women ages 21-65 with a Pap test every three years, or for women ages 30-65 who want to lengthen the screening interval, screening with a combination of a Pap test and HPV test every five years.[liv]



Data Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2015. Rates are at 95 percent confidence interval for percent.

Figure 11: Women Aged 18+ Who Have Had a Pap Test Within the Past Three Years. Screening rates have begun to decline in both Nevada and the US.

Cervical cancer screening rates in Nevada have decreased from 2004 to 2012, from a high of 84.8 percent of women screened in 2004 to 72.6 percent screened in 2012 (Figure 11). This downward trend is also reflected in screening rates nationwide.

Stage at Diagnosis

As previously mentioned, 58.4 percent of cervical cancers in Nevada are diagnosed as late-stage, higher than the approximately 49 percent diagnosed nationally as late-stage. Early-stage diagnosis, achieved through timely screening, offers a five-year relative survival rate of 91.5 percent. Meanwhile more advanced stages of cervical cancer at time of diagnosis have a five-year relative survival rate of less than 58 percent.[lv]

Skin Cancer

Skin cancer is the most commonly diagnosed cancer in the United States, surpassing all other cancers combined. However, the actual number of skin cancer cases is difficult to estimate as the two most common types, basal cell and squamous cell, more commonly referred to as non-melanoma skin cancers, are not required to be reported to cancer registries. Melanoma, the third most common skin cancer, is responsible for the majority of skin cancer deaths and is reportable for each new case.[lvi]

According to the United States Surgeon General, nearly five million people are treated each year for all skin cancers and the incidence rate continues to rise. Nationwide estimates for 2015 indicate 73,870 cases of melanoma will be diagnosed, and 9,940 deaths from melanoma with 3,400 deaths from other types of skin cancer will occur. Incidence for new melanoma cases has been rising on average 1.4 percent each year over the last 10 years; mortality has remained stable and survival rates have improved.[lvii]

With an average elevation of 5,500 feet and around 300 sunny days per year, Nevada's geography and outdoor culture make it a high-risk state for the incidence of skin cancer. Historically, Nevada's melanoma rates have been higher than national rates and currently Nevada's rate per 100,000 for melanoma mortality sits at 2.9, again above the national rate of 2.7 per 100,000.[lviii]

Efforts to reduce skin cancer and melanoma incidence and mortality in Nevada are focused on prevention and education. While state legislation was passed in 2013 prohibiting the use of indoor tanning by minors there is still work to be done. Partners throughout the state are working together to enhance existing programs and policies and to develop new opportunities to promote sun safety and enhance skin cancer awareness.

Cross-cutting Issues Affecting Cancer Control in Nevada

While the goals and objectives of the Plan prioritize five core thematic areas, there are also a number of cross-cutting issues that are equally important to consider in addressing comprehensive cancer control in Nevada. These cross-cutting issues each impact two or more of the thematic areas and also include a number of identified gaps and barriers that should be addressed during implementation of this Plan.

Geographic Factors

Of Nevada's 17 counties, only two, plus the capital city, are considered urban and house approximately 82 percent of the total population. Many of the rural and frontier counties exhibit high incidence and mortality rates for cancer, with late-stage diagnosis being a serious problem for breast, colorectal, and lung cancers statewide, as noted in Table 2.

In addition to higher cancer rates, Nevada's rural and frontier counties often exhibit lower socioeconomic populations with higher Medicaid enrollment. Additionally, health care provider shortages are a continuing challenge. It is estimated that one-third of the state's population resides in a federally-designated primary medical care health professional shortage area (HPSA).[lix] This shortage disproportionally impacts rural and frontier Nevada where just over 50 percent of residents live in a primary medical care HPSA. Community health nursing clinics are available in many areas; for specialized care, rural Nevadans must seek services in one of the urban centers in Nevada or in a neighboring state.

Transportation is a significant barrier to cancer care with many of the state's residents living hundreds of miles and several hours from urban centers where most of the cancer care services are offered. When a treatment plan requires regular, sometimes daily, appointments at a cancer treatment facility far from their homes, housing and lost days of pay present major challenges to some rural cancer patients and family members.

Throughout execution of this Plan, Nevada will seek to collaborate with rural stakeholders to fill service and cultural gaps when working with rural and frontier populations.

"Prevention is vital to any cancer control plan so it is an exciting time to see it as a priority. As a nation, and as a state, we need to invest in the power of prevention to reduce the burden of cancer."

- Holly Lyman, MPH, CLC, Director WomensCare and Community Outreach, St. Rose Dominican Hospitals

Lifestyle

Several lifestyle factors not only have an impact on risk and prevention of cancer, but also impact on treatment of the disease, survivorship, and quality of life. These include obesity and tobacco use.

Obesity is a risk factor for a number of cancers, and conversely eating a healthy diet, getting adequate physical activity, and maintaining a healthy weight may help reduce the risk of some cancers.[lx] Nevada is

making progress in the fight against obesity. The proportion of adults in Nevada that are obese is 24.5 percent, well below the Healthy People 2020 goal of 30.6 percent. Nevada is focused on reducing childhood obesity by promoting healthy diet choices and exercise, both of which impact cancer risk. In 2015, Nevada was unable to renew legislation requiring schools to provide an anonymous representative sample of students' body mass index (BMI) to the state for surveillance of obesity among children. This poses a potential challenge to design, implement, and evaluate interventions designed to reduce childhood obesity rates.

Tobacco use is a leading cause of cancer incidence and mortality, causing cancers that extend far beyond lung, including bladder, esophageal, and head and neck cancers. Additionally, tobacco use after a cancer diagnosis increases the risk of death.[lxi] Nevada's tobacco prevention and cessation efforts have been somewhat successful as reflected in the number of current smokers decreasing from 22.9 percent in 2011 to 19.4 percent in 2013. Cessation efforts in the state include the Nevada Tobacco Quitline, offering free cessation counseling via telephone for tobacco users ages 13 and older. Promotion of the Quitline, including to those newly diagnosed with cancer or those undergoing cancer treatment, is an important step in reducing the incidence of cancer and improving outcomes for tobacco users diagnosed with cancer.

Health Literacy

Health literacy can be a significant factor affecting communication across the continuum of care, from cancer prevention to survivorship. As defined by the United States Department of Health and Human Services, health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions. Low health literacy is more prevalent among older adults, minority populations, those of low socioeconomic status, and the medically underserved. People with low health literacy may have limited understanding of cancer risk, screening needs, and symptoms of cancer, thereby adversely affecting stage of diagnosis. In addition, health literacy can affect discussions about risks and benefits of treatment options, understanding informed consent for procedures, and participation in clinical trials.[lxii] In order to improve cancer outcomes health professionals are employing a number of strategies to increase health literacy.

Research

Priorities for Nevada moving forward include increasing research focused on disparate populations and identifying risk factors and protective assets to decrease the burden of cancer in those targeted populations. Increasing cancer screening and participation in clinical trials for at risk populations are cross-cutting issues affecting Nevadans dealing with every type of cancer. Disparities in survival rates between regions within the state for breast and colorectal cancers deserve further research; data is suggestive of lower survival rates for both cancers in southern Nevada versus the northern part of the state.

Access to Care

Access to care, as defined by the Institute of Medicine (IOM) is the "timely use of personal health services to achieve the best possible health outcomes."[lxiii] The IOM goes on to say access is not only about getting in the door to see a provider, but the provided care is timely, culturally relevant, affordable, and coordinated. A system of care affording access to all would include not only treatment services, but also screening, diagnostic, palliative, and supportive services as well.

Survivorship

An estimated 108,000 cancer survivors lived in Nevada in 2014.[lxiv] By 2030, cancer is anticipated to replace heart disease as the leading cause of death in Nevada. Knowing this, it is imperative partnerships are formed between public and private health entities to improve survivorship care and outcomes. Strategic

partnerships can be used to increase the infrastructure of local cancer treatment centers to implement evidence-based cancer survivorship practices across the continuum of care. Efforts during these five years, 2016 to 2020, will focus on survivorship surveillance, community and clinical linkages, and patient navigation.

"There are barriers to clinical trials access for both our rural patients and those with lower incomes. The biggest challenge with rural patients is that they require fairly frequent visits, and given long distance, is a hurdle that is very difficult to overcome. Additionally, regarding lower-income patients, it can be a struggle for them to keep their appointments, given their need to find transportation, difficult social situations and their own unique challenges."

- Nicholas J. Vogelzang, MD, Medical Oncologist, Comprehensive Cancer Centers of Nevada

Disparities

Cancer incidence and mortality rates can differ dramatically among races, ethnicities, genders, sexualities, economic groups, and those who live in geographically isolated areas. In addition to experiencing higher rates of certain types of cancers, many of these same disparate groups are underrepresented in clinical trials, reducing the quality of data about these populations most needing targeted treatment. The cost of health disparities are high, resulting in premature deaths, lost productivity, negative impacts on families, and reduced quality of life.[lxv]

Language barriers are a problem in Nevada, as some residents speak little to no English. Differences in communication styles also vary from culture to culture. Simple translation from one language to another is often inadequate for clear communication, especially in the medical setting where translation from providers to the patient is crucial.

Beliefs about illness in general, and cancer specifically, vary significantly from culture to culture. In some communities cancer may be seen as a death sentence, believed to be contagious, or carry a stigma, all of which make talking about the disease difficult. Decisions about health care are always made within a cultural context. In Nevada, rich diversity of culture requires providers and health care systems to be knowledgeable about cultural differences and flexible about the many different approaches patients bring into health care settings.

There is a need for more culturally and linguistically appropriate information and programs along the continuum of care, from health education, prevention and risk reduction, to screening and diagnostic follow up, treatment, survivorship programs, and end-of-life care. An educational approach could significantly narrow gaps, which affect the welfare of Nevada's diverse communities. At the screening and diagnostic stages alone, this could positively impact the unequal burden which rural, African American, Hispanic, American Indian, Asian, and Pacific Islander populations bear as a result of late-stage diagnoses.

While we have a wealth of information about cancer incidence and mortality in regards to ethnicity, race, and geography, our nation's cancer registry system does not collect data about sexual orientation or gender identity, nor do many health care providers. We do not know enough about cancer incidence and mortality in the lesbian, gay, bisexual, and transgender (LGBT) communities. In January 2014, the American Cancer Society estimated that there were approximately 14.5 million cancer survivors in the United States. As approximately four percent of Americans identify as LGBT and are known to have lower screening rates and increased cancer risks, the National LGBT Cancer Network estimates that there are more than one million LGBT cancer survivors in the United States.[lxvi]

Health disparities in the LGBT communities are caused by a combination of social and economic factors and behaviors, many linked to living as a sexual/gender minority. LGBT people have higher rates of

smoking, obesity, alcohol use, and human papillomavirus (HPV) infection, each a risk factor for various cancers. Compounding the problem of health disparities in the LGBT population is a challenging relationship with the health care system. Medical schools have recently begun to offer opportunities for students to learn more about caring for LGBT patients, however providers practicing currently may have not received such training and may be reluctant to treat LGBT patients because of a lack of knowledge or experience. Previous or feared negative experiences with health care providers often keep many in the LGBT community from routine medical care, including cancer screenings. Access to appropriate care can pose difficulties as well. For example, a transgender individual may not be covered by their insurance for cancer screenings that are inconsistent with the gender listed in their medical records, such as a Pap test for a transgender man.[lxvii]

Disparities touch all aspects of cancer prevention and control, each presenting its own set of unique challenges to be addressed. Clear disparity links to specific types of cancer incidence and mortality must be continuously monitored and targeted, evidence-based strategies identified, and systems changes addressed to close gaps in all areas.

Patient Navigation

The complex nature of the health care system may limit the access of some Nevadans who are unsure of how to navigate the system or access appropriate care. The health system should lead patients through the series of medical providers they may encounter during screening, diagnosis, treatment, palliation, and survivorship care. Navigating this landscape of cancer-related medical services, providers, procedures, and care options should be simplified to ease the burden on Nevadans coping with cancer. Patient navigation should also include both screening guidelines and information about which screenings individuals should be accessing. Developing strategies to inform community members about available services and clinical trial opportunities will promote a healthier Nevada for generations to come.

Social Determinants of Health

"The health of America depends on the health of all Americans. Despite enormous investment, America is not achieving its full health potential."[lxviii]

- Robert Wood Johnson Foundation

According to the World Health Organization, social determinants of health are "those circumstances in which people are born, grow up, live, work, and age, as well as the systems put in place to deal with illness."[lxix]

In this view, a wider set of environmental and social forces impact a person's health and wellness. The Robert Wood Johnson Foundation goes so far as to say the biggest determinant of a person's long-term health outcomes may be the zip code where they are born, impacting their health even more than their genetic code.[lxx] This is a powerful statement, made clear when we look at health and cancer data in communities of poverty, limited access to medical care, education, and low employment rates. In addition to economic, community and social factors, adopted health risks play a role in health as well, with some communities having higher rates of tobacco usage, for example, increasing cancer rates.

We must first understand the social determinants of health that impact communities in Nevada and work to achieve health equity for those populations where the data tells the story of poor health outcomes. Linking data from cancer registries, community health surveys, and county and state administrative records presents rich opportunities for research along the cancer continuum can lead to targeted strategies and interventions.[lxxi]

Goals and Objectives for Cancer in Nevada

Nevada has undergone an intense and extensive process to identify meaningful goals and objectives for this five-year plan. Using data produced by the Nevada Central Cancer Registry (NCCR), Nevada was able to identify those cancers most burdensome to the state. Through a series of planning meetings and reviews, stakeholders and the steering committee were able to identify high-level priority areas, cross-cutting issues to be addressed, and an overall structure for the Plan. Goals and objectives were then created using not only the identified priority areas, cross-cutting issues, and plan structure for guidance, but also benchmarked progress and identified challenges from review of the previous five-year cancer plan.

Throughout this process, efforts were made to ensure all parts of the Plan meet Centers for Disease Control and Prevention (CDC) standards for evaluation. Nevada intends to evaluate progress on the Plan annually, and to present progress and challenges to stakeholders at the Nevada Cancer Control Summit. In this way, evaluation results will be used to adjust efforts and ensure success by decreasing the cancer burden in Nevada.

Primary Prevention

Reduce risk factors for developing cancer among all Nevadans with an emphasis on human papillomavirus (HPV), tobacco, obesity, radon and ultraviolet (UV) radiation exposure.

Primary prevention refers to actions taken by individuals, organizations, or communities to prevent the development of disease. The prevention of cancer includes healthy lifestyle choices and reduced exposure to environmental hazards. The most effective healthy lifestyle choices to prevent cancer include avoiding use of tobacco products and exposure to secondhand smoke, minimizing alcohol intake, following a balanced diet, exercising regularly, protecting against ultraviolet radiation exposure, testing your home for radon, and vaccinating against infectious disease.

While the Plan does not address alcohol directly at this time, it is important to note scientific evidence indicates the more alcohol a person drinks, the higher his or her risk of developing an alcohol-associated cancer, such as liver or esophageal cancer. Further, people who use both alcohol and tobacco have much greater risks of developing certain cancers. Evidence-based strategies to address alcohol consumption will be researched for future cancer control efforts in Nevada.[lxxii]

"I seem like a typical teenager, and for the most part I am, except that I've been labeled by tobacco companies as a replacement smoker. I am outraged that tobacco companies targeted me and other youth for their sole purpose of selling us products that they know will kill us. So I've made it my goal and responsibility to help youth make the safe and healthy choice not to use tobacco. As a member of Students Taking on Prevention (S.T.O.P) through the Partnership of Community Resources I've learned facts and statistics about tobacco use and the often tricky targeting methods of tobacco companies. With this knowledge I've been able to influence policy change in my community with Smoke-Free Playgrounds, Smoke-Free Entry Ways, and the Start Fresh Campaign and testify several times in front of state legislators on tobacco-related issues. A classmate even quit smoking thanks to a Kick Butts Day event we hosted at school. He said I'd changed his life forever. **Youth have the power to make impactful change. Now is the time for change."**

- Spencer Flanders, Douglas County High School Student, Founder of Nevada Statewide Coalition of Youth, Campaign for Tobacco Free Kids Western Region Youth Advocate of the Year 2014 and National Youth Advocate of the Year 2015, 2015-2017 DARE Youth Advisory Board Nevada Representative

Goal 1.1:

Increase the number of 13 - 17 year old children who have completed the 3-dose HPV vaccination series from 27% for girls and 7% for boys to at or above the national averages of 38% for girls and 14% for boys.

OBJECTIVES

- Increase the number of eligible Nevada Vaccines for Children provider offices that will receive AFIX (Assessment, Feedback, Incentives, Exchange) visits and/or training necessary to decrease missed clinical opportunities for HPV vaccination through the use of electronic health records (EHRs) and Nevada WebIZ from 44 to 54.
- Increase the number of continuing education opportunities for credit enhancing provider knowledge on the HPV vaccination series and patient compliance from 4 to 9.
- Increase the number of campaigns promoting HPV vaccination from 1 to 5.

ACTIVITIES

- Support the efforts and campaigns put forth by immunization partners throughout the state.
- Identify experts and champions to participate in HPV vaccination campaigns and educational opportunities.
- Seek opportunities to increase compliance with the 3-dose HPV vaccination series including reminder-recall and other reminder systems.

LEADS

Immunize Nevada
Nevada Cancer Coalition

Goal 1.2:

Decrease the percentage of adults who are current smokers from 19.4% to 18.4%.

OBJECTIVES

- Decrease the number of exemptions listed in the Nevada Clean Indoor Air Act by at least 5.
- Increase the annual call volume to reach the Nevada Tobacco Quitline from 0.5% to 1.5% of the current smoking population.
- Increase the number of statewide policies supporting tobacco-free housing from 0 to 1.
- Establish a baseline of Nevada Tobacco Quitline users that complete cessation counseling and remain non-smoking after six months.

ACTIVITIES

- Promote the Nevada Tobacco Quitline and tobacco cessation resources to Nevadans.
- Educate providers across the care continuum on tobacco cessation counseling, Nevada Tobacco Quitline, and other cessation resources.
- Monitor the success of the Nevada Tobacco Quitline via data provided on successful cessation through completion of counseling and six-month post-counseling surveys.
- Support the efforts of smoke-free communities, housing, and campus initiatives within the state.
- Educate policymakers on the benefits of comprehensive clean indoor air policy.

LEAD

Nevada Tobacco Prevention Coalition

Goal 1.3:

Decrease the percentage of youth who have reported smoking or using other tobacco products from 10.3% to 9.9%

OBJECTIVES

- Increase the known number of tobacco-free sporting venues from 0 to 4.
- Increase the known number of tobacco-free school campuses from 1 to 3.
- Increase the known number of tobacco-free rodeo venues from 0 to 5.
- Maintain the Nevada Statewide Coalition of Youth.

ACTIVITIES

- Support the activities of community and youth coalitions to prevent tobacco use initiation and promote cessation among current youth tobacco users.
- Promote youth access to Nevada Tobacco Quitline as a cessation resource.
- Support policies to create tobacco- and smoke-free venues.

LEAD

Nevada Tobacco Prevention Coalition

Goal 1.4:

Reduce the percentage of adults who are obese from 26.2% to 24.8%

OBJECTIVES

- Increase the number of adults who report participating in 150 minutes or more of physical activity per week from 53.6% to 56.3%
- Increase the known number of worksites represented in the Nevada Cancer Coalition that adopt written worksite wellness policies from 0 to 20.
- Increase the known number of jurisdictions that adopt a complete streets policy from 0 to 5.

ACTIVITIES

- Promote the benefits of exercise in preventing cancer.
- Educate the public on how to best incorporate exercise into their lives.
- Use the Nevada Division of Public and Behavioral Health worksite wellness toolkit to promote the adoption of worksite wellness policies.
- Educate the public and policymakers on the importance of complete streets, designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.

- Partner with local jurisdictions to create and implement complete streets policies.
- Support local and state efforts to create complete streets.

LEADS

Nevada Division of Public and Behavioral Health
Nevada Cancer Coalition

Goal 1.5:

Reduce the percentage of youth who are overweight or obese from 38.2% to 33.2%.

OBJECTIVES

- Increase the number of national Early Childhood Education (ECE) standards met in Nevada from 3 to 15.
- Increase the number of policies mandating physical education and physical activity in grades K-6 from 0 to 1.
- Increase the number of worksites represented in the Nevada Cancer Coalition who have adopted written policies promoting and encouraging breastfeeding from 0 to 10.

ACTIVITIES

- Support state policy efforts to increase the number of ECE standards met.
- Support local and state policy efforts to mandate physical education and physical activity in grades K-6.
- Promote the benefits of breastfeeding in decreasing obesity and in decreasing cancer risks.
- Work with partners to promote and adopt breastfeeding policies.

LEADS

Nevada Division of Public and Behavioral Health
Nevada Cancer Coalition

Goal 1.6:

Decrease the average radon concentration within the state by 5%.

OBJECTIVES

- Increase the number of homes in Nevada tested for radon from 19,139 to 32,090.
- Of the homes that have elevated radon levels, increase the number mitigated from 708 to 1,400.
- Increase the number of newly constructed residential homes built using radon-resistant new construction techniques from 163 to 650.

ACTIVITIES

- Educate real estate industry professionals, health providers, municipalities, and policymakers about the radon health risk.
- Encourage realtors and real estate agencies to recommend radon testing as part of the home inspection process or during the real estate transaction.
- Conduct an annual campaign to educate Nevadans about the radon health risk, the importance of testing, how to obtain test kits and properly test their homes, the benefits of radon mitigation and radon-resistant new home construction, and how to find board-certified, state-licensed radon mitigation professionals.
- Advocate for policy to require radon mitigation to be conducted by certified, state-licensed radon professionals, and for policy to require that professional testing, especially in the case of real estate transactions are conducted by certified radon professionals.
- Educate the building industry by promoting best practices in radon-resistant new home construction.
- Increase number of local governments that create and adopt a policy for radon-resistant new construction.

LEADS

University of Nevada Cooperative Extension's Nevada Radon Education Program
Nevada Division of Public and Behavioral Health

Goal 1.7:

Increase the number of regulatory policies for indoor tanning salons from 0 to 1.

OBJECTIVE

- Increase the number of enforcement mechanisms to ensure tanning salons are not providing services to youths under age 18, under Nevada Revised Statutes (NRS) 597, from 0 to 1.

ACTIVITIES

- Draft language providing for the regulation and enforcement of tanning salons under NRS 597.
- Support changes to NRS 597 to provide for regulation and enforcement of tanning salons.
- Distribute toolkits outlining NRS 597 to tanning salons.

LEADS

Nevada Cancer Coalition
Nevada Division of Public & Behavioral Health

Goal 1.8:

Increase the number of Nevada school districts who have adopted UV safety policies from 0 to target of 5 school districts.

OBJECTIVES

- Increase the number of presentations to school staff on the importance of UV safety for students from 0 to 10.
- Increase the number of toolkits distributed to schools from 0 to 10.

ACTIVITIES

- Develop toolkit for teachers, nurses, and other school staff to use to adopt UV safety curriculum and policy within their school.
- Implement ongoing evaluation to determine best practices for school-based UV safety education.

LEAD

Nevada Cancer Coalition

Early Detection and Screening

Promote, increase, and optimize the appropriate use of high-quality cancer screening to increase early detection of cancer among Nevadans.

The goal of screening and early detection of cancer is to find cancer at its most treatable stage and often before a person has symptoms. Screening tests are available for certain cancers, and in some cases can detect early pre-cancerous changes that allow for prompt treatment before these changes become cancer. Long-term survival rates are much higher for those cancers found in earlier stages. The data supports early screening for breast, cervical, colorectal, oral, and lung cancers.[lxxiii]

"As a family physician who has suffered the loss of both family and patients to colon cancer I am a steadfast advocate for getting patients up to date with their cancer screenings. Working in a community health clinic with patients who have lower income and health literacy can make meeting colon cancer screening goals a challenge. And in a patient population with 15% or higher uninsured rate, access to colonoscopy is limited. We implemented a FIT test protocol across each of our five clinics allowing our patients to screen for cancer in a simple and cost-effective way. It's easy for our medical providers to recommend, it's easy to track patient compliance, and it's easy to deliver results. Our screening rates have increased steadily by offering our patients a choice of test, and our medical team is able to deliver a higher quality of care. It's a win-win for everyone involved."

- Jason Crawford, MD, MPH, Chief Medical Officer, Community Health Alliance, Reno

Goal 2.1:

Decrease the percentage of late-stage breast cancer diagnoses among women from 37.5% to 35.6%.

OBJECTIVE

- Increase the prevalence of women 40 and older who report having had a mammogram and a clinical breast exam within the prior two years from 69.9% to 73.4%.

ACTIVITIES

- Collaborate to develop a consistent public message used by government and private entities about breast cancer screening guidelines based on scientific evidence.
- Seek additional funding and address related capacity issues for programs that provide and/or pay for breast cancer screening at low or no cost for women who are uninsured and underinsured through collaboration with partner organizations.
- Enhance access to screening and early detection throughout the state for low-income women, uninsured women, and other medically underserved populations.
- Promote navigation and patient education to enhance compliance with physician screening referral and screening completion.
- Promote awareness of increased risks for breast cancer such as dense breast tissue, genetics, and race/ethnicity.
- Support patient navigation services for all women undergoing screening, diagnostic, and treatment services, particularly for populations at increased risk for late-stage disease or with a higher mortality rate.
- Support and promote team-based care reimbursement models.

LEADS

Nevada Cancer Coalition
Nevada Division of Public and Behavioral Health

Goal 2.2:

Increase the overall percentage of women 18 years and older who have had a Pap test within the last three years from 78% to 81.9%.

OBJECTIVES

- Increase the number of community health clinics using reminder-recall systems for cervical cancer screening from 1 to 5.
- Increase the number of campaigns promoting cervical cancer screening from 0 to 2.

ACTIVITIES

- Seek additional funding and address related capacity issues for programs that provide and/or pay for cervical cancer screening at low or no cost for women who are uninsured and underinsured through collaboration with partner organizations.

- Enhance access to screening and early detection throughout the state for low-income women and other medically underserved populations.
- Support meaningful use initiatives, including opportunities to implement reminder-recall systems and enhance usage of electronic health records.

LEADS

Nevada Cancer Coalition
Nevada Division of Public and Behavioral Health

Goal 2.3:

Decrease the percentage of late-stage colorectal cancer diagnoses from 59.6% to 56.6%.

OBJECTIVE

- Increase the proportion of adults aged 50 - 75 who had a colonoscopy/sigmoidoscopy within the previous 10 years or a blood stool test within one year from 61% to 80%.

ACTIVITIES

- Work with community organizations to spread culturally-tailored messages about primary prevention and effective screening methods within ethnically diverse communities.
- Conduct statewide campaign to educate Nevadans on the importance and relative ease of colon cancer screening with "choice" concept.
- Disseminate provider toolkits to assist physicians in educating patients on the importance of colon cancer screening and screening test options.
- Promote and support team-based care payment reform.
- Promote navigation and patient education to enhance compliance with physician screening referral and screening completion.
- Create and enhance electronic health record (EHR) and reminder-recall systems.
- Enhance access to screening and early detection throughout the state for low-income and other medically underserved populations.

LEADS

Nevada Cancer Coalition
Nevada Colon Cancer Partnership
Nevada Division of Public and Behavioral Health

Goal 2.4:

Decrease the proportion of late-stage diagnoses of lung cancer from 79.2% to 75.2%

OBJECTIVES

- Establish baseline screening rates for eligible Nevadans within the recommended screening population and at high risk (between the ages of 55 and 80 and who have smoked 30 pack years or more or who have smoked 30 pack years in the past and quit within the last 15 years and are now within that age range).
- Increase screening rates for eligible Nevadans within the recommended screening population and at high risk by 25%.

ACTIVITIES

- Identify at-risk populations throughout Nevada and provide tailored information on lung cancer risk and low-dose computed tomography (LDCT) screening.
- Educate primary care providers on the risks associated with LDCT and encourage best practices among cancer centers and hospitals.

- Provide a comprehensive listing of all sites throughout the state providing low-cost LDCT scans.
- Support policy to ensure that Nevada Medicaid and other health plans within the state health exchange, cover lung cancer screening for the recommended population with no cost-sharing.

LEADS

Nevada Cancer Coalition
Nevada Division of Public and Behavioral Health

Diagnosis, Treatment, Palliation

Increase access to appropriate and effective cancer diagnosis and treatment services, and awareness of and participation in cancer clinical trials, especially among underserved populations.

Upon diagnosis, a wide variety of treatment options exist in Nevada to treat cancer. In the last two generations, across the country and the world, there have been incredible technical advances in treating cancer, resulting in increases in survival rates, quality of life, and our knowledge about the disease.

Health providers work with patients to tailor treatment to their individual needs, taking into consideration their type and stage of cancer, general health, cultural traditions and norms, and personal preferences. Many treatment facilities offer the opportunity to participate in clinical trials, as well as offer support groups, counseling, financial resources, nutrition classes, and information referral services to community providers.

Palliative care, or supportive care, is intended to improve a cancer patient's quality of life and is offered in tandem with traditional cancer treatment. The emphasis for palliative care is relieving the symptoms caused by serious illness, including cancer, and can be given at any point during treatment regardless of prognosis. Palliative care can help patients address treatment-and disease-related symptoms including nausea, pain, and fatigue, as well as emotional and physical health. At end of life, palliative care, which often segues to hospice care, promotes comfort when aggressive treatment is no longer working.[lxxiv]

"I was diagnosed with Stage IV Metastatic Breast Cancer in March 2014, and the first thing my physician said was, "The things that are important to you, Shelby, are our primary focus. Your treatment now is not for a cure, rather for quality of life." Since then my medical team has never denied me something I felt was necessary for my wellbeing, such as travel, oysters and wine, reading my own lab reports, or even foregoing a treatment option to keep my fingernails. That medical team includes three surgeons, a general practitioner, a gynecologist, neurologist, breast cancer specialist, and nurse navigator. I also have fitness experts and physical therapists I can call on and support group confidants. Together these experts and allies form a team delivering palliative care, a team that has open lines of communication and unites in the goal of allowing me to live my life with as much zest and freedom as I had before this emotionally and physically debilitating diagnosis. Palliative care helps to relieve my mind of any stress I have about my future, has helped me to understand what may happen next, and ensures that my team and I have a plan."

- Shelby Adams, Cancer Survivor and Advocate, Reno

Goal 3.1:

Increase the number of pathways for enrollment in Medicaid for eligible women needing treatment for breast or cervical cancer from 1 to 5.

OBJECTIVE

- Increase the number of policy changes from 0 to 1 allowing women of any age under 250% of the Federal Poverty Level (FPL) access to treatment through Medicaid after a breast or cervical cancer diagnosis from any provider.

ACTIVITIES

- Meet with Medicaid to discuss expansion of the treatment.
- Establish baseline cost and data for the treatment of breast and cervical cancer.
- Identify entities, such as hospitals or other health care providers, to serve as pathways to enrollment in Medicaid for breast or cervical cancer treatment for eligible women.
- Create an action plan to expand access to breast cancer treatment.

LEAD

Nevada Cancer Coalition
Nevada Division of Public and Behavioral Health

Goal 3.2:

Increase the number of educational opportunities on palliative care for adults and pediatrics from 0 to 6.

OBJECTIVES

- Increase the number of medical school and nursing school curriculum to include a section on palliative care for adults and pediatrics from 0 to 2.
- Increase the number of continuing education opportunities for clinicians on palliative care for adults and pediatrics from 0 to 2.
- Increase the number of educational materials targeting patients and family on quality adult and pediatric palliative care from 0 to 2.

ACTIVITIES

- Identify curriculum incorporating palliative care.
- Create partnerships with Nevada nursing programs and medical schools.
- Promote palliative care to nursing school and medical school faculty.

LEADS

Nevada Division of Public and Behavioral Health
Nevada Cancer Coalition

"There is always a relatively modest effect that any given individual can make on a statewide population.

With that being said, the number of prostate and kidney cancer patients that I see is high. In prostate cancer I've moved the needle on Provenge, an FDA-approved therapy, and its utilization in the community. Life expectancy for the nearly 300 patients I've treated with this therapy is improving because the drug was used earlier; earlier usage of the drug has been associated with long-term survival.

I have pushed the field of chemotherapy for prostate cancer very hard and think my peers have followed. I know many men in Nevada are alive today thanks to chemotherapy, when the majority of medical oncologists here would have previously stopped treating them. I've educated many of my peers on continuing chemotherapy even when first and second methods have been ineffective.

I've also introduced radium-223 into the community, initially through clinical trial, and subsequently through the expanded access program. Now it is widely used and considered a life-extending, pain-relieving, quality of life-improving therapy that is well tolerated, particularly by elderly individuals.

I am proud of how I have translated clinical trials into every day, community-based practices."

- Nicholas J. Vogelzang, MD, Medical Oncologist, Comprehensive Cancer Centers of Nevada

Goal 3.3:

Increase the average annual enrollment in adult cancer treatment and cancer control clinical trials from .85% to 1.5%.

OBJECTIVES

- Increase the number of hospitals and physician offices offering clinical trials that accept the short form patient consent for non-English speaking patients from 14 to 16.
- Increase the number of resources listing all open National Cancer Institute, pharmaceutical and industry clinical trials available at facilities within Nevada from 0 to 1.

ACTIVITIES

- Establish a clinical trials task force.
- Prepare a whitepaper on the use of short form consent for non-English speaking patients enrolling in clinical trials.
- Present whitepaper to internal review boards of facilities offering clinical trials and collaborate on implementation of short form consent.
- Develop a list of all health care providers offering or potentially offering cancer-related clinical trials within Nevada.

LEAD

Nevada Cancer Research Foundation

Goal 3.4:

Meet or exceed national baseline of 94% of eligible patients enrolled in clinical trials if seen at a Children's Oncology Group (COG) practice in Nevada.

OBJECTIVES

- Establish a benchmark of COG patients enrolled in clinical trials.
- Increase the number of COG components within Nevada from 4 to 5.

ACTIVITIES

- Support provider needs for enrollment in pediatric clinical trials.
- Promote research to improve quality of life for pediatric cancer survivors that address the physical, cognitive, and psychosocial consequences of treatment from diagnosis through late effects.
- Advocate for enhanced research funding to address the needs of childhood cancer patients and survivors across the continuum of care.
- Increase access to COG Family Handbook for patients' families and caregivers.

LEADS

Children's Specialty Center of Nevada/Cure 4 the Kids Foundation
Nevada Cancer Research Foundation
Sierra Pediatric Blood and Cancer Consortium

Survivorship and Quality of Life

Improve Nevada cancer survivors' quality of life through increased awareness, education, and access to survivorship resources and services.

Cancer survivors are those who have been diagnosed with cancer, from the time of diagnosis throughout the remainder of his or her life.[lxxv] Survivorship and quality of life are critical issues for the health care and

cancer community to address, as cancer affects not only the person dealing with the disease, but their family, friends, and caregivers as well. In Nevada alone there are an estimated 108,000 cancer survivors[lxxvi] as people begin to live longer after a cancer diagnosis due to early detection and treatment. In fact, today, almost two-thirds of the people diagnosed with cancer are told they have a life expectation of at least five years after diagnosis.[lxxvii]

In order for survivors to live fulfilling lives, communities need to ensure that adequate support and resources are in place, and ensure survivors and their families have access to those resources. Survivors face ongoing physical, emotional, social, spiritual, and financial challenges that must be addressed at the family, community, and provider level in order for health and wellness to be sustained. Coordination of public, private, and community-based resources is necessary, and especially important when addressing the unique challenges of underserved populations and those with disparate health risks.

The concept of quality of life encompasses all aspects of wellness: psychological, emotional, physical, and spiritual wellbeing. For survivors, quality of life can be greatly influenced by how supported a person feels by their health care providers, their workplace, their community, and even their family and the larger ecosystem of state and local policies that impact their overall financial and social health and wellness.

Childhood, adolescent, and young adult cancer survivors differ greatly from the adult cancer survivor. While many survivors lead healthy, active lives, some may have health problems continuing after treatment ends or problems developing years after cancer therapy. Survivorship strategies for this population must be specific to their unique needs, psychosocial issues, and potential late effects of cancer.

Goal 4.1:

Increase the number of non-metastatic cancer patients treated at Commission on Cancer (CoC) Accredited facilities who receive a survivorship care plan at the completion of treatment to 75%.

OBJECTIVE

- Establish a baseline number of non-metastatic cancer patients undergoing treatment at CoC Accredited facilities that receive survivorship plans.
- Identify opportunities to increase the use of survivorship plans in CoC Accredited facilities and non-CoC Accredited facilities.
- Establish a baseline number of education programs including survivorship information as part of their curriculum.
- Increase the number of education programs including survivorship information as part of their curriculum.

ACTIVITIES

- Identify opportunities to collaborate with providers and partners regarding the use of survivorship care plans.
- Share information with partners on challenges, solutions, and best practices in survivorship care planning.

LEADS

Nevada Cancer Coalition
CoC Accredited Facilities within Nevada

Goal 4.2:

Increase educational opportunities for health care professionals to learn about best practices in survivorship from 0 to 2.

OBJECTIVES

- Increase the known number of medical schools including curriculum on the topic of survivorship care from 0 to 2.
- Increase the known number of nursing schools including curriculum on the topic of survivorship care from 0 to 5.
- Increase the number of focus groups that result in the identification of information needed to enhance transition of care from 0 to 2.

ACTIVITIES

- Identify medical and nursing schools including survivorship curriculum.
- Partner with medical and nursing schools to implement survivorship curriculum.
- Promote best practices for the transition of care from cancer centers or oncologists to primary care providers.

LEADS

Nevada Division of Public and Behavioral Health
Nevada Cancer Coalition

Goal 4.3:

Increase the number of systems promoting survivorship care knowledge to cancer survivors from 1 to 3.

OBJECTIVE

- Increase the number of organizations offering the Stanford Survivorship Self-Management curriculum or similar survivorship program with fidelity from 1 to 3.

ACTIVITIES

- Identify health care systems working to support survivorship care practices.
- Partner with trainers for Stanford Survivorship Self-Management curriculum to offer training opportunities.
- Assist with promotion and enrollment in survivorship care programs.

LEADS

Nevada Division of Public and Behavioral Health
Nevada Cancer Coalition

Goal 4.4:

Increase the number of programs promoting survivorship care knowledge to pediatric, adolescent, and young adult cancer survivors from 1 to 2.

OBJECTIVE

- Develop guidelines for access to survivorship care to supplement existing Children's Oncology Group (COG) program, from 0 to 1.

ACTIVITIES

- Establish a list of survivorship resources for pediatric, adolescent, and young adult cancer patients to provide to patients and their families.
- Identify partners to assist with development of guidelines for access to survivorship care within Nevada.
- Identify partners or resources to provide survivorship care education to pediatric, adolescent, and young adult cancer survivors.

LEADS

Children's Specialty Center of Nevada/Cure 4 the Kids Foundation
Northern Nevada Children's Cancer Foundation
Sierra Pediatric Blood & Cancer Consortium

Cancer Surveillance and Research

Ensure complete and timely collection, dissemination, and utilization of comprehensive and cancer-related surveillance data for cancer control planning, implementation, and evaluation in Nevada.

Cancer surveillance provides a quantitative portrait of cancer and its determinants in a defined population. The primary functions of cancer surveillance are the measurement of cancer incidence, morbidity, survival, and mortality. It also includes the assessment of genetic predisposition, environmental and behavioral risk factors, screening practices, and the quality of care from prevention through palliation.[lxxviii]

We use cancer surveillance information to identify cancer risk; improve screening, diagnosis and treatment; evaluate the care of people living with cancer; and characterize leading trends in cancer incidence, survival, and mortality among our state's residents. Cancer data is also used to make public health decisions to maximize the effectiveness of limited public health funds and guide cancer prevention and control efforts.

At the core of cancer surveillance for Nevada is the population-based Nevada Central Cancer Registry (NCCR), hospital-based registries, and required reporters of cancer incidence. The Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System (BRFSS) collects state data about United States residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services. The Youth Risk Behavior Surveillance System (YRBSS) collects state data regarding health-related risk behaviors that contribute to the leading causes of death and disability among youth.

Goal 5.1:

Improve Nevada Central Cancer Registry's (NCCR) certification status to Silver Certification by 2016 and Gold Certification by 2018 through 2020.

OBJECTIVE

- Increase the number of providers reporting complete, accurate, and timely data to the NCCR from 82% to 95%.

ACTIVITIES

- Determine providers that are underreporting or not reporting to the NCCR.
- Modify reporting regulations within Nevada Administrative Code 457.
- Establish data quality feedback for providers to ensure compliance and implement penalty fees for non-and under-reporters.

LEADS

Nevada Division of Public and Behavioral Health
Nevada Cancer Registrars Association

Goal 5.2:

Produce research and cancer control information useful for stakeholders and the public in Nevada from 1 to 7.

OBJECTIVES

- Increase the number of web pages or sites with interactive data charts or graphics allowing stakeholders to review and understand cancer data within the state from 1 to 2.
- Increase the number of epidemiological and research reports specific to cancer control from 0 to 5.

ACTIVITIES

- Conduct stakeholder meetings to assess the use of cancer data within the state and identify data needs.
- Work with epidemiologists and researchers to research and publish reports.
- Produce cancer control-specific dashboard using resources available and identified additions.

LEADS

Nevada Cancer Coalition
Nevada Office of Public Health Informatics and Epidemiology

Moving Ahead

The past decade has brought breathtaking advances in cancer research, prevention, treatment, and survivorship. Yet cancer remains a complex disease requiring relentless coordinated and comprehensive efforts in its prevention and control. The development of this plan has uncovered additional innovative strategies worthy of expansion, kindled new partnerships, and opened doors to groundbreaking opportunities.

Informatics

Cancer informatics remains at the forefront of it all - it is the backbone of our work both in measuring the past and driving the future. The ability to collect accurate, complete, and timely data is paramount to identify cancer risk, improve patient care, evaluate survivorship, and increase epidemiological research. At the core of our state's cancer informatics is the population-based Nevada Central Cancer Registry (NCCR) and hospital-based registries. Extensive work was accomplished to align state policies with national standards and enhance Nevada's cancer data collection capabilities. Hospital-based registries are expanding use of rapid-reporting for a number of cancers. Partners are expanding the use and connectivity of electronic health records, moving to e-reporting, and increasing Nevada's Certified Tumor Registrar (CTR) workforce.

Telemedicine

As defined by the American Telemedicine Association, "telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health status. Telemedicine includes a growing variety of applications and services using two-way video, email, smart phones, wireless tools, and other forms of telecommunications technology." Nevada has experienced an explosion of telemedicine in recent years from tumor boards incorporating experts from across the nation, rural and frontier patients receiving consultation and care from an urban provider, to providers increasing use of electronic health records.

Project ECHO, originally pioneered in New Mexico by Dr. Sanjeev Arora, was adopted by University of Nevada School of Medicine providing a telehealth linkage connecting university-based faculty specialists to primary care providers in rural and underserved areas. Nevada's Project ECHO clinics provide an opportunity to develop the knowledge-base of primary care providers in specialty areas, therefore allowing rural patients to receive needed specialty care in their own regions without having to travel to access specialists directly. Currently gastroenterology is included as a clinic specialty and there is opportunity to include specialty clinics in areas of cancer control as Project ECHO expands.[lxxix]

Palliative Care and Survivorship

There are great opportunities for collaboration on innovations for palliative care and survivorship programs across the state. Work during the past legislative session sparked interest in establishing a statewide taskforce to focus on addressing palliative care for patients with cancer and other chronic diseases. Realizing the unique needs at each age, expanding successful palliative care programs specific to children, adolescents and young adults (AYA), and to adults and seniors, and ensuring access to those in our rural communities would be addressed. Moving onto survivorship, again the distinction must be made between childhood and AYA cancer survivors and the adult cancer survivor. The distribution and use of survivorship care plans is evolving, thus sharing best-practices and expanding their use by both provider and patient is paramount. Yet care plans are just the beginning as cancer survivorship continues to evolve.

Childhood and AYA cancer elicits targeted efforts as exhibited throughout this plan. Historically, cancer care for this population has been fragmented in Nevada with families often traveling across state lines for

services. However, immense growth in the number of specialists, increased access to clinical trials, model programs in the areas of both palliative care and childhood/AYA survivorship, and focused surveillance have positioned Nevada to build a strategic plan to address the needs of our youngest citizens.

Policy Opportunities

Policy strategies include the passing of laws, ordinances, resolutions, mandates, regulations, or rules at the government level (federal, state, local) or at school districts and schools, worksites, and other community institutions. Policy has long been a powerful strategy in eliciting population-based change in public health. Nowhere have the benefits been more obvious as in the area of tobacco prevention and control across the nation. The past five years have gleaned a number of outstanding wins in Nevada both at the local and state levels of which the full effects are yet to be realized. Strategies to build on these efforts and address emerging issues through policy are woven throughout the coming years.

Electronic cigarettes (e-cigs), having made a swift entrance into Nevada in recent years, were a main attraction during Nevada's 2015 legislative session. While the United States Food and Drug Administration has yet to regulate e-cigs at the federal level, states are working to address these products similarly to cigarettes and other tobacco-related products. As such, partners are currently working on legislation to be introduced during the 2017 legislative session. Further tobacco-related efforts at the local grassroots level are aimed at creating smoke-free communities in Incline Village and Mesquite, in addition to increasing smoke-free work-place policies, and tobacco-free college campuses following in the footsteps of University of Nevada, Reno.

The United States Surgeon General's Call to Action to Prevent Skin Cancer not only confirmed Nevada's direction, it has also sparked opportunities to identify school, school district, and potential statewide policies regarding skin cancer prevention and education. Discussions surrounding obesity and physical education during the past legislative session served to kindle partnerships in these areas in desperate need of further policy movement in the immediate future. Further, as the landscape of health care is continuously shifting, access to cancer prevention and care often changes. As such issues emerge, the ability to swiftly and proactively address policy remains paramount – and the continued growth of partnerships across the cancer control continuum only strengthens the ability to do so.

Genomics and Precision Medicine

Nowhere have such revolutionary discoveries and advances been made, but in the study of genomics. Research has revealed many cancers have their own genomic signature. Cancers are largely a result of accumulated genomic damage during life; inherited genetic variations in genomes can greatly contribute to cancer risk. This new field of cancer genetics or "oncogenetics" has begun to change cancer risk assessment, diagnosis, and therapies. Many targeted therapies have been developed allowing unimaginable individualization of treatment. Genetic counseling and testing have become standard care, yet remain underused and not equally accessible to all.

Genomics is clearly the lead in President Obama's Precision Medicine Initiative – described as an advanced approach to disease prevention and treatment taking into account individual differences in people's genes, environments, and lifestyles.[lxxx] States are beginning to build collaborative networks to integrate advances in genomic science throughout public health and other systems of care, to coordinate information and education surrounding genetic literacy, and to advance research in the area of genetics.

As stated at the beginning of this section, cancer remains a complex disease requiring relentless coordinated and comprehensive efforts in its prevention and control. If there were a direct and simple answer to unlocking this disease's seemingly endless intricacies, this document would be much condensed. On the contrary, as advances are made and doors unlocked, the plan will change, often taking us in a vastly different direction…yet bringing us ever closer to envisioning cancer-free tomorrows.

What You Can Do

Everyone has a role to play in decreasing the burden of cancer in Nevada. Find out more about what you can do:

If you are a Nevadan you can:

- Quit smoking and avoid exposure to secondhand smoke
- Eat a healthy, well-rounded diet filled with fruits and vegetables
- Be physically active
- Test your home for radon (kits can be acquired at University of Nevada Cooperative Extension offices) and fix radon problems
- Get the recommended cancer preventive immunizations such as Hepatitis B and human papillomavirus (HPV)
- Avoid overexposure to the sun and artificial tanning
- Know your family history of cancer, what types of cancer screenings you should get, how often to get screened and where you can get screened
- Consider enrolling in a clinical trial
- Engage with the Nevada Cancer Coalition and other cancer support organizations
- Help raise money to support cancer control and research in our state
- Provide support to those living with cancer

If you are a Community or Faith-Based Organization you can:

- Provide cancer prevention education and reach out to underserved communities
- Promote cancer screenings and partner with screening agencies to increase access
- Promote radon-resistant new construction, testing for radon, and fixing radon problems in your community
- Partner with the Nevada Cancer Coalition to increase resources to reduce the burden of cancer in the state
- Provide support to those living with cancer

If you are a School District or University you can:

- Educate students about healthy lifestyle choices, including healthy diet, exercise, sun exposure, and tobacco prevention
- Provide healthy foods in vending machines and on-site cafeterias
- Encourage sun safety
- Support those living with cancer
- Implement campus policies aligning with cancer control efforts
- Partner with the Nevada Cancer Coalition to increase educational opportunities for cancer prevention and control

If you are an Employer you can:

- Establish policies that provide workers with a smoke-free environment
- Offer healthy meals, snacks, and foods on-site
- Incentivize physical activity and healthy living through worksite wellness programs
- Provide cancer education materials on-site that promote cancer screening and prevention
- Provide health insurance to all employees
- Support those living with cancer
- Become a member of Nevada Cancer Coalition to collaborate on worksite wellness policies and activities

If you are a Hospital you can:

- Submit cancer incidence reports in a timely manner and submit them to the state registry
- Collaborate with community providers to increase screening rates
- Become a member of Nevada Cancer Coalition to collaborate on comprehensive cancer control projects and initiatives
- Support patient access to navigation, palliative care, clinical trials and survivorship care
- Provide care to patients that is culturally and linguistically appropriate
- Promote the use of electronic health records
- Implement policies aligning with cancer control efforts

If you are Physician or Health Insurance Agency you can:

- Encourage prevention through lifestyle activities including healthy eating, physical activity, tobacco cessation and immunization
- Encourage patients to be screened for cancer according to the most current best practice guidelines
- Implement a patient-centered cancer screening reminder system
- Refer patients to smoking cessation support
- Recommend patients test their homes for radon and fix radon problems
- Complete cancer case reports and submit to the state registry in a timely manner
- Encourage patients to participate in clinical trials
- Become a member of Nevada Cancer Coalition to collaborate on comprehensive cancer control projects and initiatives

If you are an Elected Official or Policy Maker you can:

- Make cancer prevention a policy priority through legislation and administrative change
- Support adequate funding of comprehensive cancer control efforts
- Participate in state comprehensive cancer control efforts to align systems and services and reduce service duplication and improve outcomes for all Nevadans
- Support policies that reduce disparities in health care provision and improve access to care
- Become a member of the Nevada Cancer Coalition to learn more about current issues and efforts in cancer control in Nevada

Acronyms

ACA: Affordable Care Act

ACS: American Cancer Society

ACS-CAN: American Cancer Society Cancer Action Network

AFIX: assessment, feedback, incentives, exchange

AHRQ: Agency for Healthcare Research and Quality

AYA: adolescents and young adults

BMI: body mass index

BRFSS: Behavioral Risk Factor Surveillance System

CCC: Comprehensive Cancer Control

CDC: Centers for Disease Control and Prevention

CDPHP: Chronic Disease Prevention and Health Promotion

CHIP: Children's Health Insurance Program

CoC: Commission on Cancer

COG: Children's Oncology Group

CTR: Certified Tumor Registrar

ECE: early childhood education

EHR: electronic health records

FOBT: fecal occult blood testing

FPL: Federal Poverty Level

FQHC: Federally Qualified Health Center

HPSA: health professional shortage area

HPV: human papillomavirus

IOM: Institute of Medicine

LDCT: low-dose computed tomography

LGBT: lesbian, gay, bisexual and transgender

NCC: Nevada Cancer Coalition

NCCCP: National Comprehensive Cancer Control Program

NCCP: Nevada Colon Cancer Partnership

NCCR: Nevada Central Cancer Registry

NDPBH: Nevada Division of Public and Behavioral Health

NRS: Nevada Revised Statutes

NTPC: Nevada Tobacco Prevention Coalition

PAP: Papanicolaou test

PSA: prostate-specific antigen

RHC: Rural Health Clinic

USPSTF: United States Preventive Services Task Force

WHC: Women's Health Connection

YRBSS: Youth Risk Behavior Surveillance System

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State of Nevada Comprehensive Cancer Control Plan, 2016 – 2020

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