

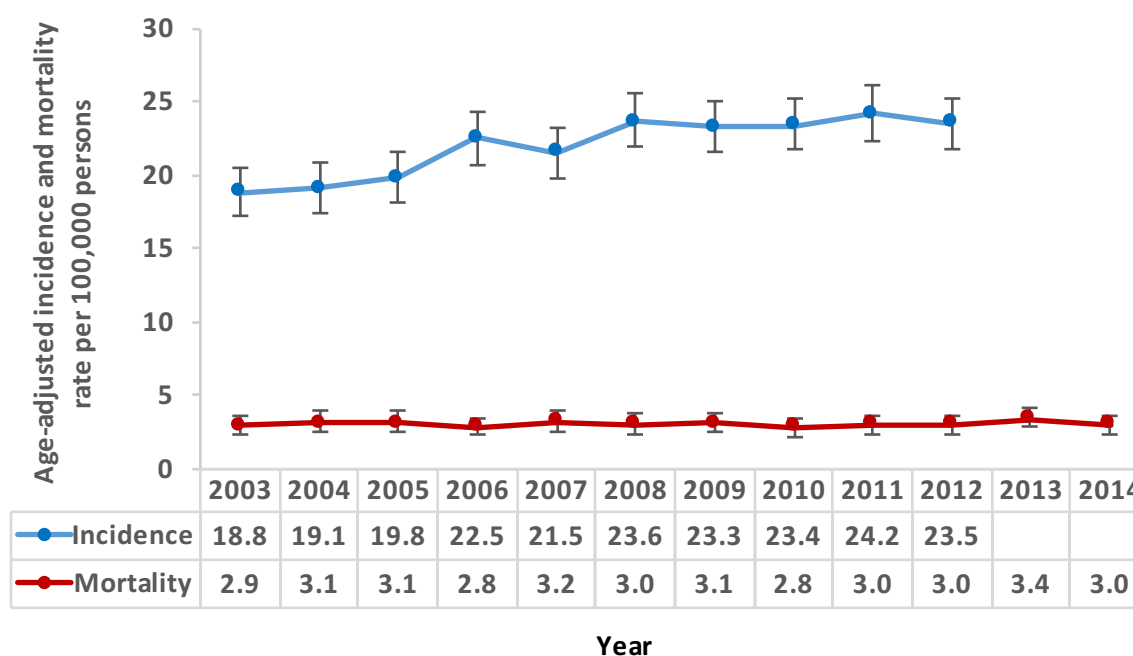
## CHAPTER 8: PROFILES OF SELECTED CANCERS – MELANOMA OF THE SKIN

Skin cancer is the most common form of cancer in the United States. The two most common types of skin cancer—basal cell and squamous cell carcinomas—are highly curable. Melanoma, the third most common skin cancer, is almost always curable in its early stages, but it is much more likely than basal or squamous cell cancer to spread to other parts of the body if not caught early.<sup>10</sup> About 65–90 percent of melanomas are caused by exposure to ultraviolet (UV) light.<sup>11</sup> Ultraviolet (UV) rays are an invisible kind of radiation that comes from the sun and tanning beds, and can change skin cells.<sup>12</sup>

### Melanoma Incidence and Mortality

Each year, on average, approximately 700 melanomas are diagnosed among Kansas residents, and almost 100 Kansans die of the disease. In Kansas, age-adjusted melanoma incidence rates increased significantly during the period 2003-2012 from 18.8 cases per 100,000 persons (95% confidence interval: 17.2 to 20.5) in 2003 to 23.5 cases per 100,000 persons (95% confidence interval: 21.8 to 25.3) in 2012 (Figure 8-1). Age-adjusted melanoma mortality rates remained stable during the period 2003-2014 with 2.9 deaths per 100,000 persons (95% confidence interval: 2.3 to 3.6) in 2003 and 3.0 deaths per 100,000 persons (95% confidence interval: 2.4 to 3.7) in 2014.

**Figure 8-1. Age-adjusted melanoma incidence and mortality rates, Kansas 2003-2014.**



Source: 2003-2012 Kansas Cancer Registry. 2003-2014 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. Cancer incidence data for 2013 and 2014 were not available at the time the document was created. Rates were age-adjusted to the U.S. 2000 standard population using the direct method. See Technical Appendix for details on how rates were calculated. Vertical bars indicate 95% confidence intervals. Prostate cancer incidence was defined as ICD-O-3 code C619 (excluding histology codes 9590-9989) with a behavior code indicating invasive malignancy. Prostate cancer mortality was defined as ICD-10 code C61.

<sup>10</sup> "Melanoma Skin Cancer." American Cancer Society. <http://www.cancer.org/Cancer/SkinCancerMelanoma>

<sup>11</sup> Armstrong BK, Kricger A. How much melanoma is caused by sun exposure? *Melanoma Research* 1993;3(6):395–401.

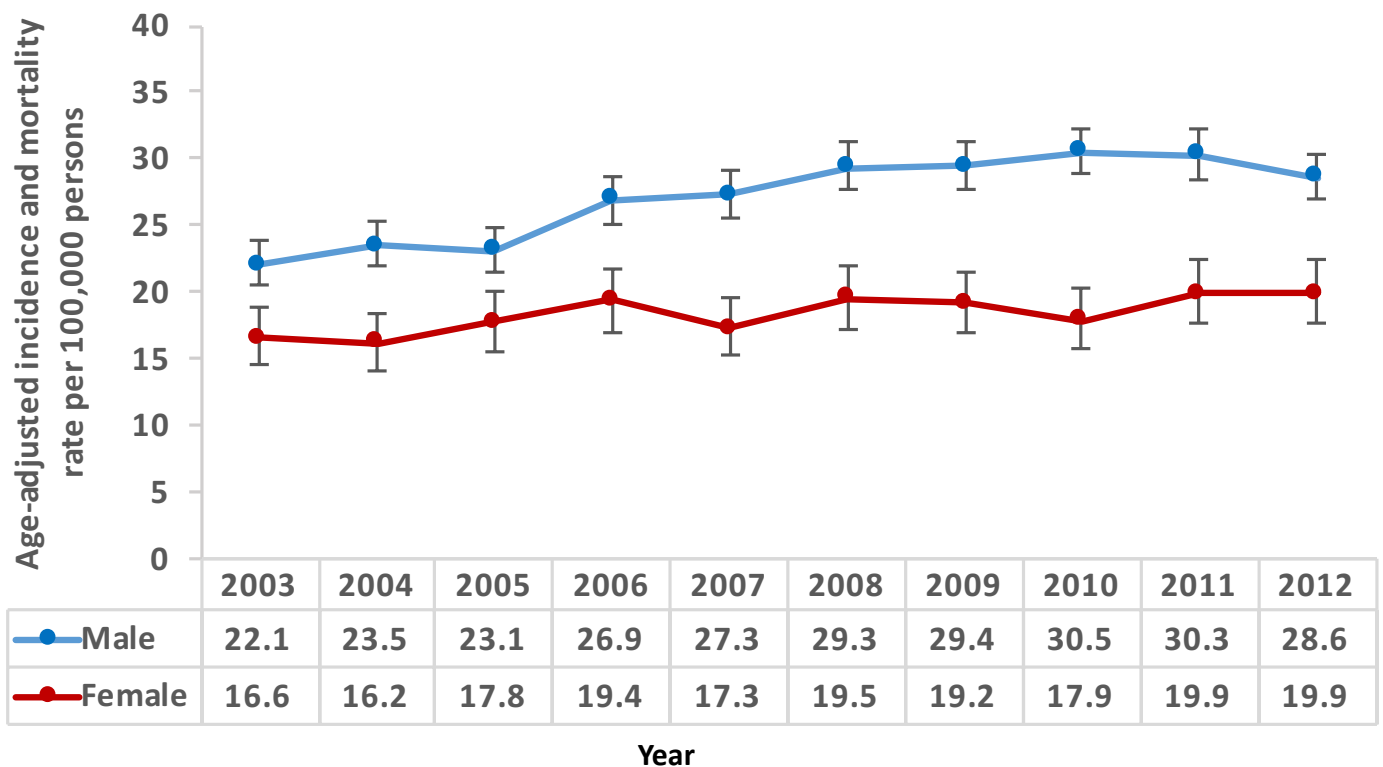
<sup>12</sup> "Basic Information about Skin Cancer." Division of Cancer Prevention and Control, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. [www.cdc.gov/cancer/skin/basic\\_info/index.htm](http://www.cdc.gov/cancer/skin/basic_info/index.htm)

## Melanoma Incidence among Gender Groups

Age-adjusted melanoma incidence rates were significantly higher for males as compared to females during the period 2003-2012 (Figure 8-2). Age-adjusted melanoma incidence rates increased significantly for males during the time period 2003-2012 from 22.1 cases per 100,000 males (95% confidence interval: 19.6 to 24.9) in 2003 to 28.6 cases per 100,000 males (95% confidence interval: 25.8 to 31.6) in 2012. However, age-adjusted melanoma incidence rates remained stable for females during the time period 2003-2012.



Figure 8-2. Age-adjusted melanoma incidence rates among gender groups, Kansas 2003-2012.

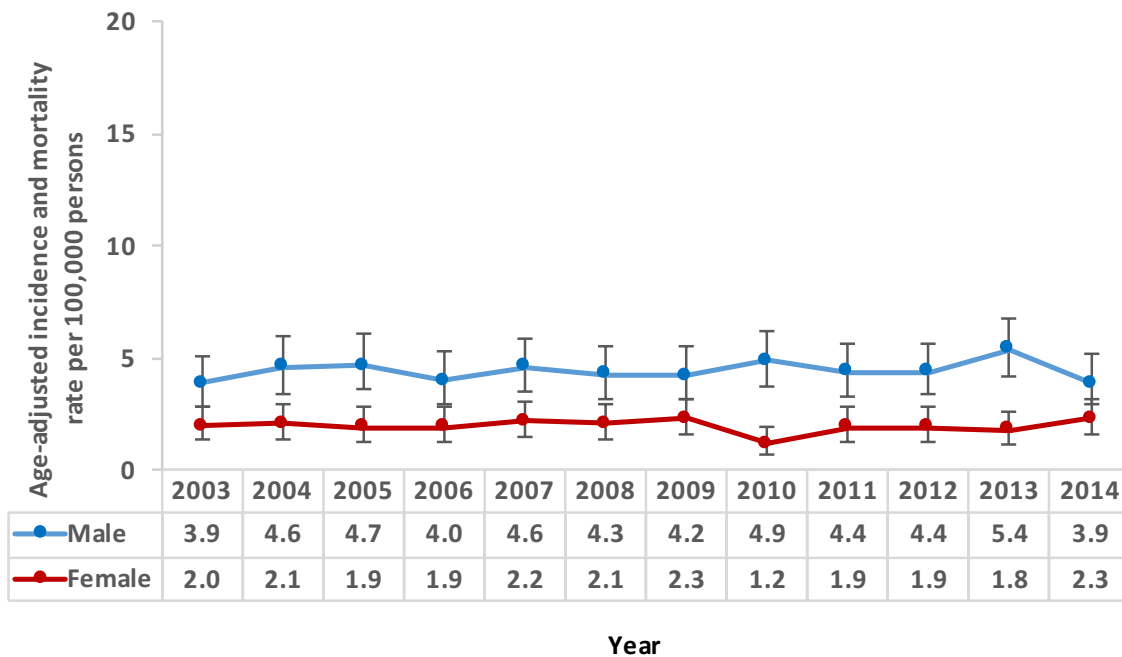


Source: 2003-2012 Kansas Cancer Registry. Rates were age-adjusted to the U.S. 2000 standard population using the direct method. See Technical Appendix for details on how rates were calculated. Vertical bars indicate 95% confidence intervals. Melanoma incidence was defined as ICD-O-3 codes C440-449 and histology codes 8720-8780 with a behavior code indicating invasive malignancy. Melanoma mortality was defined as ICD-10 code C43.

## Melanoma Mortality among Gender Groups

Age-adjusted melanoma mortality rates were significantly higher for males as compared to females during the period 2003-2013 (Figure 8-3). Age-adjusted melanoma mortality rates did not differ significantly among gender groups in 2014. Age-adjusted melanoma mortality rates remained stable for males and females from 2003 to 2014 from 3.9 deaths per 100,000 males (95% confidence interval: 2.9 to 5.1) and 2.0 deaths per 100,000 females (95% confidence interval: 1.4 to 2.9) in 2003 to 3.9 deaths per 100,000 males (95% confidence interval: 3.0 to 5.2) and 2.3 deaths per 100,000 females (95% confidence interval: 1.6 to 3.2) in 2014.

**Figure 8-3. Age-adjusted melanoma mortality rates among gender groups, Kansas 2003-2014.**

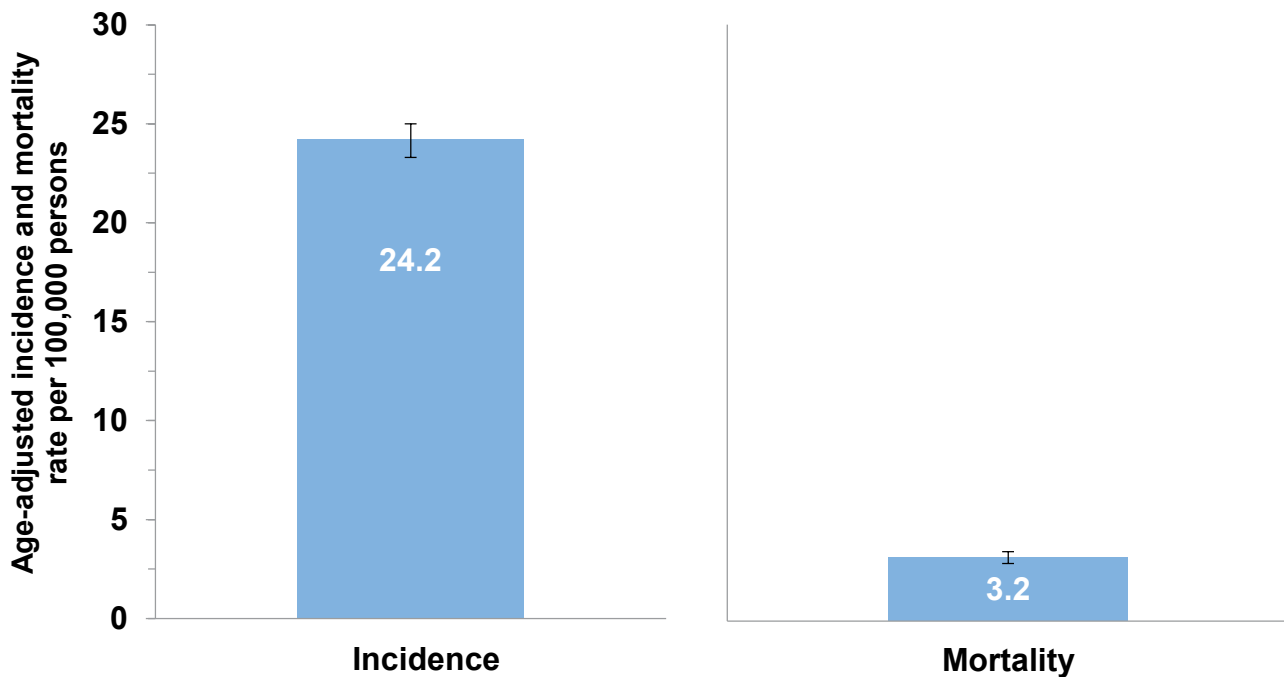


Source: 2003-2014 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. Rates were age-adjusted to the U.S. 2000 standard population using the direct method. See Technical Appendix for details on how rates were calculated. Vertical bars indicate 95% confidence intervals. Melanoma mortality was defined as ICD-10 code C43.

## Melanoma Incidence and Mortality among Race Groups

The age-adjusted melanoma incidence rate for white Kansans during the period 2008-2012 was 24.2 cases per 100,000 persons; 95% confidence interval: 23.3 to 25.0) (Figure 8-4). The age-adjusted melanoma mortality rate for white Kansans was 3.2 deaths per 100,000 persons; 95% confidence interval: 2.9 to 3.5) during the period 2010-2014. Data for African American and other racial group of Kansans are not shown because the number of cases was insufficient for computing a statistically reliable rate for this race group.

**Figure 8-4. Age-adjusted melanoma incidence (2008-2012) and mortality (2010-2014) rates among whites, Kansas 2008-2014.**

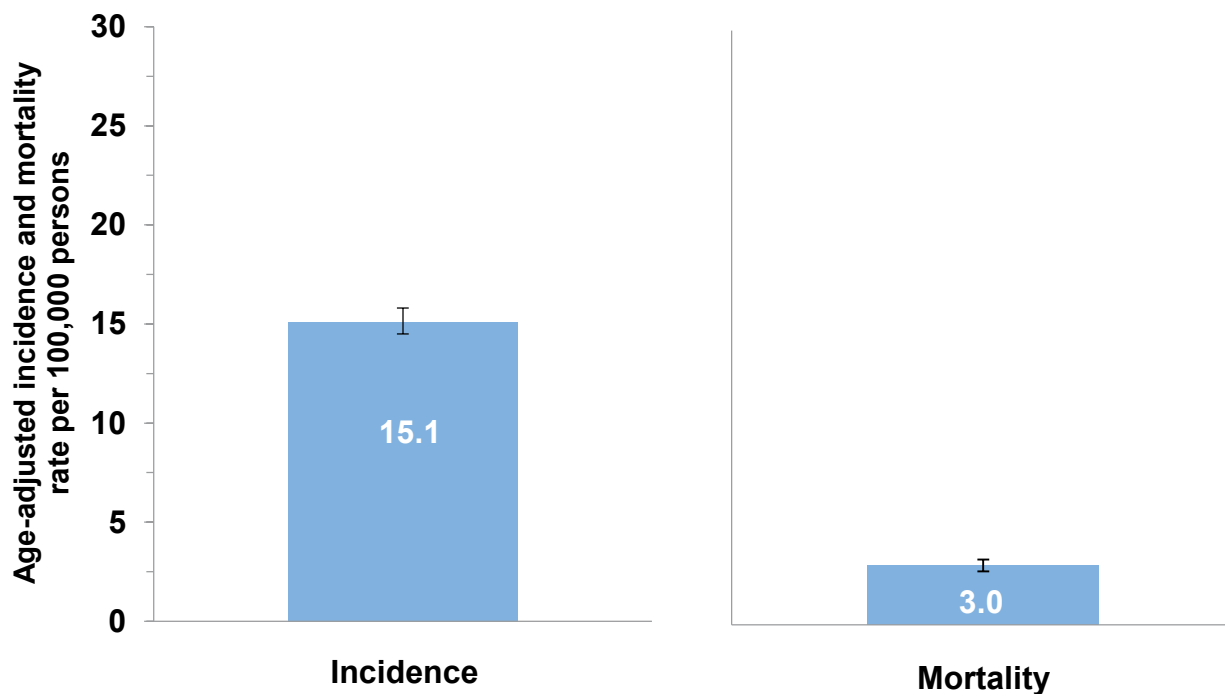


Source: 2008-2012 Kansas Cancer Registry. 2010-2014 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. The rate is not reported for African Americans due to insufficient number of cases. Rates were age-adjusted to the U.S. 2000 standard population using the direct method. See Technical Appendix for details on how rates were calculated. Vertical bars indicate 95% confidence intervals. Melanoma incidence was defined as ICD-O-3 codes C440-449 and histology codes 8720-8780 with a behavior code indicating invasive malignancy. Melanoma mortality was defined as ICD-10 code C43.

## Melanoma Incidence and Mortality among Ethnic Groups

The age-adjusted melanoma incidence rate for non-Hispanic Kansans was 15.1 cases per 100,000 persons (95% confidence interval: 14.5 to 15.8) during the period 2008-2012 (Figure 8-5). The age-adjusted melanoma mortality rate for non-Hispanic Kansans was 3.0 deaths per 100,000 persons (95% confidence interval: 2.7 to 3.3) during this time period. Data for Hispanic Kansans are not shown because the number of cases was insufficient for computing a statistically reliable rate for this ethnic group. Nationally, age-adjusted melanoma incidence and mortality rates are about four times higher among non-Hispanics as compared to Hispanics.<sup>13</sup>

**Figure 8-5. Age-adjusted melanoma incidence (2008-2012) and mortality (2010-2014) rates among non-Hispanics, Kansas 2008-2014.**



Source: 2008-2012 Kansas Cancer Registry. 2010-2014 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. The rate is not reported for Hispanics due to insufficient number of cases. Rates were age-adjusted to the U.S. 2000 standard population using the direct method. See Technical Appendix for details on how rates were calculated. Vertical bars indicate 95% confidence intervals. Melanoma incidence was defined as ICD-O-3 codes C440-449 and histology codes 8720-8780 with a behavior code indicating invasive malignancy. Melanoma mortality was defined as ICD-10 code C43. Hispanics were defined as persons of Mexican, Puerto Rican, Cuban, South or Central American, Other Spanish, Spanish not otherwise specified, or Dominican Republic ethnicity. Persons with Spanish surname only or unknown ethnicity were excluded.

<sup>13</sup>U.S. Cancer Statistics: 1999-2012 Incidence, WONDER Online Database, US DHHS, CDC; 2015.

## Melanoma Late Stage Diagnosis

Among gender groups in Kansas, the age-adjusted late stage melanoma incidence rate did not differ significantly among males and females between 2003-2007 and 2008-2012 (Table 8-1).

Among race groups in Kansas, the age-adjusted late stage melanoma incidence rate did not differ significantly among whites between 2003-2007 (2.7 cases per 100,000 persons; 95% CI: 2.4 to 3.0) and 2008-2012 (3.1 cases per 100,000 persons; 95% CI: 2.8 to 3.4). We were not able to make comparisons for the late stage age-adjusted melanoma incidence rate among African American women between 2003-2007 and 2008-2012 due to insufficient counts (Table 8-1).

Among ethnicity groups in Kansas, the age-adjusted late stage melanoma incidence rate did not differ significantly among non-Hispanics between 2003-2007 (2.5 cases per 100,000 persons; 95% CI: 2.3 to 2.8) and 2008-2012 (2.6 cases per 100,000 persons; 95% CI: 2.3 to 2.9). We were not able to make comparisons for the late stage age-adjusted melanoma incidence rate among Hispanics due to insufficient counts during the same time period (Table 8-1).

Among population density groups in Kansas, the age-adjusted late stage melanoma incidence did not differ significantly among population density groups between 2003-2007 and 2008-2012 (Table 8-1).

**Table 8-1. Age-adjusted late stage melanoma incidence rates by years and selected characteristics, Kansas, 2003-2012.**

Characteristics	2008-2012			2003-2007		
	Age-adjusted Rate	95% Confidence Interval		Age-adjusted Rate	95% Confidence Interval	
<b>Gender</b>						
Male	4.2	3.7	4.7	3.4	3.0	3.9
Female	1.8	1.5	2.1	1.9	1.6	2.3
<b>Race</b>						
White	3.1	2.8	3.4	2.7	2.4	3.0
African American	-	-	-	-	-	-
<b>Ethnicity</b>						
Hispanic	-	-	-	-	-	-
Non-Hispanic	2.6	2.3	2.9	2.5	2.3	2.8
<b>Population Density</b>						
Rural	3.0	2.6	3.6	2.6	2.2	3.2
Urban	2.8	2.5	3.1	2.5	2.2	2.9

\* a. Late stage was defined as the combination of regional and distant stage of diagnosis.

b. Due to insufficient count, data for Asian/Pacific Islander, American Indian/Alaska Native, and Hispanic population were unable to display in the table.

c. Data for African Americans during 2008-2012 were also insufficient to display.

Source: 2003-2012 Kansas Cancer Registry. Prostate cancer incidence was defined as ICD-O-3 codes C440-449 and histology codes 8720-8780 with a behavior code indicating invasive malignancy.