

BURDEN OF CANCER IN KANSAS

NOTE: data presented throughout this document are based on the most current statistics available at time of publication.

Cancer Mortality

In 2009, there were approximately 5,300 deaths due to cancer in Kansas. The age-adjusted cancer mortality rate in Kansas has decreased significantly in the past decade from 186.2 deaths per 100,000 persons (95% confidence interval: 181.1 to 191.3) in 2000 to 172.9 deaths per 100,000 persons (95% confidence interval: 168.2 to 177.7) in 2009. In Kansas, age-adjusted cancer mortality rates were significantly higher for men as compared to women during this time period (Figure 1). In addition, age-adjusted cancer mortality rates were significantly higher for African Americans compared to whites.⁸ The declining trends in cancer mortality, as well as overall gender and race differences, in Kansas mirror national trends.⁹

Leading Causes of Cancer Death in Kansas (2009)

Females

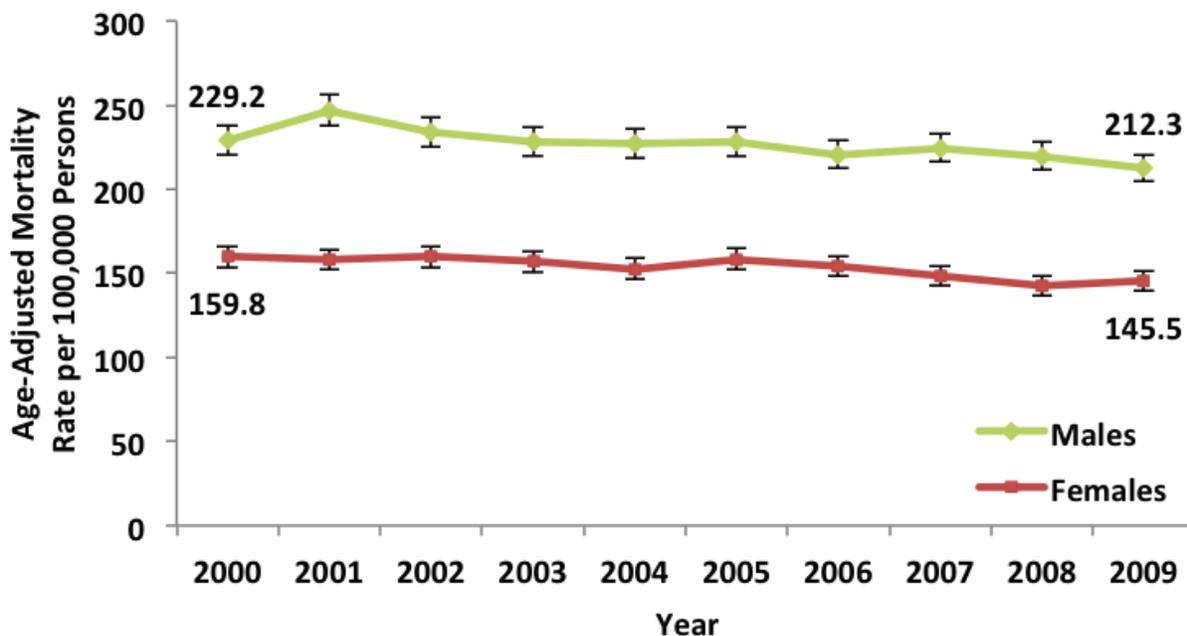
- Lung cancer (40.5 deaths per 100,000 females)
- Breast cancer (21.4 deaths per 100,000 females)
- Colorectal cancer (12.8 deaths per 100,000 females)

Males

- Lung cancer (67.8 deaths per 100,000 males)
- Prostate cancer (19.7 deaths per 100,000 males)
- Colorectal cancer (18.9 deaths per 100,000 males)

Source: 2009 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. Rates were age-adjusted to the 2000 U.S. Standard population using the direct method.

Figure 1. Age-adjusted cancer mortality rates by gender, Kansas, 2000-2009



Source: 2000-2009 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. Rates were age-adjusted to the 2000 U.S. Standard population using the direct method.

In 2009, deaths due to cervical cancer in females (1.9 deaths per 100,000 persons) and melanoma of the skin in both females (2.3 deaths per 100,000 persons) and males (4.3 deaths per 100,000 persons) were less common; however, these cancer deaths are worth noting due to the fact that there are effective prevention strategies available.

Cancer Incidence

In 2008, there were more than 13,000 new cases of cancer diagnosed among Kansas residents. The age-adjusted cancer incidence rate in Kansas has remained stable in the past decade with 464.4 cases per 100,000 persons (95% confidence interval: 456.3 to 472.6) in 2000 and 460.1 cases per 100,000 persons (95% confidence interval: 452.3 to 468.0) in 2008. In Kansas, age-adjusted cancer incidence rates were significantly higher for men as compared to women during this time period (Figure 2). In addition, age-adjusted cancer incidence rates were significantly higher for African Americans in Kansas compared to whites.¹⁰



Most Commonly Diagnosed Cancers in Kansas (2008)

Females

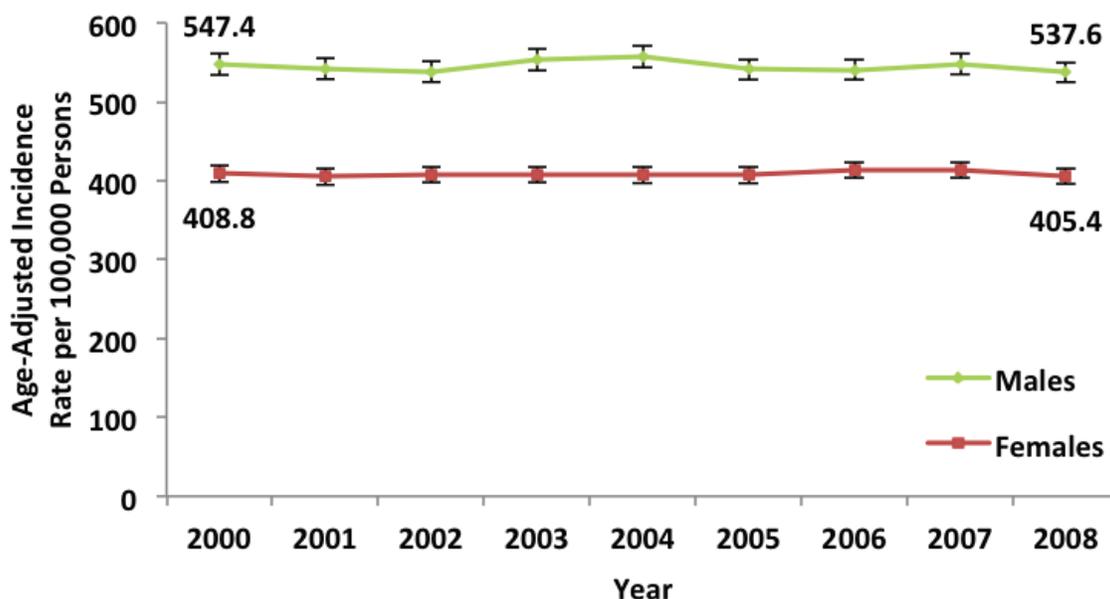
- Lung cancer (120.3 cases per 100,000 females)
- Breast cancer (49.5 cases per 100,000 females)
- Colorectal cancer (41.4 cases per 100,000 females)

Males

- Lung cancer (151.3 cases per 100,000 males)
- Prostate cancer (78.8 cases per 100,000 males)
- Colorectal cancer (52.9 cases per 100,000 males)

Source: 2000-2008 Kansas Cancer Registry. Rates were age-adjusted to the 2000 U.S. Standard population using the direct method. Excludes skin cancers.

Figure 2. Age-adjusted cancer incidence rates by gender, Kansas, 2000-2008



Source: 2000-2008 Kansas Cancer Registry. Rates were age-adjusted to the 2000 U.S. Standard population using the direct method.

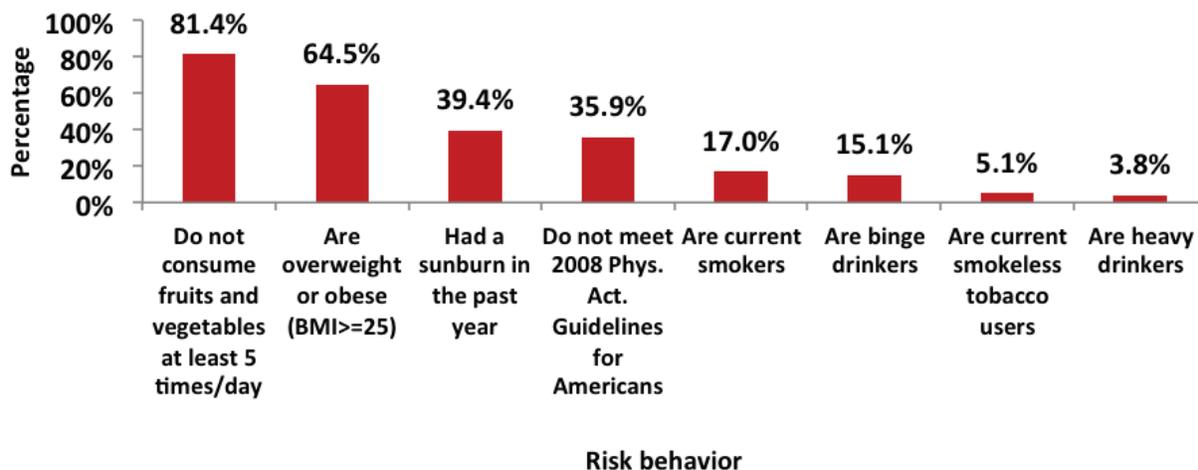
Cancer Costs

Estimates of the costs of cancer to the state of Kansas are approximately \$2 billion annually. This total includes \$934 million for direct medical costs and \$1.1 billion for indirect mortality costs. These figures were calculated based on national estimates, and took into account the proportion of the state population relative to U.S. population, as well as Kansas' estimated number of new cancer cases and deaths. Nationally, the National Institutes of Health estimates that the overall costs of cancer in the U.S. in 2007 were \$226.8 billion: \$103.8 billion for direct medical costs (total of all health expenditures) and \$123 billion for indirect mortality costs (cost of lost productivity due to premature death).¹¹

Behavioral Risk Factors for Cancer

Modifiable risk factors for cancer include behaviors such as tobacco use, inadequate fruit and vegetable consumption, low levels of physical activity, and excessive alcohol use. In 2009, the majority of Kansas adults (81.4%) did not consume recommended levels of fruits and vegetables (i.e. five or more times a day) and more than one-third (35.9%) did not participate in recommended levels of physical activity according to the 2008 Physical Activity Guidelines for Americans (Figure 3). In addition, about 1 in 6 adults in Kansas are current smokers (17.0%), while approximately the same proportions are binge drinkers (15.1%). Being overweight or obese and excessive sun exposure are additional risk factors for cancer. Nearly 2 in 3 Kansas adults (64.5%) were overweight or obese in 2010, and approximately 2 in 5 (39.4%) reported getting sunburned at least once during the previous year in 2008.¹² In addition, cancer survivors also engage in modifiable risk behaviors. In Kansas, survivors are more likely to be current smokers and to not engage in any leisure time physical activity compared to persons never diagnosed with cancer.¹³

Figure 3. Percentage of adults who engage in selected cancer risk behaviors, Kansas 2008-2010



Source: 2008-2010 Kansas Behavioral Risk Factor Surveillance System (BRFSS), Bureau of Health Promotion, Kansas Department of Health and Environment. BMI=body mass index. Binge drinkers are defined as males having 5+ drinks on one occasion in the past 30 days or females having four or more drinks on one occasion in the past 30 days. Heavy drinkers are defined as males consuming an average of more than two drinks per day and females consuming an average of more than one drink per day during the past 30 days. Questions regarding sunburns were asked in the 2008 BRFSS survey. Questions regarding fruit and vegetable consumption and physical activity were asked in the 2009 BRFSS survey. Questions regarding tobacco use, alcohol use, and weight status were asked in the 2010 BRFSS survey. 2008 Physical Activity Guidelines for Americans recommend adults engage in at least 150 minutes a week of moderate-intensity aerobic activity, or 75 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate and vigorous intensity aerobic activity.

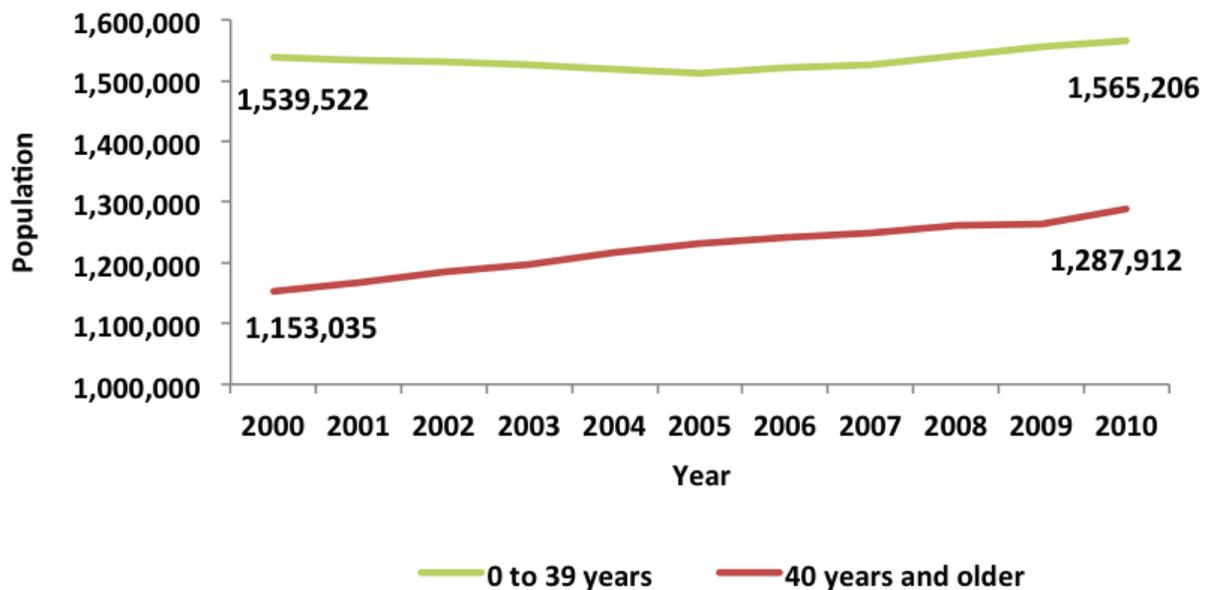
Health Disparities

While all people have some risk of developing cancer, there are differences in cancer risks and cancer rates among different groups of Kansans. Understanding these differences is important for understanding the story of cancer in the state. Cancer-relevant health disparities by age, income, disability, rural-urban location, and race or ethnic status are highlighted below.

Age

The 2010 U.S. Census calculated the population of Kansas at more than 2.8 million people, a 6.1 percent increase since 2000. Approximately 75 percent of the state's population is aged 18 years and older, while 13 percent is aged 65 years or older.

Figure 4. Population of Kansas residents aged 0 to 39 years and 40 years and older, by year



Source: 2000-2010 Population for the State of Kansas, Kansas Information for Communities, KDHE.

As Figure 4 indicates, from 2000 to 2010 the population of adults aged 40 years and older in Kansas increased by approximately 12 percent, or by nearly 135,000 people. During this time period, the population of Kansans younger than 40 years old only increased by 2 percent, or by nearly 26,000 people.¹⁴ Cancer risk increases with age. As the population continues to age, the actual number of new cases of cancer can be expected to increase, despite a relatively stable cancer incidence rate.

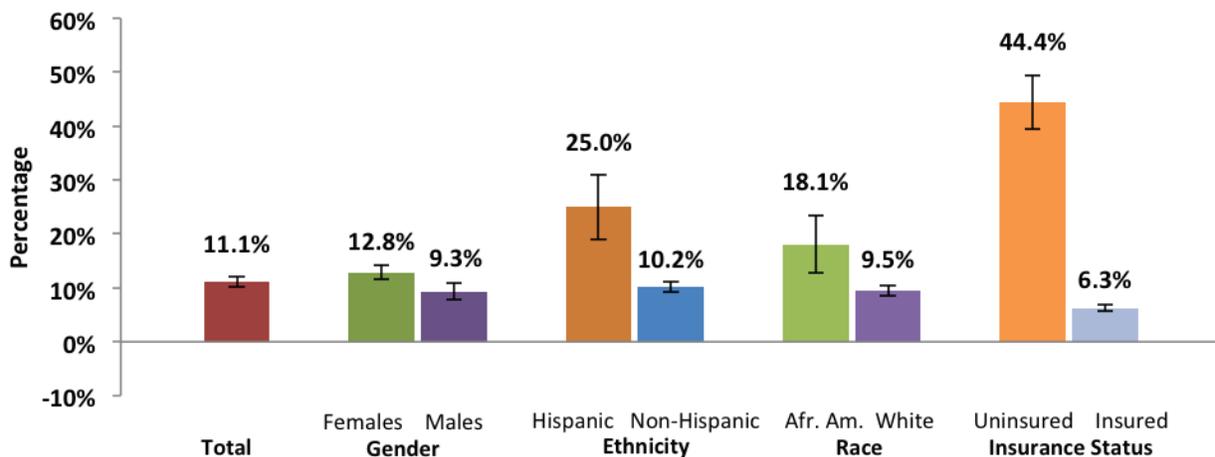
Income

According to the 2010 American Community Survey, the median household income in Kansas was estimated at \$48,257 in 2010; approximately 13 percent of residents were below the poverty level and nearly 14 percent were uninsured.¹⁵ Lack of health insurance is an important barrier to cancer prevention and early detection; some of the patients who are struggling to pay for their cancer treatment could have prevented their cancers altogether or been diagnosed at an earlier stage had they had better access to health care. For many cancer patients, health insurance status and other financial barriers delay or limit access to treatment and supportive services, and for almost all patients, cancer treatment presents a significant financial burden.¹⁶

According to the 2010 Kansas Behavioral Risk Factor Survey, 14.3 percent of Kansas adults aged 18 years and older reported not having a personal doctor or health care provider. Additionally, in 2010, 11.1 percent of Kansans reported not seeing a doctor because of cost in the past year (Figure 5). Not seeing a doctor because of cost was more commonly reported among females (12.8%; 95% confidence interval: 11.5-14.1%) compared to males (9.3%; 95% confidence interval: 7.8-10.8%).

Racial and ethnic disparities were also associated with cost barriers to seeing a doctor in the past year. Reports of cost barriers were more common among Hispanics (25.0%; 95% confidence interval: 19.0-30.9%) compared to non-Hispanics (10.2%; 95% confidence interval: 9.2-11.2%). Reports of cost barriers were also more common among African Americans (18.1%; 95% confidence interval: 12.8-23.4%) compared to whites (9.5%; 95% confidence interval: 8.5-10.5%). In addition, reports of cost barriers were more common among uninsured (44.4%; 95% confidence interval: 39.3-49.4%) compared to insured individuals (6.3%; 95% confidence interval: 5.5-7.0%).¹⁷

Figure 5. Percentage of adults who could not see doctor because of cost in the past year, Kansas 2010



Source: 2010 Kansas Behavioral Risk Factor Surveillance System (BRFSS), Bureau of Health Promotion, KDHE.
Vertical error bars indicate 95% confidence interval for weighted prevalence estimates.

Disabilities

Kansans with disabilities have a higher prevalence of all chronic conditions compared to Kansans without disabilities, including cancer. In 2009, 19 percent of adult Kansans living with a disability had been diagnosed with cancer; conversely, 39 percent of adult Kansans diagnosed with cancer had a disability. Overall, nearly one in four adults (23%) 18 years and older in Kansas had a disability in 2010.¹² The CDC has recommended that current health and public health care systems respond to both the unique health needs of this disparate population, and the reciprocity between disability and health outcomes.¹⁸

The unique health needs of adults with disabilities include an increased need for physical accessibility and other disability-related accommodations within health care settings. People with disabilities often do not receive preventive screening services and are less likely to receive standard treatment therapy. For example, Kansas women 40 years and older with disabilities are more likely to have not had a mammogram within the last two years compared to those without disabilities (27.4% vs. 22.4% respectively).

Kansans with disabilities are much more likely to report being in fair or poor health, to be current smokers, and to not meet physical activity minimum requirements.²⁰ Understanding people with disabilities as a disparate population has a place in cancer prevention, screening, and treatment efforts in several ways. This includes increasing access to cancer screenings for Kansans with disabilities and, if there is a diagnosis of cancer, ensuring that care is appropriate and accommodates the disability.

Current health and public health care systems should also respond to the role that disability plays in health outcomes. Kansans with disabilities encounter social and environmental barriers, including higher unemployment and lower educational levels and incomes than people without disabilities.²⁰ For example, in 2010, 10 percent of Kansans with disabilities reported needing health care access but were unable to receive it in the past year.¹²

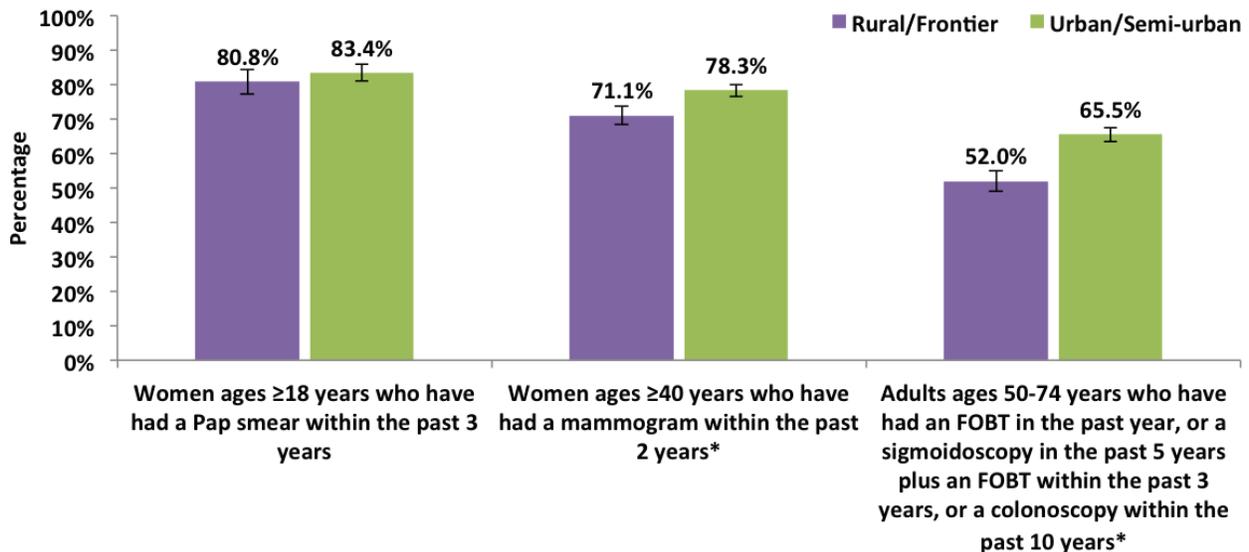
Certainly, this disparity needs to be addressed. However, from a social determinants perspective, it is important to understand how presence of a disability (e.g., underlying health condition) interacts with other factors (e.g., lower income) to influence health outcomes. This approach to disability and public health has implications for survivorship and quality of life.

Population Density

Population density is calculated as the number of residents per square mile of land. Population density can be categorized as urban (150 or more persons per square mile), semi-urban (40-149 persons per square mile), densely-settled rural (20-39 persons per square mile), rural (6-19 persons per square mile), or frontier (fewer than 6 persons per square mile). The majority (84%) of Kansas' 105 counties are densely-settled rural (n=19), rural (n=38), or frontier (n=31), while the remaining 16 percent are semi-urban (n=12) or urban (n=5).²¹

In 2010, the percentage of Kansas adults who met female breast and colorectal cancer screening guidelines was significantly lower among persons who lived in rural or frontier counties compared to those who lived in urban or semi-urban counties (Figure 6).

Figure 6. Percentage of adults who have had cancer screenings according to nationally recognized guidelines by population density, Kansas 2010.



Source: 2010 Kansas Behavioral Risk Factor Surveillance System, KDHE.
FOBT= fecal occult blood test. Vertical bars indicate 95% confidence intervals.
*statistically significant between-group difference

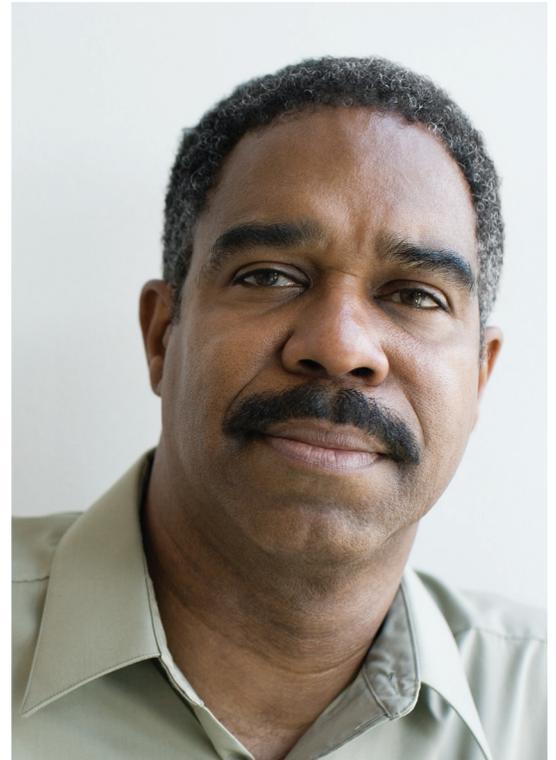
Race/Ethnicity

About 6 percent of Kansans are African American, and nearly 11 percent are persons of Hispanic or Latino origin.²² Disparities in the cancer burden among racial and ethnic minorities reflect obstacles to receiving health care services related to cancer prevention, early detection, and high-quality treatment, with poverty as the over-riding factor. In Kansas, race and ethnicity are associated with barriers to accessing care, as the discussion above explained (Figure 5).

According to the American Cancer Society, Cancer Facts and Figures 2011, discrimination is another factor that contributes to racial/ethnic disparities in the cancer burden. Racial and ethnic minorities tend to receive lower-quality health care than whites, even when insurance status, age, severity of disease, and health status are comparable. Social inequalities, including discrimination, communication barriers, and provider assumptions, can affect interactions between patient and physician and contribute to miscommunication or delivery of substandard care.

In addition to poverty and social discrimination, cancer occurrence in a population may also be influenced by cultural and/or inherited factors that decrease or increase risk. While genetic factors may explain some differences in cancer incidence, genetic differences associated with race are thought to make a minor contribution to the disparate cancer burden between different racial/ethnic populations.

According to the Annual Report to the Nation on the Status of Cancer, 1975–2008, among racial and ethnic groups, the highest cancer incidence rates between 2004 and 2008 in the U.S. were among African American men and white women, while cancer mortality rates were highest among African American men and African American women. In Kansas, age-adjusted cancer incidence and mortality rates are significantly higher among African Americans as compared to whites. In particular, age-adjusted incidence and mortality rates for lung, prostate, and colorectal cancers were significantly higher among African American Kansans as compared to white Kansans during the time period 2004-2008.²³



According to the ACS's Cancer Facts & Figures for Hispanics 2009-2011, Hispanic Americans are less likely to die from cancer than other race/ethnic groups, but have higher rates of cancers related to infections, such as cancers of the stomach, liver, and cervix. In Kansas, age-adjusted cancer incidence and mortality rates are indeed significantly lower among Hispanics than non-Hispanics; however, Hispanic women have significantly higher age-adjusted incidence rates for invasive cervical cancer compared to non-Hispanic women.

Cancer incidence and mortality rates for Kansans of other race categories are not shown because the numbers of cases were insufficient for computing statistically reliable rates for these race groups.

⁸ 2000-2009 Kansas Information for Communities, Bureau of Epidemiology and Public Health Informatics, Kansas Department of Health and Environment. http://kic.kdhe.state.ks.us/kic/death_table.html Accessed 10/26/11.

⁹ Surveillance, Epidemiology, and End Results (SEER) Program, SEER*Stat Database: Mortality - All COD, Aggregated With State, Total U.S. (19 90-2008), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch. www.seer.cancer.gov Accessed 10/27/11.

¹⁰ 2000-2008 Kansas Cancer Registry.

¹¹ Cancer Facts and Figures 2012, American Cancer Society.

¹² 2008-2010 Kansas Behavioral Risk Factor Surveillance System (BRFSS), Bureau of Health Promotion, Kansas Department of Health and Environment. <http://www.kdheks.gov/brfss/index.html> Accessed 10/26/11.

¹³ 2009 Cancer Survivorship Module. Kansas Behavioral Risk Factor Surveillance System (BRFSS), Bureau of Health Promotion, Kansas Department of Health and Environment. <http://www.kdheks.gov/brfss/index.html>

¹⁴ 2000-2010 Population for the State of Kansas, Kansas Information for Communities, Kansas Department of Health and Environment.

¹⁵ U.S. Census Bureau, 2010 American Community Survey. <http://factfinder2.census.gov> Accessed 11/15/11.

¹⁶ American Cancer Society, Cancer Facts and Figures 2008; 2012

¹⁷ 2010 Kansas Behavioral Risk Factor Surveillance System (BRFSS), Bureau of Health Promotion, Kansas Department of Health and Environment. <http://www.kdheks.gov/brfss/index.html> Accessed 10/26/11.

¹⁸ Krahn G, Campbell VA. Evolving views of disability and public health: The roles of advocacy and public health. *Disability and Health Journal*. 2011;4:12-18.

¹⁹ Iezzoni, L. (2011). Eliminating health and healthcare disparities among the growing population of people with disabilities. *Health Affairs*, 30(10); 1947-1954.

²⁰ 2009. Kansas Behavioral Risk Factor Surveillance System (BRFSS), Bureau of Health Promotion, Kansas Department of Health and Environment. <http://www.kdheks.gov/brfss/index.html> Accessed 10/26/11.

²¹ Kansas Behavioral Risk Factor Surveillance System (BRFSS), Bureau of Health Promotion, Kansas Department of Health and Environment. <http://www.kdheks.gov/brfss/index.html> Accessed 10/26/11.

²² U.S. Census Bureau, 2010 Population Finder. <http://www.census.gov/popfinder/> Accessed 11/15/11.

²³ Burden of Cancer in Kansas. (Under preparation). Bureau of Health Promotion, Kansas Department of Health and Environment.

