

Bernalillo County

Cancer Health Disparities:

An Analysis of Incidence and Mortality by Race/Ethnicity and Poverty



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PREFACE

Cancer is a major cause of morbidity and mortality in Bernalillo County, as it is in New Mexico and the rest of the country. Despite increasing knowledge about its causes, prevention, and treatment, significant differences in the burden of cancer exist between population groups. In New Mexico, racial/ethnic variation in cancer incidence and mortality has been well documented, but the factors underlying such differences are not always well understood. In some instances, higher rates of cancer incidence and mortality appear to reflect differing cultural perspectives towards individual health care. In other instances, however, socioeconomic factors appear to influence cancer outcomes, in that populations that are poor, undereducated, and medically underserved often bear a greater burden of cancer than their more affluent counterparts. Complex and interrelated factors appear to contribute to cancer health disparities among disadvantaged populations, including lack of health care insurance, reduced access to medical care, poorer compliance with cancer screening and prevention guidelines, and higher prevalence of adverse behavioral risk factors for cancer, including tobacco smoking, physical inactivity and obesity, and alcohol and drug abuse. Poorer, disadvantaged communities also commonly suffer disproportionately higher levels of environmental pollution that may adversely influence the risk of developing cancer and the likelihood of surviving cancer. This report is an initial effort to explore cancer health disparities in Bernalillo County within the context of race/ethnicity and poverty. Although over 100 different types of cancer exist, the report focuses on five specific cancers which are amenable to screening and/or prevention strategies: lung, colon and rectum, female breast, cervix, and prostate. These five cancers collectively account for roughly half the newly diagnosed cancer cases and cancer deaths observed in Bernalillo County each year. Where feasible, data analyses were conducted on individual racial/ethnic groups, however, in many instances the small numbers of cancer cases and deaths observed among American Indians, African Americans, and Asian/Pacific Islanders prevented a reliable analysis and results were either withheld or reported collectively across the three groups.



EXECUTIVE SUMMARY

- The purpose of this report is to identify and increase understanding of disparities in cancer incidence and mortality in Bernalillo County by race/ethnicity and area level poverty. Five cancers whose burden can be impacted through screening or smoking avoidance/cessation were examined: lung, colon and rectum, female breast, cervix, and prostate. Collectively, these five cancers account for about half the total number of newly diagnosed cancer cases and cancer deaths registered each year in Bernalillo County. The health indicators examined included incidence and mortality rates and percent late stage diagnosis. Analyses were conducted up through 2007, the most recent year for which the cancer data were available.
- **Lung Cancer:** Lung cancer is a highly lethal but also largely preventable disease. Cigarette smoking alone accounts for 80%-90% of all lung cancers diagnosed annually in the U.S. Because most lung cancers occur only after 30-40 years of smoking, lung cancer incidence rates reflect historical smoking patterns. Incidence rates in Bernalillo County since the 1990's have steadily declined in males while changing little in females. This differential pattern reflects earlier adoption of tobacco cessation /avoidance among males compared to females. Lung cancer incidence and mortality rates are highest among non-Hispanic Whites due to their historically greater prevalence and intensity of tobacco use compared to other racial/ethnic groups. Analysis of lung cancer incidence rates by neighborhood poverty level revealed a general trend of increasing incidence with increasing poverty, particularly among non-Hispanic Whites. Additional analysis by age revealed that much of the socioeconomic disparity in lung cancer incidence was localized to younger cases diagnosed between 40 and 59 years of age. The age effect was observed in both non-Hispanic Whites and Hispanics, suggesting the presence of factors other than smoking which may be contributing to higher lung cancer risks in the most impoverished areas of the county. As upwards of one in five adults in Bernalillo County are estimated to be current smokers, continued efforts are needed to reduce tobacco use in the population in order to reduce the burden of lung cancer.
- **Colon and Rectum Cancer:** Although the exact causes of colon and rectum cancer remain to be identified, enough is known about the natural history of the disease to implement effective cancer prevention and early detection programs. Most cancers of the colon and rectum begin as small non-cancerous polyps which take at least 10-15 years to develop into a cancer if left undisturbed. Current screening guidelines recommend that persons in the general population begin screening at age 50 years using one of several available screening tests. The currently preferred test is colonoscopy, an endoscopic procedure that images the entire length of the colon and allows for removal of polyps (i.e., cancer prevention) as well as detection of early stage disease. In Bernalillo County, colon and rectum cancer incidence rates in males have been declining since the 1990's, except in Hispanic males, whose rates have remained largely unchanged, and are now about 15%-20% in excess. Examination of the incidence rates by area poverty level revealed that nearly all the recent excess incidence observed in Hispanic males was localized to high poverty areas. Among females, colon and rectum cancer incidence was highest among non-Hispanic White women, among whom little change in incidence has occurred over time - a pattern that contrasts with the generally declining trend seen in Hispanic and American Indian women. Trending by area poverty level was apparent only with Hispanic women, among whom incidence rates declined with increasing poverty. Analysis by extent of disease at diagnosis revealed a pattern of increasing late stage disease with increasing poverty in both Hispanics and non-Hispanic Whites. At each poverty level, the relative burden of late stage disease was greater in Hispanics than non-Hispanic Whites. Colon and rectum cancer mortality rates also were observed to be disproportionately higher in Hispanics than non-Hispanic Whites.

BERNALILLO COUNTY CANCER HEALTH DISPARITIES



• **Female Breast Cancer:** Breast cancer is the most commonly diagnosed cancer in Bernalillo County females. Although a great deal is known about factors that influence breast cancer risk, there are no proven methods to prevent breast cancer, and thus disease control efforts are focused primarily on mammography for detection of early stage disease, which has been shown to reduce breast cancer mortality. Current screening guidelines recommend that women 40 years and older have screening mammograms every one or two years. In Bernalillo County, as in New Mexico, and the remainder of the country, breast cancer incidence rates vary by race/ethnicity and area poverty in a manner consistent with the understanding that breast cancer risk rises significantly with increasing education, income, and affluence. Much of this socioeconomic effect on risk is thought to be due to a higher prevalence of adverse reproductive and hormonal risk factors among more affluent female populations. As seen elsewhere, breast cancer incidence rates have been slowly declining over time in Bernalillo County, due to unknown reasons. During the five-year time period 2003-2007, incidence rates in non-Hispanic White women were about 40% higher than those in Hispanic women, and in even greater excess compared to women of other race/ethnicities. Racial/ethnic differences were attenuated when rates were examined by area poverty level. For example, during the recent five-year time period 2003-2007, breast cancer incidence in Hispanic women in low poverty neighborhoods was equal to that in non-Hispanic White women in high poverty neighborhoods. Although non-Hispanic White women overall are at highest risk of breast cancer, they are at lowest risk of being diagnosed with late stage disease. About 37% of non-Hispanic White women were diagnosed at late stage during 2003-2007 compared to 43%-44% of Hispanic women and women of other race/ethnicities. Among Hispanic women, those living in medium to high poverty areas, as well as those diagnosed between the ages of 40 and 54 years, appear to be at particularly high risk of late stage breast cancer diagnosis. Corresponding racial/disparity disparity in breast cancer mortality was not observed, likely due in part to the relatively favorable survival of late stage breast cancer, which exceeds 80% at five years from diagnosis. Late stage disease, however, is associated with more intensive treatment and greater treatment morbidity, and therefore, efforts to identify potential barriers to early stage diagnosis are warranted.

• **Cervical Cancer:** Cervical cancer is a relatively rare cancer that not uncommonly afflicts women in their 30's and 40's. Enough is known about the causes and natural history of cervical cancer to consider it largely preventable. Virtually all cases are associated with infection with certain forms of human papilloma virus (HPV), all of which are transmitted via sexual intercourse. Vaccine against the cancer-causing forms of HPV has recently been developed, and is being offered to girls and young women prior to sexual initiation. For older women, disease control efforts are focused on use of the Pap test to detect and treat pre-cancerous lesions or detect early stage cancer. Current screening guidelines recommend that women obtain a Pap test on a regular basis up to about age 70 years. In Bernalillo County, cervical cancer incidence rates have been generally declining over time in all racial/ethnic groups, except Asian/Pacific Islander women, among whom rates are erratic due to small case numbers, but clearly in excess of those of other racial/ethnic groups. Virtually all the recent decline in incidence has occurred among women living in medium and high poverty areas, likely due in large part to cervical cancer outreach programs. Despite the declines, disparity in cervical cancer incidence remains in the county. Recent incidence rates still remain 20% to 30% higher in medium and high poverty areas compared to low poverty areas, respectively. Furthermore, there is disparity in late stage diagnosis. For the recent five year time period 2003-2007, roughly 60% of cervical cancers were diagnosed at late stage in high poverty areas compared to 47% in medium poverty areas and 36% in low poverty areas. These differences do not appear to be related to race/ethnicity, but rather, socioeconomics. Recent health survey data collected statewide shows clear trending between a woman's income and her likelihood of compliance with recommended Pap testing. Further investigation to identify potential barriers to effective cervical cancer control among women in medium and high poverty areas is clearly warranted.



• **Prostate Cancer:** Prostate cancer is the most commonly diagnosed cancer in males, but relatively little is known regarding its cause or prevention, and disease control efforts have been focused on screening to detect early stage disease. Although widespread prostate cancer screening has been available since the advent of the prostate specific antigen (PSA) test in the early 1990's, unlike other cancers, clear evidence of a survival advantage from screening has yet to be demonstrated. The PSA test is able to detect prostate cancers small enough that their clinical significance is unknown, and if simply followed over time, may not affect a man's health due to their slow growing nature. Because of the medical uncertainties, current screening guidelines recommend that men make an informed decision with their doctor about whether to be tested for prostate cancer. In Bernalillo County, incidence rates have remained relatively unchanged since the early 1990's, except for African Americans, among whom an unexplained rapid decline in incidence was observed beginning in the early 2000's. For the time period 2003-2007, the incidence in non-Hispanic Whites was 36% higher than that in Hispanics and notably higher than that in men of other race/ethnicities. Within each racial/ethnic group, a clear trend of increasing incidence with increasing affluence was observed. This positive socioeconomic trend with overall incidence is likely due to the comparatively greater access to medical care and PSA testing among more affluent populations. Although most men with prostate cancer are diagnosed with early stage disease, for which survival is very high, a small minority are diagnosed with distant stage disease involving spread into the body, and for which survival is poor. Significant racial/ethnic and socioeconomic disparities in distant stage prostate cancer incidence were observed in the county. Recent distant stage incidence rates were nearly twice as high in Hispanics as in non-Hispanic Whites, and the disparity was observed at all ages in Hispanic males aged 50 to 79 years. In both Hispanics and non-Hispanic Whites, a clear trend of increasing distant stage disease with increasing poverty was observed; however, the magnitude of the socioeconomic disparity was not sufficient to overcome the racial/ethnic disparity. Across all area poverty levels, Hispanic late stage disease rates were higher than any of the rates observed in non-Hispanic Whites. The Hispanic disparity in late stage diagnosis was reflected in their mortality rate, which was nearly 10% higher than that in non-Hispanic Whites, despite an overall incidence that was nearly 40% lower. Although the stage-specific case numbers were too small to conduct similar analyses for men of other race/ethnicities, a similar disparity can be inferred as their collective mortality rate was roughly the same as that in non-Hispanic Whites, despite an overall prostate cancer incidence which was notably lower.

• **Cross Cutting Findings and Issues:** The five types of cancer examined in this report represent different diseases with differing etiologies. Nevertheless, some common features emerged in regards to racial/ethnic and socioeconomic disparities which unite them across their etiologic differences. The most consistent finding was that many cancer health indicators, particularly late stage diagnosis, tended to worsen with increasing area level poverty. This finding is consistent with the knowledge that populations that are poor, lack health insurance, and are medically-underserved often bear a greater burden of disease than their more affluent counterparts. For those cancers where late stage disease is associated with notably poor survival, corresponding disparities in cancer mortality were observed. For some cancers, racial/ethnic disparities existed independent of socioeconomics, suggesting possible cultural barriers to disease control mechanisms. The complex interplay between socioeconomics and race/ethnicity presents a challenge to identify and define those specific factors most causally linked with adverse cancer outcomes. The strong geographic localization of impoverished populations within Bernalillo County affords an opportunity to bring particular focus on these areas to further investigate not only socioeconomic and cultural barriers, but also more generalized factors that may adversely impact on health and disease burden, such as poor physical access to health care, absence of built environment for physical activity, excessive alcohol availability, lack of access to fresh foods, and excess burden of environmental toxins. Examination of cancer health indicators in conjunction with non-cancer health indicators may promote even greater understanding.



Cancer Burden in Bernalillo County

- Much like New Mexico, and the rest of the country, cancer is a leading cause of death in Bernalillo County, accounting for about one in five deaths registered each year among county residents. In 2009, just over 1,000 county residents died from cancer, of which about 250 deaths occurred in persons under the age of 65 years. Although much is known about the prevention, detection, and treatment of cancer, this information does not always reach everyone.
- In 2007, the most recent year for which data on cancer diagnoses are available, about 2,500 newly diagnosed cancers of different types were registered in Bernalillo County residents. For some of the cancers, medical screening tests are available to potentially prevent the cancer from occurring, or to detect it as early as possible when treatment is most effective. For others, enough is known about their cause to provide information on appropriate risk factor avoidance or reduction behaviors. Despite all this, important differences exist within the county population in regards to who is diagnosed with cancer, at what point in the development of the cancer they are diagnosed, and who ultimately dies of cancer. Many of these differences, or disparities, appear to relate to race/ethnicity and socioeconomic position.

Cancer Health Disparities Defined

- Cancer health disparities are commonly defined as adverse differences in the incidence, prevalence, mortality, and burden of cancer or related health conditions that exist among specific population groups. A population group may be defined in various ways, including by age, disability, education, race, ethnicity, gender, geographic location, income, or poverty. In general, studies have shown that people who are poor, lack health insurance, and are medically underserved (i.e., have limited or no access to effective health care), often bear a greater burden of cancer, as well as other diseases, when compared to their more affluent counterparts.

- Complex and interrelated factors appear to contribute to cancer health disparities. Low socioeconomic position can act not only as a barrier to effective medical care, but often is associated with a higher prevalence of cancer risk factors, such as tobacco smoking, physical inactivity, obesity, poor diet, excessive alcohol intake, and substance abuse, as well as higher exposures to environmental toxins. Studies have shown that individuals from underserved populations are also less likely to follow cancer screening guidelines, and not infrequently, present with more advanced disease at the time of diagnosis. Physical and cultural beliefs also may act as barriers that prevent individuals or groups from utilizing screening services and obtaining effective and timely treatment following a cancer diagnosis.

Where do the Cancer Data for Bernalillo County Come From?

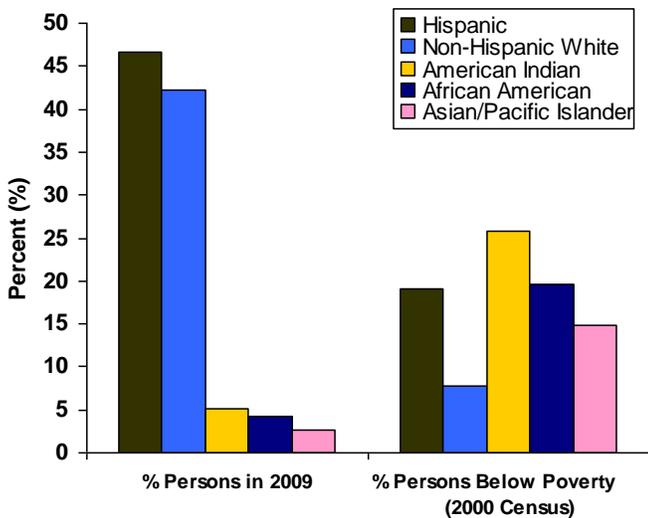
- Information on cancer diagnoses and deaths in Bernalillo County come from two different data sources. Data on cancer diagnoses comes from the New Mexico Tumor Registry (NMTR), the state-appointed agency responsible for collecting information on newly diagnosed cancers among New Mexico residents. The NMTR is located at the University of New Mexico Health Sciences Center in Albuquerque, and has been a member of the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program since inception of the program in 1973. Further information on NMTR and cancer in New Mexico can be obtained from their website at <http://hsc.unm.edu/som/nmtr/>.
- Information on cancer deaths in Bernalillo County originates from the Bureau of Vital Records and Health Statistics, an agency of the New Mexico Department of Health responsible for registering all deaths that occur in New Mexico. Further information on this agency and the collection of death data can be found online at <http://www.vitalrecordsnm.org/index.shtml>.



Demographic Profile of Bernalillo County

- The Bernalillo County population in 2009 was estimated to be 642,500 persons, an increase of 15% from the 2000 Census. The majority (90%) of county residents were about equally divided between persons of Hispanic or non-Hispanic White origin. Poverty levels determined in the 2000 Census ranged by 3-fold across racial/ethnic groups, from 7.7% in non-Hispanic Whites to 24.8% in American Indians. Most of the county population resides in Albuquerque, the state’s largest city and home to the majority of major medical facilities in the state.

Population Distribution and Poverty Levels in Bernalillo County by Race/Ethnicity



How to Understand the Data and Terms

- Incidence and Mortality Rates:** All rates in this report were calculated as five-year average annual *age-adjusted rates* and expressed as the number of cancer diagnoses (cases) or cancer deaths per 100,000 population. In order to compare rates across different populations, it is useful to calculate the rates so they are not affected by differences in the age composition of the populations. Cancer is largely a disease of older persons, and a population with older people will naturally have more cancer cases and deaths than one with younger people.

To make fair comparisons, cancer rates are mathematically adjusted to remove the effect of differing age composition. By convention, the rates in this report were adjusted to the 2000 U.S. Census standard population. All rates (excluding poverty specific rates) were computed with online SEER*Stat Version 6.6.2. SEER*Stat is a web-based data analysis software package developed and supported by the NCI SEER program that provides access to county-level data on cancer incidence, survival, and mortality. The county population denominator data available in SEER*Stat derive from the US Census. Further information on SEER*Stat can be found at <http://seer.cancer.gov/seerstat>.

- Five-Year Moving Averages:** Cancer data were examined over the 15-year time period 1993-2007 to look for trends in cancer incidence over time. In many instances, rates were based on small population sizes or small numbers of cancer cases. Such rates can be inherently unstable as small changes in the number of cases can occur from one year to the next. To help stabilize the rates to observe time trends, rates for trend analysis were computed as five-year moving averages by starting with the first five-year time period of observation 1993-1997, and then moving the five-year rate up one year at a time until the final five-year time period 2003-2007.

- Cancer Stage at Diagnosis:** Most forms of cancer are “staged”, in order to describe how far a cancer has advanced into the body at the time of diagnosis. Staging data collected at the time of diagnosis typically includes information on tumor size, tumor extension within and beyond the site of origin, lymph node involvement, and presence of distant tumor (metastasis). These data are aggregated in stage categories depending on the staging system employed. In this report, the American Joint Committee on Cancer (AJCC) staging system was used to assign cancer cases into two broad categories: early stage or late stage. Screening programs are aimed at detecting early stage disease since it typically provides a clear survival advantage compared to late stage disease.

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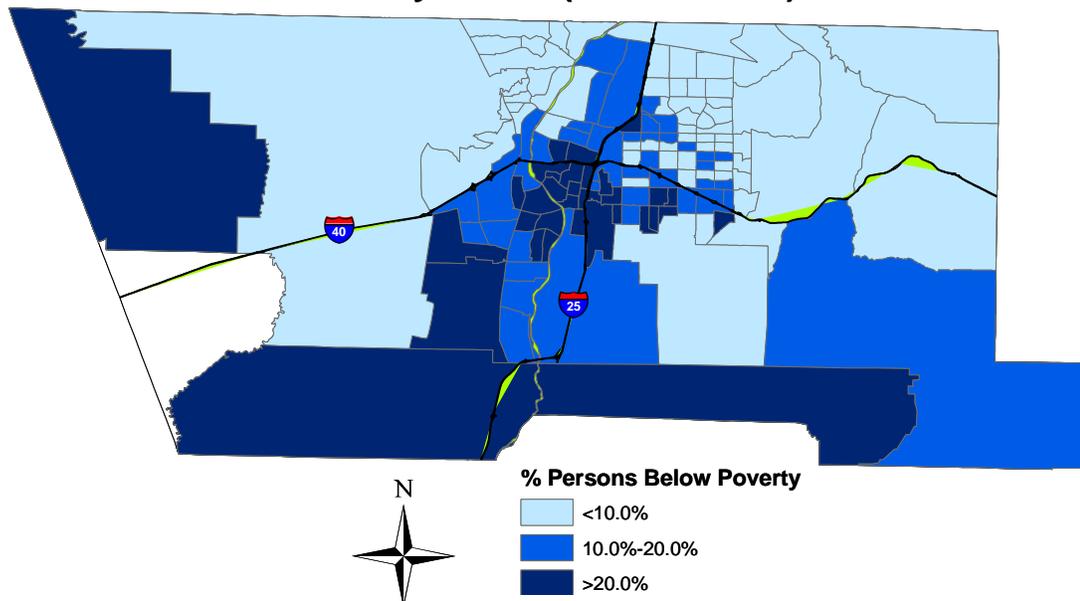
- **Cancer Survival:** Information on cancer survival was sometimes provided to add perspective to the cancer stage data. Cancer survival typically refers to the number of cancer patients alive at some point in time following diagnosis. A standard convention is to look at five-year survival for patients diagnosed within a specified time period. Because cancer patients can also die of other diseases or causes, particularly older patients, survival data are typically reported as five-year relative survival rates, which take into account the presence of other causes of mortality. Cancer survival data in this report are presented as five-year relative survival rates for patients diagnosed during the ten-year time period 1998-2007. All survival data were computed using the online SEER*Stat package described above.

- **Neighborhood Poverty Level:** To identify socioeconomic cancer health disparities, the census tracts defined in Bernalillo County for the 2000 Census (N=141) were ranked by the percentage of persons below the Federal Poverty Level in 1999. The tracts were then grouped into three categories in which less than 10%, 10% to 20%, and more than 20% of the population were living below poverty. These groups were labeled as “low poverty”, “medium poverty”, and “high poverty”

neighborhoods, respectively. Mapping of census tracts according to poverty level shows strong geographic separation of high and low poverty areas within Bernalillo County.

- **Cancer Case Geocoding:** To analyze the cancer data according to neighborhood poverty level it was necessary to assign cancer cases to a census tract within the county. This was accomplished using geographic information systems (GIS) software (ESRI ArcMap 9.3) and the 2010 Bernalillo County Tax Assessors tax parcel reference file. All cancer cases were geocoded based on their address at the time of diagnosis. Most cases (96%) were geocoded based on a physical street address. The remaining 4% lacked physical address information and were geocoded to a ZIP code centroid. A small number of case records (n=243) contained information only indicating Bernalillo County resident, and were thus ungeocodable and excluded from the poverty analysis. Census tract-level population denominator data used to calculate rates came from two sources: 1993-2000 data were derived from linear interpolation of 1990 and 2000 tract population data; 2001-2007 population data were purchased from Geolytics, Inc.

Bernalillo County Map Showing Census Tract Poverty Levels (2000 Census)





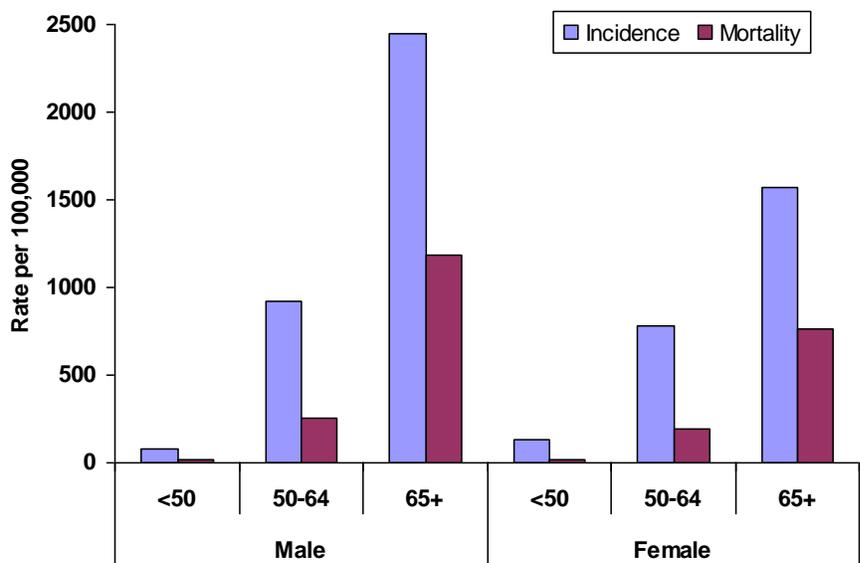
All Cancer Sites

• Cancer is not a single disease, but a group of over 100 differing diseases all sharing the same characteristic of uncontrolled cell growth, which if left untreated, typically cause significant morbidity and ultimately death. The causes of cancer are multiple, and often vary from site to site in the body. The pattern of cancer incidence within a given population not only reflects the prevalence and magnitude of risk factor exposures among individuals, but also their access to and utilization of cancer screening and prevention services. Cancer mortality patterns largely reflect the underlying incidence of cancer, but also may be influenced by access to care determinants, including cancer detection, prevention, and treatment services.

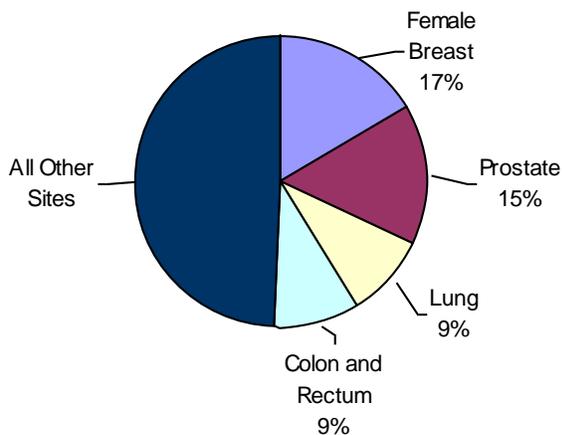
• Cancer can occur at any age, but most often occurs at older ages, particularly after age 65 years. Overall, males have higher cancer rates than females, but this varies by age. Cancer incidence and mortality in persons under age 50 years is generally higher in females than males, but the gender pattern then reverses at older ages. Because many types of cancer are survivable, overall mortality rates are typically 2-3 times lower than corresponding incidence rates.

• Although cancer can occur virtually anywhere in the body, there are several sites at which it is most likely to occur, including lung, colon and rectum, female breast, and prostate. Collectively, these four cancer sites account for roughly half of all cancers newly diagnosed each year in Bernalillo County. They also account for nearly half the cancer deaths observed each year in the county, although not necessarily in proportion to their incidence.

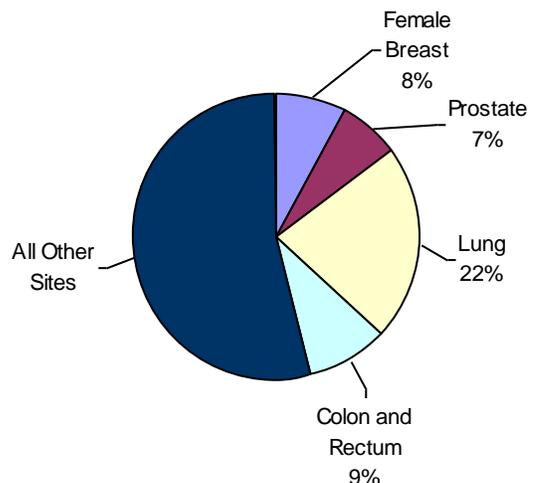
Incidence and Mortality Rates for All Cancer Sites by Sex and Age at Diagnosis or Death, Bernalillo County, 2003-2007



Site Distribution of Newly Diagnosed Cancers Bernalillo County, 2003-2007



Site Distribution of Cancer Deaths Bernalillo County, 2003-2007



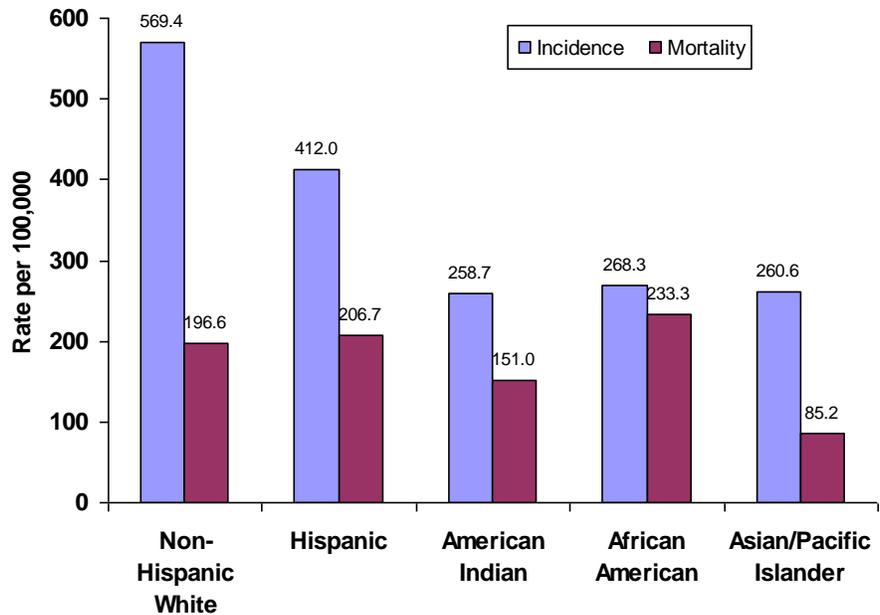
BERNALILLO COUNTY CANCER HEALTH DISPARITIES



- Overall cancer incidence and mortality rates vary strongly by race/ethnicity, due in large part to racial/ethnic differences in the prevalence of cancer risk factors, but also due to differences in biologic factors that influence susceptibility to cancer, as well as differential access to and utilization of cancer screening, prevention, and treatment services.

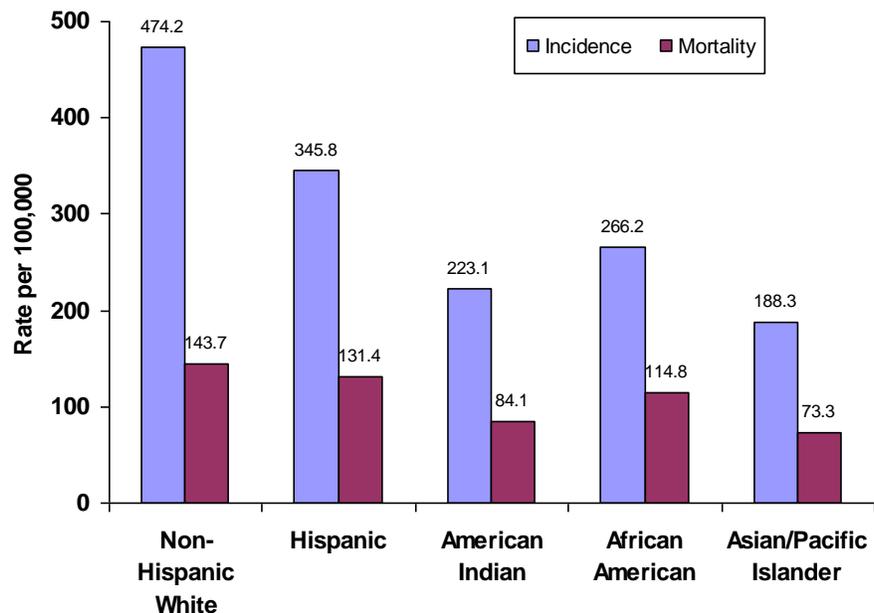
- Overall cancer incidence rates in Bernalillo County males varied by roughly 2-fold among different racial/ethnic groups during the 5-year time period 2003-2007. Incidence rates were highest in non-Hispanic Whites, second highest in Hispanics, and lowest in American Indians, African Americans, and Asian/Pacific Islanders. A differing pattern of cancer mortality was observed, with Hispanic and African American males having the highest mortality rates, despite having incidence rates that were notably lower than that in non-Hispanic Whites

Male Incidence and Mortality Rates for All Cancer Sites by Race/Ethnicity, Bernalillo County, 2003-2007



- Overall cancer incidence rates in Bernalillo County females during the same time period followed the same racial/ethnic pattern as that seen in males. Rates were highest in non-Hispanic Whites, second highest in Hispanics, and lowest in American Indians, African Americans, and Asian/Pacific Islanders. Although the incidence rate in Hispanic females was 37% lower than that in non-Hispanic White females, the Hispanic cancer mortality rate was only lower by 9% than that in non-Hispanic White women. A similar disparity was seen in African American females.

Female Incidence and Mortality Rates for All Cancer Sites by Race/Ethnicity, Bernalillo County, 2003-2007





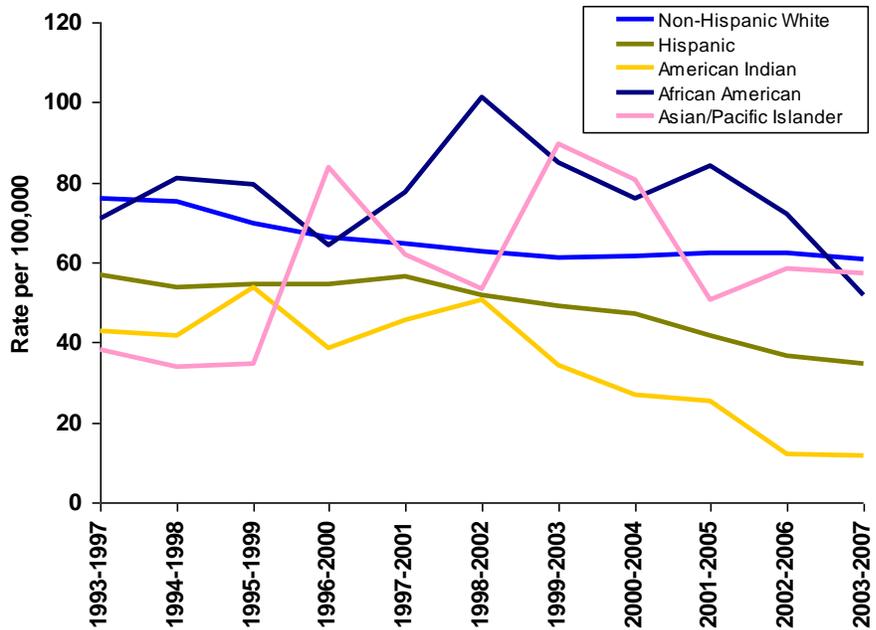
Lung Cancer

- Lung cancer is a highly lethal disease, but also a highly preventable disease. Roughly 90% of lung cancers are caused by chronic tobacco use or long-term exposure to secondhand smoke. Lung cancer incidence and mortality rates strongly correlate with historic smoking patterns since the latency period between initiation of exposure and development of disease is on the order of 30 to 40 years. Lung cancer is more common in males than females since men historically have smoked more than women. Because there is no screening for lung cancer, and symptoms often do not appear until well after the cancer has advanced into the body, disease control efforts are focused on disease prevention through tobacco prevention and cessation programs.

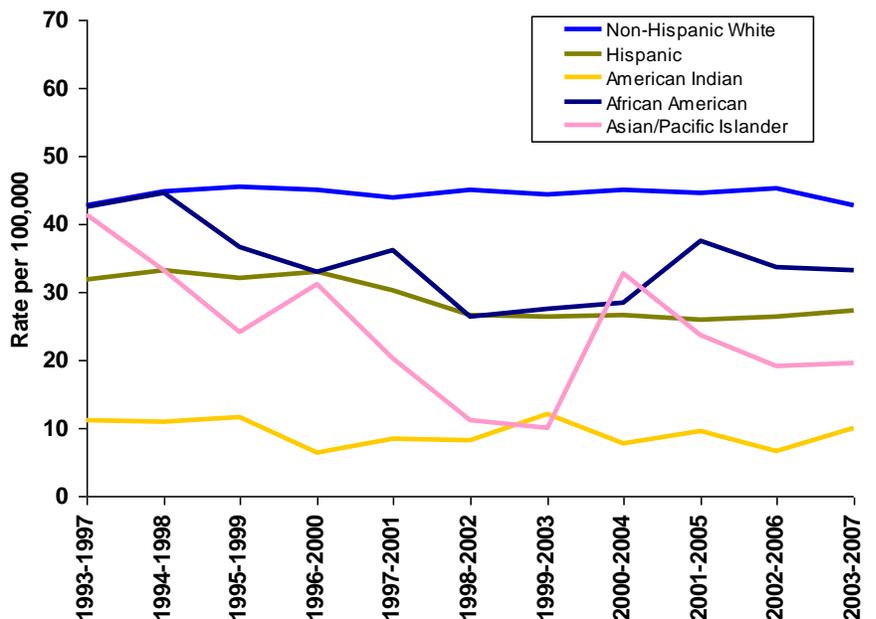
- Among Bernalillo County males, lung cancer incidence rates are highest in non-Hispanic Whites, African Americans, and Asian/Pacific Islanders. American Indian men have comparatively low rates, while Hispanic men have rates somewhat intermediate. Lung cancer incidence rates have been declining over time, particularly in non-Hispanic White, Hispanic, and American Indian men.

- Among Bernalillo County females, lung cancer incidence rates are highest in non-Hispanic Whites, followed by African American and Hispanic women. Rates are lowest in Asian/Pacific Islander and American Indian women. Compared to the trend of generally declining rates in males, female lung cancer rates have been relatively stable over time.

**Male Lung Cancer Incidence Rates by Race/Ethnicity
Bernalillo County, Five-Year Moving Averages, 1993-2007**



**Female Lung Cancer Incidence Rates by Race/Ethnicity
Bernalillo County, Five-Year Moving Averages, 1993-2007**

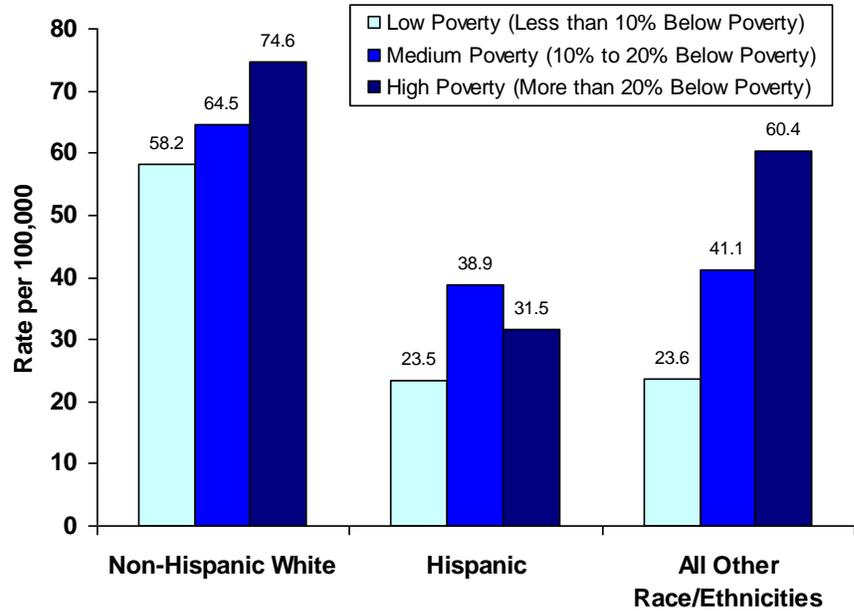


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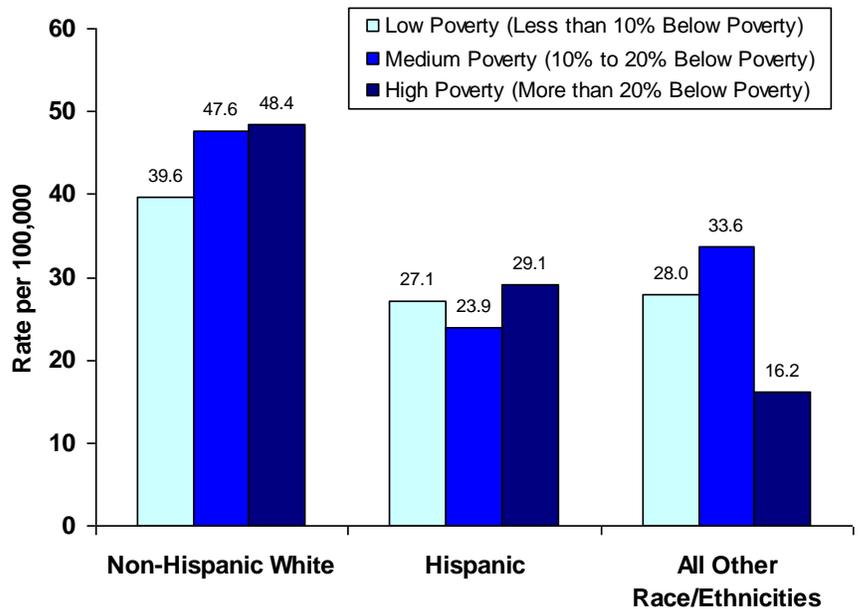
- Examination of recent male lung cancer incidence rates by neighborhood poverty level in Bernalillo County reveals that the lowest rates consistently occur in neighborhoods of lowest poverty, regardless of race/ethnicity. Except in Hispanic men, a clear trend of increasing lung cancer risk with increasing area poverty is apparent. The highest risk groups involve non-Hispanic White men living in high poverty areas at the time of their diagnosis.

Male Lung Cancer Incidence Rates by Race/Ethnicity and Neighborhood Poverty Level, Bernalillo County, 2003-2007



- Examination of recent female lung cancer incidence rates by neighborhood poverty level in Bernalillo County reveals a variable pattern across racial/ethnic groups. A clear trend of increasing lung cancer risk with increasing area poverty is apparent with non-Hispanic White women. Area poverty levels appear to have little influence on lung cancer risk in Hispanic women. Socioeconomic trending among women of other race/ethnicities is difficult to evaluate due to the small case numbers used to generate rates.

Female Lung Cancer Incidence Rates by Race/Ethnicity and Neighborhood Poverty Level, Bernalillo County, 2003-2007



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• Examination of lung cancer incidence by age and race/ethnicity among the high and low poverty areas shows that rates in high poverty populations under age 60 years are 2-3 times higher than corresponding rates in low poverty populations, regardless of race/ethnicity. A much smaller (5%-16%) socioeconomic disparity is seen in high poverty areas among person aged 60 years and older.

Lung Cancer Incidence Rates by Age, Race/Ethnicity, and Neighborhood Poverty Level Bernalillo County, 2003-2007

	Non-Hispanic White			Hispanic		
	All Ages	40-59 Years	60+ Years	All Ages	40-59 Years	60+ Years
Low Poverty (Less than 10% Below Poverty)	47.9	22.9	251.1	25.6	7.7	141.1
High Poverty (More than 20% Below Poverty)	59.6	43.4	290.9	30.2	21.9	147.8
High to Low Poverty Rate Ratio	1.24	1.90	1.16	1.18	2.84	1.05

• Lung cancer mortality rates in Bernalillo County follow the same general racial/ethnic trend seen with incidence rates. For the recent five-year time period 2003-2007, non-Hispanic Whites accounted for roughly 75% of newly diagnosed lung cancer cases and lung cancer deaths in the county. Hispanics accounted for most of the other lung cancer cases and deaths.

Lung Cancer Incidence and Mortality Rates by Race/Ethnicity, Bernalillo County, 2003-2007

	Incidence			Mortality		
	Rate	Cases		Rate	Deaths	
		No.	%		No.	%
Non-Hispanic White	50.5	936	73.4	41.7	779	72.8
Hispanic	30.4	280	21.9	26.5	234	21.9
All Other Race/Ethnicities	30.8	60	4.7	30.1	57	5.3
TOTAL		1,276	100.0		1,070	100.0



Colon and Rectum Cancer

- Cancer of the colon and rectum accounts for about 10% of the newly diagnosed cancer cases and cancer deaths registered each year in Bernalillo County. The cause of most colon and rectum cancers is unknown. Lifestyle-related factors shown to increase risk include overweight, lack of physical activity, a diet rich in red meats and processed meats, smoking, and heavy alcohol use.

- Disease control efforts are focused on screening, which can reduce colon and rectum cancer mortality through use of one or more screening tests, such as fecal occult blood test or colonoscopy. Current recommendations are to begin screening at age 50 years and continue until age 75 years.

- One goal of screening is to identify early stage disease, before the cancer has involved lymph nodes or advanced beyond the colon or rectum. Because most cancers of the colon and rectum begin as small, non-cancerous polyps, invasive screening tests, such as colonoscopy, have the additional advantage of being able to identify and remove polyps, thereby greatly reducing or eliminating the risk of cancer at that site.

- Examination of stage and survival data for colon and rectum cancers diagnosed in Bernalillo County between 1998 and 2007 show that roughly half of the cases were diagnosed at late stage, where 5-year survival is only about 54% compared to roughly 95% 5-year survival for early stage disease. These outcomes are similar to those seen state- and nation-wide over the same time period.

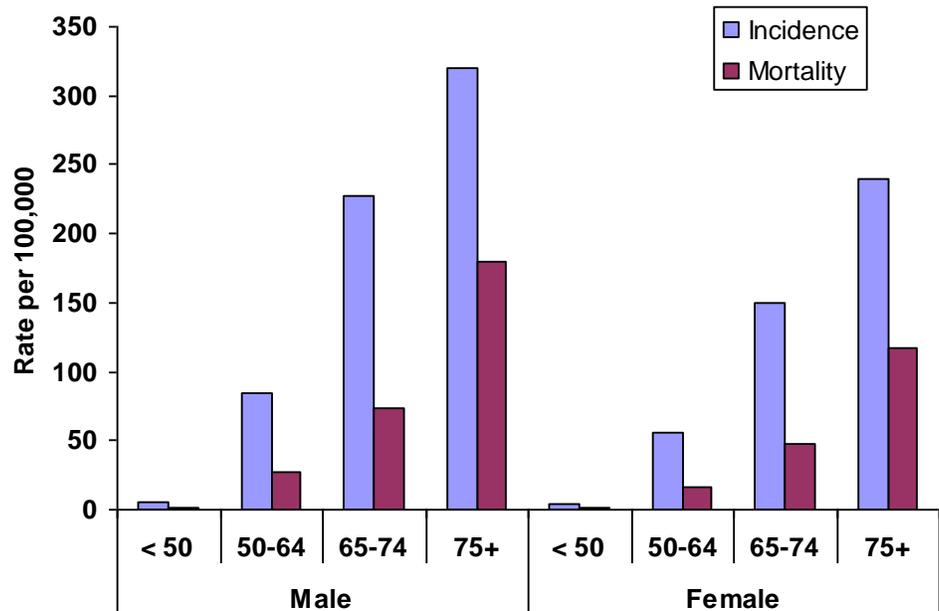
- Cancers of the colon and rectum are rarely diagnosed under age 50 years, but thereafter, both incidence and mortality rates increase progressively with age. Rates are similar for males and females under age 50 years, but a roughly 50% male excess develops thereafter for both incidence and mortality. The male excess persists into the oldest age groups, and is largely unexplained, but may be related to protective effects from the different hormone profile in women compared to men.

Stage Distribution and 5-Year Survival for Colon and Rectum Cancer Bernalillo County, 2003-2007

Stage	Cases		% Patients Surviving 5 Years After Diagnosis ¹
	Number	%	
Early	507	42.6	94.7
Late	607	51.0	53.9
Unknown	76	6.4	31.9

¹Survival rates based on 1998-2007 data.
 Early stage = tumor localized to colon/rectum and negative lymph nodes.
 Late stage = tumor beyond colon/rectum and/or positive lymph nodes.

Colon and Rectum Cancer Incidence and Mortality Rates by Sex and Age at Diagnosis (Years), Bernalillo County, 1993-2007

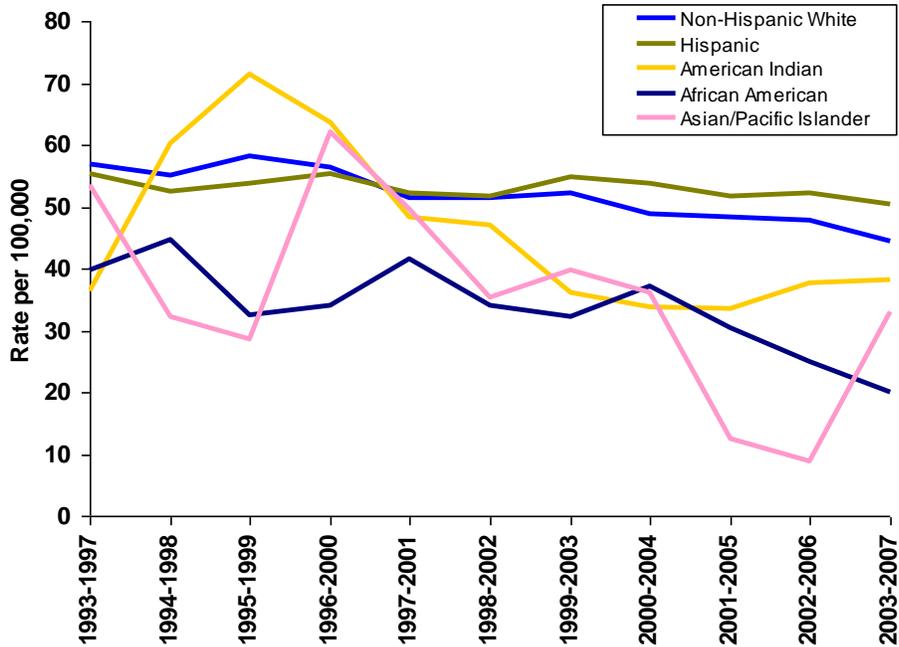


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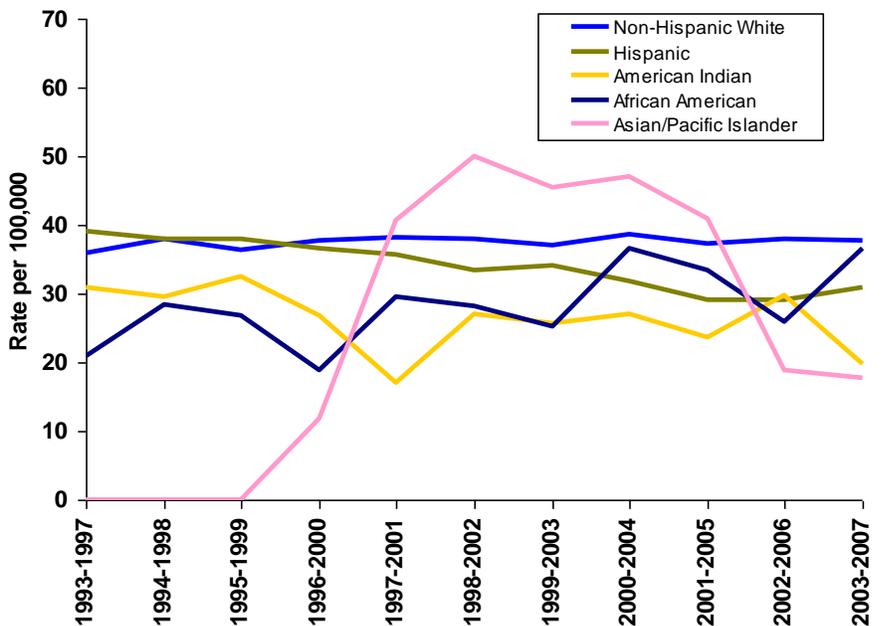
- Among Bernalillo County males, colon and rectum cancer incidence rates are highest in Hispanics and non-Hispanic Whites, and lowest in American Indians, African Americans, and Asian/Pacific Islanders. Incidence rates have generally been declining over time, except for Hispanic males, where rates have been little changed between 1993 and 2007. The absence of a corresponding decline among Hispanic males is unexplained, but could be due to an unchanging or increasing prevalence of adverse risk factors, lower access to medical care or utilization of screening, or some combination of these and other factors.

**Male Colon and Rectum Cancer Incidence Rates by Race/Ethnicity
Bernalillo County, Five-Year Moving Averages, 1993-2007**



- Colon and rectum cancer incidence rates in Bernalillo County females generally have been highest in non-Hispanic Whites, among whom little change in rates has been seen over recent time. In contrast, incidence rates have declined over time in Hispanic females, and to a lesser extent in American Indian females. Rates in African American women appear to be increasing, while an inconsistent and highly variable pattern of incidence over time existed for Asian/Pacific Islander women.

**Female Colon and Rectum Cancer Incidence Rates by Race/Ethnicity
Bernalillo County, Five-Year Moving Averages, 1993-2007**

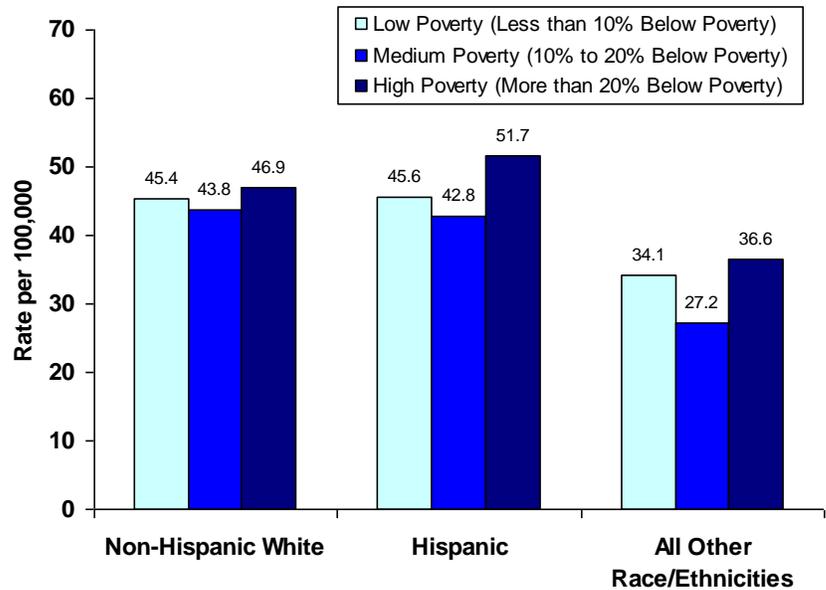


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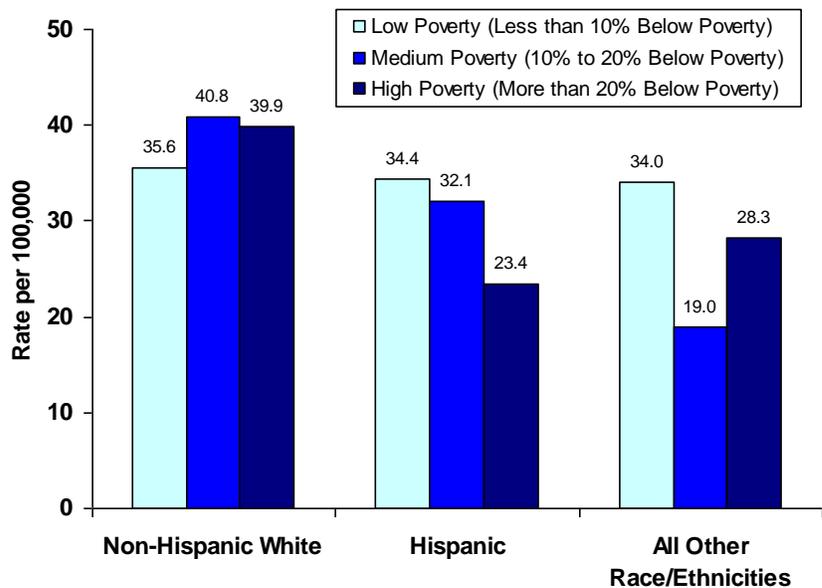
- Examination of recent male colon and rectum cancer incidence rates by neighborhood poverty level reveals little trending between disease occurrence and socioeconomic position. The Hispanic male incidence rate was similar to that in non-Hispanic White males within both low and medium poverty neighborhoods, but was clearly elevated in the highest poverty neighborhoods. The higher overall rate in 2003-2007 among Hispanic males (50.3 per 100,000) compared to non-Hispanic White males (44.4 per 100,000) appears to be due entirely to the higher incidence seen among Hispanic males in high poverty areas.

Male Colon and Rectum Cancer Incidence Rates by Race/Ethnicity and Neighborhood Poverty Level Bernalillo County, 2003-2007



- Examination of recent female colon and rectum cancer incidence rates by neighborhood poverty level in Bernalillo County reveals a variable pattern of trending different from that seen with males. In non-Hispanic White females, rates in the medium and higher poverty neighborhoods are about 13% higher than the corresponding rate in low poverty areas. Among Hispanic females, the rate in low poverty neighborhoods is similar to that seen for non-Hispanic White women, but then rates decline with increasing area poverty level, a trend opposite to that seen for Hispanic males.

Female Colon and Rectum Cancer Incidence Rates by Race/Ethnicity and Neighborhood Poverty Level Bernalillo County, 2003-2007



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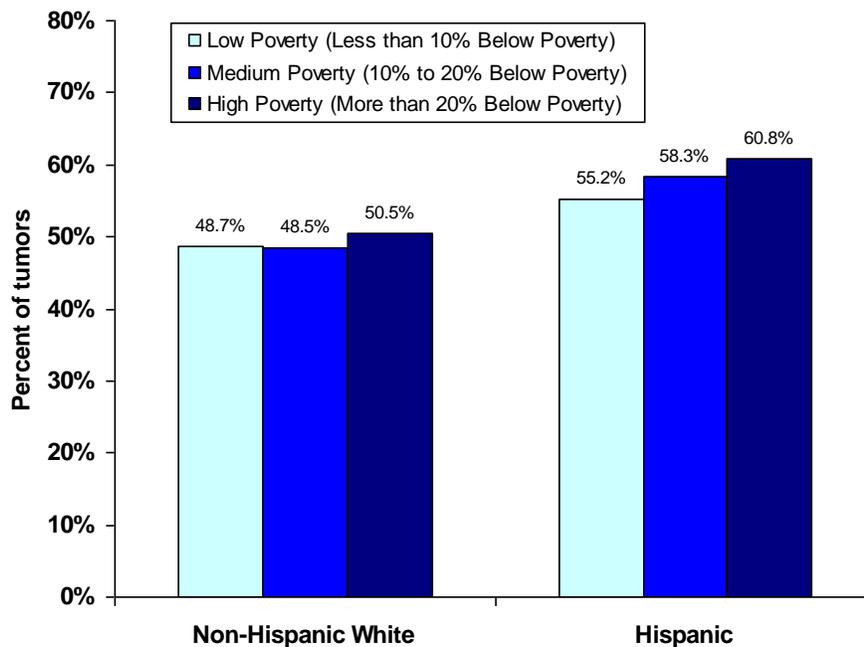
• Colon and rectum cancer mortality rates in Bernalillo County do not follow the same general racial/ethnic trend seen with incidence rates. For the recent five-year time period 2003-2007, the Hispanic male incidence rate was 13% higher than that for non-Hispanic White males, but the corresponding Hispanic mortality rate was 52% higher. A similar disparity was observed with Hispanic females, where the incidence rate was 18% lower than the non-Hispanic White female rate, but the corresponding mortality rate was 4% higher. A similar effect was observed among male of other race/ethnicities, where the incidence rate was about 20% lower than that in non-Hispanic White males but the corresponding mortality rate was 35% higher.

Colon and Rectum Cancer Incidence and Mortality Rates by Race/Ethnicity and Sex, Bernalillo County, 2003-2007

		Incidence		Mortality	
		Rate	# of Cases	Rate	# of Deaths
Males	Non-Hispanic White	44.4	363	15.5	125
	Hispanic	50.3	207	23.6	91
	All Other Race/Ethnicities	35.3	32	20.9	16
Females	Non-Hispanic White	37.7	392	11.7	128
	Hispanic	30.8	163	12.2	62
	All Other Race/Ethnicities	30.2	33	4.6	5

• Examination of data on late stage colon and rectum cancer by race/ethnicity and neighborhood poverty level shows a positive trend between advanced disease and area poverty in both non-Hispanic Whites and Hispanics. Late stage disease occurrence in Hispanics was greater than that in non-Hispanic Whites are every poverty level, a finding consistent with the above-described disparity in colon and rectum cancer mortality seen among Hispanics countywide.

Percent Late Stage Colon and Rectum Cancers by Race/Ethnicity and Neighborhood Poverty Level, Bernalillo County, 2003-2007





Female Breast Cancer (Includes In-Situ)

- Breast cancer is the most commonly diagnosed cancer in women, accounting for about one-third of all cancers newly diagnosed each year. Rarely diagnosed prior to age 30 years, roughly 60% of cases are diagnosed between the ages of 35 and 64 years. Breast cancer is also a leading cause of cancer death in women, second only to lung cancer. About 45% of breast cancer deaths occur in women under age 65 years.

- Because it is not known how to prevent breast cancer, disease control efforts are focused on early detection through mammography screening, which has been shown to reduce breast cancer deaths. Current breast cancer screening guidelines call for mammography every one or two years beginning at age 40 years. Current estimates are that about one-in-four Bernalillo county women aged 40+ years are not receiving regular breast

mammogram screening (2008 CDC BRFSS). Examination of stage and survival data for breast cancers diagnosed in Bernalillo County women between 2003 and 2007 show that nearly half the cases were diagnosed at late or unknown stage, where 5-year survival is only about 80% compared to 100% survival for early stage disease.

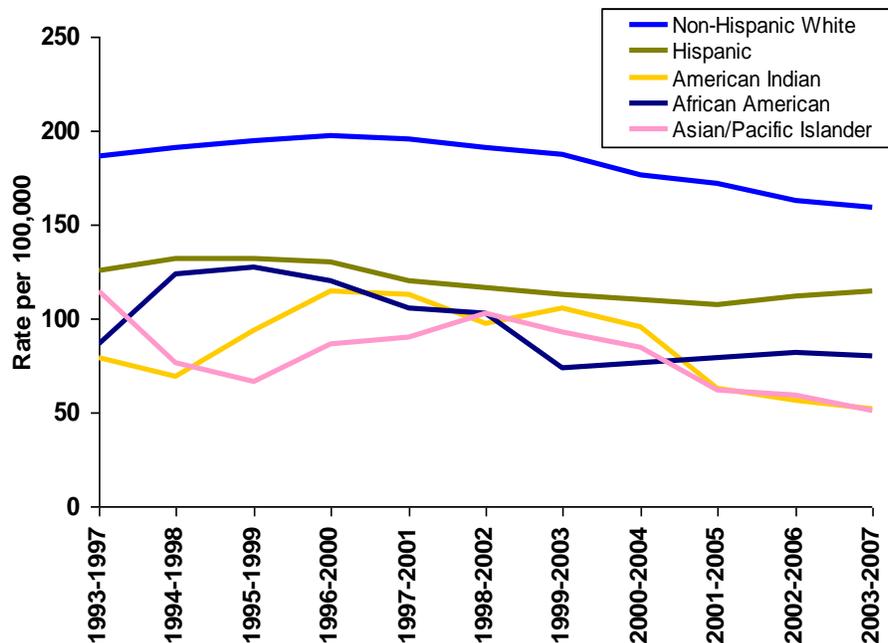
- Breast cancer incidence rates in Bernalillo County historically have been highest in non-Hispanic White women, lowest in American Indian, African American, and Asian/Pacific Islander women, and intermediate in Hispanic women. Between 1993 and 2007, breast cancer incidence rates declined modestly and about to the same extent among women of all racial/ethnic groups. The rate in non-Hispanic White women for 2003-2007 (159.4 per 100,000) was 40% higher than that in Hispanic women and 2-3 times higher than that in women of other race/ethnicities.

Stage Distribution and 5-Year Survival for Female Breast Cancer Bernalillo County, 2003-2007

Stage	Cases		% Patients Surviving 5 Years After Diagnosis ¹
	Number	%	
Early	1,210	54.0	100.0
Late	875	39.0	82.4
Unknown	156	7.0	77.6

¹Survival rates based on 1998-2007 data.
 Early stage = in situ, or tumor 2 cm or less, localized to breast and negative lymph nodes.
 Late stage = tumor greater than 2 cm, and/or positive lymph nodes, and/or distant disease.

Female Breast Cancer Incidence Rates by Race/Ethnicity Bernalillo County, Five-Year Moving Averages, 1993-2007



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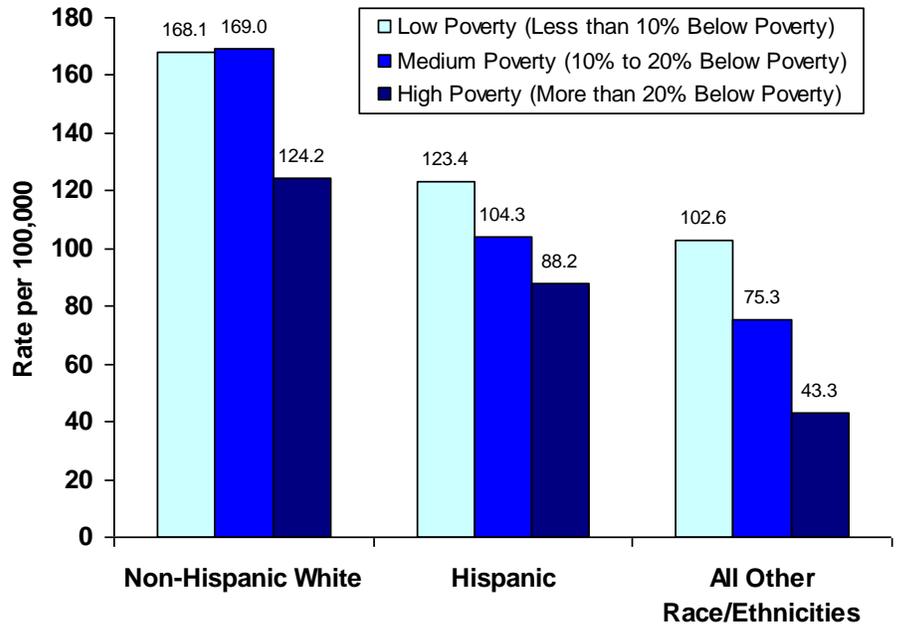


- Although the exact causes of breast cancer are unknown, various lifestyle factors have been shown to increase a woman’s risk of the disease, including certain hormonal and reproductive factors, such as early age at menarche, not having children or having them later in life, not breastfeeding, late age at menopause onset, and long-term use of hormone replacement therapy. Many of these breast cancer risk factors vary strongly by race/ethnicity, and studies have shown that racial/ethnic differences in breast cancer incidence are reduced once they are taken into account.

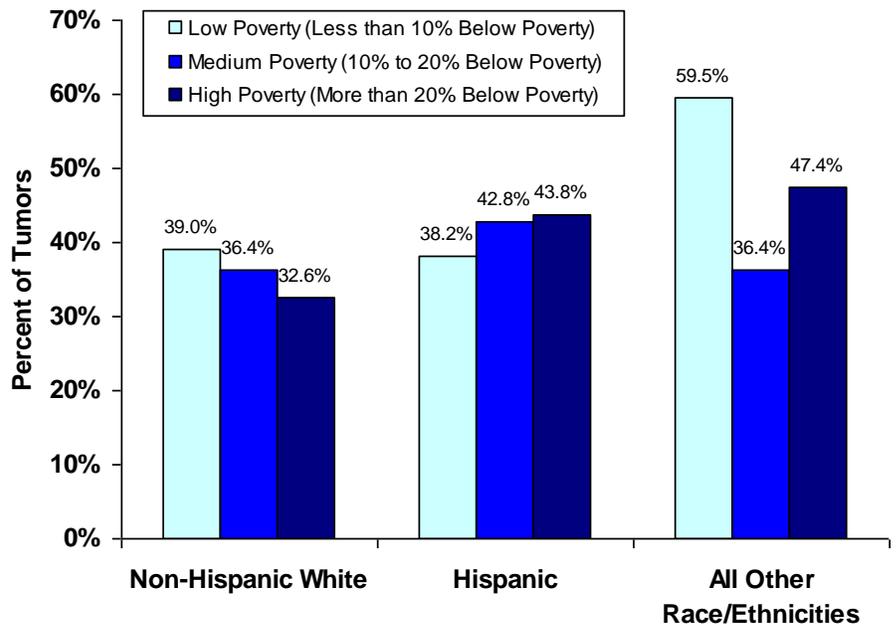
- Breast cancer risk factors also vary by socioeconomics, with women of higher social position tending to have higher levels of risk factors and disease occurrence. Data from Bernalillo County for the time period 2003-2007 confirm that breast cancer incidence rates generally increase with increasing socioeconomic position. Although breast cancer incidence is highest among non-Hispanic White women at each area poverty level, the rate among Hispanic women in low poverty areas is equal to that among non-Hispanic White women in high poverty areas.

- Diagnosis of late stage diagnosis of breast cancer varies by race/ethnicity and poverty with a pattern different than that for seen for overall incidence. Compared to non-Hispanic White women, Hispanic women and women of other race/ethnicities are more likely to be diagnosed at late stage, despite having lower incidence rates. Trending by poverty level is variable and inconsistent across racial/ethnic groups, but there is a suggestion that increasing poverty among Hispanic women is associated with a greater likelihood of late stage diagnosis.

Female Breast Cancer Incidence Rates by Race/Ethnicity and Neighborhood Poverty Level , Bernalillo County, 2003-2007



Percent Late Stage Breast Cancer by Race/Ethnicity and Neighborhood Poverty Level , Bernalillo County, 2003-2007



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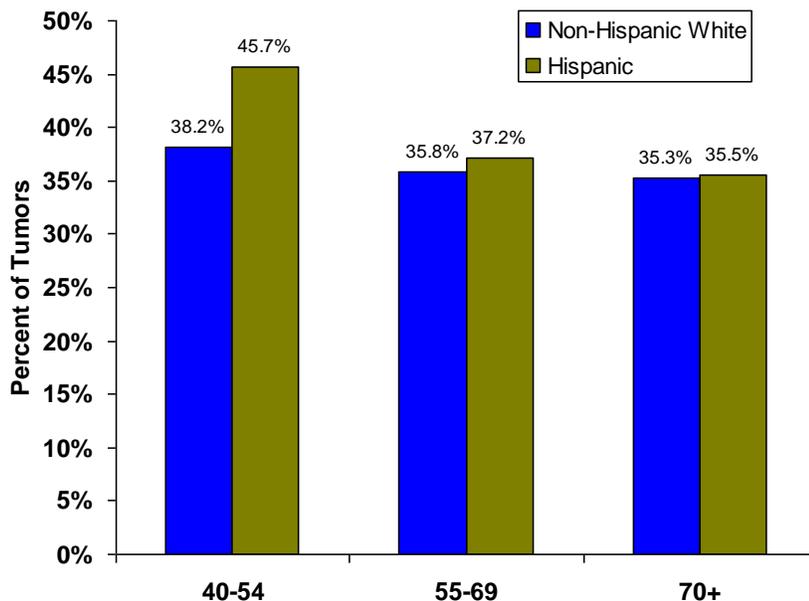
• Female breast cancer mortality rates in Bernalillo County follow the same general racial/ethnic pattern seen with incidence rates. Rates are highest in non-Hispanic White women, second highest in Hispanic women, and collectively lowest in women of other race/ethnicities. Although their overall rates are higher, non-Hispanic White women are less likely to be diagnosed with late-stage breast cancer than Hispanic women and women of other race/ethnicities.

Female Breast Cancer Incidence and Mortality Rates by Race/Ethnicity, Bernalillo County, 2003-2007

	Outcome				Late Stage Tumors	
	Incidence		Mortality		Cases	%
	Rate	Cases	Rate	Deaths		
Non-Hispanic White	159.4	1,528	25.2	263	567	37.1
Hispanic	114.4	634	21.3	111	271	42.7
All Other Race/Ethnicities	71.6	89	12.1	16	39	43.8

• For the time period 2003-2007, differences in late stage diagnosis of breast cancer between Hispanic and non-Hispanic White women were localized to Hispanic women under age 55 years. The higher frequency of late-stage disease in this age group is unexplained, but could be due to lower utilization of screening mammography, delay in seeking treatment, biologically more aggressive form of disease, or some combination of these and other unknown factors.

Percent Late Stage Breast Cancers by Race/Ethnicity and Age at Diagnosis (Years) Bernalillo County, 2003-2007





Cervical Cancer

- Cervical cancer accounts for about 2% of the newly diagnosed cancer cases and cancer deaths registered each year among Bernalillo County females. The median age at diagnosis is about 50 years. The primary cause of cervical cancer is infection with certain types of human papillomavirus, which are very common, and typically spread through sexual contact. The majority of infections do not progress to cervical cancer, and vaccines are now available for women prior to sexual initiation to prevent infection.

- Cervical cancer incidence and mortality rates have decreased markedly in the past several decades, with most of the reduction attributed to the introduction of the Pap test, which allows for the prevention and early detection of cervical cancer. The use of the Pap test on a regular basis reduces the risk of death from cervical cancer by 90 percent, mainly through the detection and treatment of pre-cancerous lesions. Current recommendations are for women to initiate regular Pap tests at age 21 years or within 3 years of first sexual intercourse. It is estimated that about one-in-ten Bernalillo county women aged 18+ years do not receive regular Pap testing (2008 CDC BRFSS).

Cervical Cancer Stage Distribution and 5-Year Survival, Bernalillo County, 2003-2007

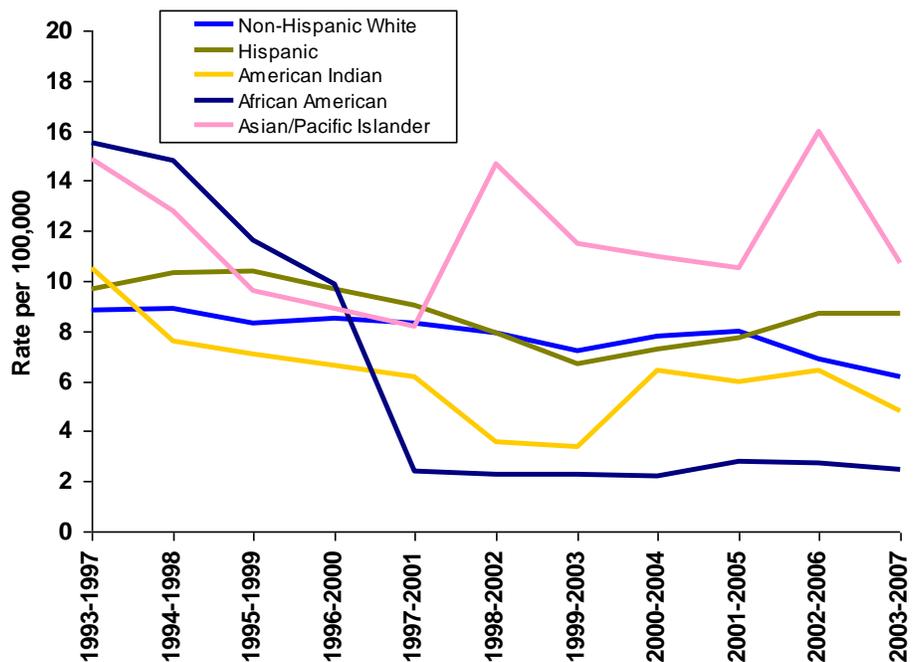
Stage	Cases		% Patients Surviving 5 Years After Diagnosis ¹
	Number	%	
Early	56	49.1	95.5
Late	52	45.6	45.0
Unknown	6	5.3	53.8

¹Survival rates based on 1998-2007 data.
 Early stage = tumor localized to cervix and negative lymph nodes.
 Late stage = tumor beyond cervix and/or positive lymph nodes.

- The Pap test is also able to detect early stage cervical cancer, when treatment is most effective, and survival rates are high. During the five-year time period 2003-2007, nearly half the cervical cancer cases diagnosed in Bernalillo County were late stage cancers, where five-year survival is only about 45% compared to roughly 95% five-year survival for early stage disease.

- Cervical cancer incidence rates in Bernalillo County between 1993 and 2007 have remained essentially unchanged in Hispanic and Asian/Pacific Islander women, while declining modestly in non-Hispanic White, African American, and American Indian women. For the most recent 5-year time period 2003-2007, rates are highest in Asian/Pacific Islander women, lowest in African American women and intermediate in Hispanic, American Indian, and non-Hispanic Whites.

Cervical Cancer Incidence Rates by Race/Ethnicity, Bernalillo County, Five-Year Moving Averages, 1993-2007

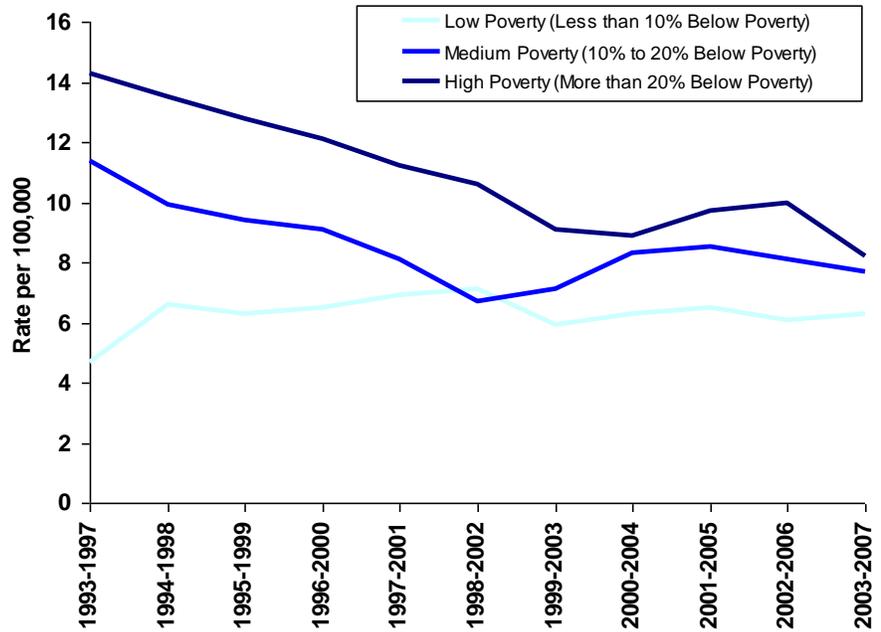


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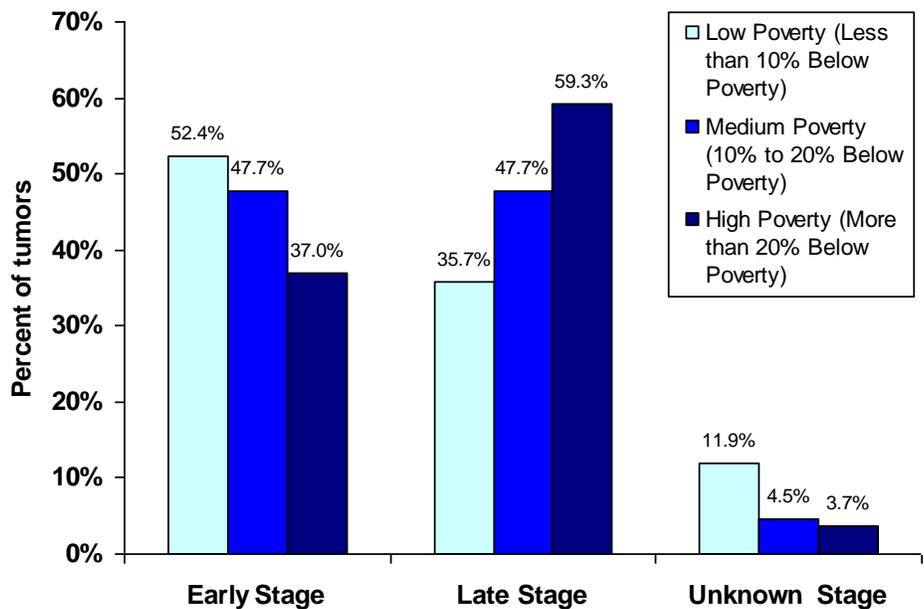
- Examination of cervical cancer incidence rates in Bernalillo County by area poverty level shows that the disparity of high excess incidence in high and medium poverty neighborhoods during the 1990's has been reduced significantly due to falling rates in the these areas relative to the comparably stable rates in low poverty areas. For the recent 5-year time period 2003-2007, cervical cancer incidence rates still remained higher in medium poverty areas (7.7 per 100,000) and high poverty areas (8.2 per 100,000) compared to low poverty areas (6.3 per 100,000).

Cervical Cancer Incidence Rates by Neighborhood Poverty Level Five-Year Moving Averages, 1993-2007



- Women living in areas of medium and high poverty in Bernalillo County not only have comparatively higher incidence rates of cervical cancer, but they are also more likely to be diagnosed with late-stage disease than their low poverty area counterparts. For the recent 5-year time period 2003-2007, clear trending between area poverty level and percent late-stage disease was observed, with high poverty areas having an occurrence of late-stage disease nearly twice that seen in low poverty areas. This apparent socioeconomic disparity in stage of disease at diagnosis may be due to lower utilization of Pap testing, delayed response or non-responsiveness to positive Pap test results, or some combination of these and other factors.

Stage Distribution of Cervical Cancer by Neighborhood Poverty Level, Bernalillo County, 2003-2007

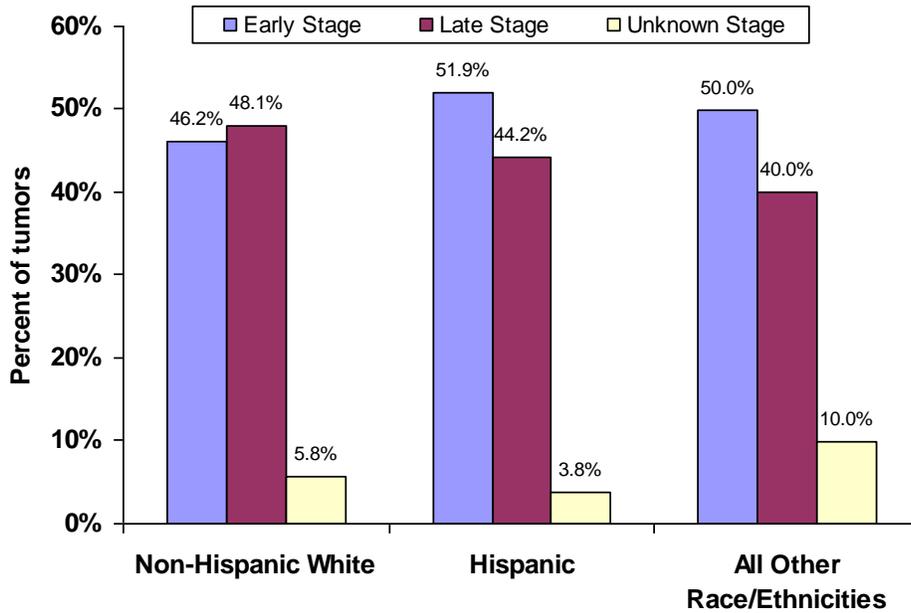


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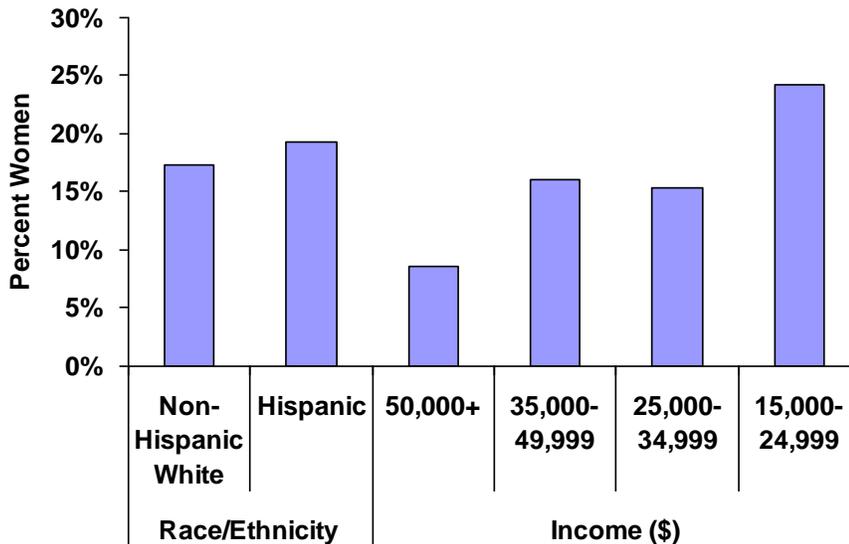
- Recent data show that compared to area poverty levels, relatively little racial/ethnic variation in cervical cancer stage at diagnosis is seen in Bernalillo County.

**Stage Distribution for Cervical Cancer by Race/Ethnicity
Bernalillo County, 2003-2007**



- The link between poverty and late-stage cervical cancer diagnosis observed in Bernalillo County is consistent with state-wide survey data showing that the utilization of Pap testing declines markedly with decreasing income levels among New Mexico women, regardless of race/ethnicity.

**Percent Women 18+ Years Not Receiving Pap Test
within Last 3 Years by Race/Ethnicity and Income
New Mexico, 2008**



Source: CDC Behavioral Risk Factor Surveillance System

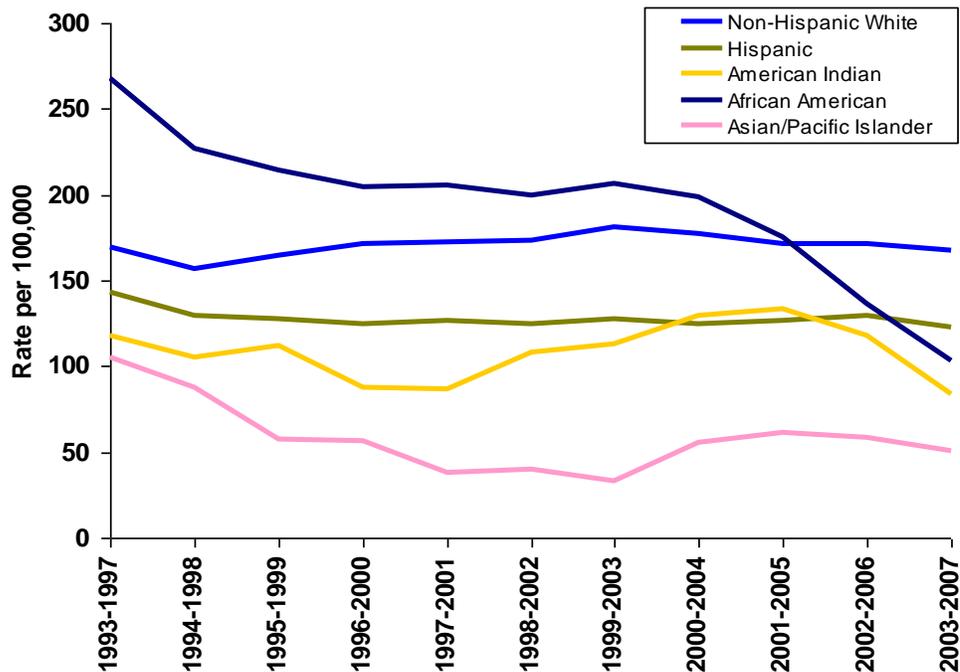


Prostate Cancer

- Prostate cancer is the most commonly diagnosed cancer in men and a leading cause of cancer death, second only to lung cancer. Rarely seen under age 50 years, most cases (70%) are diagnosed between the ages of 55 and 74 years, while most deaths from prostate cancer occur in men 75 years and older. There is no sure way to prevent prostate cancer, but it is thought that men can reduce their risk by following lifelong universal cancer prevention recommendations, such as getting regular physical exercise, eating a low-fat diet rich in fruits, vegetables, and fish, maintaining a healthy body weight, and drinking alcohol in moderation.
- In the early 1990's, the Prostate Specific Antigen (PSA) test was introduced as a screening tool for prostate cancer. The use of PSA for cancer detection remains controversial, because it is not known if the test actually saves lives or not. Prostate cancer usually grows very slowly and often remains confined to the prostate gland, where it may not cause serious harm, and rarely produces symptoms. Because of the slow growth of the disease, and proven adverse side effects from treatment, many prostate cancer patients are simply followed over time to monitor the disease for sudden progression (i.e. watchful waiting), at which time treatment may be undertaken.
- Although most prostate cancer is diagnosed via PSA at an early stage of development, a small percentage of men (3%-5%) are newly diagnosed with prostate cancer which has already spread in the body (late stage). The prognosis of late stage prostate cancer is often poor, and despite improving treatment methods, survival at 5 years from diagnosis with distant prostate cancer is only about 25%, compared to near 100% for men with earlier stage disease

• Prostate cancer incidence rates vary strongly by race/ethnicity. In Bernalillo County, the highest rates occur in non-Hispanic Whites and Hispanics, the lowest in Asian/Pacific Islanders, with intermediate rates seen in African Americans and American Indians. Incidence rates have been relatively stable over time since the early 1990's, except in African American men, where a strong decline in their previously high rates has occurred beginning in the early 2000's. Reasons for the decline are unknown.

**Prostate Cancer Incidence Rates by Race/Ethnicity
Bernalillo County, Five-Year Moving Averages, 1993-2007**

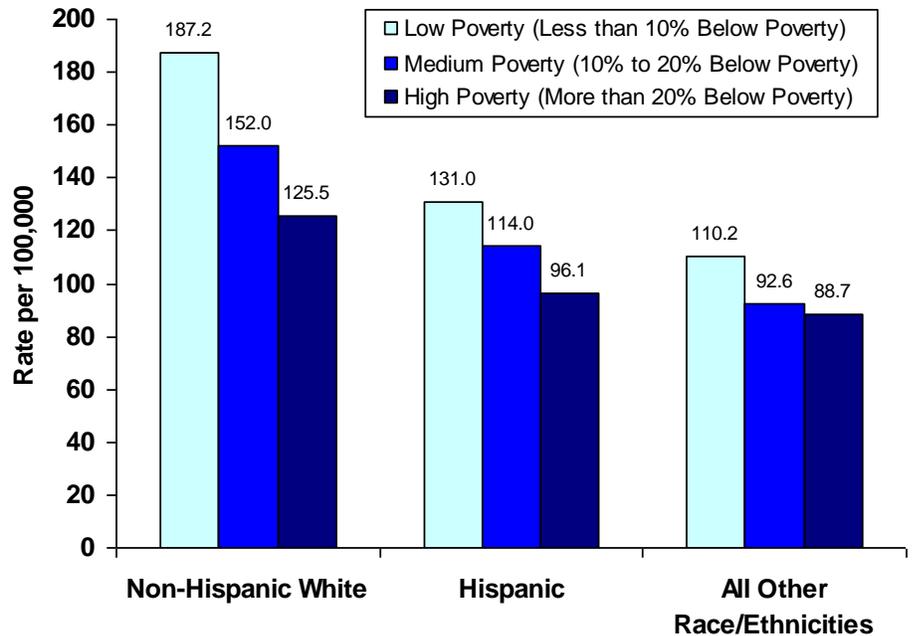


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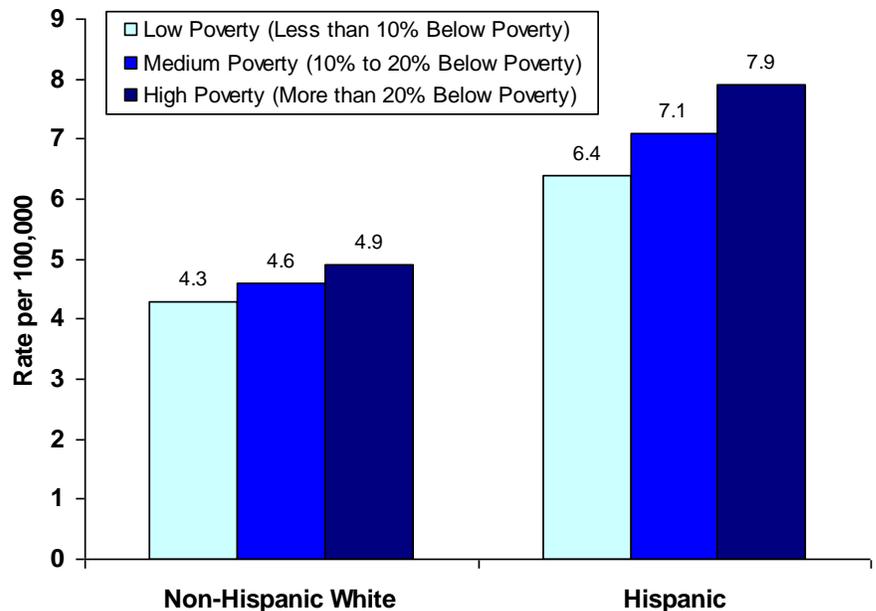
- Prostate cancer incidence rates in Bernalillo County varied inversely with area poverty level, regardless of race/ethnicity. This is generally thought to be due to greater access to medical care and utilization of PSA screening among men living in higher affluence areas.

Prostate Cancer Incidence Rates by Race/Ethnicity and Neighborhood Poverty Level, Bernalillo County, 2003-2007



- Late stage incidence rates increased with increasing neighborhood poverty among both non-Hispanic Whites and Hispanics. In contrast to overall prostate cancer incidence, late stage disease rates were higher in Hispanics than non-Hispanic Whites at each poverty level. Case numbers were too small to analyze data for other racial/ethnic groups. (NOTE: Incidence rates are presented rather than percentage of tumors late stage in order to highlight the contrasting socioeconomic and racial/ethnic trends with overall and late stage prostate cancer incidence.)

Late-Stage Prostate Cancer Incidence Rates by Race/Ethnicity and Neighborhood Poverty Level Bernalillo County, 2003-2007



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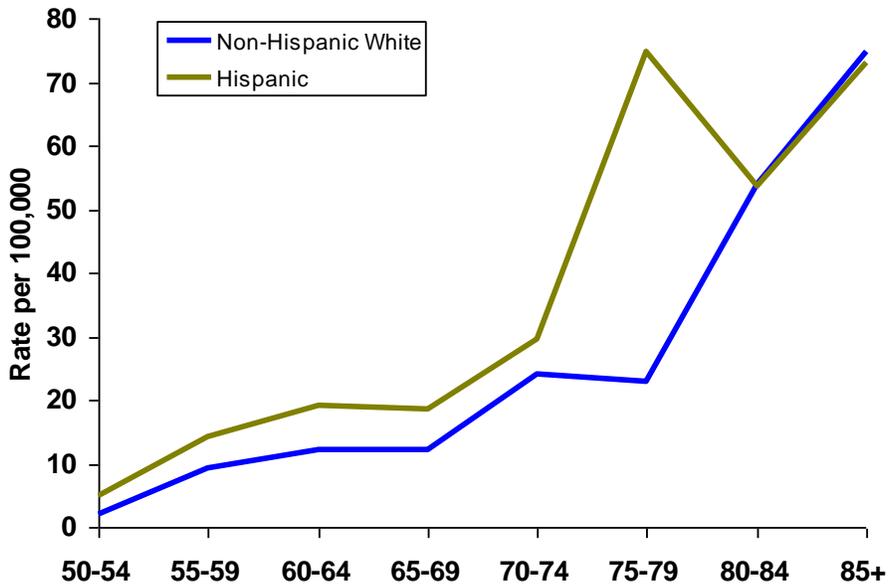
• Prostate cancer mortality rates in Bernalillo County do not follow the same racial/ethnic pattern as that seen with overall incidence rates. For the most recent five-year time period 2003-2007, incidence rates for all stages of prostate cancer combined were 40% to 70% higher in non-Hispanic Whites than other racial /ethnic groups, but non-Hispanic Whites had the lowest mortality rate. Hispanics had the highest prostate cancer mortality rate, which may be related to the relatively high rate of distant stage prostate cancer seen in Hispanics compared to other race/ethnicities.

Prostate Cancer Incidence and Mortality Rates by Race/Ethnicity, Bernalillo County, 2003-2007

	Incidence				Mortality	
	All Stages		Distant Stage		Rate	# of Deaths
	Rate	# of Cases	Rate	# of Cases		
Non-Hispanic White	167.4	1,453	4.4	37	27.6	214
Hispanic	122.4	508	7.8	29	30.0	97
All Other Race/Ethnicities	97.6	93	2.9	3	27.9	17

• Examination of distant stage prostate cancer incidence rates by age for the 15-year time period 1993-2007 shows that rates are consistently higher in Hispanics than non-Hispanic White between the ages of 50 and 79 years, but thereafter, rates become comparable between the two racial/ethnic groups.

Distant Stage Prostate Cancer Incidence Rates by Race/Ethnicity and Age at Diagnosis (Years) Bernalillo County, 1993-2007





Summary and Conclusions

- Socioeconomic and racial/ethnic disparities were observed for each of the five cancers examined in this report. It is important to note that the specific populations identified as having a disparity were not the same for each cancer site studied, and that differing effects were observed at individual sites. For example, non-Hispanic White males were at highest risk of prostate cancer overall, particularly those in low poverty areas, but Hispanic males were at comparatively higher risk of late stage disease, particularly those in high poverty areas. Although the trends in overall incidence for each cancer were observed to vary in different ways by race/ethnicity and poverty, it was consistently observed that the burden of late stage disease increased with increasing area poverty for each of the four cancers amenable to screening intervention: colon and rectum, female breast, cervix, and prostate. Disparities in late stage cancer diagnosis have been observed in various different communities studied around the country, and generally are believed to reflect barriers to timely and effective health care utilization in poorer neighborhoods. In Bernalillo County between 2003 and 2007, women in high poverty neighborhoods were nearly twice as likely as their less-impooverished counterparts to be diagnosed with late stage disease. Although socioeconomic disparities in overall cervical cancer incidence have been greatly reduced in Bernalillo County since the 1990's, further improvement is clearly needed in order to reduce the disproportionately high burden of late stage disease among women living in impoverished neighborhoods.
- Complex and interrelated factors likely contribute to the cancer disparities observed across racial/ethnic and socioeconomic lines in Bernalillo County. Reduced health care access, lack of health insurance, and cultural barriers to healthcare are likely key determinants of cancer disparities, as are factors such as lower educational attainment and income levels, which are linked to higher prevalence rates of tobacco smoking, alcohol abuse, overweight, lack of physical activity, poor diet, and other adverse behavioral risk factors. Community environment also may be associated with the risk of developing and surviving cancer, in that poorer neighborhoods often suffer disproportionately higher levels of environmental pollution than their more affluent counterparts. The impact of land use and zoning decisions that potentiate increased community levels of toxins and carcinogens among populations already disadvantaged by poverty is difficult to quantify, but represents an active area of environmental investigation and research. Smoking alone is thought to account for most lung cancers, however, the majority of smokers do not develop lung cancer, and roughly 10% to 20% of lung cancers diagnosed annually occur in non-smokers. In Bernalillo County, markedly higher risks of early onset lung cancer (<60 years) were seen in high poverty areas compared to low poverty areas. Although elevated smoking levels may be explanatory, the disparity was observed in both non-Hispanic Whites and Hispanics, two populations differing substantially in their patterns of smoking.
- The findings presented in this report represent descriptive epidemiologic characteristics and are not intended, nor sufficient, to imply causation. Rather, the results are provided to illustrate trends and patterns of cancer incidence and mortality indicative of socioeconomic and racial/ethnic health disparities. The standard limitations of descriptive epidemiologic analysis apply, but are considered minimal given the relatively high quality of cancer surveillance data in New Mexico, and the high level of geocoding of the Bernalillo County cancer incidence data. Although many of the racial/ethnic differences in cancer burden observed in Bernalillo County have been documented in statewide data, the sub county analysis of rates and percentages by area poverty level is novel and represents an emerging public health surveillance tool in New Mexico, not only for cancer, but non-cancer health outcomes as well. This report will hopefully promote further development of methods to characterize and monitor health disparities in Bernalillo County, as well as other communities within New Mexico.