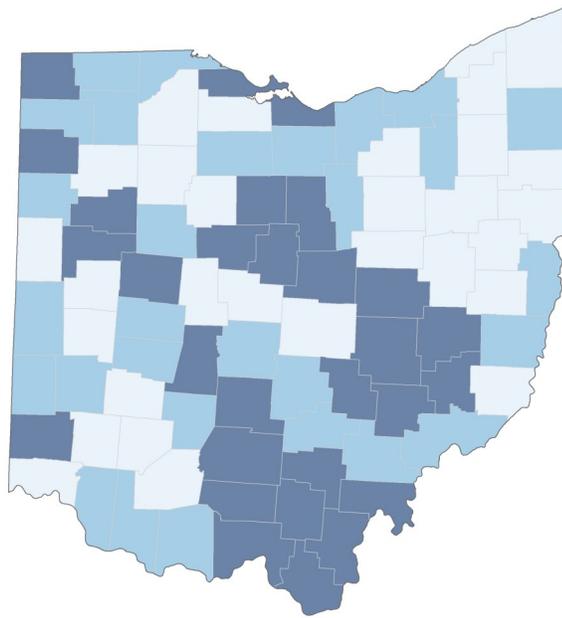


Stage at Diagnosis

for Selected Cancer Sites

in Ohio



March 2012

Ohio Cancer Incidence Surveillance System

Ohio Department of Health

The Ohio State University Comprehensive Cancer Center —

James Cancer Hospital and Solove Research Institute



Cover image:

Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by County of Residence, Ohio, 2004-2008 for the Cancer Sites Included in this Report (Cervix, Colon and Rectum, Female Breast, Lung and Bronchus, Melanoma of the Skin, Oral Cavity and Pharynx, Prostate and Testis)

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Ohio Cancer Incidence Surveillance System

Ohio Department of Health

Theodore Wymyslo, M.D., Director

**The Ohio State University Comprehensive Cancer Center —
James Cancer Hospital and Solove Research Institute**

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This report is public information. Reproduction and copying of this report for cancer prevention and control, education and program planning are greatly encouraged. Citation of the source, however, is appreciated.

The completion, printing, and distribution of this report partially fulfills GOAL 1: "Enhance the Quality and Reporting of Cancer Incidence Data and Increase the Dissemination and Use of Data for Cancer Prevention and Control" of the Ohio Comprehensive Cancer Control Plan 2011-2014, Ohio Partners for Cancer Control, 2011.

Cancer incidence data used in these analyses were obtained in part from the Ohio Cancer Incidence Surveillance System (OCISS), Ohio Department of Health (ODH), a cancer registry supported in part by the State of Ohio and the National Program of Cancer Registries at the Centers for Disease Control and Prevention (CDC) through Cooperative Agreement # 5U58DP000795-05. Use of these data does not imply that CDC agrees or disagrees with the analyses, interpretations or conclusions in this report.

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Stage at Diagnosis

for Selected Cancer Sites

in Ohio

March 2012

Stage at Diagnosis of Cancer in Ohio

The stage of a cancer case refers to the degree to which the cancer has spread. Stage at diagnosis of cancer is an important determinant of survival, with the earliest stages often leading to better prognoses. Early detection through screening is useful in determining the most beneficial treatment and is a good predictor of long-term survival. The purpose of this report is to provide information to help prioritize areas and populations for early detection, referral and treatment programs, and to assist in the evaluation of these programs.

The five stages at which cancer is diagnosed that are presented in this report are defined as follows:

in situ: A tumor that has not invaded or penetrated surrounding tissue

Localized: An invasive malignant tumor that is confined to the organ in which it originated

Regional: An invasive malignant tumor that has spread by direct extension to adjacent organs or tissues and/or has spread to regional lymph nodes

Distant: An invasive malignant tumor that has spread by direct extension beyond adjacent organs or tissues and/or metastasized to distant lymph nodes or tissues

Unstaged/Unknown: Insufficient information is available to determine the stage of cancer at the time of diagnosis, or the case was reported with missing stage data

For some of the figures shown in this report, stages are divided into early and late stages to more easily identify patterns and trends. *in situ* and localized stages are combined to create early stage, and regional and distant stages are combined to create late stage.

Selected Cancer Sites

In an effort to identify cancer at an early stage, screening methods have been developed for many sites of cancer. This report focuses on eight cancer sites for which screening tests are available: cervix; colon and rectum; female breast; lung and bronchus; melanoma of the skin; oral cavity and pharynx; prostate; and testis. Methods of screening vary by cancer site, but may include self-examination, physical examination by a health professional, X-rays and/or laboratory tests.

Screening Guidelines

A comprehensive listing of American Cancer Society (ACS) and U.S. Preventive Services Task Force (USPSTF) recommendations for the early detection of cancer in average risk, asymptomatic people, by sex and age group, are presented in Appendix I and II, respectively. Recommendations from these organizations are not in agreement. For information about how ACS and USPSTF recommendations were generated, refer to the ACS website at:

<http://www.cancer.org/Healthy/FindCancerEarly/CancerScreeningGuidelines/american-cancer-society-guidelines-for-the-early-detection-of-cancer> and the USPSTF website at:

<http://www.uspreventiveservicestaskforce.org/index.html>

Interpretation of Maps

County maps presenting the average annual number and proportion of cases diagnosed late stage are displayed for each cancer site. These maps are intended to highlight counties/areas with relatively high proportions of late stage diagnoses for the allocation of geographically targeted resources. Counties are classified and shaded according to tertiles by each respective site and proportion of late stage. **Caution should be exercised when interpreting the proportion of late stage by county for those counties that also exhibit a high proportion of unstaged/unknown stage cases (found in the table adjacent to the map).**

Cancer Data

Cancer incidence and stage at diagnosis data presented in this report are from the Ohio Cancer Incidence Surveillance System (OCISS), the central cancer registry for the state of Ohio. Cancer cases are coded according to the International Classification of Diseases for Oncology, Third Edition (ICD-O-3). U.S. stage at diagnosis data and survival probabilities are from the Surveillance, Epidemiology and End Results Program at the National Cancer Institute. Cancer mortality data are from the Vital Statistics program at the Ohio Department of Health and are coded according to the International Statistical Classification of Diseases and Related Health Problems, 10th Edition (ICD-10). Cancer screening data are from the Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health.

Most of the stage at diagnosis data presented in this report are for the years 2004-2008, as these years represent the most recent, complete data available at the time of analysis. Trends in cancer incidence rates, mortality rates and late stage at diagnosis are presented for the years 1996-2008. Five-year survival probabilities by stage at diagnosis are presented for the time period 2001-2007. Trends and prevalence of cancer screening are shown for the years 1990-2010.

The age groups selected for figures of cancer stage at diagnosis by age were selected based on ACS screening guidelines.

Key Findings

Cervical Cancer

- Age-adjusted incidence and mortality rates for cervical cancer in Ohio declined for both white and black females from 1996 to 2008; however, the proportion diagnosed at late stage increased for both whites and blacks during the time period.
- Females who were uninsured or had Medicare or Medicaid as their primary insurance payer at the time of diagnosis had the highest proportion of late stage cervical cancers.

Colon and Rectum Cancer

- In 2004-2008, the proportion of colon and rectum cancer cases diagnosed at late stage was higher among those who were age 0-49 at diagnosis, compared to those age 50-64 and 65 years and older.
- From 1996 to 2008, Ohio males and females experienced similar declines in colon and rectum cancer incidence and mortality rates, as well as the proportion of cases diagnosed at late stage.
- The proportion of colon and rectum cancers diagnosed at late stage in 2004-2008 was highest among those who were uninsured at diagnosis, followed by those with Medicaid as their primary insurance payer.

Female Breast Cancer

- From 1996 to 2008, the breast cancer mortality rate among Ohio females decreased 20 percent among blacks and 25 percent among whites; however, the proportion of cases diagnosed at late stage increased among black females during the same time period.
- In Ohio in 2004-2008, females age 0-39 had the highest proportion of regional and distant stage breast cancer, compared to females age 40-49 and 50 and older.
- The percentage of late stage female breast cancers was highest among those who were uninsured or had Medicaid as their primary insurance payer at diagnosis.

Lung and Bronchus Cancer

- In 2004-2008, the percentage of distant stage lung and bronchus cancers was 15 percent lower in Ohio, compared to the United States; however, this may be due to a higher percentage of lung and bronchus cancers reported unstaged or with an unknown stage in Ohio.
- Although the proportion of lung and bronchus cancers diagnosed at distant stage increased dramatically from 1996 to 2008, the proportion of unstaged/unknown stage lung and bronchus cancers decreased over the time period, which may explain this trend.

Key Findings

Melanoma of the Skin

- A higher proportion of regional and distant stage melanomas of the skin were seen among blacks in Ohio in 2004-2008, compared to whites and additional races.
- From 1996 to 2008, there was an increase in melanoma of the skin incidence rates and percent late stage at diagnosis among both males and females, and an increase in mortality rates among males.

Oral Cavity and Pharynx Cancer

- In 2004-2008, blacks in Ohio had higher percentages of regional and distant stage oral cavity and pharynx cancers, compared to both whites and additional races.
- The percentage of late stage oral cavity and pharynx cancers increased from 1996 to 2008 for both males and females.

Prostate Cancer

- From 1996 to 2008, the percentage of late stage prostate cancers decreased for both white and black males in Ohio.
- The five-year survival probability for prostate cancer is 100 percent for males diagnosed at localized and regional stages, but is only 29 percent for males diagnosed at distant stage. In Ohio, 3 percent of prostate cancers are diagnosed at the distant stage.

Testicular Cancer

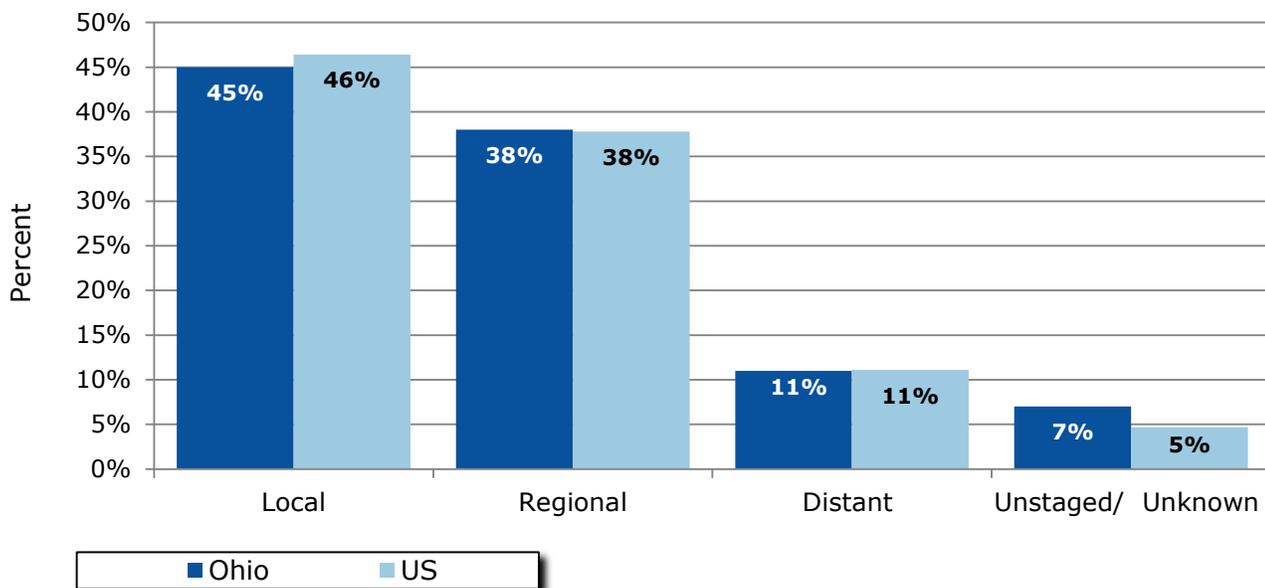
- In 2004-2008, males age 0-29 in Ohio were more likely to be diagnosed with regional or distant stage testicular cancer, compared to males age 30-44 and 45 years and older.
- The percentage of late stage testicular cancers was highest among those with Medicaid as their primary insurance payer at diagnosis, followed by those who were uninsured.

Cervical Cancer

Figure 1.1 shows that, in Ohio, compared to the United States, there were similar percentages of cervical cancer cases diagnosed at each stage.

Note that *in situ* cervical cancers are not required to be reported in Ohio.

Figure 1.1: Cervical Cancer: Proportion of Cases (%) by Stage at Diagnosis in Ohio, with Comparison to the U.S. (SEER), 2004-2008 (Average Annual N=483)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Figure 1.2 shows that, compared to whites, in Ohio:

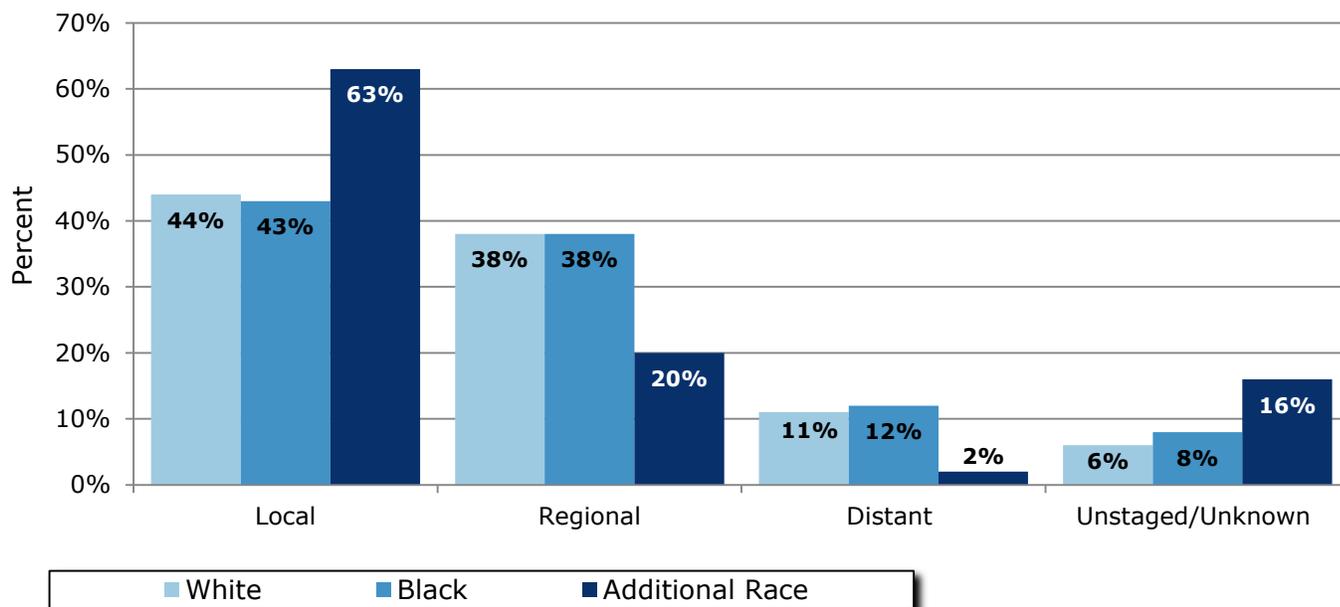
- There were similar percentages of cervical cancers among blacks diagnosed at each stage.
- There were higher percentages of cervical cancers among additional races diagnosed at localized stage and with an unstaged/unknown stage, and lower percentages of cervical cancers diagnosed at regional and distant stages.

Figure 1.3 shows that, in Ohio:

- Percentages of cervical cancers diagnosed at localized stage decreased with increasing age group, while percentages diagnosed at regional and distant stages and with an unstaged/unknown stage generally increased with increasing age group.

Cervical Cancer

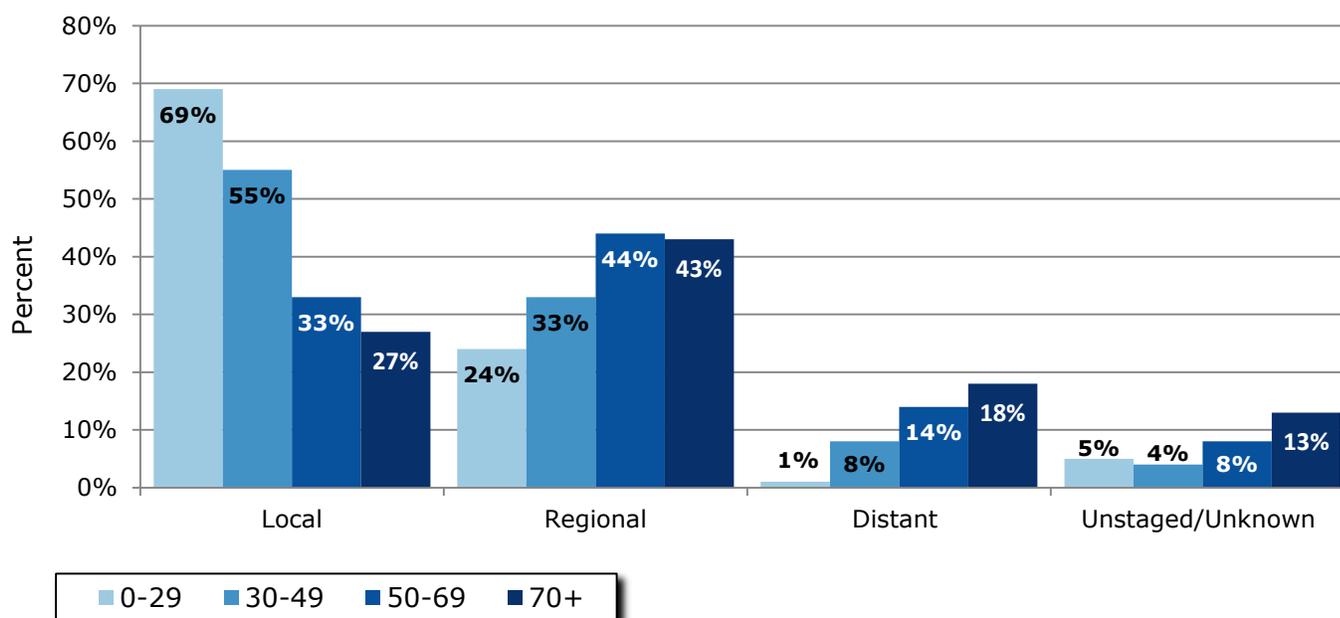
Figure 1.2: Cervical Cancer: Proportion of Cases (%) by Stage at Diagnosis and Race¹ in Ohio, 2004-2008 (Average Annual N=483)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

¹Additional Race includes Asian/Pacific Islander, American Indian/Alaskan Native, Other and Unknown races.

Figure 1.3: Cervical Cancer: Proportion of Cases (%) by Stage at Diagnosis and Age Group in Ohio, 2004-2008 (Average Annual N=483)

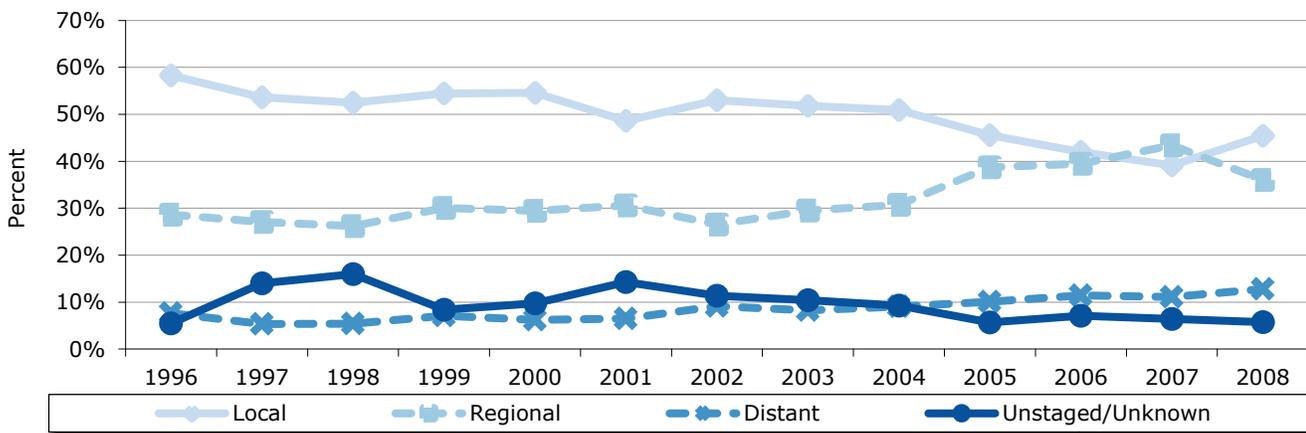


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Cervical Cancer

Figure 1.4 shows that the proportion of cervical cancer cases diagnosed at the localized stage has generally decreased from 1996 to 2008, while the proportions diagnosed at both regional and distant stages have generally increased over this time period. Some of these changes over time may be explained by changes in the proportion of cervical cancer cases reported unstaged/unknown stage, which varied throughout the time period.

Figure 1.4: Cervical Cancer: Trends in the Proportion of Cases (%) by Stage at Diagnosis in Ohio, 1996-2008



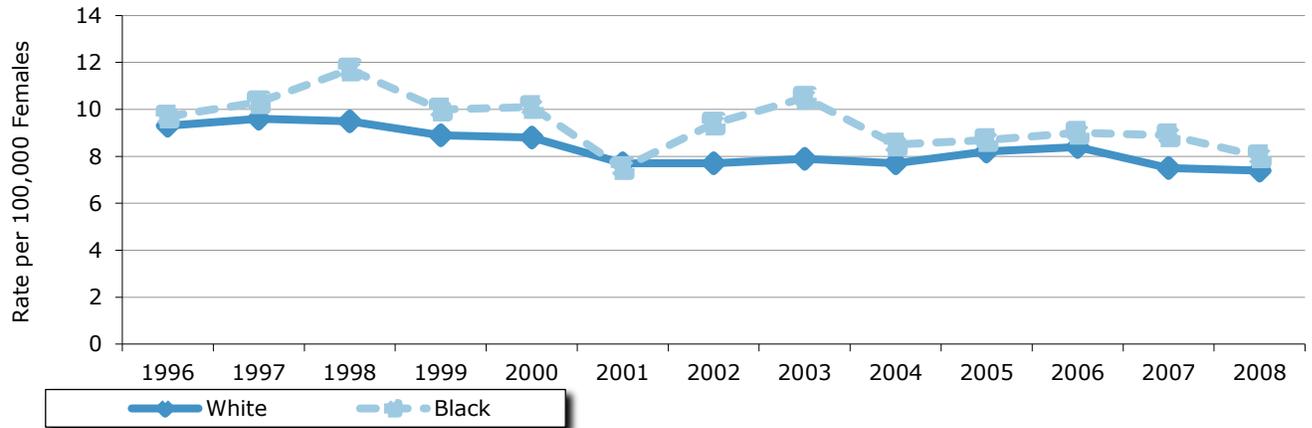
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

- Cervical cancer incidence (Figure 1.5) and mortality (Figure 1.6) rates decreased among whites and blacks in Ohio from 1996 to 2008.
- For both whites and blacks, from 1996 to 2008, there was an increase in the percentage of cervical cancer cases diagnosed late stage (Figure 1.7).

Did You Know?

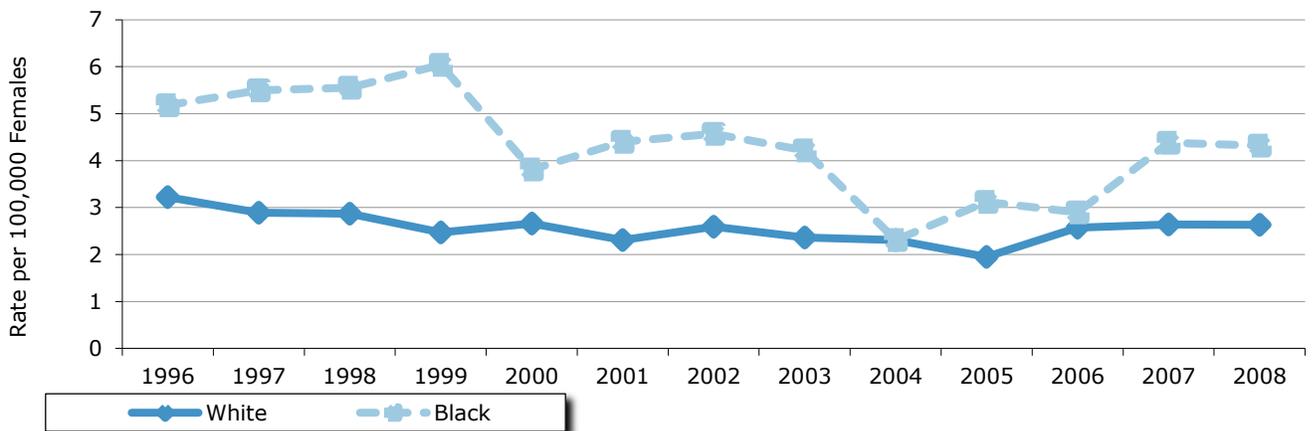
Since the introduction of the Pap test, deaths caused by cervical cancer have been reduced by up to 99 percent in most regularly screened populations. Regular pap smear screening, with appropriate follow-up, can reduce cervical cancer incidence by up to 80 percent.

Figure 1.5: Cervical Cancer: Trends in Average Annual Age-adjusted Incidence Rates per 100,000 Females by Race in Ohio, 1996-2008



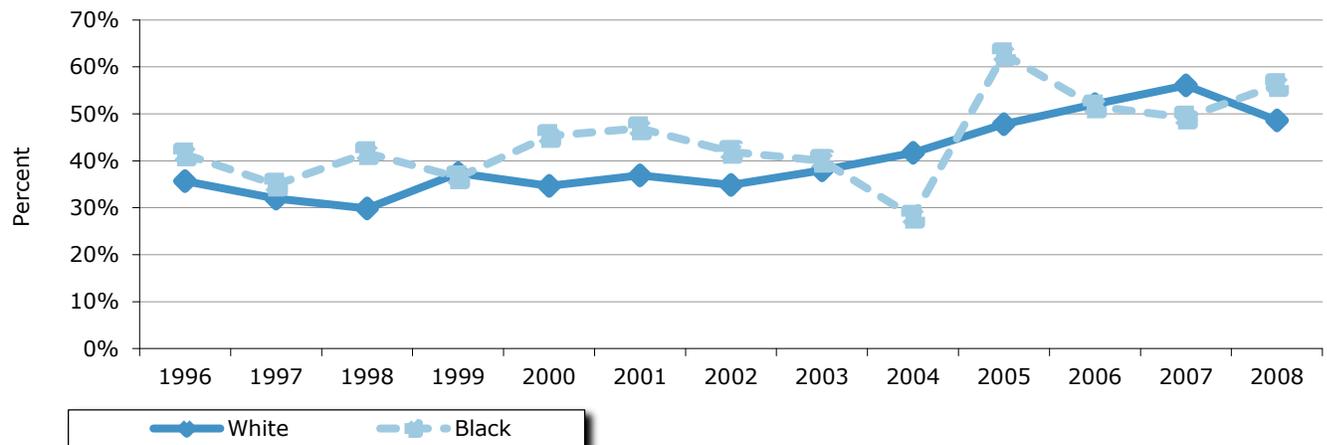
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 1.6: Cervical Cancer: Trends in Average Annual Age-adjusted Mortality Rates per 100,000 Females by Race in Ohio, 1996-2008



Source: Ohio Vital Statistics Program, Ohio Department of Health, 2010.

Figure 1.7: Cervical Cancer: Trends in the Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by Race in Ohio, 1996-2008



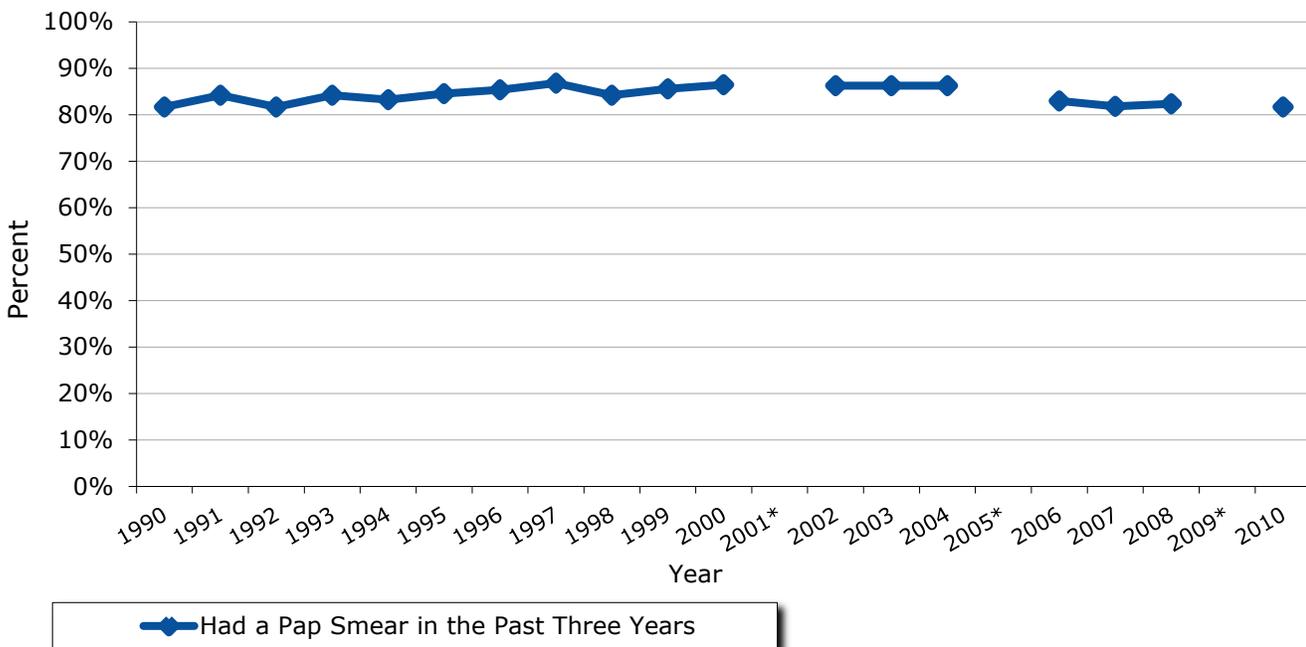
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Cervical Cancer

The primary cause of cervical cancer is infection with certain types of human papillomavirus (HPV), especially types 16 and 18. HPV infection can lead to abnormal changes of the cervix. The Pap test is a simple procedure in which a small sample of cells is collected from the cervix and examined under a microscope for the presence of these changes.

- Figure 1.8 shows that the prevalence of women 18 and older who reported having had a Pap test in the past 3 years in Ohio has remained relatively stable between 80 and 90 percent from 1990 to 2010.
- Table 1.1 shows that cervical cancer five-year survival probability decreases with advancing stages. For each stage, survival probability is greater among whites, compared to blacks.

Figure 1.8: Trend in Prevalence of Women 18 and Older Who Reported Having Had a Pap Test in the Past Three Years in Ohio, 1990-2010



Source: Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2011.

The weighted percentages were adjusted to: 1) probability of selection, *i.e.*, the number of different phone numbers that reach the household, the number of adults in each household, and the number of completed interviews in each cluster; and 2) demographic distribution, *i.e.*, age and sex.

"Don't Know" and "Refused" were excluded from the denominator. This can cause an artificially high percentage.

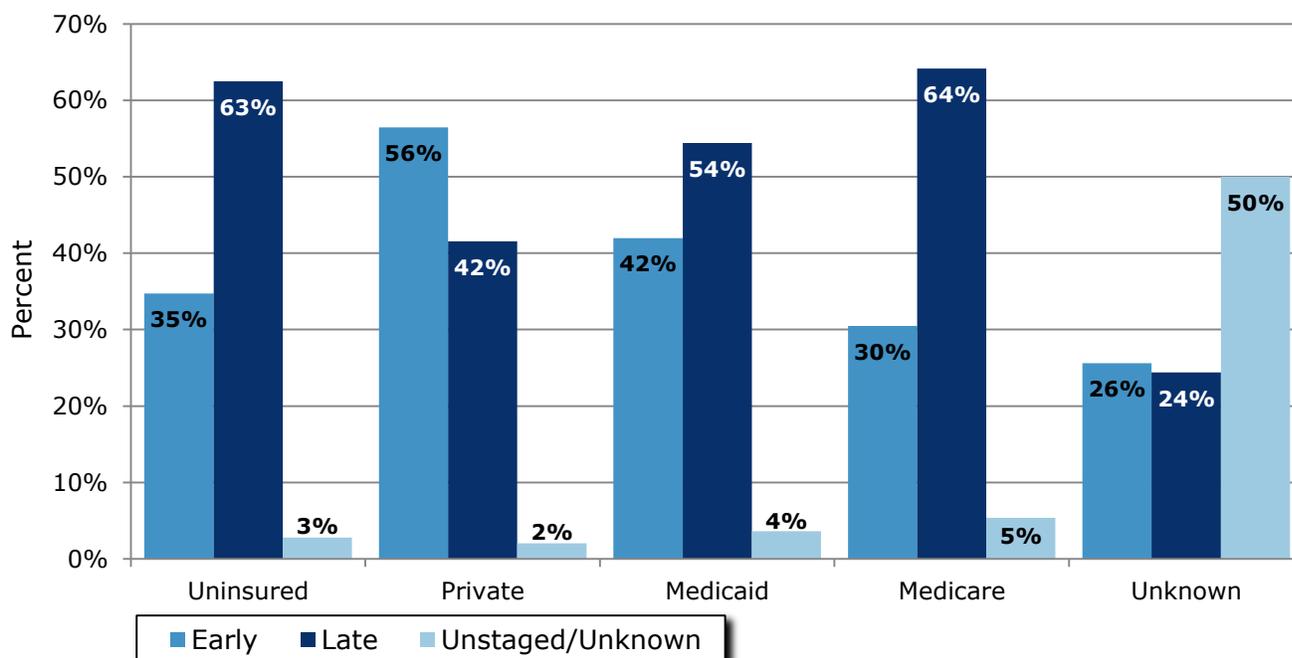
* The Ohio Behavioral Risk Factor Surveillance System Survey did not include cervical screening questions in 2001, 2005 and 2009.

Table 1.1: Cervical Cancer: Survival Probability (%) by Stage at Diagnosis and Race in the U.S. (SEER), 2001-

| Five-year Survival Probability (%) | | | |
|------------------------------------|---------|--------------|--------------|
| Stage | Overall | White Female | Black Female |
| All Stages | 68.6% | 70.0% | 58.4% |
| Localized | 90.9% | 92.1% | 83.1% |
| Regional | 57.0% | 58.0% | 48.9% |
| Distant | 18.7% | 19.8% | 13.3% |
| Unstaged/ Unknown Stage | 53.7% | 53.0% | 51.9% |

Source: Surveillance Epidemiology and End Results Program, *SEER Cancer Statistics Review, 1975-2008*, National Cancer Institute, 2011.

Figure 1.9 shows that, among those who were uninsured and those with Medicare and Medicaid as their primary insurance payer at diagnosis, the majority of cervical cancer cases were diagnosed at late stage, while among those with private insurance, the majority of cases were diagnosed at early stage. Those with unknown insurance type had the highest percentage of unstaged/unknown stage cervical cancers.

Figure 1.9: Cervical Cancer: Proportion of Cases (%) by Stage and Primary Payer (Insurance) at Diagnosis in Ohio, 2004-2008

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Table 1.2: Cervical Cancer: Proportion of Cases (%) by County of Residence and Stage at Diagnosis in Ohio and the U.S. (SEER), 2004-2008

| | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases | | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases |
|-------------|---------------|--------------|---------------------|----------------------|------------|---------------|--------------|---------------------|----------------------|
| Ohio | 45% | 49% | 7% | 483 | Lawrence | 65% | 26% | 9% | 5 |
| SEER | 46% | 49% | 5% | | Licking | 51% | 49% | 0% | 8 |
| Adams | 40% | 60% | 0% | 1 | Logan | 54% | 38% | 8% | 3 |
| Allen | 30% | 55% | 15% | 4 | Lorain | 45% | 47% | 8% | 15 |
| Ashland | 13% | 88% | 0% | 2 | Lucas | 38% | 57% | 4% | 18 |
| Ashtabula | 40% | 44% | 16% | 5 | Madison | 13% | 75% | 13% | 2 |
| Athens | 46% | 42% | 13% | 5 | Mahoning | 29% | 59% | 12% | 10 |
| Auglaize | 21% | 64% | 14% | 3 | Marion | 46% | 54% | 0% | 3 |
| Belmont | 57% | 43% | 0% | 3 | Medina | 64% | 28% | 8% | 5 |
| Brown | 60% | 40% | 0% | 1 | Meigs | 29% | 71% | 0% | 1 |
| Butler | 50% | 47% | 3% | 13 | Mercer | 44% | 44% | 11% | 2 |
| Carroll | 67% | 33% | 0% | <1 | Miami | 50% | 50% | 0% | 4 |
| Champaign | 57% | 43% | 0% | 3 | Monroe | 67% | 0% | 33% | <1 |
| Clark | 34% | 57% | 9% | 7 | Montgomery | 45% | 47% | 8% | 24 |
| Clermont | 43% | 43% | 14% | 7 | Morgan | 100% | 0% | 0% | <1 |
| Clinton | 42% | 58% | 0% | 2 | Morrow | 55% | 27% | 18% | 2 |
| Columbiana | 53% | 28% | 19% | 6 | Muskingum | 48% | 48% | 3% | 6 |
| Coshocton | 18% | 82% | 0% | 2 | Noble | 40% | 60% | 0% | 1 |
| Crawford | 53% | 33% | 13% | 3 | Ottawa | 40% | 60% | 0% | 2 |
| Cuyahoga | 45% | 48% | 7% | 64 | Paulding | 17% | 83% | 0% | 1 |
| Darke | 55% | 45% | 0% | 2 | Perry | 38% | 63% | 0% | 2 |
| Defiance | 33% | 67% | 0% | 1 | Pickaway | 55% | 45% | 0% | 2 |
| Delaware | 47% | 50% | 3% | 6 | Pike | 22% | 67% | 11% | 2 |
| Erie | 39% | 50% | 11% | 4 | Portage | 44% | 44% | 12% | 5 |
| Fairfield | 50% | 33% | 17% | 4 | Preble | 13% | 75% | 13% | 2 |
| Fayette | 14% | 79% | 7% | 3 | Putnam | 67% | 33% | 0% | 2 |
| Franklin | 44% | 48% | 8% | 45 | Richland | 52% | 42% | 6% | 7 |
| Fulton | 38% | 63% | 0% | 2 | Ross | 52% | 48% | 0% | 4 |
| Gallia | 55% | 36% | 9% | 2 | Sandusky | 28% | 61% | 11% | 4 |
| Geauga | 40% | 53% | 7% | 3 | Scioto | 31% | 62% | 7% | 6 |
| Greene | 52% | 43% | 5% | 4 | Seneca | 58% | 42% | 0% | 2 |
| Guernsey | 42% | 42% | 17% | 2 | Shelby | 75% | 25% | 0% | <1 |
| Hamilton | 41% | 51% | 8% | 28 | Stark | 49% | 46% | 5% | 11 |
| Hancock | 62% | 38% | 0% | 3 | Summit | 49% | 44% | 7% | 17 |
| Hardin | 33% | 56% | 11% | 2 | Trumbull | 61% | 39% | 0% | 7 |
| Harrison | 38% | 63% | 0% | 2 | Tuscarawas | 47% | 47% | 7% | 3 |
| Henry | 44% | 56% | 0% | 2 | Union | 60% | 40% | 0% | 1 |
| Highland | 24% | 65% | 12% | 3 | Van Wert | 60% | 40% | 0% | 1 |
| Hocking | 50% | 50% | 0% | 2 | Vinton | 50% | 50% | 0% | <1 |
| Holmes | 33% | 33% | 33% | <1 | Warren | 61% | 37% | 3% | 8 |
| Huron | 29% | 71% | 0% | 3 | Washington | 38% | 50% | 13% | 3 |
| Jackson | 33% | 67% | 0% | 1 | Wayne | 45% | 38% | 17% | 6 |
| Jefferson | 50% | 50% | 0% | 2 | Williams | 45% | 36% | 18% | 2 |
| Knox | 25% | 75% | 0% | 2 | Wood | 43% | 52% | 4% | 5 |
| Lake | 50% | 47% | 3% | 8 | Wyandot | 29% | 71% | 0% | 1 |

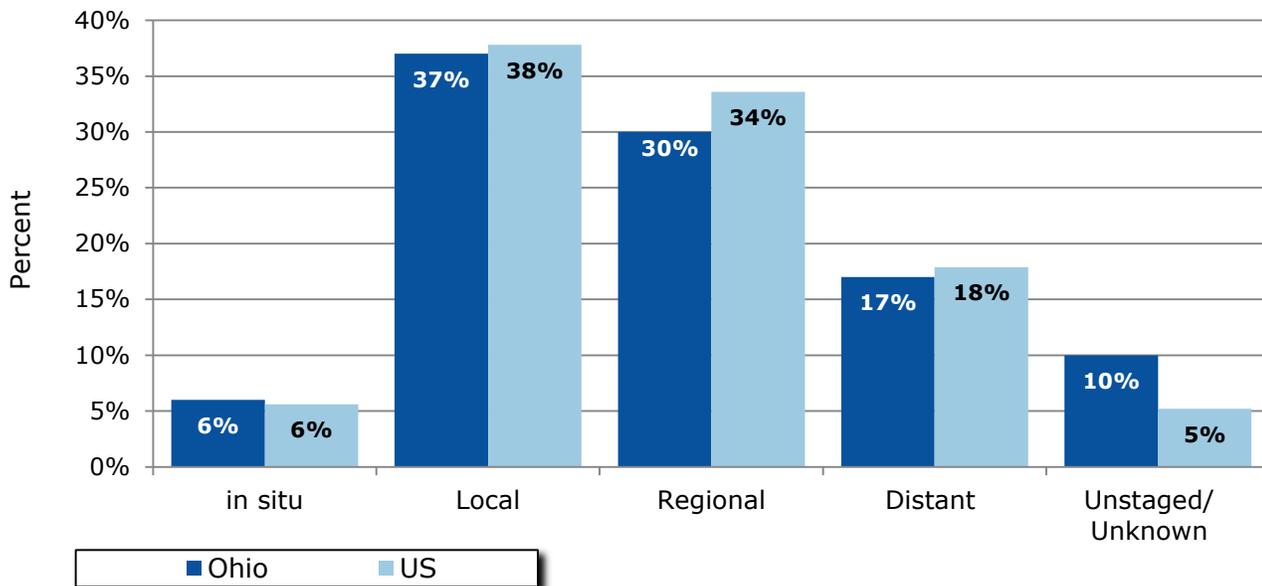
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Colon and Rectum Cancer

Figure 2.1 shows that, in Ohio, compared to the United States:

- An identical or similar percentage of colon and rectum cancer cases were diagnosed at the *in situ*, localized and distant stages.
- A lower percentage of colon and rectum cancer cases were diagnosed at the regional stage.
- The percentage of colon and rectum cancers reported as unstaged/unknown stage was two times higher.

Figure 2.1: Colon and Rectum Cancer: Proportion of Cases (%) by Stage at Diagnosis in Ohio, with Comparison to the U.S. (SEER), 2004-2008 (Average Annual N=6,745)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Figure 2.2 shows that, compared to whites, in Ohio:

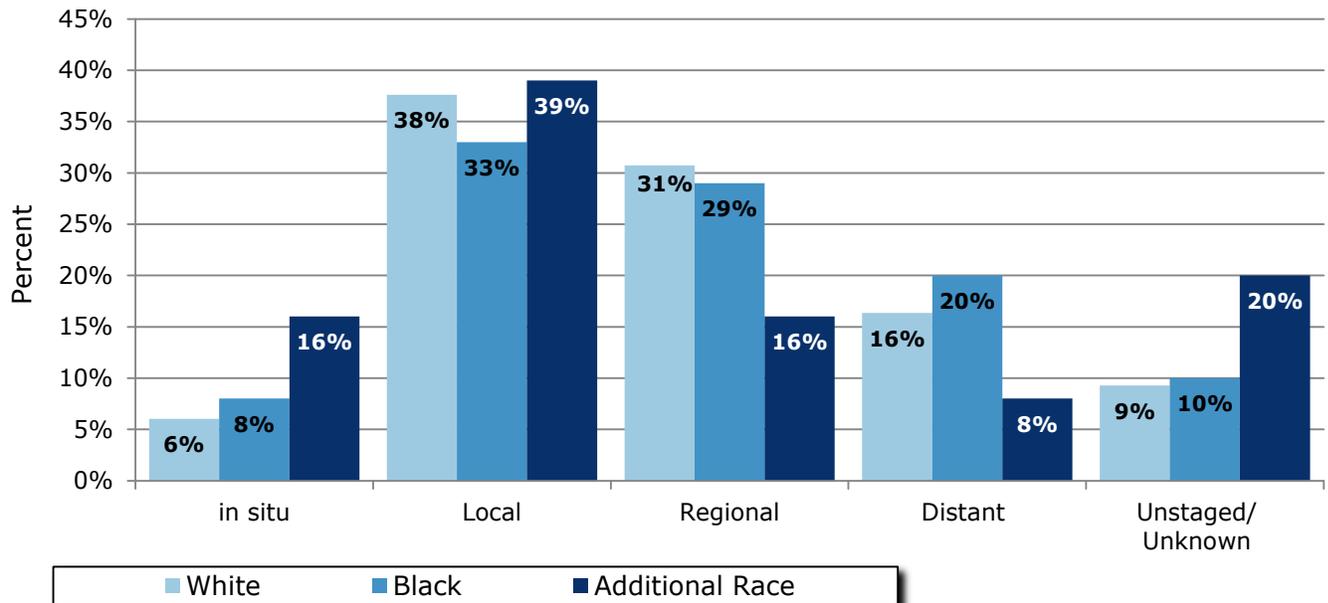
- A similar percentage of colon and rectum cancers among blacks were diagnosed at *in situ* and regional stages, a lower percentage of blacks had localized stage, and a higher percentage were diagnosed at distant stage.
- There were higher percentages of colon and rectum cancers among additional races diagnosed at the *in situ* stage and with an unstaged/unknown stage, while there were lower percentages of additional races diagnosed at regional and distant stages.

Figure 2.3 shows that, in Ohio:

- Percentages of colon and rectum cancers diagnosed at localized stage increased with increasing age group, while percentages diagnosed at regional and distant stages generally decreased with increasing age group.

Colon and Rectum Cancer

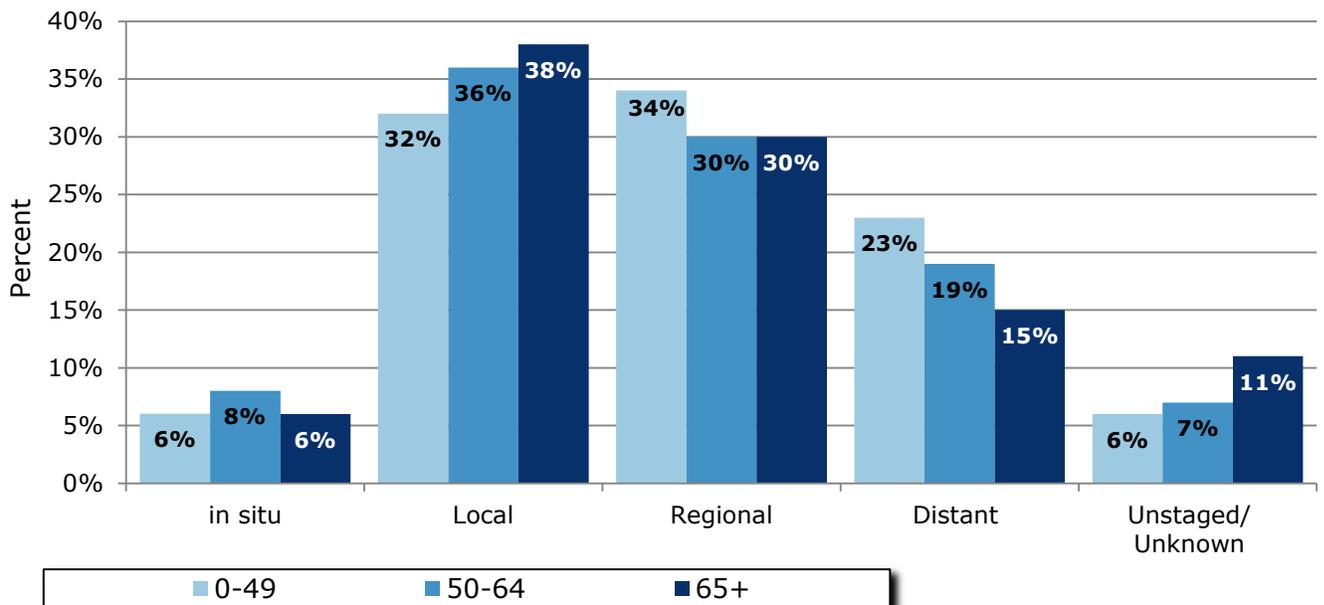
Figure 2.2: Colon and Rectum Cancer: Proportion of Cases (%) by Stage at Diagnosis and Race¹ in Ohio, 2004-2008 (Average Annual N=6,745)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

¹Additional Race includes Asian/Pacific Islander, American Indian/Alaskan Native, Other and Unknown races.

Figure 2.3: Colon and Rectum Cancer: Proportion of Cases (%) by Stage at Diagnosis and Age Group in Ohio, 2004-2008 (Average Annual N=6,745)

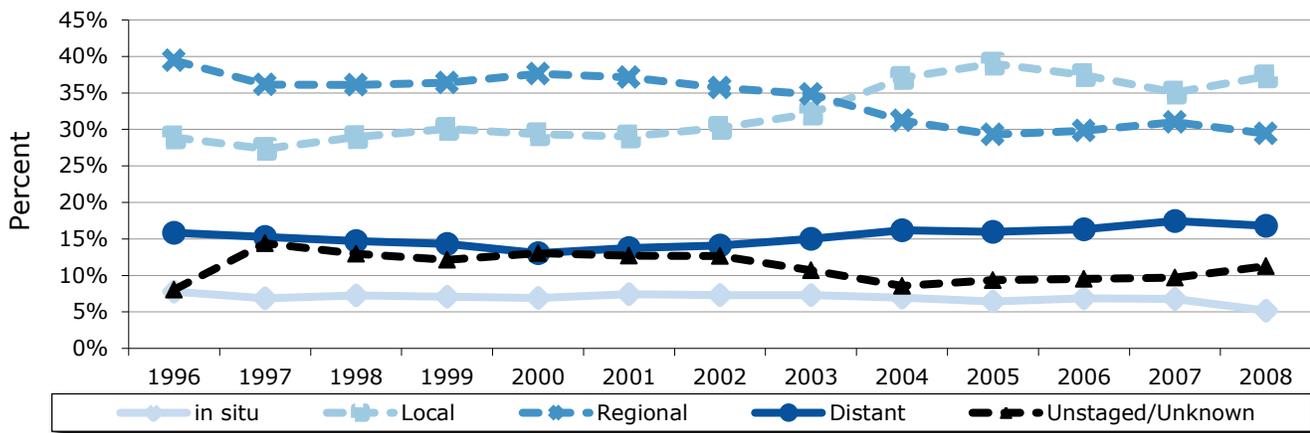


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Colon and Rectum Cancer

Figure 2.4 shows that the proportions of colon and rectum cancer cases diagnosed at *in situ* and regional stages have generally decreased from 1996 to 2008, while the proportion diagnosed at localized stage has generally increased over this time period. Some of these changes over time may be explained by changes in the proportion of colon and rectum cancer cases reported as unstaged/unknown stage.

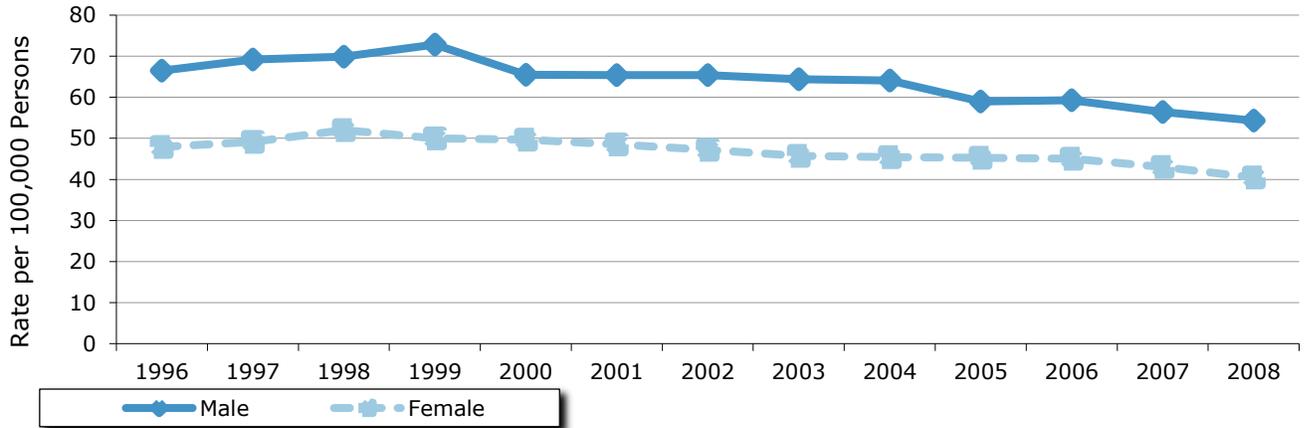
Figure 2.4: Colon and Rectum Cancer: Trends in the Proportion of Cases (%) by Stage at Diagnosis in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

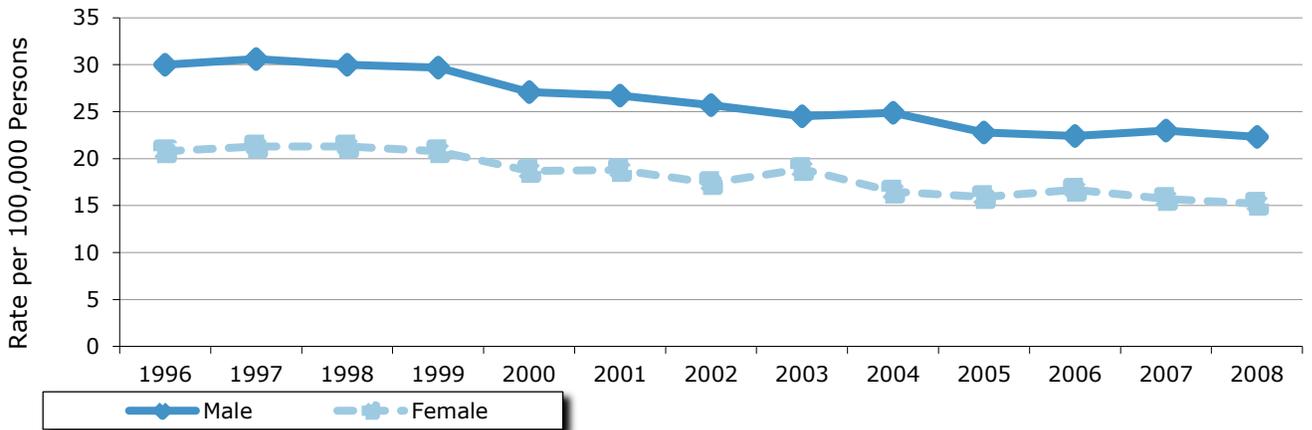
- Colon and rectum cancer incidence (Figure 2.5) and mortality (Figure 2.6) rates decreased among males and females in Ohio from 1996 to 2008.
- For both males and females, there has been a decrease in the percentage of colon and rectum cancer cases diagnosed at late stage during this time period (Figure 2.7).

Figure 2.5: Colon and Rectum Cancer: Trends in Average Annual Age-adjusted Incidence Rates per 100,000 Persons by Sex in Ohio, 1996-2008



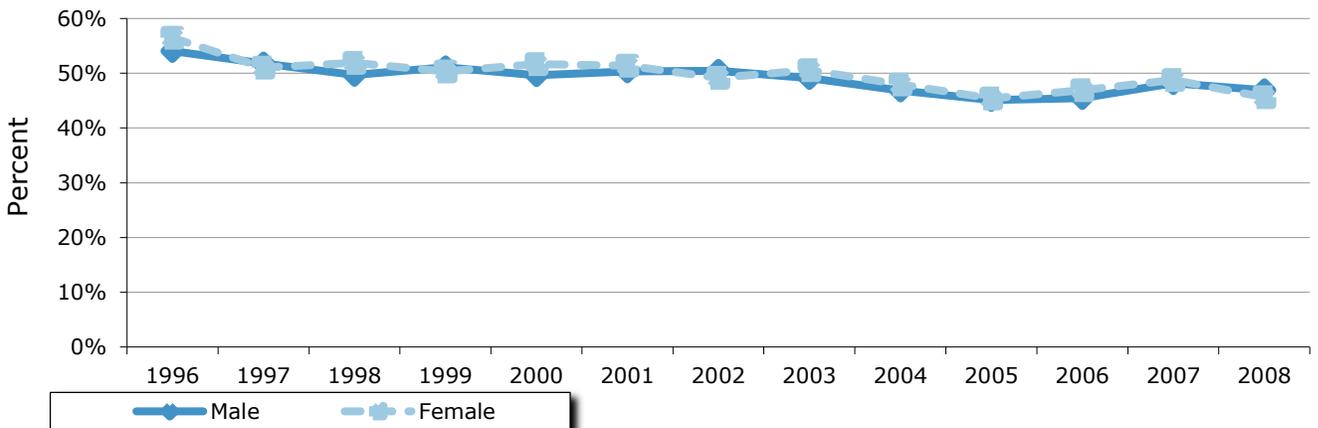
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 2.6: Colon and Rectum Cancer: Trends in Average Annual Age-adjusted Mortality Rates per 100,000 Persons by Sex in Ohio, 1996-2008



Source: Ohio Vital Statistics Program, Ohio Department of Health, 2010.

Figure 2.7: Colon and Rectum Cancer: Trends in the Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by Sex in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Colon and Rectum Cancer

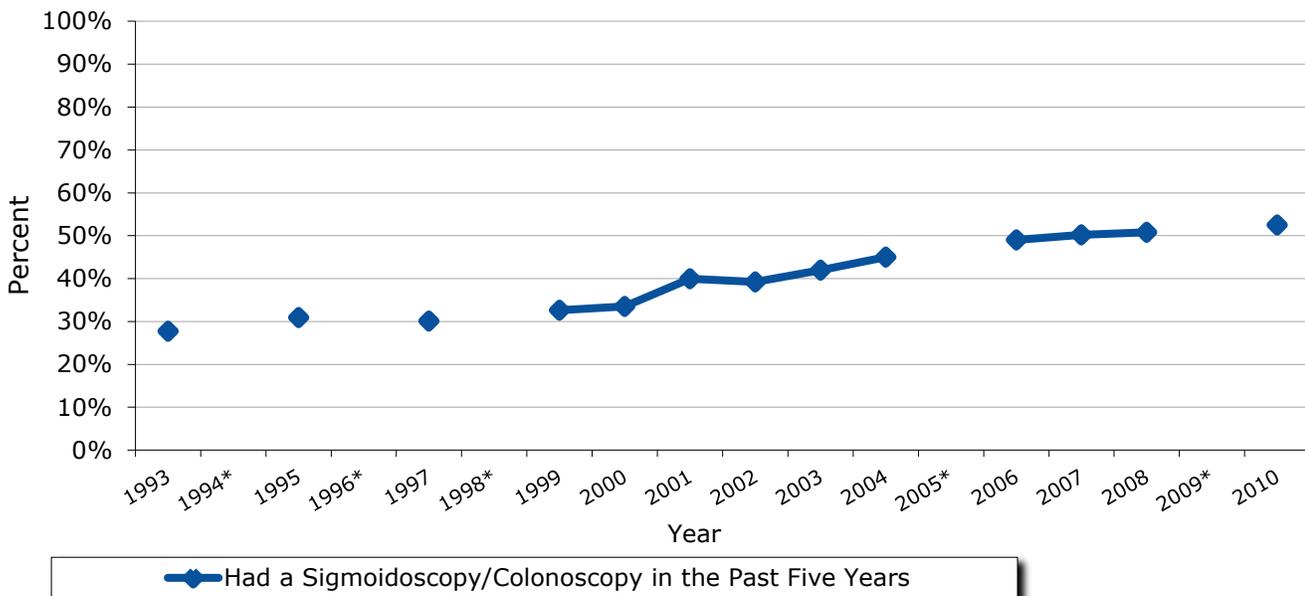
Did You Know?

Researchers are studying whether genetic testing of stool samples can be useful in screening for colon and rectum cancer. The lining of the colon constantly sheds cells into the stool. Testing stool samples for genetic changes that occur in colon and rectum cancer cells may help doctors find evidence of cancer or precancerous growths. More studies are needed.

Sigmoidoscopy and colonoscopy are procedures that can detect premalignant and malignant lesions in the colon and rectum.

Figure 2.8 shows that the prevalence of having had a sigmoidoscopy/colonoscopy in the past five years has increased greatly among those 50 and older in Ohio from 1993 to 2010; although, the prevalence was only 51 percent in 2010.

Figure 2.8: Trend in Prevalence of Persons 50 and Older Who Reported Having Had a Sigmoidoscopy/Colonoscopy in the Past Five Years in Ohio, 1993-2010



Source: Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2011.

The weighted percentages were adjusted to: 1) probability of selection, *i.e.*, the number of different phone numbers that reach the household, the number of adults in each household, and the number of completed interviews in each cluster; and 2) demographic distribution, *i.e.*, age and sex.

"Don't Know" and "Refused" were excluded from the denominator. This can cause an artificially high percentage.

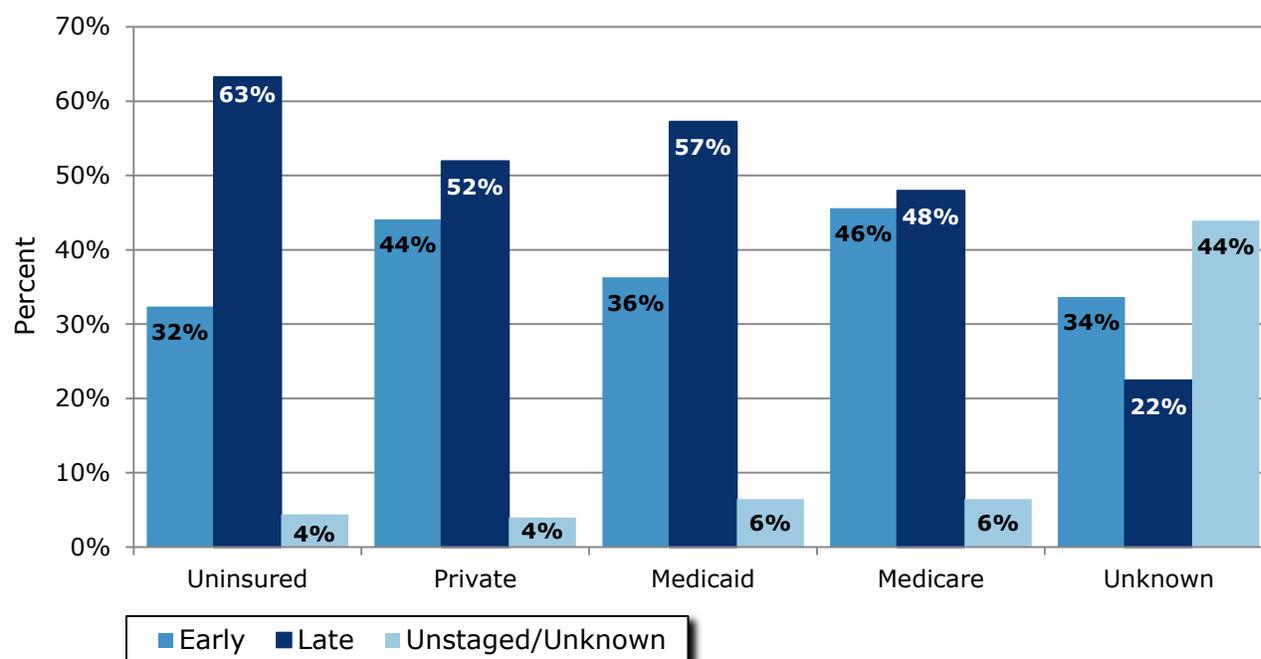
* The Ohio Behavioral Risk Factor Surveillance System Survey did not include colorectal screening questions in 1994, 1996, 1998, 2005 and 2009.

Table 2.1: Colon and Rectum Cancer: Survival Probability (%) by Stage at Diagnosis, Sex and Race in the U.S. (SEER), 2001-2007

| Five-year Survival Probability (%) | | | | | |
|------------------------------------|---------|------------|--------------|------------|--------------|
| Stage | Overall | White Male | White Female | Black Male | Black Female |
| All Stages | 64.3% | 65.0% | 64.5% | 55.0% | 56.9% |
| Localized | 90.1% | 90.6% | 90.4% | 83.2% | 86.6% |
| Regional | 69.2% | 69.7% | 69.7% | 62.8% | 64.0% |
| Distant | 11.7% | 12.1% | 12.8% | 7.8% | 9.0% |
| Unstaged/ Unknown Stage | 33.3% | 30.3% | 28.3% | 35.1% | 32.6% |

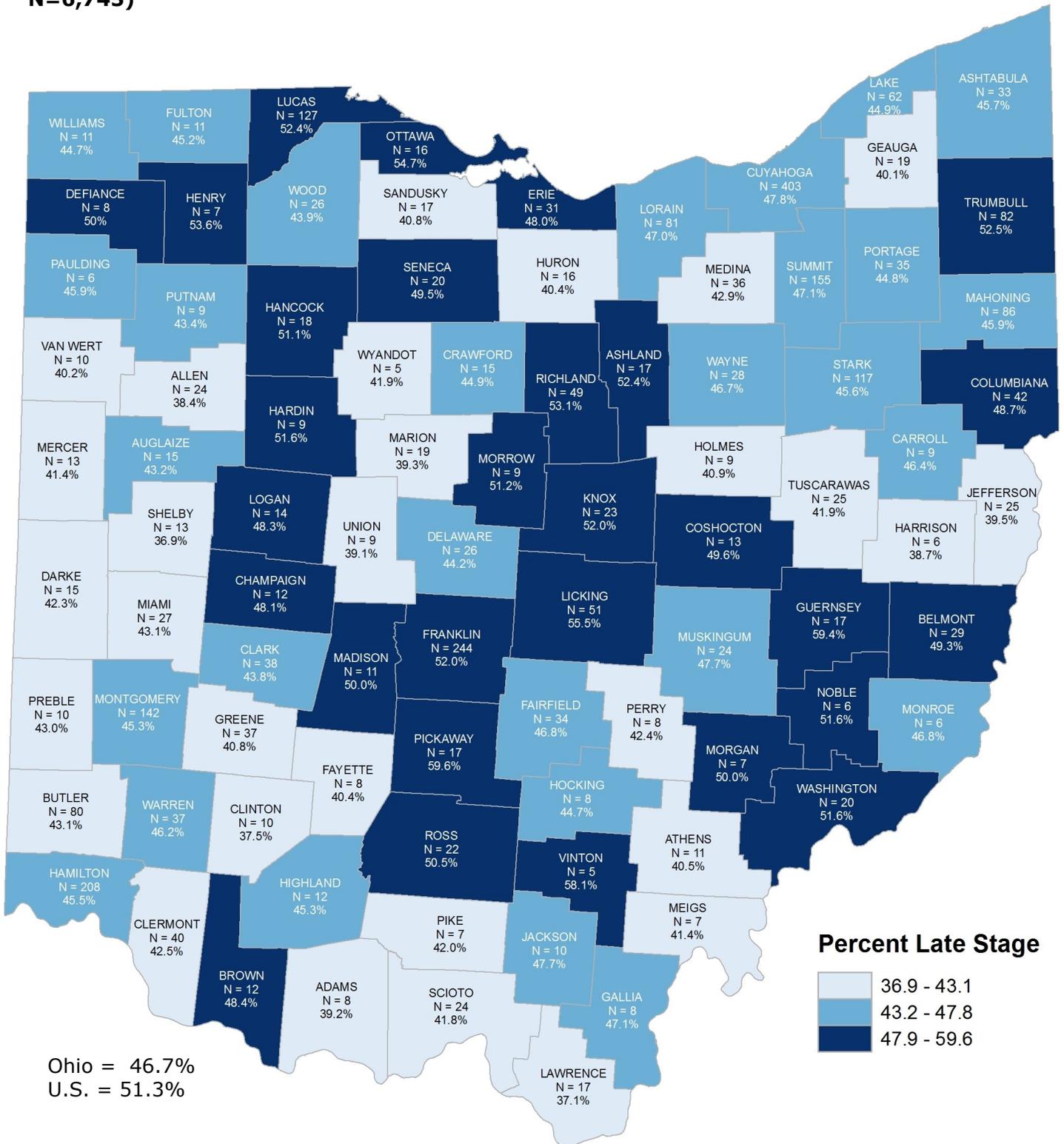
Source: Surveillance Epidemiology and End Results Program, *SEER Cancer Statistics Review, 1975-2008*, National Cancer Institute, 2011.

- Table 2.1 shows that the five-year survival probability for colon and rectum cancer decreases with advancing stage. For each stage, survival probability is greater among whites (both males and females), compared to blacks, with the exception of unstaged/unknown stage cancers.
- Figure 2.9 shows that the percentage of late stage colon and rectum cancers was greatest among those who were uninsured at diagnosis, followed by those with Medicaid, private insurance and Medicare as their primary insurance payer. Those with unknown insurance type had the highest percentage of unstaged/unknown stage colon and rectum cancers.

Figure 2.9: Colon and Rectum Cancer: Proportion of Cases (%) by Stage and Primary Payer (Insurance) at Diagnosis in Ohio, 2004-2008

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 2.10: Colon and Rectum Cancer: Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by County of Residence, Ohio, 2004-2008 (Average Annual N=6,745)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.
* Note: Each category represents approximately 33%, or 29, of the 88 Ohio counties.

Table 2.2: Colon and Rectum Cancer: Proportion of Cases (%) by County of Residence and Stage at Diagnosis in Ohio and the U.S. (SEER), 2004-2008

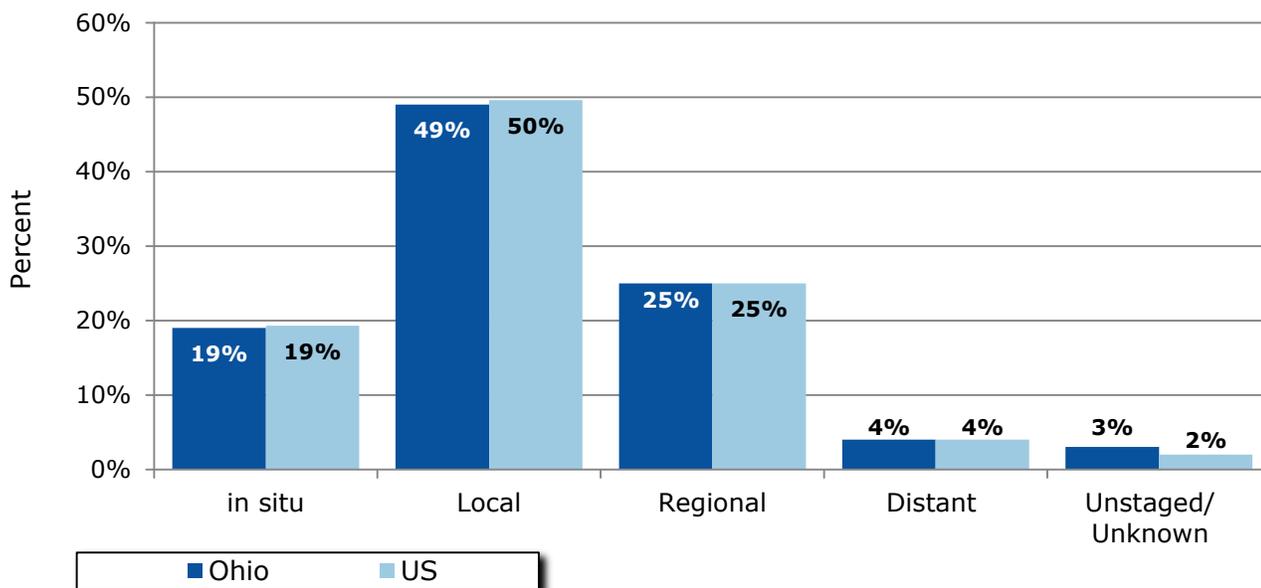
| | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases |
|-------------|---------------|--------------|---------------------|----------------------|
| Ohio | 44% | 47% | 10% | 6,745 |
| SEER | 43% | 52% | 5% | |
| Adams | 43% | 39% | 18% | 20 |
| Allen | 51% | 38% | 11% | 62 |
| Ashland | 40% | 52% | 8% | 33 |
| Ashtabula | 44% | 46% | 10% | 73 |
| Athens | 50% | 40% | 10% | 26 |
| Auglaize | 48% | 43% | 9% | 35 |
| Belmont | 43% | 49% | 8% | 58 |
| Brown | 42% | 48% | 10% | 24 |
| Butler | 47% | 43% | 9% | 185 |
| Carroll | 48% | 46% | 5% | 19 |
| Champaign | 40% | 48% | 12% | 26 |
| Clark | 46% | 44% | 10% | 87 |
| Clermont | 48% | 42% | 9% | 93 |
| Clinton | 52% | 38% | 11% | 26 |
| Columbiana | 36% | 49% | 15% | 85 |
| Coshocton | 45% | 50% | 5% | 27 |
| Crawford | 45% | 45% | 10% | 33 |
| Cuyahoga | 42% | 48% | 10% | 843 |
| Darke | 42% | 42% | 15% | 35 |
| Defiance | 45% | 50% | 5% | 16 |
| Delaware | 47% | 44% | 9% | 58 |
| Erie | 45% | 48% | 7% | 65 |
| Fairfield | 42% | 47% | 11% | 72 |
| Fayette | 39% | 40% | 20% | 19 |
| Franklin | 40% | 52% | 8% | 469 |
| Fulton | 47% | 45% | 8% | 25 |
| Gallia | 47% | 47% | 6% | 17 |
| Geauga | 48% | 40% | 12% | 48 |
| Greene | 49% | 41% | 11% | 90 |
| Guernsey | 35% | 59% | 6% | 29 |
| Hamilton | 45% | 45% | 10% | 457 |
| Hancock | 42% | 51% | 7% | 36 |
| Hardin | 37% | 52% | 11% | 18 |
| Harrison | 55% | 39% | 7% | 15 |
| Henry | 35% | 54% | 12% | 14 |
| Highland | 45% | 45% | 10% | 27 |
| Hocking | 41% | 45% | 14% | 19 |
| Holmes | 44% | 41% | 15% | 22 |
| Huron | 51% | 40% | 9% | 40 |
| Jackson | 40% | 48% | 12% | 21 |
| Jefferson | 50% | 40% | 10% | 62 |
| Knox | 40% | 52% | 8% | 44 |
| Lake | 40% | 45% | 15% | 138 |
| Lawrence | 52% | 37% | 11% | 46 |
| Licking | 36% | 55% | 9% | 92 |
| Logan | 45% | 48% | 6% | 29 |
| Lorain | 44% | 47% | 9% | 172 |
| Lucas | 41% | 52% | 6% | 242 |
| Madison | 42% | 50% | 8% | 21 |
| Mahoning | 39% | 46% | 15% | 187 |
| Marion | 51% | 39% | 10% | 49 |
| Medina | 49% | 43% | 8% | 83 |
| Meigs | 46% | 41% | 13% | 17 |
| Mercer | 46% | 41% | 12% | 32 |
| Miami | 50% | 43% | 7% | 64 |
| Monroe | 52% | 47% | 2% | 12 |
| Montgomery | 45% | 45% | 9% | 314 |
| Morgan | 42% | 50% | 8% | 13 |
| Morrow | 39% | 51% | 10% | 17 |
| Muskingum | 44% | 48% | 8% | 51 |
| Noble | 35% | 52% | 13% | 12 |
| Ottawa | 39% | 55% | 7% | 30 |
| Paulding | 43% | 46% | 11% | 12 |
| Perry | 51% | 42% | 7% | 20 |
| Pickaway | 33% | 60% | 8% | 29 |
| Pike | 47% | 42% | 11% | 16 |
| Portage | 48% | 45% | 7% | 77 |
| Preble | 49% | 43% | 8% | 24 |
| Putnam | 46% | 43% | 10% | 21 |
| Richland | 40% | 53% | 7% | 93 |
| Ross | 37% | 50% | 13% | 44 |
| Sandusky | 52% | 41% | 8% | 43 |
| Scioto | 48% | 42% | 10% | 57 |
| Seneca | 41% | 50% | 9% | 41 |
| Shelby | 50% | 37% | 13% | 36 |
| Stark | 44% | 46% | 10% | 256 |
| Summit | 44% | 47% | 9% | 328 |
| Trumbull | 38% | 52% | 10% | 157 |
| Tuscarawas | 46% | 42% | 12% | 60 |
| Union | 50% | 39% | 11% | 22 |
| Van Wert | 45% | 40% | 15% | 25 |
| Vinton | 37% | 58% | 5% | 9 |
| Warren | 44% | 46% | 10% | 81 |
| Washington | 46% | 52% | 3% | 38 |
| Wayne | 43% | 47% | 10% | 60 |
| Williams | 49% | 45% | 7% | 25 |
| Wood | 47% | 44% | 9% | 60 |
| Wyandot | 45% | 42% | 13% | 12 |

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Female Breast Cancer

Figure 3.1 shows that there were only very slight differences in female breast cancer stage at diagnosis in Ohio, compared to the United States.

Figure 3.1: Female Breast Cancer: Proportion of Cases (%) by Stage at Diagnosis in Ohio, with Comparison to the U.S. (SEER), 2004-2008 (Average Annual N=10,040)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Figure 3.2 shows that, compared to whites, in Ohio:

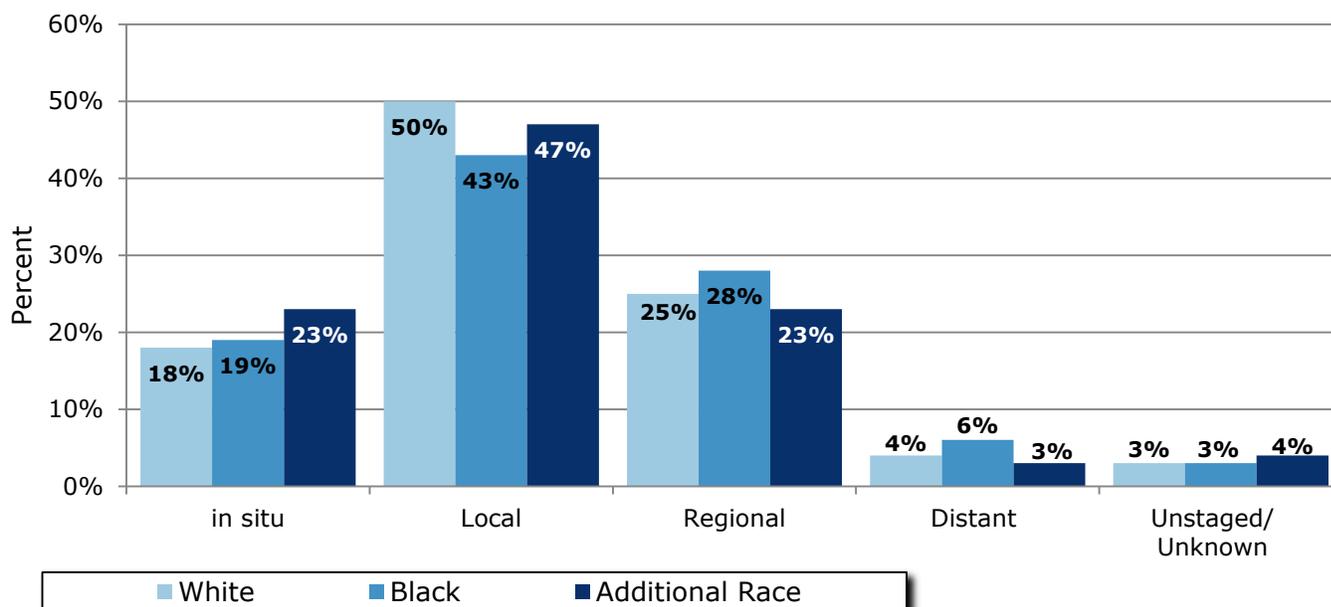
- There were similar percentages of female breast cancers among blacks diagnosed at *in situ* and distant stages and with an unstaged/unknown stage, a lower percentage diagnosed at the localized stage, and a higher percentage diagnosed at the regional stage.
- There were higher percentages of female breast cancers among additional races diagnosed at the *in situ* stage, and lower percentages of female breast cancers diagnosed at the localized stage. Percentages for regional, distant and unstaged/unknown stage cancers were similar.

Figure 3.3 shows that, in Ohio:

- Percentages of female breast cancers diagnosed at the localized stage increased with advancing age group, while percentages diagnosed at regional stage decreased with increasing age group. No clear trend by age group was apparent for breast cancers diagnosed at *in situ* and distant stages and for those with an unstaged/unknown stage.

Female Breast Cancer

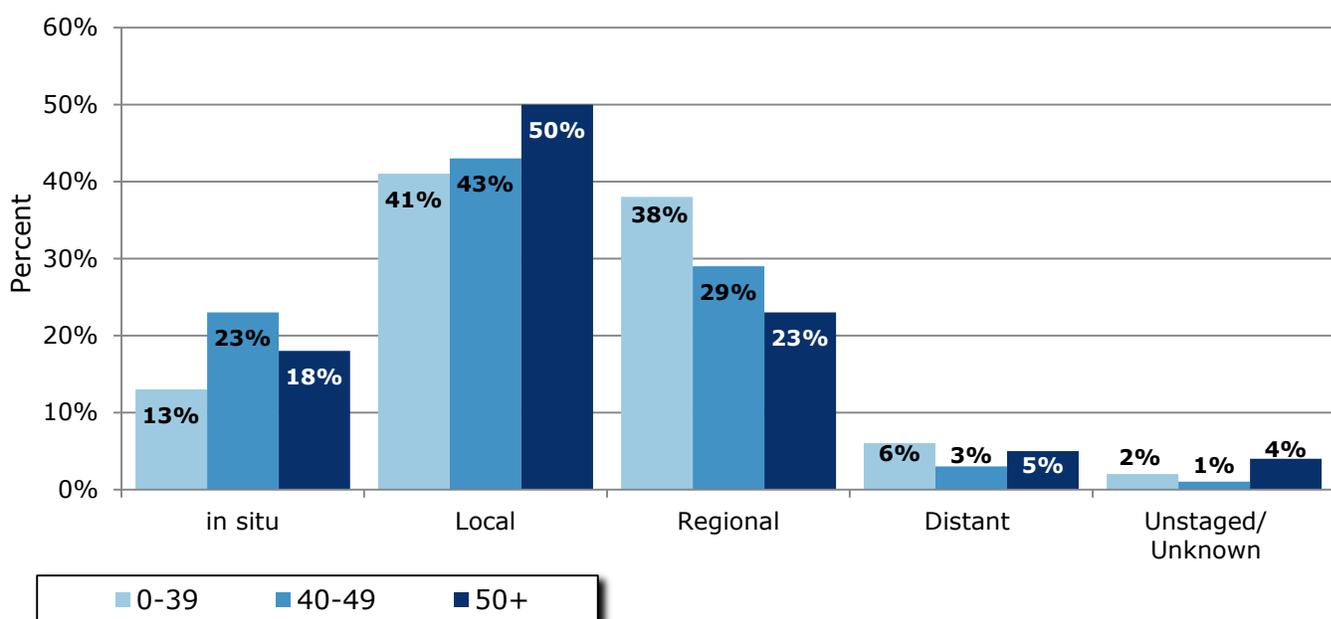
Figure 3.2: Female Breast Cancer: Proportion of Cases (%) by Stage at Diagnosis and Race¹ in Ohio, 2004-2008 (Average Annual N=10,040)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

¹Additional Race includes Asian/Pacific Islander, American Indian/Alaskan Native, Other and Unknown races.

Figure 3.3: Female Breast Cancer: Proportion of Cases (%) by Stage at Diagnosis and Age Group in Ohio, 2004-2008 (Average Annual N=10,040)

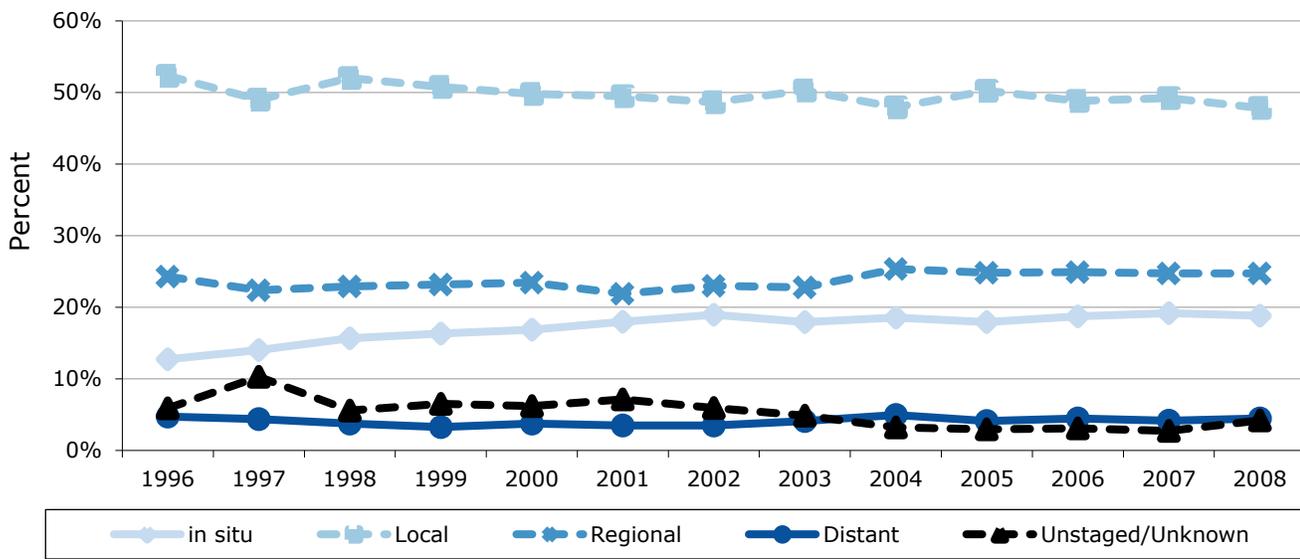


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Female Breast Cancer

Figure 3.4 shows that the proportion of female breast cancer cases diagnosed at *in situ* stage increased from 1996 to 2008, while the proportion diagnosed at localized stage slightly decreased over this time period. The percentages diagnosed at regional and distant stages remained relatively constant. Some of the changes over time may be explained by changes in the proportion of female breast cancer cases reported unstaged/unknown stage.

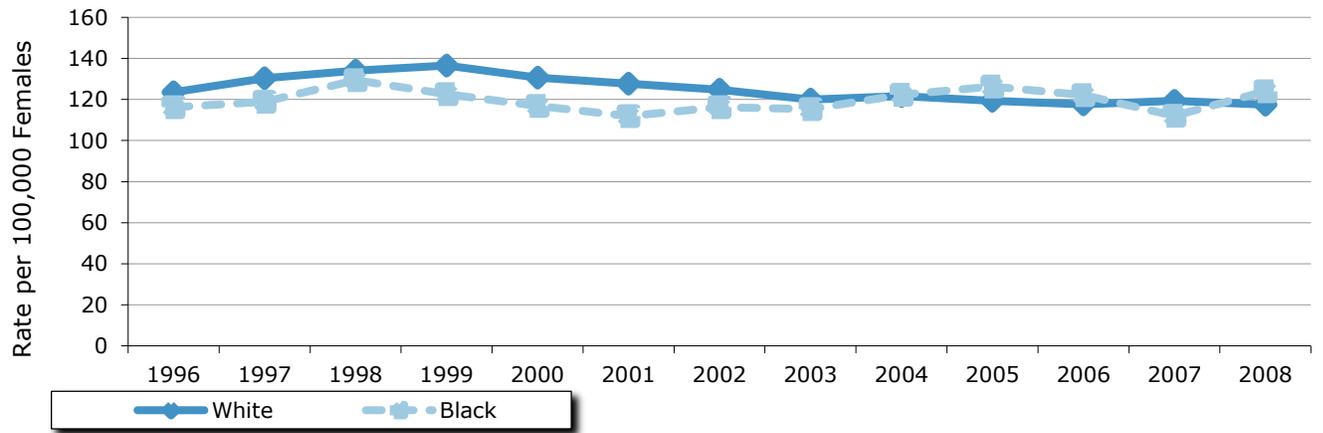
Figure 3.4: Female Breast Cancer: Trends in the Proportion of Cases (%) by Stage at Diagnosis in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

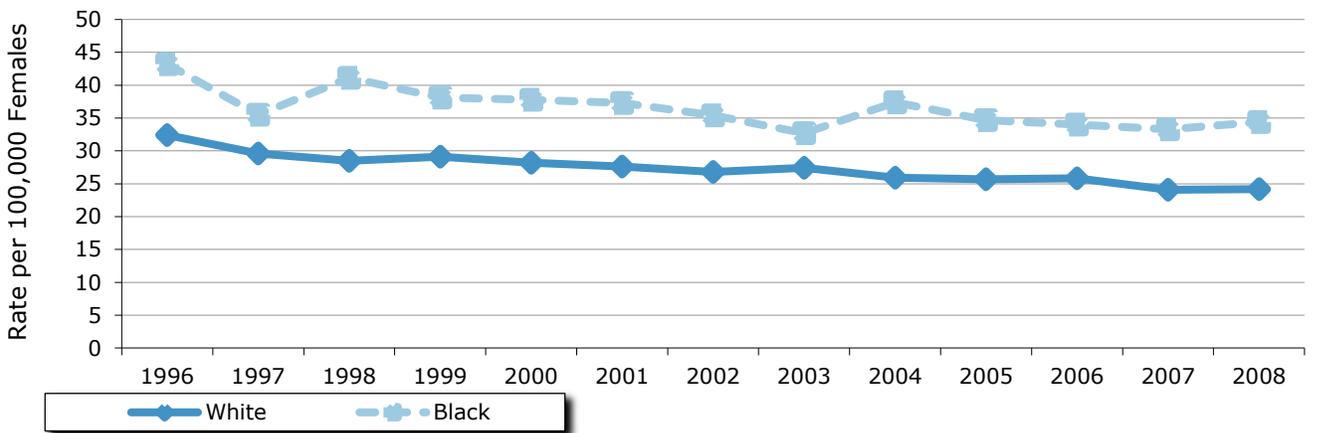
- Female breast cancer incidence rates slightly decreased among whites and was variable among blacks in Ohio from 1996 to 2008 (Figure 3.5), while mortality rates decreased among whites and blacks in Ohio during this time period (Figure 3.6).
- From 1996 to 2008, there was an increase in the percentage of female breast cancer cases diagnosed at late stage in Ohio among blacks, while the percentage for whites was more variable (Figure 3.7).

Figure 3.5: Female Breast Cancer: Trends in Average Annual Age-adjusted Incidence Rates per 100,000 Females by Race in Ohio, 1996-2008



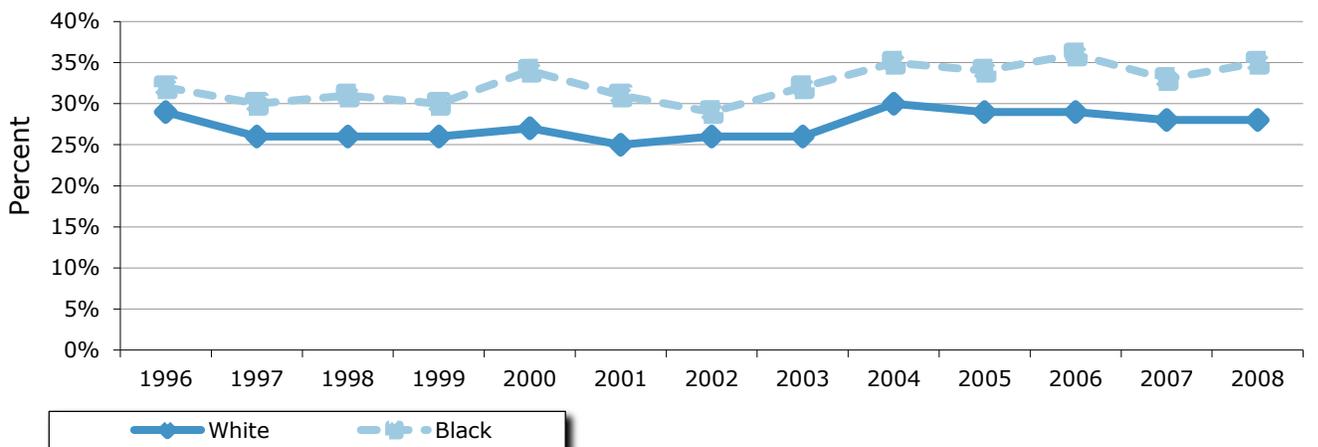
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 3.6: Female Breast Cancer: Trends in Average Annual Age-adjusted Mortality Rates per 100,000 Females by Race in Ohio, 1996-2008



Source: Ohio Vital Statistics Program, Ohio Department of Health, 2010.

Figure 3.7: Female Breast Cancer: Trends in the Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by Race in Ohio, 1996-2008



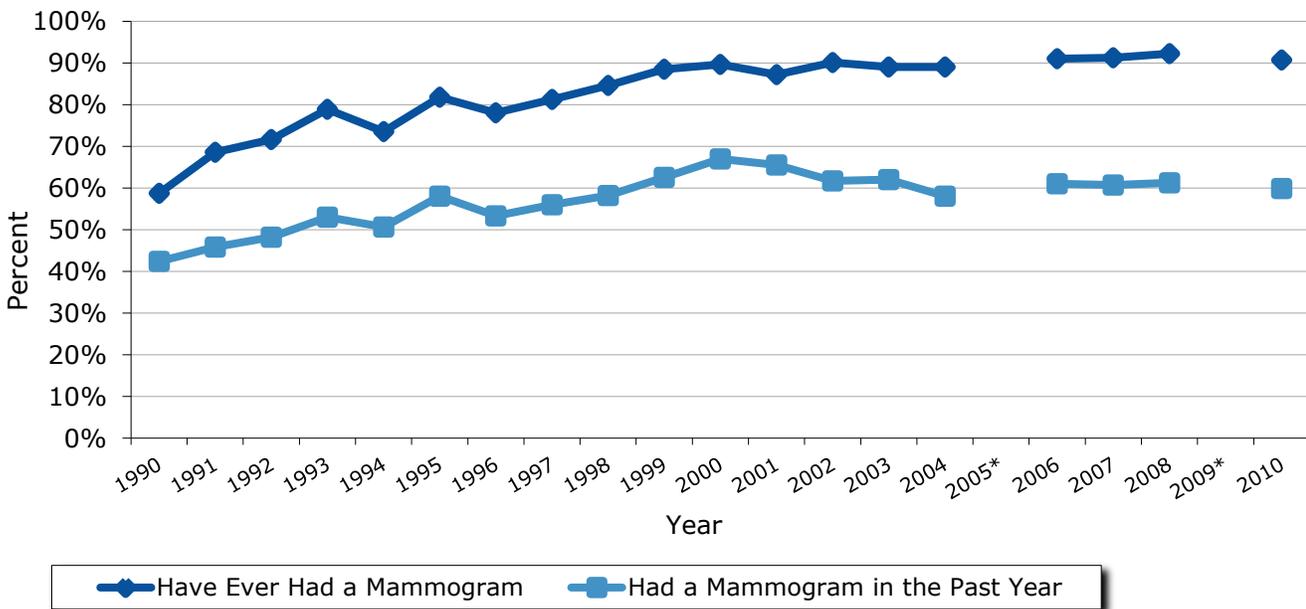
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Female Breast Cancer

Mammography is a procedure that can detect premalignant and malignant lesions in the breast.

- Figure 3.8 shows that the prevalence of ever having had a mammogram or having a mammogram in the past year increased greatly among women 40 and older in Ohio from 1990 to 2010.
- Table 3.1 shows that five-year survival probability of female breast cancer decreases with advancing stages. For each stage, survival probability is greater among whites, compared to blacks.

Figure 3.8: Trend in Prevalence of Women 40 and Older Who Reported Having Had a Mammogram Ever or in the Past Year in Ohio, 1990-2010



Source: Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2011.

The weighted percentages were adjusted to: 1) probability of selection, *i.e.*, the number of different phone numbers that reach the household, the number of adults in each household, and the number of completed interviews in each cluster; and 2) demographic distribution, *i.e.*, age and sex.

"Don't Know" and "Refused" were excluded from the denominator. This can cause an artificially high percentage.

*The Ohio Behavioral Risk Factor Surveillance System Survey did not include mammography screening questions in 2005 and 2009.

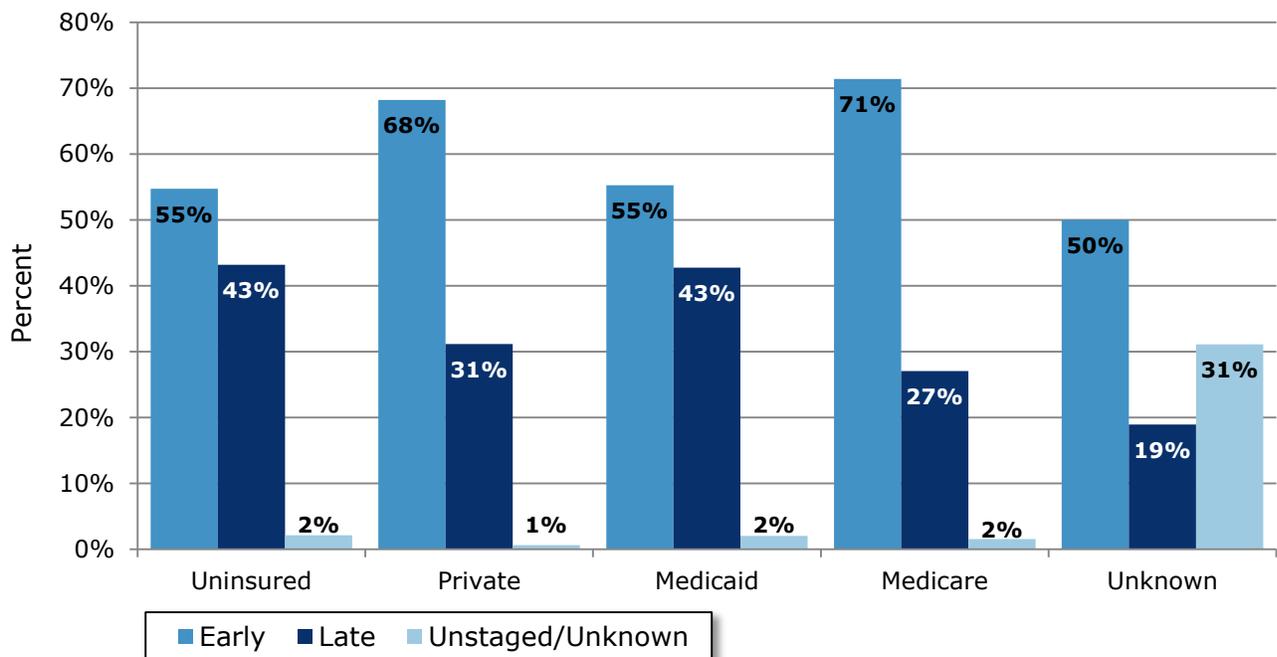
Table 3.1: Female Breast Cancer: Survival Probability (%) by Stage at Diagnosis and Race in the U.S. (SEER), 2001-2007

| Five-year Survival Probability (%) | | | |
|------------------------------------|---------|--------------|--------------|
| Stage | Overall | White Female | Black Female |
| All Stages | 89.1% | 90.4% | 77.0% |
| Localized | 98.6% | 99.3% | 92.6% |
| Regional | 83.8% | 85.2% | 72.1% |
| Distant | 23.4% | 24.9% | 15.0% |
| Unstaged/ Unknown Stage | 52.4% | 52.0% | 45.2% |

Source: Surveillance Epidemiology and End Results Program, *SEER Cancer Statistics Review, 1975-2008*, National Cancer Institute, 2011.

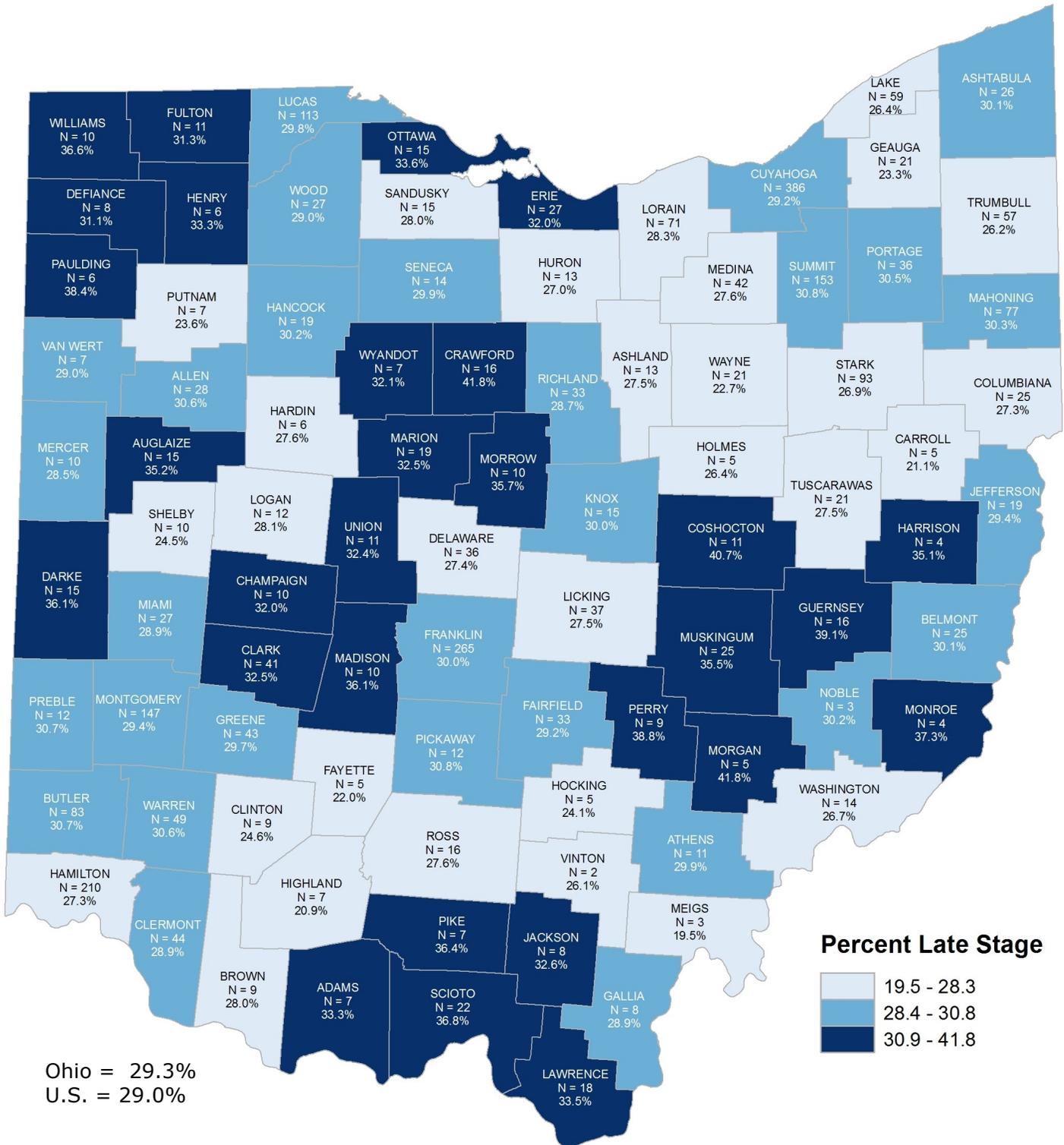
Figure 3.9 shows that the percentage of late stage female breast cancers was greatest among those who were uninsured and those with Medicaid as their primary insurance payer at diagnosis, followed by those with private insurance and Medicare as their primary payer. Those with unknown insurance type had the highest percentage of unstaged/unknown stage breast cancer.

Figure 3.9: Female Breast Cancer: Proportion of Cases (%) by Stage and Primary Payer (Insurance) at Diagnosis in Ohio, 2004-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 3.10: Female Breast Cancer: Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by County of Residence, Ohio, 2004-2008 (Average Annual N=10,040)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.
* Note: Each category represents approximately 33%, or 29, of the 88 Ohio counties.

Table 3.2: Female Breast Cancer: Proportion of Cases (%) by County of Residence and Stage at Diagnosis in Ohio and the U.S. (SEER), 2004-2008

| | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases | | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases |
|-------------|---------------|--------------|---------------------|----------------------|------------|---------------|--------------|---------------------|----------------------|
| Ohio | 67% | 29% | 3% | 10,040 | Lawrence | 62% | 33% | 5% | 53 |
| SEER | 69% | 29% | 2% | | Licking | 69% | 28% | 4% | 136 |
| Adams | 64% | 33% | 3% | 21 | Logan | 68% | 28% | 4% | 44 |
| Allen | 66% | 31% | 3% | 92 | Lorain | 69% | 28% | 3% | 250 |
| Ashland | 70% | 28% | 3% | 46 | Lucas | 68% | 30% | 2% | 381 |
| Ashtabula | 64% | 30% | 6% | 88 | Madison | 60% | 36% | 4% | 29 |
| Athens | 62% | 30% | 8% | 35 | Mahoning | 65% | 30% | 5% | 252 |
| Auglaize | 62% | 35% | 2% | 43 | Marion | 65% | 33% | 3% | 57 |
| Belmont | 67% | 30% | 3% | 82 | Medina | 70% | 28% | 3% | 154 |
| Brown | 69% | 28% | 3% | 31 | Meigs | 78% | 20% | 2% | 16 |
| Butler | 66% | 31% | 3% | 269 | Mercer | 65% | 28% | 6% | 34 |
| Carroll | 77% | 21% | 2% | 23 | Miami | 68% | 29% | 3% | 92 |
| Champaign | 65% | 32% | 3% | 30 | Monroe | 58% | 37% | 5% | 12 |
| Clark | 63% | 32% | 5% | 125 | Montgomery | 68% | 29% | 3% | 500 |
| Clermont | 69% | 29% | 2% | 151 | Morgan | 53% | 42% | 5% | 11 |
| Clinton | 74% | 25% | 1% | 37 | Morrow | 54% | 36% | 11% | 28 |
| Columbiana | 66% | 27% | 6% | 92 | Muskingum | 62% | 36% | 2% | 70 |
| Coshocton | 57% | 41% | 2% | 27 | Noble | 67% | 30% | 2% | 9 |
| Crawford | 53% | 42% | 5% | 38 | Ottawa | 64% | 34% | 3% | 43 |
| Cuyahoga | 68% | 29% | 3% | 1324 | Paulding | 51% | 38% | 11% | 15 |
| Darke | 56% | 36% | 8% | 42 | Perry | 57% | 39% | 4% | 23 |
| Defiance | 64% | 31% | 4% | 27 | Pickaway | 66% | 31% | 3% | 40 |
| Delaware | 70% | 27% | 3% | 133 | Pike | 61% | 36% | 3% | 20 |
| Erie | 66% | 32% | 2% | 83 | Portage | 67% | 31% | 3% | 117 |
| Fairfield | 66% | 29% | 4% | 114 | Preble | 64% | 31% | 5% | 38 |
| Fayette | 74% | 22% | 4% | 22 | Putnam | 76% | 24% | 1% | 30 |
| Franklin | 67% | 30% | 3% | 883 | Richland | 69% | 29% | 2% | 116 |
| Fulton | 66% | 31% | 2% | 35 | Ross | 71% | 28% | 2% | 57 |
| Gallia | 69% | 29% | 2% | 27 | Sandusky | 69% | 28% | 3% | 54 |
| Geauga | 73% | 23% | 3% | 89 | Scioto | 61% | 37% | 2% | 59 |
| Greene | 66% | 30% | 4% | 146 | Seneca | 67% | 30% | 3% | 48 |
| Guernsey | 59% | 39% | 1% | 41 | Shelby | 67% | 25% | 8% | 42 |
| Hamilton | 70% | 27% | 3% | 770 | Stark | 70% | 27% | 3% | 344 |
| Hancock | 67% | 30% | 3% | 64 | Summit | 67% | 31% | 3% | 495 |
| Hardin | 69% | 28% | 4% | 21 | Trumbull | 71% | 26% | 3% | 218 |
| Harrison | 56% | 35% | 9% | 11 | Tuscarawas | 69% | 27% | 3% | 76 |
| Henry | 64% | 33% | 2% | 18 | Union | 60% | 32% | 8% | 35 |
| Highland | 77% | 21% | 2% | 32 | Van Wert | 67% | 29% | 4% | 25 |
| Hocking | 71% | 24% | 5% | 22 | Vinton | 67% | 26% | 7% | 9 |
| Holmes | 58% | 26% | 15% | 18 | Warren | 67% | 31% | 2% | 160 |
| Huron | 69% | 27% | 4% | 48 | Washington | 69% | 27% | 4% | 53 |
| Jackson | 65% | 33% | 2% | 26 | Wayne | 73% | 23% | 4% | 91 |
| Jefferson | 68% | 29% | 2% | 65 | Williams | 62% | 37% | 1% | 28 |
| Knox | 64% | 30% | 6% | 49 | Wood | 67% | 29% | 4% | 92 |
| Lake | 71% | 26% | 2% | 223 | Wyandot | 65% | 32% | 3% | 21 |

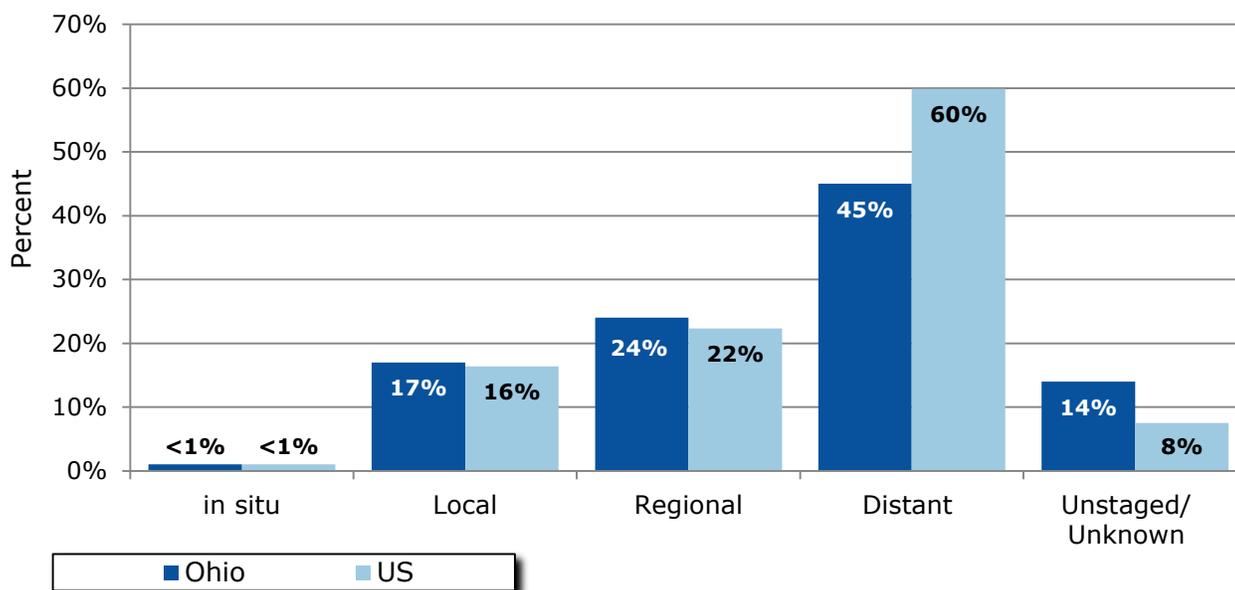
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Lung and Bronchus Cancer

Figure 4.1 shows that, in Ohio, compared to the United States:

- A similar percentage of lung and bronchus cancer cases were diagnosed at *in situ*, localized and regional stages.
- A lower percentage of lung and bronchus cancers were diagnosed at distant stage, and this may be partly due to the higher percentage reported with an unstaged/unknown stage.

Figure 4.1: Lung and Bronchus Cancer: Proportion of Cases (%) by Stage at Diagnosis in Ohio, with Comparison to the U.S. (SEER), 2004-2008 (Average Annual N=9,402)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

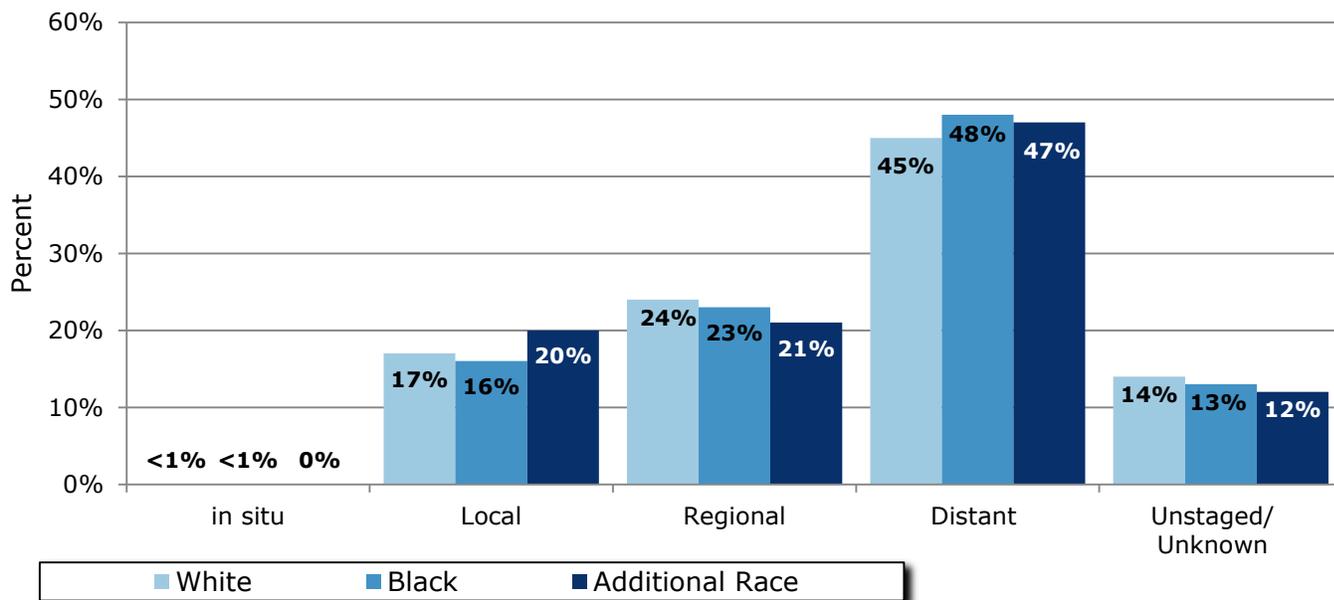
Figure 4.2 shows that, compared to whites, in Ohio:

- A higher percentage of lung and bronchus cancers among blacks were diagnosed at distant stage, and a similar percentage of blacks were diagnosed at other stages.
- There were higher percentages of lung and bronchus cancers among additional races diagnosed at the localized stage, while there were lower percentages of additional races diagnosed at the regional stage.

Figure 4.3 shows that, in Ohio, percentages of lung and bronchus cancers diagnosed at localized stage and unstaged/unknown stage increased with increasing age group, while percentages diagnosed at distant stage decreased with increasing age group.

Lung and Bronchus Cancer

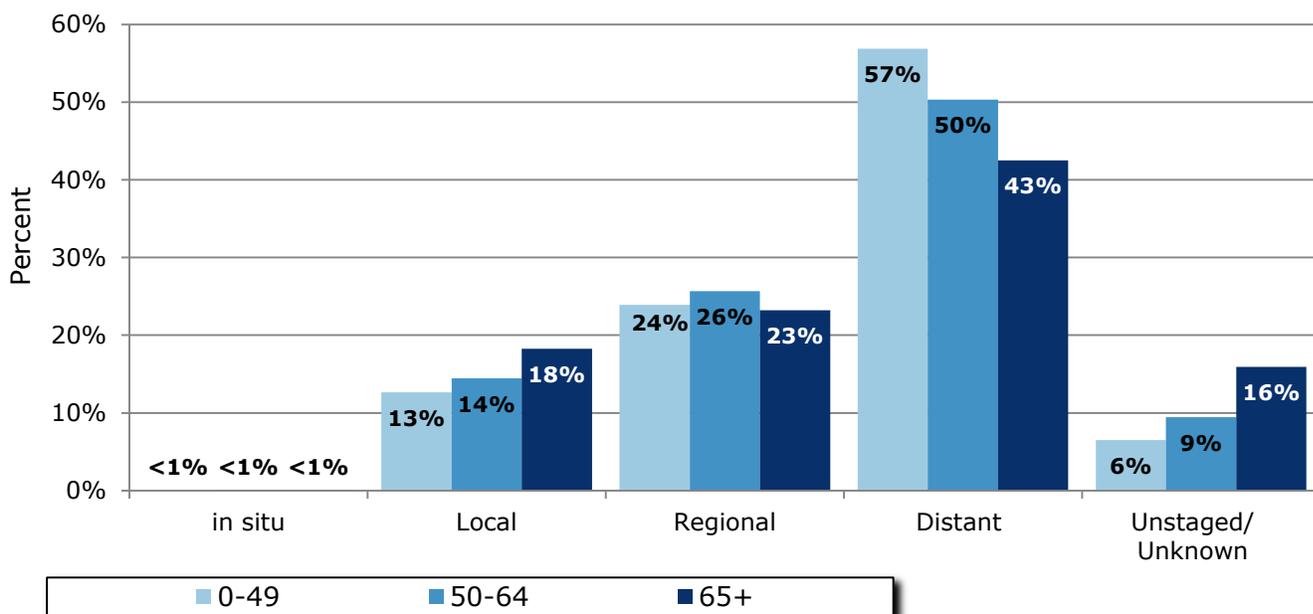
Figure 4.2: Lung and Bronchus Cancer: Proportion of Cases (%) by Stage at Diagnosis and Race¹ in Ohio, 2004-2008 (Average Annual N=9,402)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

¹Additional Race includes Asian/Pacific Islander, American Indian/Alaskan Native, Other and Unknown races.

Figure 4.3: Lung and Bronchus Cancer: Proportion of Cases (%) by Stage at Diagnosis and Age Group in Ohio, 2004-2008 (Average Annual N=9,402)

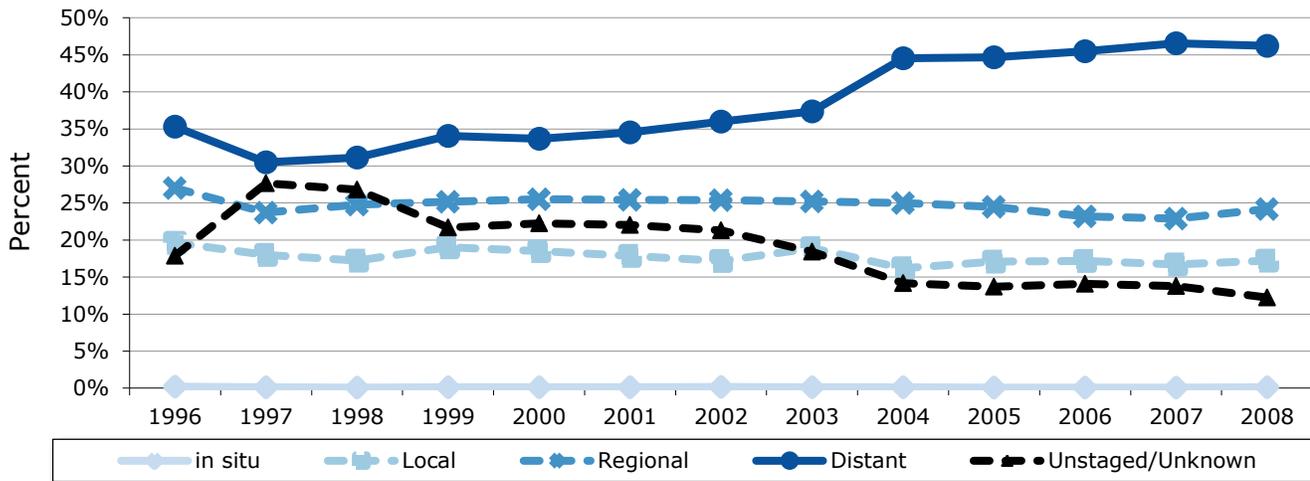


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Lung and Bronchus Cancer

Figure 4.4 shows that the proportion of lung and bronchus cancer cases diagnosed at the distant stage increased from 1996 to 2008, while the proportion diagnosed at localized and regional stages was relatively stable over this time period. Some of the changes over time may be explained by changes in the proportion of lung and bronchus cancer cases reported unstaged/unknown stage, which increased from 1996 to 1997 then decreased considerably over this time period.

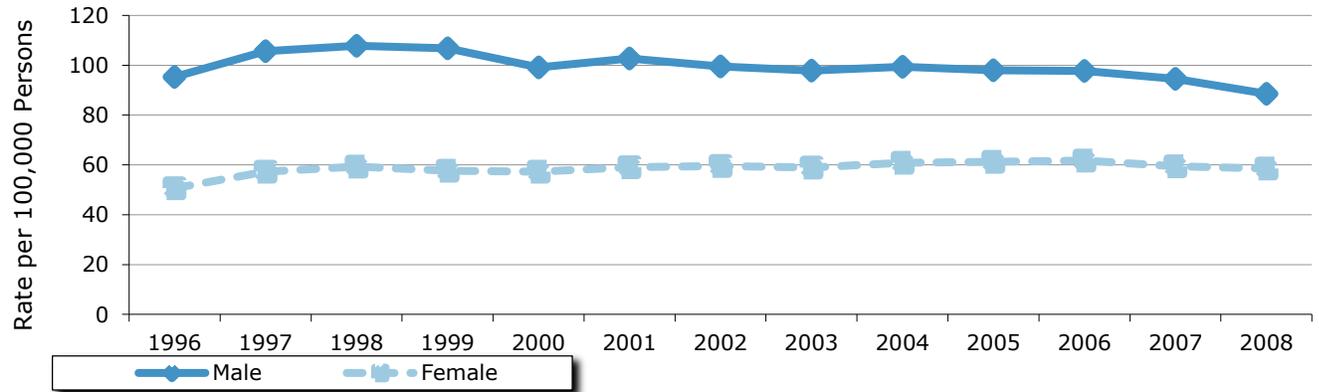
Figure 4.4: Lung and Bronchus Cancer: Trends in the Proportion of Cases (%) by Stage at Diagnosis in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

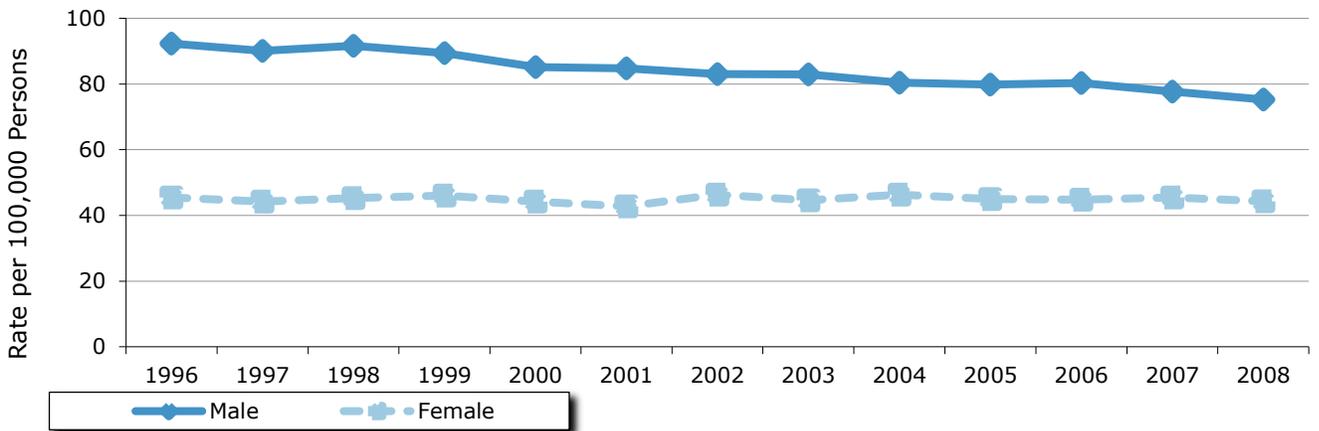
- Lung and bronchus cancer incidence (Figure 4.5) and mortality (Figure 4.6) rates slightly decreased among males in Ohio from 1996 to 2008, while the rates for females remained relatively constant over this time period.
- For both males and females, there was an increase in the percentage of lung and bronchus cancer cases diagnosed at late stage from 1996 to 2008 (Figure 4.7).

Figure 4.5: Lung and Bronchus Cancer: Trends in Average Annual Age-adjusted Incidence Rates per 100,000 Persons by Sex in Ohio, 1996-2008



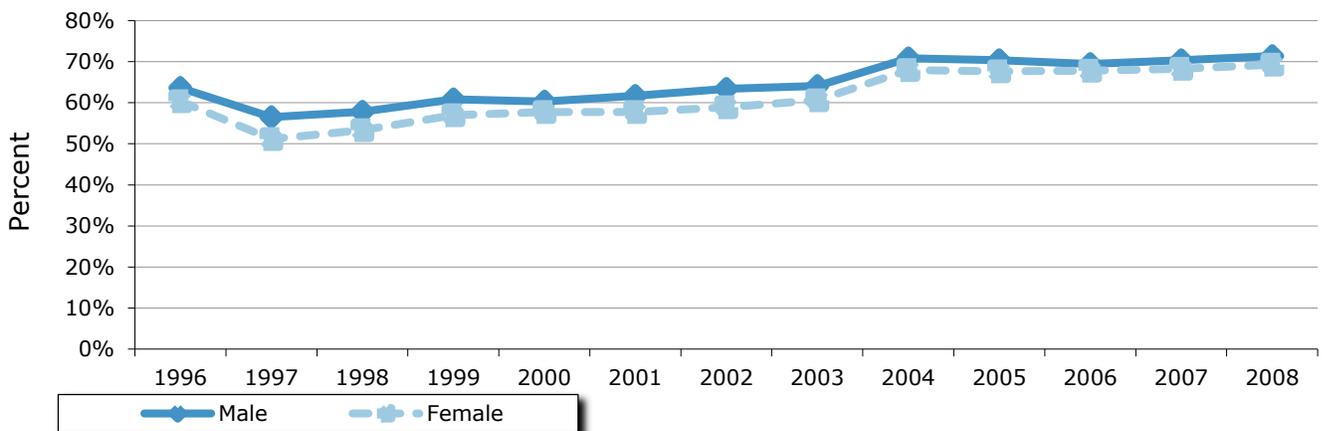
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 4.6: Lung and Bronchus Cancer: Trends in Average Annual Age-adjusted Mortality Rates per 100,000 Persons by Sex in Ohio, 1996-2008



Source: Ohio Vital Statistics Program, Ohio Department of Health, 2010.

Figure 4.7: Lung and Bronchus Cancer: Trends in the Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by Sex in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Lung and Bronchus Cancer

Did You Know?

Researchers are trying to develop effective early detection methods for lung and bronchus cancer. However, at present, there is no universally accepted screening test. Several lung and bronchus cancer screening methods being studied include sputum tests, chest X-rays and helical computed tomography (CT) scans.

- Table 4.1 shows that five-year survival probability decreases with advancing stage. For each stage, survival probability is greater among females, compared to males, for both whites and blacks.
- Small cell lung and bronchus cancer is an aggressive cancer in which the cells are small or oval-shaped. Non-small cell lung and bronchus cancer is more common and slightly less aggressive. For each stage (except unstaged/unknown stage) and for each race/sex group, survival probability is greater among those diagnosed with non-small cell lung cancer (Table 4.2).

Table 4.1: Lung and Bronchus Cancer: Survival Probability (%) by Stage at Diagnosis, Sex and Race in the U.S. (SEER), 2001-2007

| Five-year Survival Probability (%) | | | | | |
|------------------------------------|---------|------------|--------------|------------|--------------|
| Stage | Overall | White Male | White Female | Black Male | Black Female |
| All Stages | 15.1% | 13.7% | 18.3% | 11.6% | 14.5% |
| Localized | 52.0% | 48.0% | 57.0% | 39.5% | 48.3% |
| Regional | 24.2% | 22.0% | 26.8% | 21.2% | 24.0% |
| Distant | 3.6% | 2.9% | 4.1% | 3.3% | 3.6% |
| Unstaged/ Unknown Stage | 8.1% | 6.5% | 8.9% | 9.8% | 11.0% |

Source: Surveillance Epidemiology and End Results, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

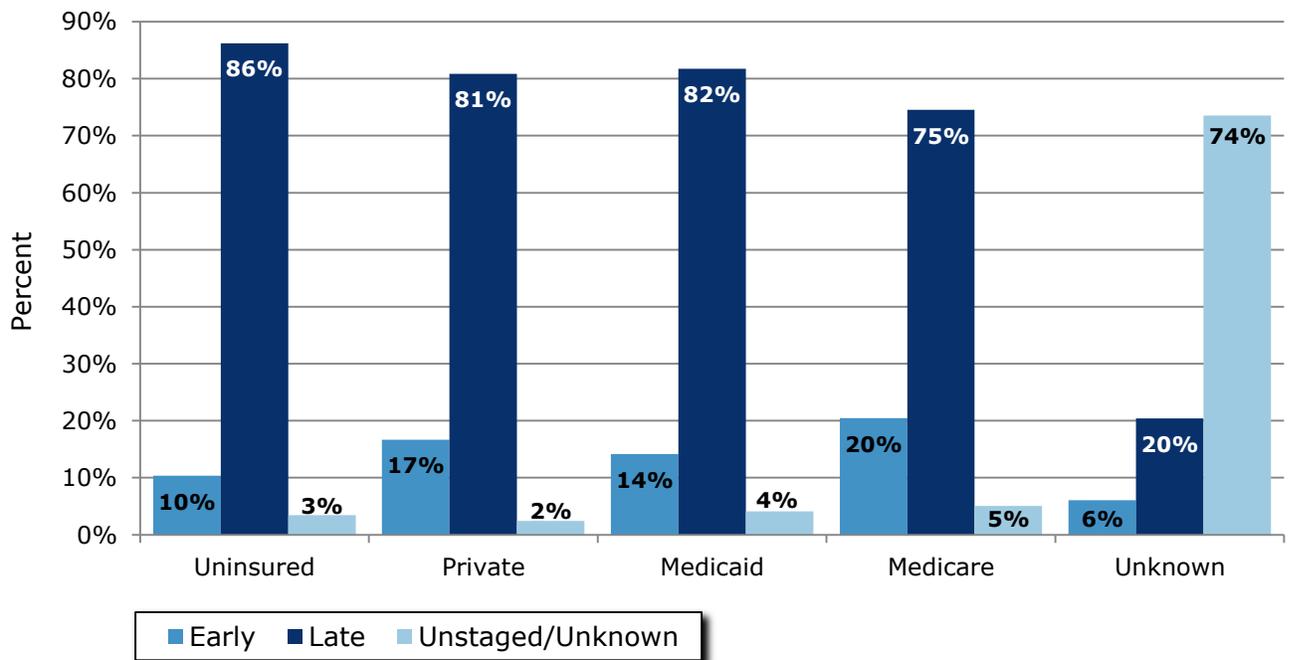
Table 4.2: Lung and Bronchus Cancer: Survival Probability (%) by Type and Stage at Diagnosis, Sex and Race in the U.S. (SEER), 2001-2007

| Five-year Survival Probability (%) | | | | | | | | | | |
|------------------------------------|-------------------|------------|--------------|--------------------|--------------------|-----------------------|------------|--------------|------------|--------------|
| | Small Cell Cancer | | | | | Non-small Cell Cancer | | | | |
| Stage | Overall | White Male | White Female | Black Male | Black Female | Overall | White Male | White Female | Black Male | Black Female |
| All Stages | 6.1% | 4.7% | 7.4% | 5.0% | 5.6% | 17.1% | 15.1% | 20.3% | 12.3% | 15.7% |
| Localized | 21.5% | 22.1% | 23.3% | 15.8% ^a | 14.6% ^a | 53.4% | 49.3% | 58.7% | 40.4% | 50.1% |
| Regional | 13.5% | 13.6% | 15.4% | 12.3% | 12.6% | 25.8% | 23.7% | 28.9% | 21.9% | 25.5% |
| Distant | 2.7% | 2.6% | 3.4% | 2.7% | 2.4% | 3.8% | 3.1% | 4.3% | 3.4% | 3.8% |
| Unstaged/ Unknown Stage | 8.5% | 8.6% | 11.0% | 7.4% | 7.0% | 8.1% | 6.6% | 8.7% | 10.1% | 11.3% |

Source: Surveillance Epidemiology and End Results Program, *SEER Cancer Statistics Review, 1975-2008*, National Cancer Institute, 2011.

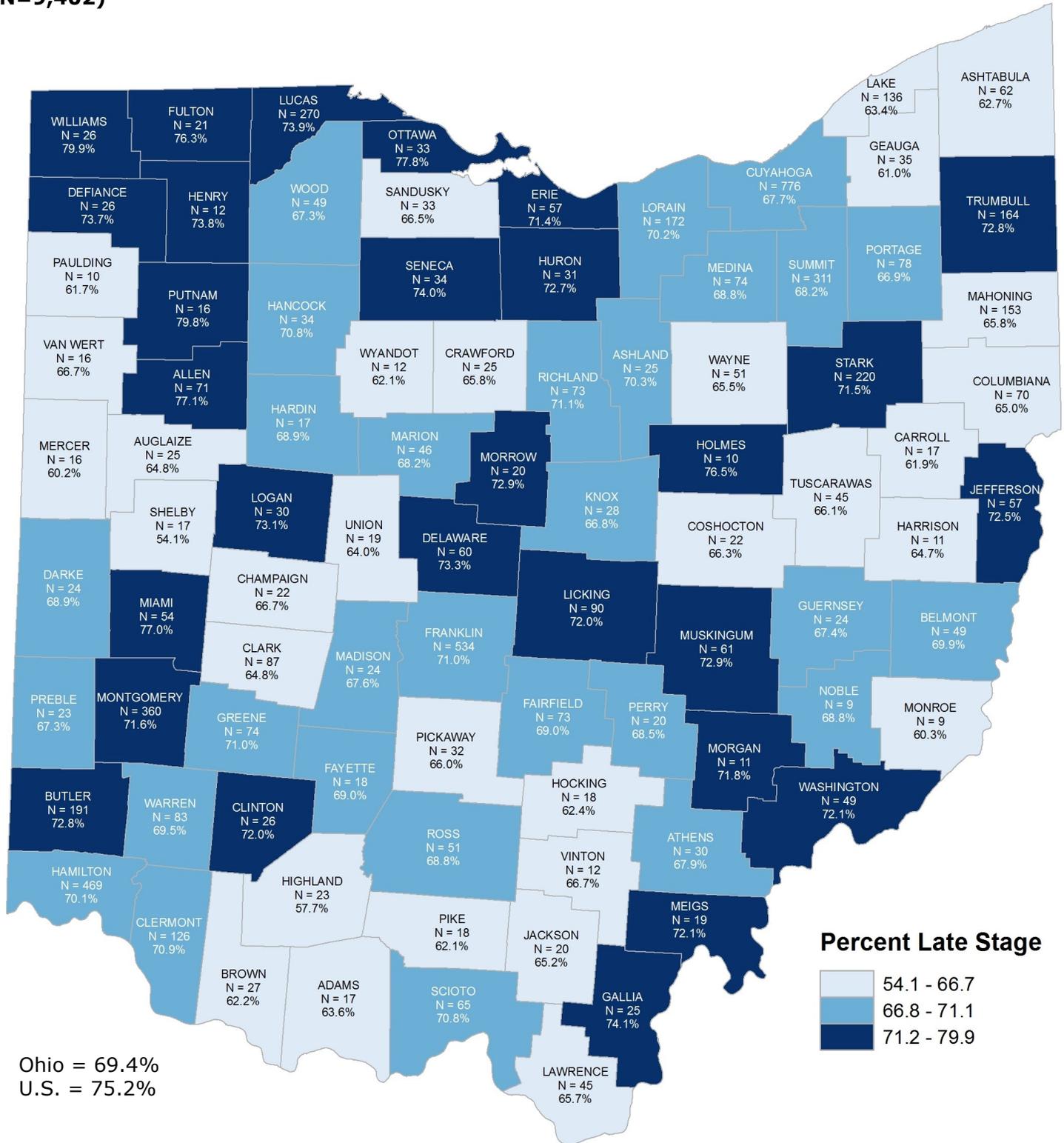
Figure 4.8 shows that the percentage of lung and bronchus cancers diagnosed at late stage was highest among those who were uninsured and was lowest among those with Medicare as their primary insurance payer at diagnosis. Those with unknown insurance had the highest percentage of unstaged/unknown stage lung and bronchus cancer.

Figure 4.8: Lung and Bronchus Cancer: Proportion of Cases by Stage and Primary Payer (Insurance) at Diagnosis in Ohio, 2004-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 4.9: Lung and Bronchus Cancer: Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by County of Residence, Ohio, 2004-2008 (Average Annual N=9,402)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.
* Note: Each category represents approximately 33%, or 29, of the 88 Ohio counties.

Table 4.3: Lung and Bronchus Cancer: Proportion of Cases (%) by County of Residence and Stage at Diagnosis in Ohio and the U.S. (SEER), 2004-2008

| | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases |
|-------------|---------------|--------------|---------------------|----------------------|
| Ohio | 17% | 69% | 14% | 9,402 |
| SEER | 17% | 76% | 8% | |
| Adams | 17% | 64% | 19% | 26 |
| Allen | 14% | 77% | 9% | 92 |
| Ashland | 12% | 70% | 18% | 35 |
| Ashtabula | 15% | 63% | 22% | 99 |
| Athens | 15% | 68% | 17% | 44 |
| Auglaize | 22% | 65% | 13% | 39 |
| Belmont | 20% | 70% | 11% | 70 |
| Brown | 16% | 62% | 22% | 43 |
| Butler | 15% | 73% | 12% | 262 |
| Carroll | 20% | 62% | 18% | 27 |
| Champaign | 9% | 67% | 24% | 33 |
| Clark | 17% | 65% | 18% | 134 |
| Clermont | 21% | 71% | 8% | 178 |
| Clinton | 15% | 72% | 13% | 36 |
| Columbiana | 14% | 65% | 21% | 107 |
| Coshocton | 15% | 66% | 18% | 34 |
| Crawford | 17% | 66% | 18% | 37 |
| Cuyahoga | 17% | 68% | 15% | 1146 |
| Darke | 15% | 69% | 16% | 35 |
| Defiance | 13% | 74% | 13% | 35 |
| Delaware | 16% | 73% | 11% | 82 |
| Erie | 16% | 71% | 13% | 80 |
| Fairfield | 17% | 69% | 14% | 105 |
| Fayette | 12% | 69% | 19% | 26 |
| Franklin | 19% | 71% | 10% | 751 |
| Fulton | 11% | 76% | 13% | 27 |
| Gallia | 17% | 74% | 8% | 33 |
| Geauga | 20% | 61% | 19% | 58 |
| Greene | 18% | 71% | 11% | 104 |
| Guernsey | 19% | 67% | 14% | 36 |
| Hamilton | 19% | 70% | 11% | 668 |
| Hancock | 19% | 71% | 10% | 48 |
| Hardin | 19% | 69% | 12% | 24 |
| Harrison | 21% | 65% | 14% | 17 |
| Henry | 14% | 74% | 12% | 17 |
| Highland | 16% | 58% | 26% | 40 |
| Hocking | 21% | 62% | 16% | 28 |
| Holmes | 6% | 76% | 18% | 14 |
| Huron | 17% | 73% | 11% | 43 |
| Jackson | 18% | 65% | 17% | 31 |
| Jefferson | 19% | 72% | 8% | 79 |
| Knox | 19% | 67% | 14% | 42 |
| Lake | 17% | 63% | 20% | 214 |
| Lawrence | 14% | 66% | 20% | 69 |
| Licking | 15% | 72% | 13% | 126 |
| Logan | 13% | 73% | 13% | 42 |
| Lorain | 14% | 70% | 16% | 245 |
| Lucas | 17% | 74% | 9% | 365 |
| Madison | 17% | 68% | 15% | 35 |
| Mahoning | 15% | 66% | 19% | 233 |
| Marion | 14% | 68% | 18% | 68 |
| Medina | 18% | 69% | 13% | 108 |
| Meigs | 16% | 72% | 12% | 26 |
| Mercer | 21% | 60% | 19% | 27 |
| Miami | 16% | 77% | 7% | 70 |
| Monroe | 21% | 60% | 19% | 16 |
| Montgomery | 18% | 72% | 10% | 503 |
| Morgan | 18% | 72% | 10% | 16 |
| Morrow | 11% | 73% | 16% | 28 |
| Muskingum | 17% | 73% | 10% | 84 |
| Noble | 13% | 69% | 19% | 13 |
| Ottawa | 11% | 78% | 11% | 42 |
| Paulding | 23% | 62% | 15% | 16 |
| Perry | 14% | 69% | 17% | 29 |
| Pickaway | 18% | 66% | 16% | 49 |
| Pike | 18% | 62% | 20% | 29 |
| Portage | 18% | 67% | 15% | 117 |
| Preble | 21% | 67% | 11% | 34 |
| Putnam | 14% | 80% | 6% | 20 |
| Richland | 16% | 71% | 13% | 103 |
| Ross | 14% | 69% | 17% | 74 |
| Sandusky | 15% | 67% | 18% | 49 |
| Scioto | 18% | 71% | 11% | 91 |
| Seneca | 13% | 74% | 13% | 46 |
| Shelby | 14% | 54% | 31% | 32 |
| Stark | 15% | 71% | 13% | 308 |
| Summit | 17% | 68% | 15% | 455 |
| Trumbull | 17% | 73% | 11% | 225 |
| Tuscarawas | 9% | 66% | 25% | 68 |
| Union | 19% | 64% | 17% | 30 |
| Van Wert | 16% | 67% | 18% | 24 |
| Vinton | 18% | 67% | 15% | 17 |
| Warren | 21% | 69% | 10% | 119 |
| Washington | 18% | 72% | 9% | 68 |
| Wayne | 16% | 65% | 19% | 78 |
| Williams | 10% | 80% | 10% | 33 |
| Wood | 18% | 67% | 15% | 72 |
| Wyandot | 23% | 62% | 15% | 19 |

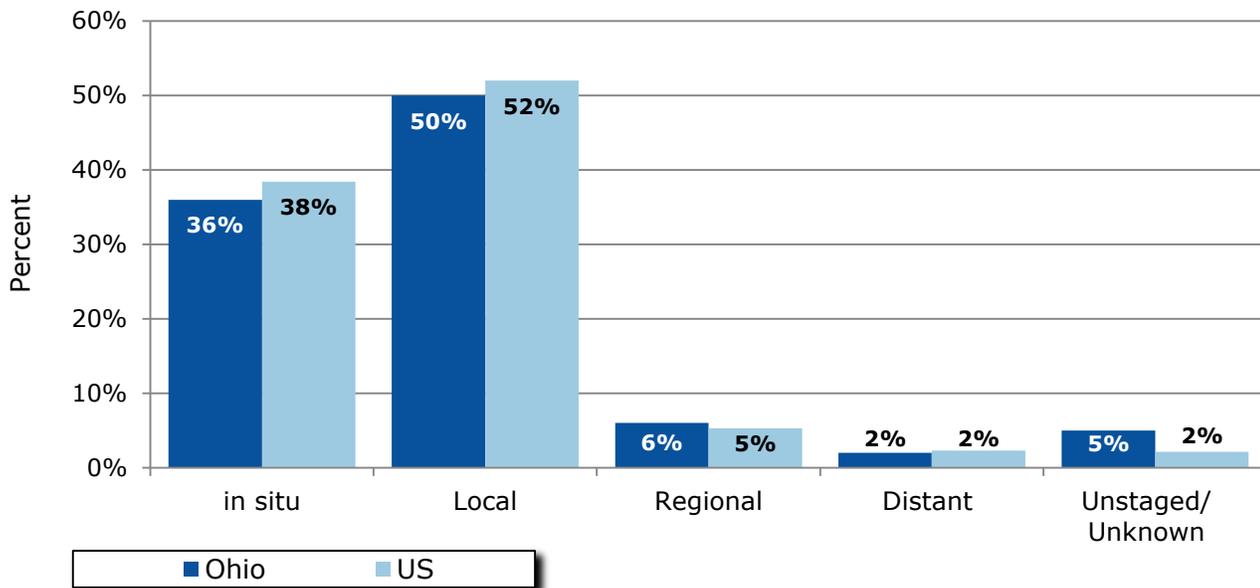
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Melanoma of the Skin

Figure 5.1 shows that, in Ohio, compared to the United States:

- There were similar percentages of melanomas of the skin diagnosed at each stage, with the exception of a higher percentage of melanoma cases reported as unstaged/unknown stage at diagnosis.

Figure 5.1: Melanoma of the Skin: Proportion of Cases (%) by Stage at Diagnosis in Ohio, with Comparison to the U.S. (SEER), 2004-2008 (Average Annual N=3,652)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Figure 5.2 shows that, compared to whites, in Ohio:

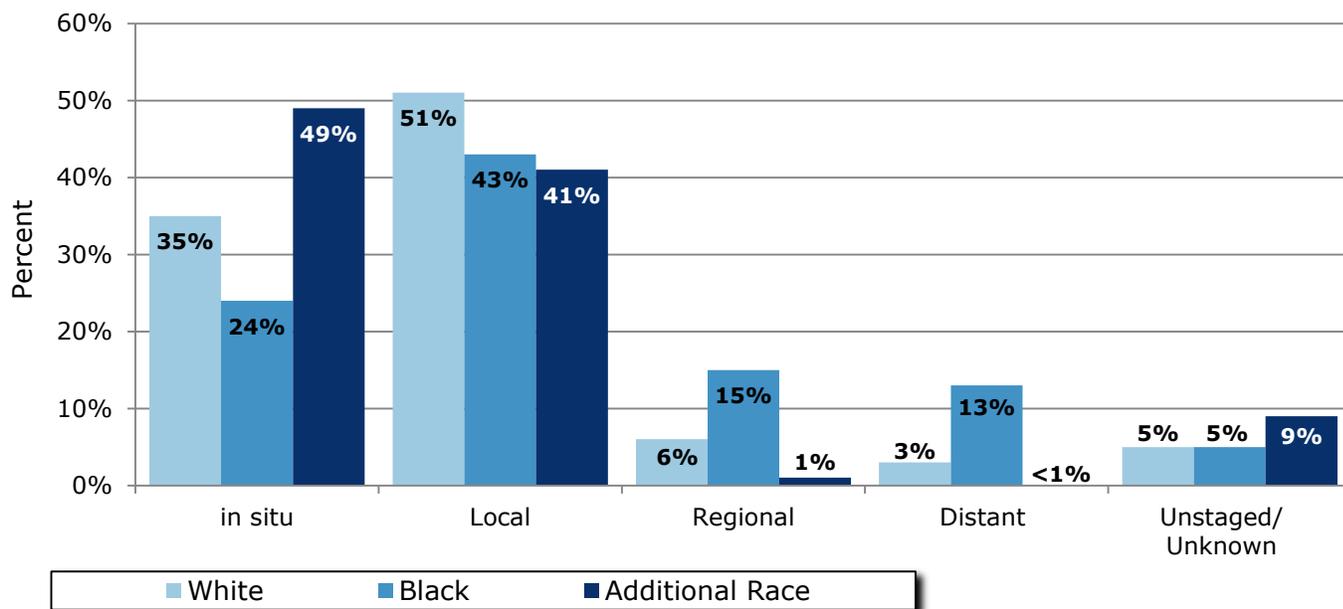
- Although melanoma of the skin is far less common among blacks, a greater percentage of cases among blacks were diagnosed at regional and distant stages, and a lower percentage of blacks were diagnosed at *in situ* and localized stages.
- There were higher percentages of melanoma of the skin cases among additional races diagnosed at the *in situ* stage and with an unstaged/unknown stage, while there were lower percentages of additional races diagnosed at localized, regional and distant stages.

Figure 5.3 shows that, in Ohio:

- Percentages of melanomas of the skin diagnosed at *in situ* stage increased with increasing age group, while percentages diagnosed localized stage decreased with increasing age group.

Melanoma of the Skin

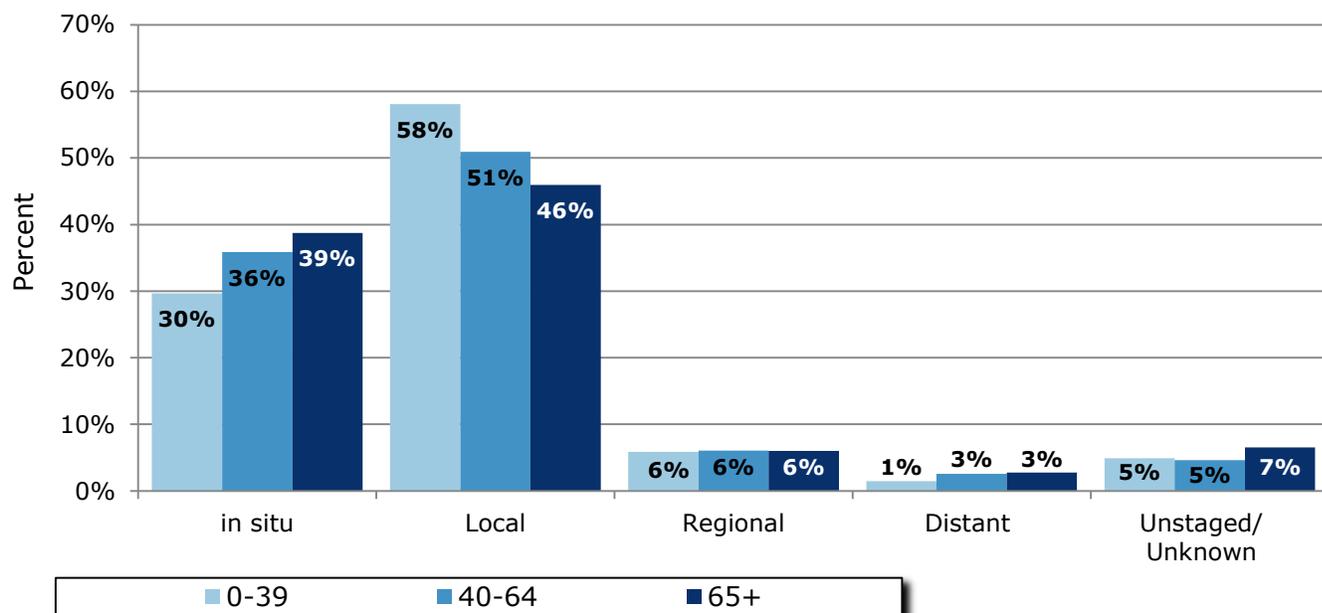
Figure 5.2: Melanoma of the Skin: Proportion of Cases (%) by Stage at Diagnosis and Race¹ in Ohio, 2004-2008 (Average Annual N=3,652)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

¹Additional Race includes Asian/Pacific Islander, American Indian/Alaskan Native, Other and Unknown races.

Figure 5.3: Melanoma of the Skin: Proportion of Cases (%) by Stage at Diagnosis and Age Group in Ohio, 2004-2008 (Average Annual N=3,652)

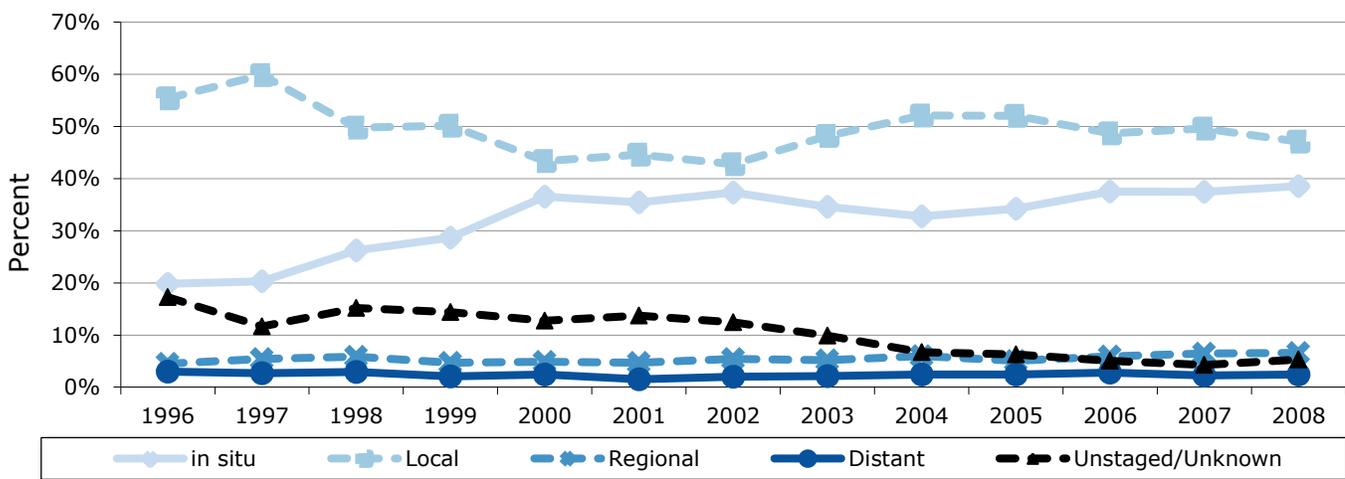


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Melanoma of the Skin

Figure 5.4 shows that the proportion of melanoma of the skin cases diagnosed at the localized stage was variable but decreased from 1996 to 2008, while the proportion diagnosed at *in situ* stage increased over this time period. The percentages diagnosed at regional and distant stages remained relatively constant. Some of the changes over time may be explained by changes in the proportion of melanoma of the skin cases reported as unstaged/unknown stage, which decreased over this time period.

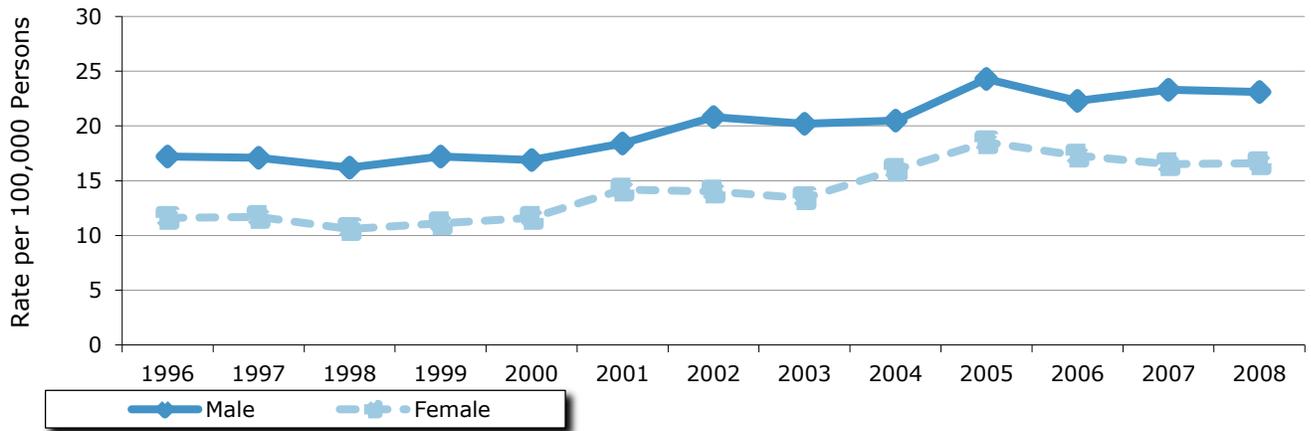
Figure 5.4: Melanoma of the Skin: Trends in the Proportion of Cases (%) by Stage at Diagnosis in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

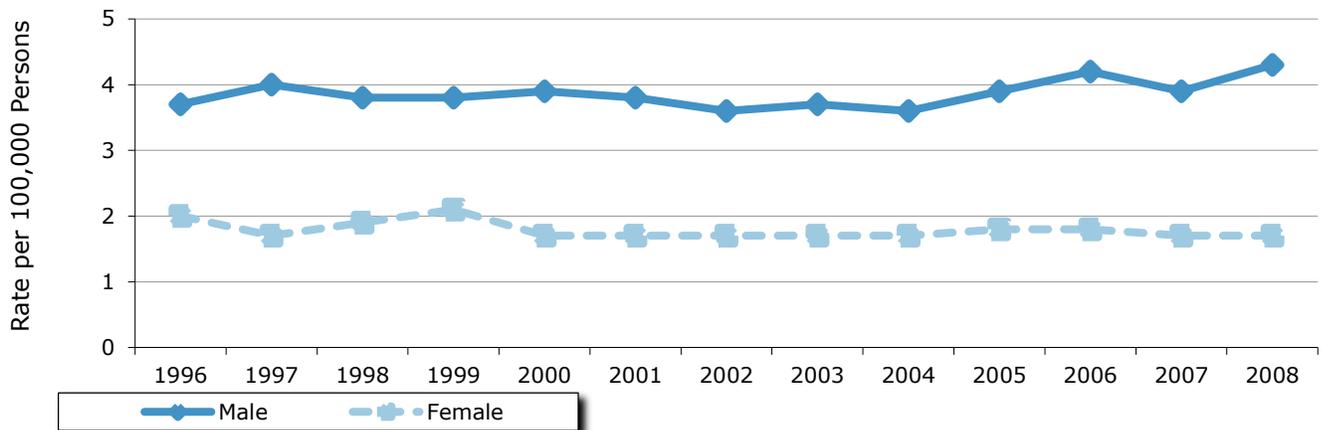
- Melanoma of the skin incidence rates (Figure 5.5) increased among males and females in Ohio from 1996 to 2008.
- Melanoma of the skin mortality rates (Figure 5.6) increased among males in Ohio from 1996 to 2008 and slightly decreased among females.
- For both males and females, there has been an increase in the percentage of melanomas of the skin diagnosed at late stage (Figure 5.7).

Figure 5.5: Melanoma of the Skin: Trends in Average Annual Age-adjusted Incidence Rates per 100,000 Persons by Sex in Ohio, 1996-2008



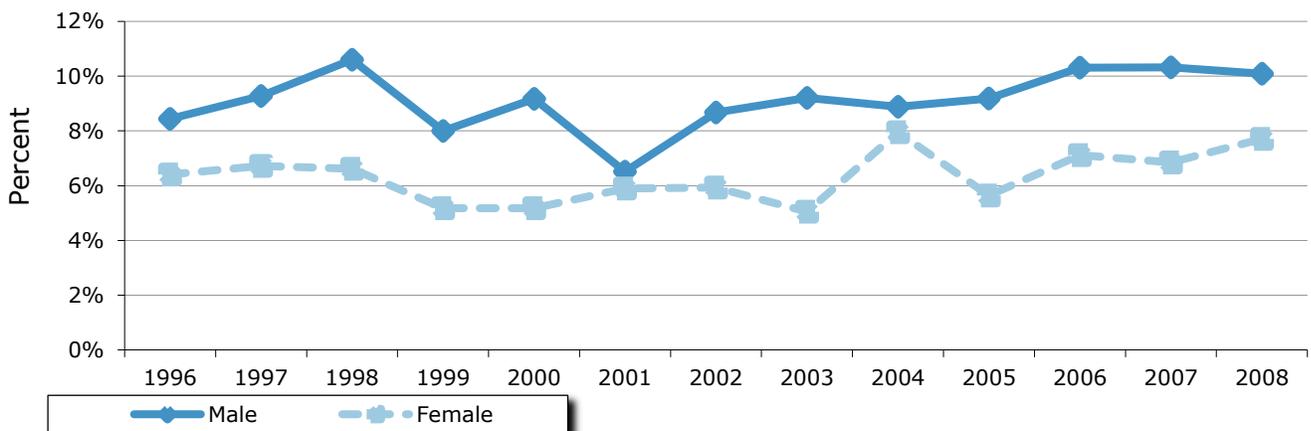
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 5.6: Melanoma of the Skin: Trends in Average Annual Age-adjusted Mortality Rates per 100,000 Persons by Sex in Ohio, 1996-2008



Source: Ohio Vital Statistics Program, Ohio Department of Health, 2010.

Figure 5.7: Melanoma of the Skin: Trends in the Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by Sex in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Melanoma of the Skin

Recognition of changes in skin growths or the appearance of new growths is the best way to find skin cancer at an early stage. Adults should practice skin self examination regularly and have their skin assessed by a dermatologist on a routine basis.

A simple ABCD rule outlines the warning signals of melanoma. Check Moles:

A is for **asymmetry**. One half of the mole does not match the other half.

B is for **border irregularity**. The edges are ragged, notched or blurred.

C is for **color**. The pigmentation is not uniform, with variable degrees of tan, brown or black.

D is for **diameter** greater than 6 millimeters.

6 mm



Although, in recent years more melanomas are being diagnosed between 3 and 6 millimeters. Any sudden or progressive increase in size should be of concern.

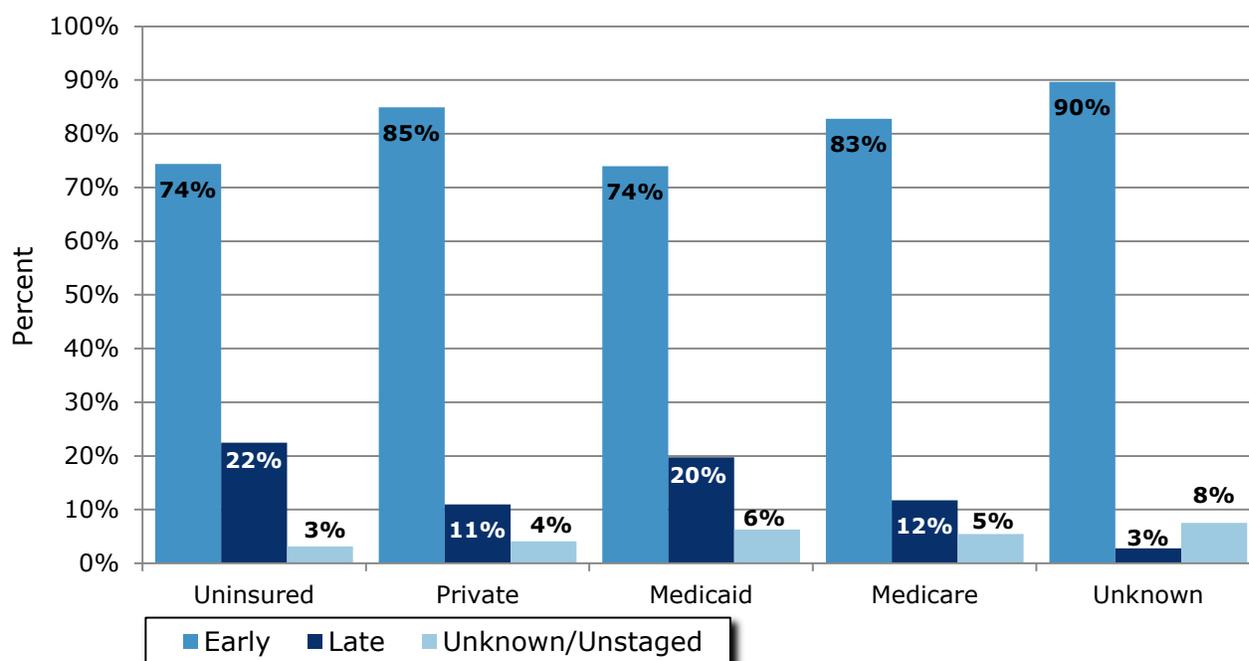
Table 5.1: Melanoma of the Skin: Survival Probability (%) by Stage at Diagnosis, Sex and Race in the U.S. (SEER), 2001-2007

| Five-year Survival Probability (%) | | | | | |
|------------------------------------|---------|------------|--------------|------------|--------------|
| Stage | Overall | White Male | White Female | Black Male | Black Female |
| All Stages | 91.2% | 88.9% | 93.5% | 65.2% | 77.4% |
| Localized | 98.1% | 97.4% | 98.6% | 90.3% | 94.8% |
| Regional | 61.4% | 58.2% | 67.7% | 44.3% | 37.2% |
| Distant | 15.3% | 14.4% | 16.6% | 19.6% | - |
| Unstaged/ Unknown Stage | 74.6% | 70.0% | 77.5% | - | - |

Source: Surveillance Epidemiology and End Results Program, *SEER Cancer Statistics Review, 1975-2008*, National Cancer Institute, 2011.

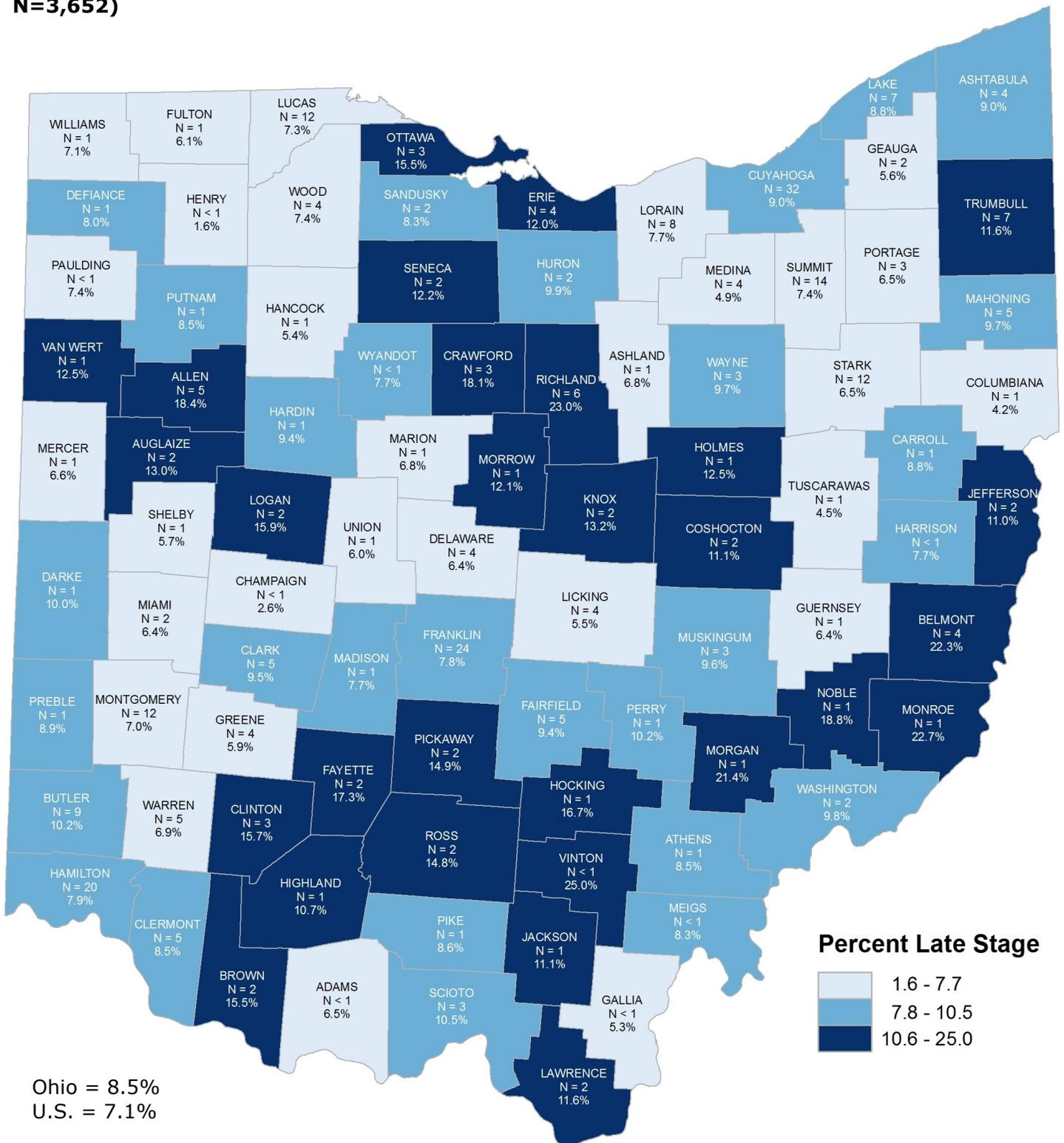
- Statistic could not be calculated due to fewer than 25 cases during the time period.

- Table 5.1 shows that five-year survival probability decreases with advancing stage. For each stage except distant, survival probability is greater among whites (both males and females), compared to blacks, and among females, compared to males.
- Figure 5.8 shows that the highest percentage of melanomas of the skin diagnosed at late stage occurred among the uninsured, followed by those with Medicaid as their primary insurance payer at diagnosis.

Figure 5.8: Melanoma of the Skin: Proportion of Cases by Stage and Primary Payer (Insurance) at Diagnosis in Ohio, 2004-2008

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 5.9: Melanoma of the Skin: Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by County of Residence, Ohio, 2004-2008 (Average Annual N=3,652)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.
* Note: Each category represents approximately 33%, or 29, of the 88 Ohio counties.

Table 5.2: Melanoma of the Skin: Proportion of Cases (%) by County of Residence and Stage at Diagnosis in Ohio and the U.S. (SEER), 2004-2008

| | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases | | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases |
|-------------|---------------|--------------|---------------------|----------------------|------------|---------------|--------------|---------------------|----------------------|
| Ohio | 86% | 8% | 5% | 3,652 | Lawrence | 84% | 12% | 4% | 19 |
| SEER | 90% | 8% | 2% | | Licking | 90% | 5% | 5% | 80 |
| Adams | 87% | 6% | 6% | 6 | Logan | 73% | 16% | 11% | 13 |
| Allen | 78% | 18% | 4% | 27 | Lorain | 88% | 8% | 5% | 99 |
| Ashland | 85% | 7% | 8% | 12 | Lucas | 87% | 7% | 5% | 158 |
| Ashtabula | 87% | 9% | 4% | 40 | Madison | 86% | 8% | 6% | 13 |
| Athens | 79% | 8% | 13% | 14 | Mahoning | 83% | 10% | 8% | 56 |
| Auglaize | 80% | 13% | 7% | 14 | Marion | 82% | 7% | 12% | 21 |
| Belmont | 69% | 22% | 9% | 19 | Medina | 90% | 5% | 5% | 74 |
| Brown | 79% | 16% | 5% | 12 | Meigs | 92% | 8% | 0% | 5 |
| Butler | 84% | 10% | 6% | 88 | Mercer | 83% | 7% | 11% | 15 |
| Carroll | 88% | 9% | 4% | 11 | Miami | 87% | 6% | 6% | 37 |
| Champaign | 91% | 3% | 7% | 15 | Monroe | 64% | 23% | 14% | 4 |
| Clark | 81% | 10% | 10% | 48 | Montgomery | 84% | 7% | 9% | 172 |
| Clermont | 89% | 9% | 3% | 61 | Morgan | 75% | 21% | 4% | 6 |
| Clinton | 80% | 16% | 5% | 17 | Morrow | 88% | 12% | 0% | 7 |
| Columbiana | 83% | 4% | 13% | 33 | Muskingum | 89% | 10% | 1% | 33 |
| Coshocton | 83% | 11% | 6% | 18 | Noble | 81% | 19% | 0% | 3 |
| Crawford | 75% | 18% | 7% | 14 | Ottawa | 79% | 15% | 6% | 17 |
| Cuyahoga | 88% | 9% | 3% | 361 | Paulding | 89% | 7% | 4% | 5 |
| Darke | 77% | 10% | 13% | 14 | Perry | 88% | 10% | 2% | 10 |
| Defiance | 89% | 8% | 3% | 17 | Pickaway | 70% | 15% | 15% | 13 |
| Delaware | 89% | 6% | 5% | 69 | Pike | 86% | 9% | 6% | 7 |
| Erie | 84% | 12% | 4% | 33 | Portage | 88% | 6% | 6% | 40 |
| Fairfield | 84% | 9% | 7% | 51 | Preble | 82% | 9% | 9% | 11 |
| Fayette | 73% | 17% | 10% | 10 | Putnam | 88% | 8% | 3% | 12 |
| Franklin | 86% | 8% | 6% | 304 | Richland | 76% | 23% | 1% | 28 |
| Fulton | 92% | 6% | 2% | 20 | Ross | 75% | 15% | 10% | 16 |
| Gallia | 84% | 5% | 11% | 8 | Sandusky | 91% | 8% | 1% | 19 |
| Geauga | 90% | 6% | 4% | 36 | Scioto | 85% | 10% | 4% | 25 |
| Greene | 86% | 6% | 8% | 64 | Seneca | 81% | 12% | 7% | 15 |
| Guernsey | 91% | 6% | 3% | 16 | Shelby | 92% | 6% | 2% | 11 |
| Hamilton | 87% | 8% | 5% | 248 | Stark | 90% | 7% | 4% | 181 |
| Hancock | 92% | 5% | 2% | 26 | Summit | 88% | 7% | 5% | 189 |
| Hardin | 78% | 9% | 13% | 6 | Trumbull | 84% | 12% | 4% | 62 |
| Harrison | 85% | 8% | 8% | 5 | Tuscarawas | 83% | 5% | 12% | 26 |
| Henry | 94% | 2% | 5% | 13 | Union | 90% | 6% | 4% | 20 |
| Highland | 80% | 11% | 9% | 11 | Van Wert | 84% | 13% | 3% | 6 |
| Hocking | 75% | 17% | 8% | 7 | Vinton | 50% | 25% | 25% | 2 |
| Holmes | 75% | 13% | 13% | 6 | Warren | 87% | 7% | 6% | 78 |
| Huron | 86% | 10% | 4% | 16 | Washington | 79% | 10% | 11% | 25 |
| Jackson | 86% | 11% | 3% | 7 | Wayne | 85% | 10% | 5% | 33 |
| Jefferson | 89% | 11% | 0% | 15 | Williams | 92% | 7% | 1% | 17 |
| Knox | 85% | 13% | 2% | 18 | Wood | 86% | 7% | 7% | 52 |
| Lake | 87% | 9% | 4% | 80 | Wyandot | 88% | 8% | 4% | 5 |

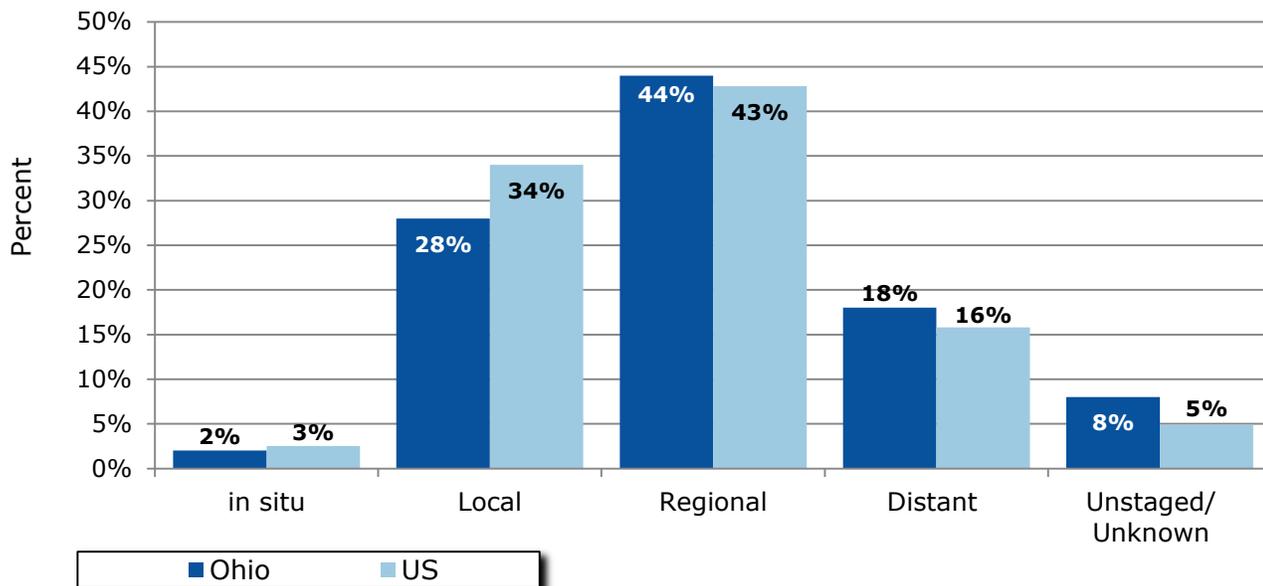
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Oral Cavity and Pharynx Cancer

Figure 6.1 shows that, in Ohio, compared to the United States:

- A lower percentage of oral cavity and pharynx cancer cases were diagnosed at the localized stage.
- Similar percentages of oral cavity and pharynx cancer cases were diagnosed at *in situ*, regional and distant stages.
- A higher percentage of oral cavity and pharynx cancer cases had an unstaged/unknown stage.

Figure 6.1: Oral Cavity and Pharynx Cancer: Proportion of Cases (%) by Stage at Diagnosis in Ohio, with Comparison to the U.S. (SEER), 2004-2008 (Average Annual N=1,306)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

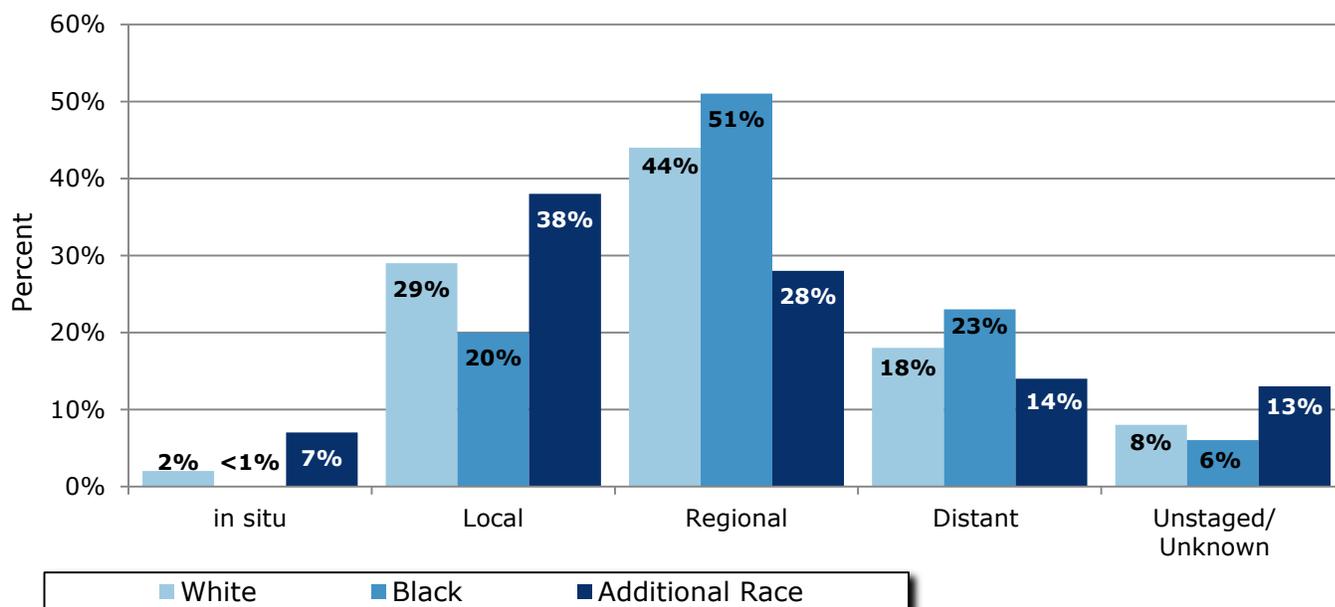
Figure 6.2 shows that, compared to whites, in Ohio:

- A higher percentage of oral cavity and pharynx cancers among blacks were diagnosed at regional and distant stages, and a lesser percentage of blacks were diagnosed at the localized stage.
- There were higher percentages of oral cavity and pharynx cancers among additional races diagnosed at the *in situ* and localized stages and with an unstaged/unknown stage, while there were lower percentages of additional races diagnosed at regional and distant stages.

Figure 6.3 shows that, in Ohio, a higher percentage of oral cavity and pharynx cancers were diagnosed at regional, distant, and with an unstaged/unknown stage among those 45 years and older, while there was a higher percentage diagnosed localized stage among those under 45 years.

Oral Cavity and Pharynx Cancer

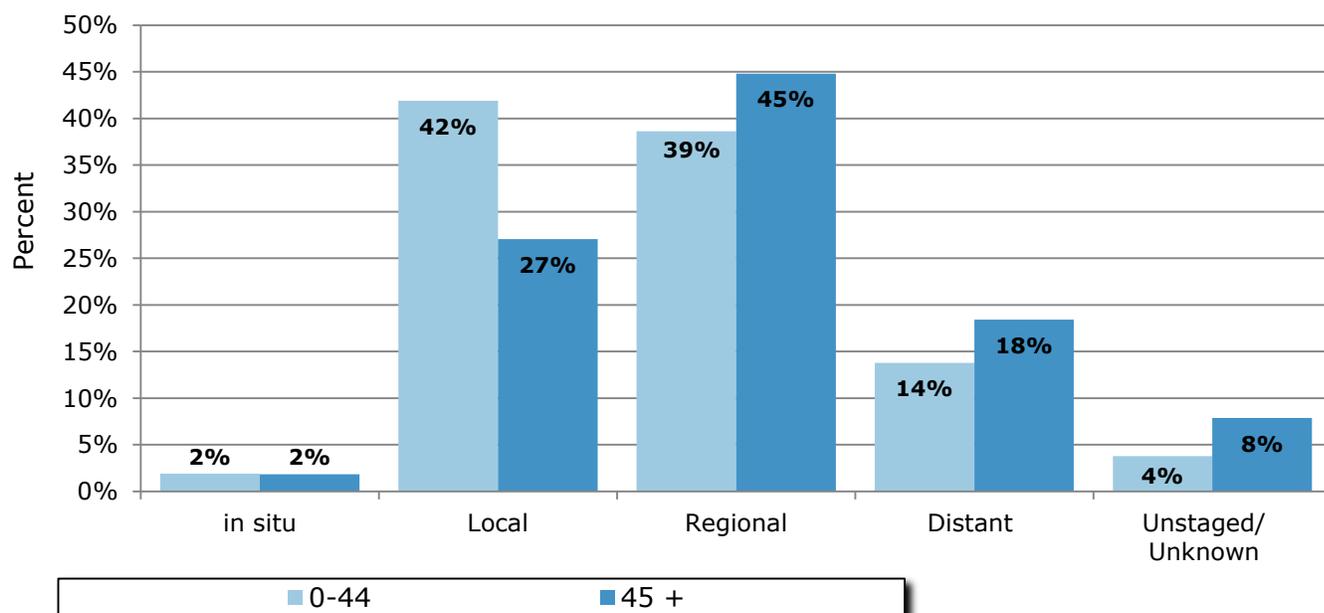
Figure 6.2: Oral Cavity and Pharynx Cancer: Proportion of Cases (%) by Stage at Diagnosis and Race¹ in Ohio, 2004-2008 (Average Annual N=1,306)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

¹Additional Race includes Asian/Pacific Islander, American Indian/Alaskan Native, Other and Unknown races.

Figure 6.3: Oral Cavity and Pharynx Cancer: Proportion of Cases (%) by Stage at Diagnosis and Age Group in Ohio, 2004-2008 (Average Annual N=1,306)

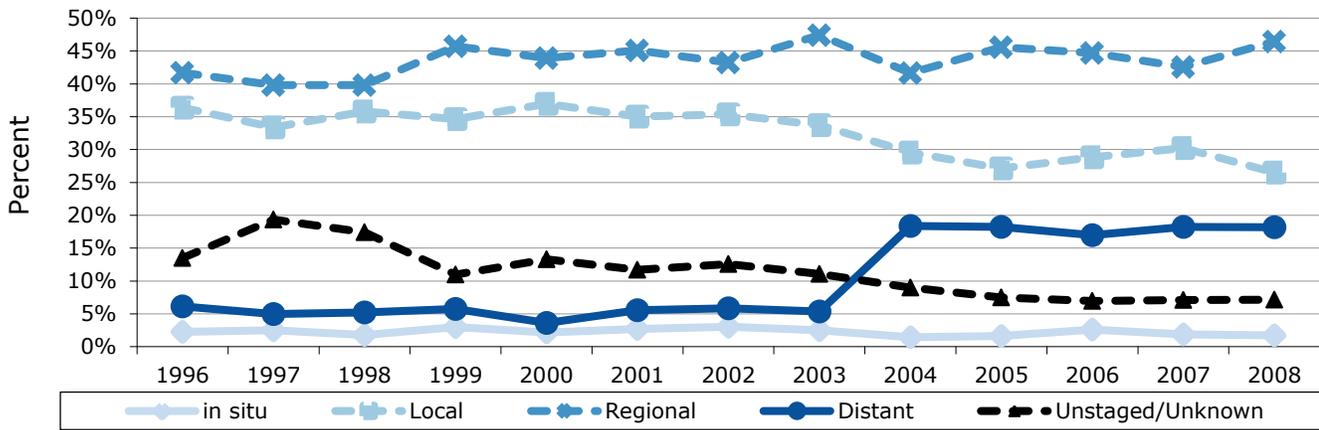


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Oral Cavity and Pharynx Cancer

Figure 6.4 shows that the proportions of oral cavity and pharynx cancer cases diagnosed at regional and distant stages increased from 1996 to 2008, while the proportion diagnosed at localized stage decreased over this time period. Some of the changes over time may be explained by changes in the proportion of oral cavity and pharynx cancer cases reported at unstaged/unknown stage, which decreased over this time period.

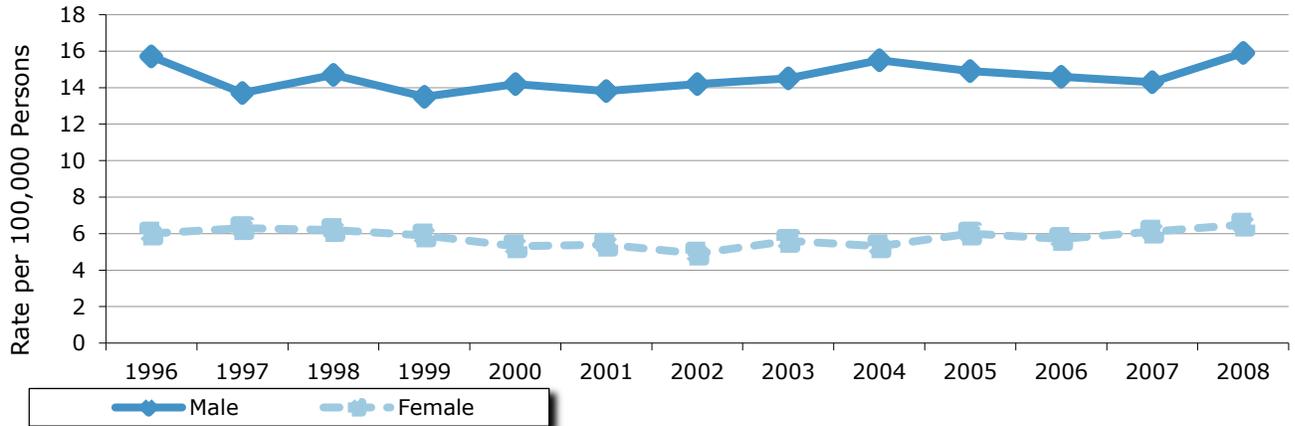
Figure 6.4: Oral Cavity and Pharynx Cancer: Trends in the Proportion of Cases (%) by Stage at Diagnosis in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

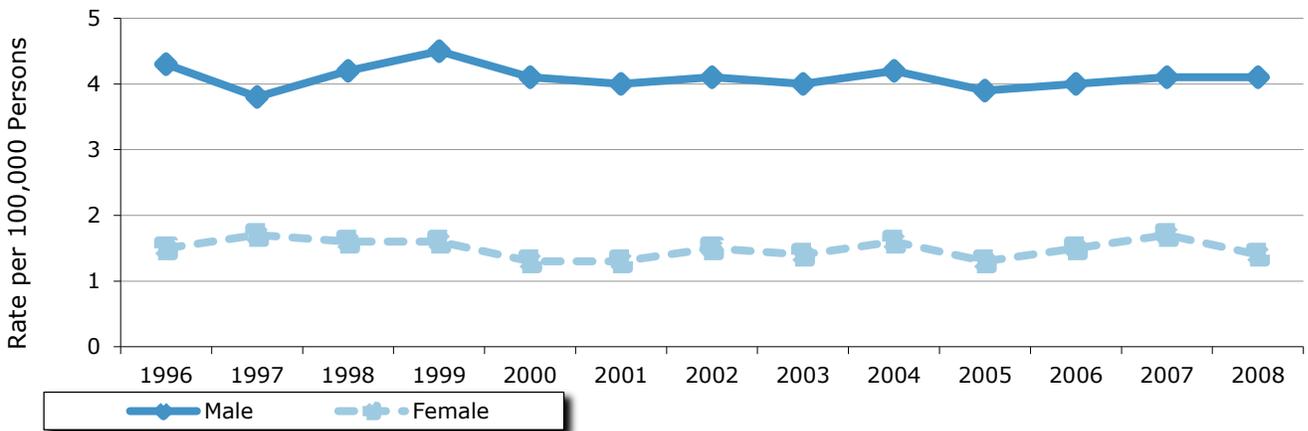
- Oral cavity and pharynx cancer incidence rates (Figure 6.5) among males in Ohio were slightly variable from 1996 to 2008; among females in Ohio, the rate remained relatively constant.
- Oral cavity and pharynx cancer mortality rates (Figure 6.6) in Ohio were relatively constant for males and females in Ohio over this time period.
- For both males and females, there was an increase in the percentage of oral cavity and pharynx cancer cases diagnosed at late stage from 1996 to 2008 (Figure 6.7).

Figure 6.5: Oral Cavity and Pharynx Cancer: Trends in Average Annual Age-adjusted Incidence Rates per 100,000 Persons by Sex in Ohio, 1996-2008



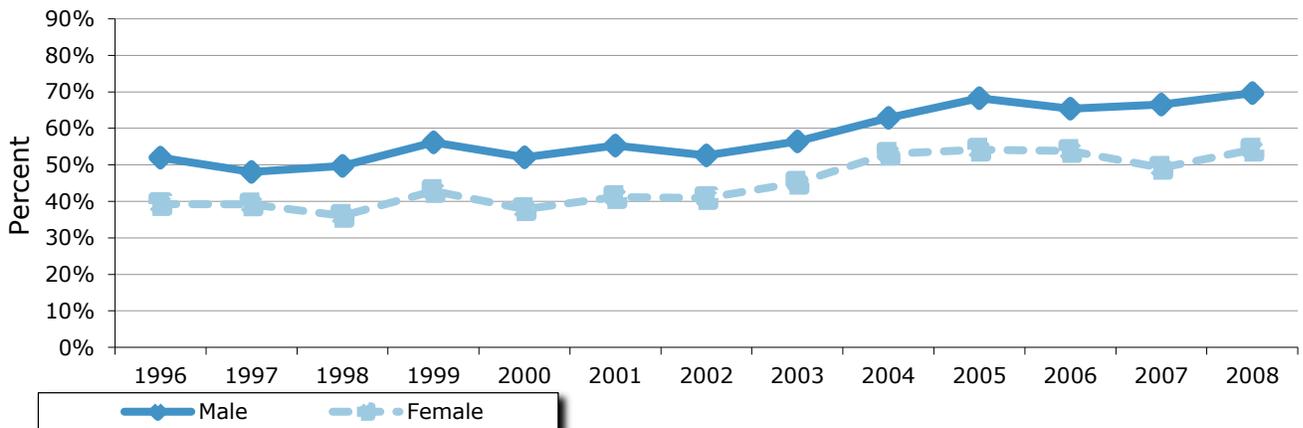
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 6.6: Oral Cavity and Pharynx Cancer: Trends in Average Annual Age-adjusted Mortality Rates per 100,000 Persons by Sex in Ohio, 1996-2008



Source: Ohio Vital Statistics Program, Ohio Department of Health, 2010.

Figure 6.7: Oral Cavity and Pharynx Cancer: Trends in the Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by Sex in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Oral Cavity and Pharynx Cancer

Did You Know?

Dentists play an important role in screening for oral cavity and pharynx cancer and should conduct this screening at each routine dental examination.

Table 6.1 shows that five-year survival probability decreases with advancing stage. For each stage, survival probability is greater among whites (both males and females), compared to blacks. For each stage, black males have the lowest survival probability.

Table 6.1: Oral Cavity and Pharynx Cancer: Survival Probability (%) by Stage at Diagnosis, Sex and Race in the U.S. (SEER), 2001-2007

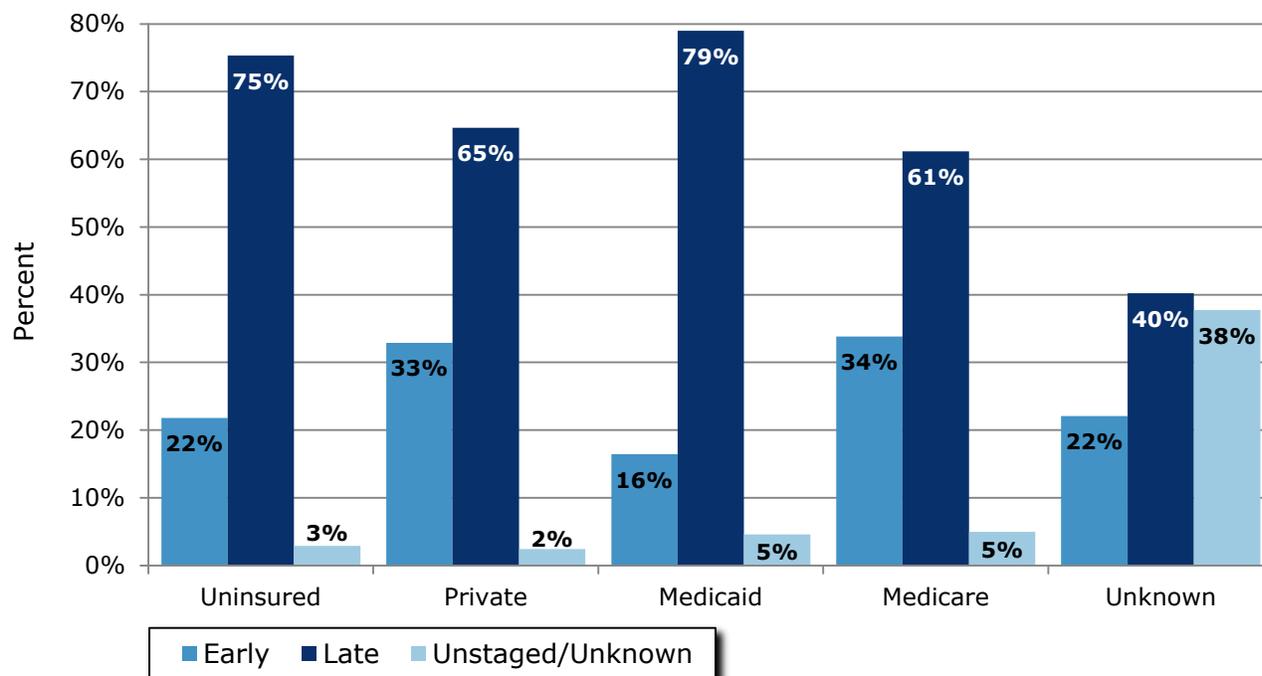
| Five-year Survival Probability (%) | | | | | |
|------------------------------------|---------|------------|--------------|------------|--------------|
| Stage | Overall | White Male | White Female | Black Male | Black Female |
| All Stages | 60.8% | 62.0% | 63.2% | 37.3% | 52.6% |
| Localized | 82.3% | 82.4% | 82.8% | 67.8% | 82.5% |
| Regional | 55.6% | 59.2% | 52.2% | 35.5% | 41.7% |
| Distant | 33.5% | 33.6% | 33.2% | 20.2% | 29.9% |
| Unstaged/ Unknown Stage | 50.4% | 49.1% | 52.4% | 36.4% | 42.3% |

Source: Surveillance Epidemiology and End Results Program, *SEER Cancer Statistics Review, 1975-2008*, National Cancer Institute, 2011.

Oral Cavity and Pharynx Cancer

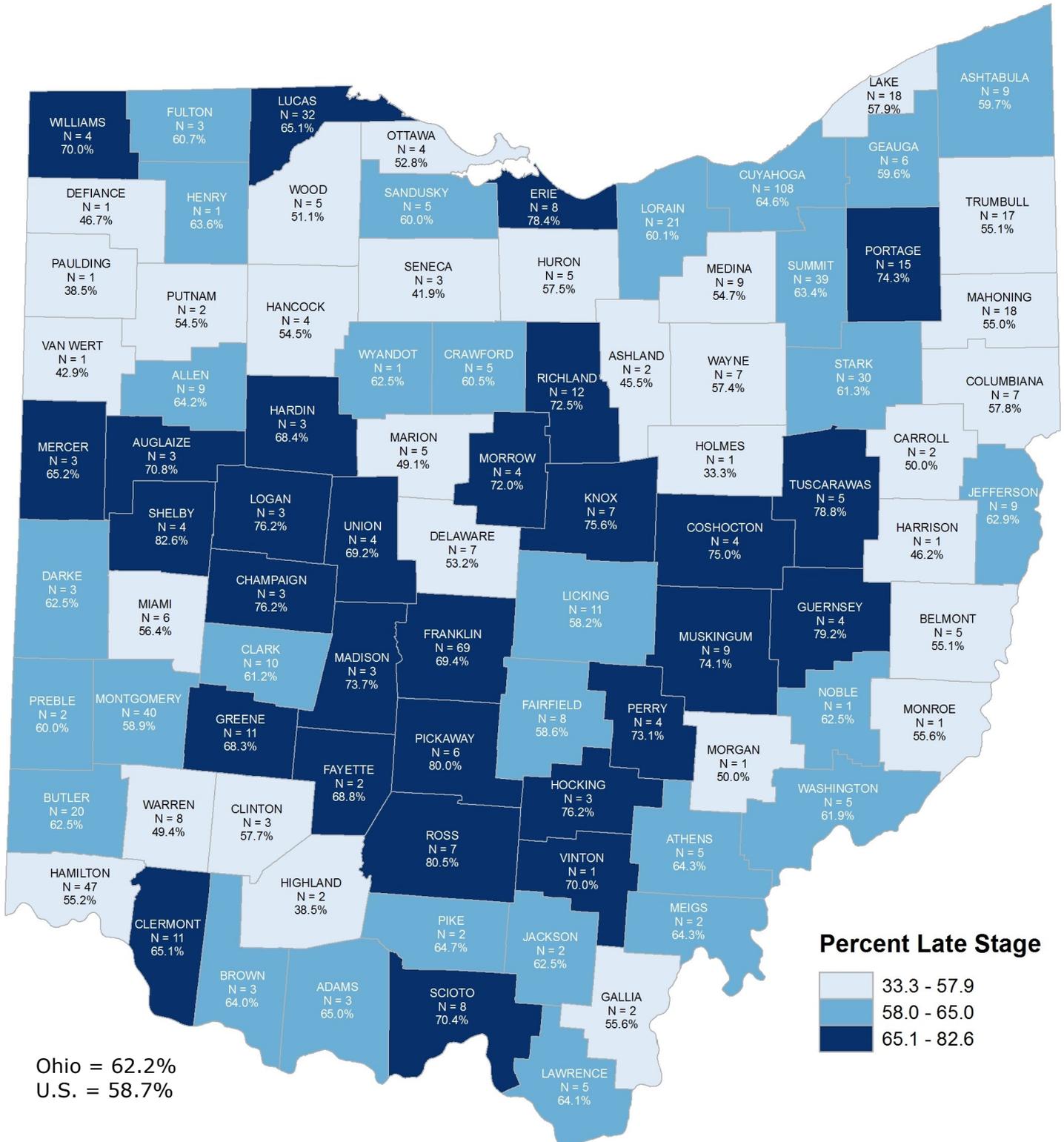
Figure 6.8 shows that the highest percentage of oral cavity and pharynx cancers diagnosed at late stage occurred among those with Medicaid as their primary insurance payer at diagnosis, followed by those who were uninsured. Those with unknown insurance had the highest percentage of unstaged/unknown stage oral cavity and pharynx cancer.

Figure 6.8: Oral Cavity and Pharynx Cancer: Proportion of Cases (%) by Stage and Primary Payer (Insurance) at Diagnosis in Ohio, 2004-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 6.9: Oral Cavity and Pharynx Cancer: Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by County of Residence, Ohio, 2004-2008 (Average Annual N=1,306)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.
* Note: Each category represents approximately 33%, or 29, of the 88 Ohio counties.

Table 6.2: Oral Cavity and Pharynx Cancer: Proportion of Cases (%) by County of Residence and Stage at Diagnosis in Ohio and the U.S. (SEER), 2004-2008

| | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases | | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases |
|-------------|---------------|--------------|---------------------|----------------------|------------|---------------|--------------|---------------------|----------------------|
| Ohio | 30% | 62% | 8% | 1,306 | Lawrence | 23% | 64% | 13% | 8 |
| SEER | 36% | 59% | 5% | | Licking | 31% | 58% | 11% | 20 |
| Adams | 25% | 65% | 10% | 4 | Logan | 14% | 76% | 10% | 4 |
| Allen | 25% | 64% | 10% | 13 | Lorain | 33% | 60% | 7% | 36 |
| Ashland | 36% | 45% | 18% | 4 | Lucas | 29% | 65% | 6% | 50 |
| Ashtabula | 26% | 60% | 14% | 14 | Madison | 16% | 74% | 11% | 4 |
| Athens | 29% | 64% | 7% | 8 | Mahoning | 33% | 55% | 13% | 32 |
| Auglaize | 25% | 71% | 4% | 5 | Marion | 43% | 49% | 8% | 11 |
| Belmont | 39% | 55% | 6% | 10 | Medina | 38% | 55% | 7% | 17 |
| Brown | 20% | 64% | 16% | 5 | Meigs | 36% | 64% | 0% | 3 |
| Butler | 25% | 63% | 13% | 32 | Mercer | 26% | 65% | 9% | 5 |
| Carroll | 13% | 50% | 38% | 3 | Miami | 36% | 56% | 7% | 11 |
| Champaign | 24% | 76% | 0% | 4 | Monroe | 44% | 56% | 0% | 2 |
| Clark | 28% | 61% | 11% | 17 | Montgomery | 33% | 59% | 8% | 68 |
| Clermont | 31% | 65% | 4% | 17 | Morgan | 25% | 50% | 25% | 2 |
| Clinton | 35% | 58% | 8% | 5 | Morrow | 28% | 72% | 0% | 5 |
| Columbiana | 34% | 58% | 8% | 13 | Muskingum | 14% | 74% | 12% | 12 |
| Coshocton | 25% | 75% | 0% | 5 | Noble | 38% | 63% | 0% | 2 |
| Crawford | 21% | 60% | 19% | 9 | Ottawa | 39% | 53% | 8% | 7 |
| Cuyahoga | 30% | 65% | 6% | 167 | Paulding | 46% | 38% | 15% | 3 |
| Darke | 29% | 63% | 8% | 5 | Perry | 19% | 73% | 8% | 5 |
| Defiance | 40% | 47% | 13% | 3 | Pickaway | 17% | 80% | 3% | 7 |
| Delaware | 34% | 53% | 13% | 12 | Pike | 24% | 65% | 12% | 3 |
| Erie | 22% | 78% | 0% | 10 | Portage | 23% | 74% | 3% | 20 |
| Fairfield | 30% | 59% | 11% | 14 | Preble | 25% | 60% | 15% | 4 |
| Fayette | 25% | 69% | 6% | 3 | Putnam | 32% | 55% | 14% | 4 |
| Franklin | 25% | 69% | 6% | 99 | Richland | 25% | 73% | 3% | 16 |
| Fulton | 32% | 61% | 7% | 6 | Ross | 17% | 80% | 2% | 8 |
| Gallia | 33% | 56% | 11% | 4 | Sandusky | 28% | 60% | 13% | 8 |
| Geauga | 36% | 60% | 4% | 9 | Scioto | 26% | 70% | 4% | 11 |
| Greene | 22% | 68% | 10% | 16 | Seneca | 45% | 42% | 13% | 6 |
| Guernsey | 21% | 79% | 0% | 5 | Shelby | 13% | 83% | 4% | 5 |
| Hamilton | 35% | 55% | 9% | 84 | Stark | 29% | 61% | 9% | 49 |
| Hancock | 45% | 55% | 0% | 7 | Summit | 30% | 63% | 6% | 62 |
| Hardin | 21% | 68% | 11% | 4 | Trumbull | 40% | 55% | 5% | 31 |
| Harrison | 31% | 46% | 23% | 3 | Tuscarawas | 18% | 79% | 3% | 7 |
| Henry | 36% | 64% | 0% | 2 | Union | 23% | 69% | 8% | 5 |
| Highland | 50% | 38% | 12% | 5 | Van Wert | 43% | 43% | 14% | 3 |
| Hocking | 10% | 76% | 14% | 4 | Vinton | 20% | 70% | 10% | 2 |
| Holmes | 56% | 33% | 11% | 2 | Warren | 49% | 49% | 1% | 16 |
| Huron | 35% | 58% | 8% | 8 | Washington | 31% | 62% | 7% | 8 |
| Jackson | 38% | 63% | 0% | 3 | Wayne | 34% | 57% | 8% | 12 |
| Jefferson | 33% | 63% | 4% | 14 | Williams | 30% | 70% | 0% | 6 |
| Knox | 24% | 76% | 0% | 9 | Wood | 40% | 51% | 9% | 9 |
| Lake | 34% | 58% | 9% | 30 | Wyandot | 38% | 63% | 0% | 2 |

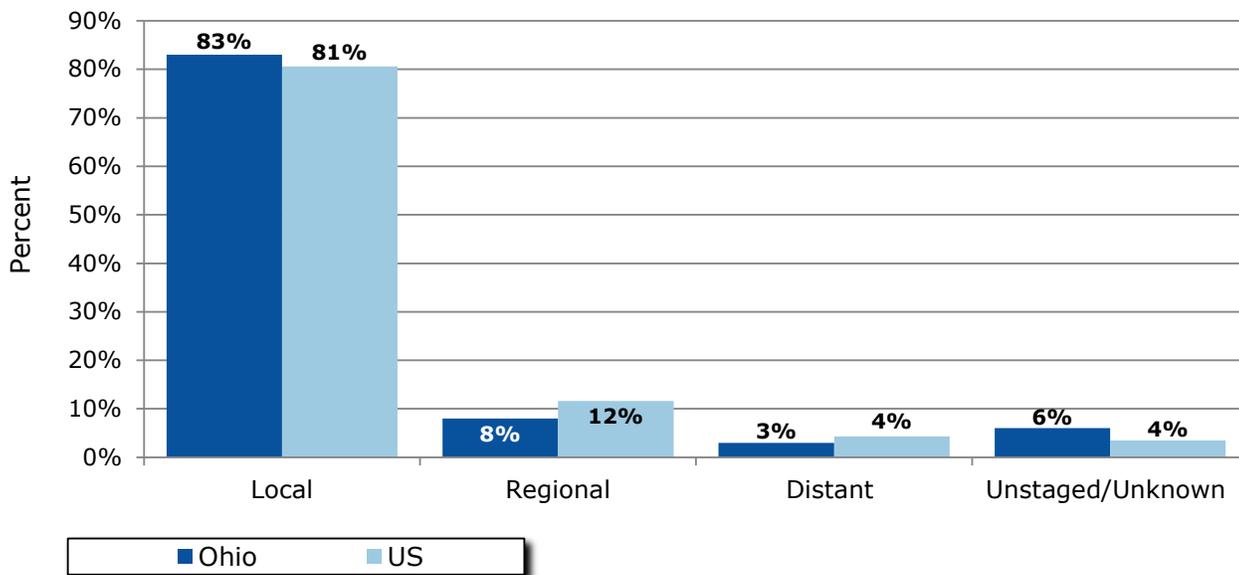
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Prostate Cancer

Figure 7.1 shows that, in Ohio, compared to the United States:

- A lower percentage of prostate cancer cases were diagnosed at the regional stage, while percentages for other stages were similar.

Figure 7.1: Prostate Cancer: Proportion of Cases (%) by Stage at Diagnosis in Ohio, with Comparison to the U.S. (SEER), 2004-2008 (Average Annual N=8,161)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Figure 7.2 shows that, compared to whites, in Ohio:

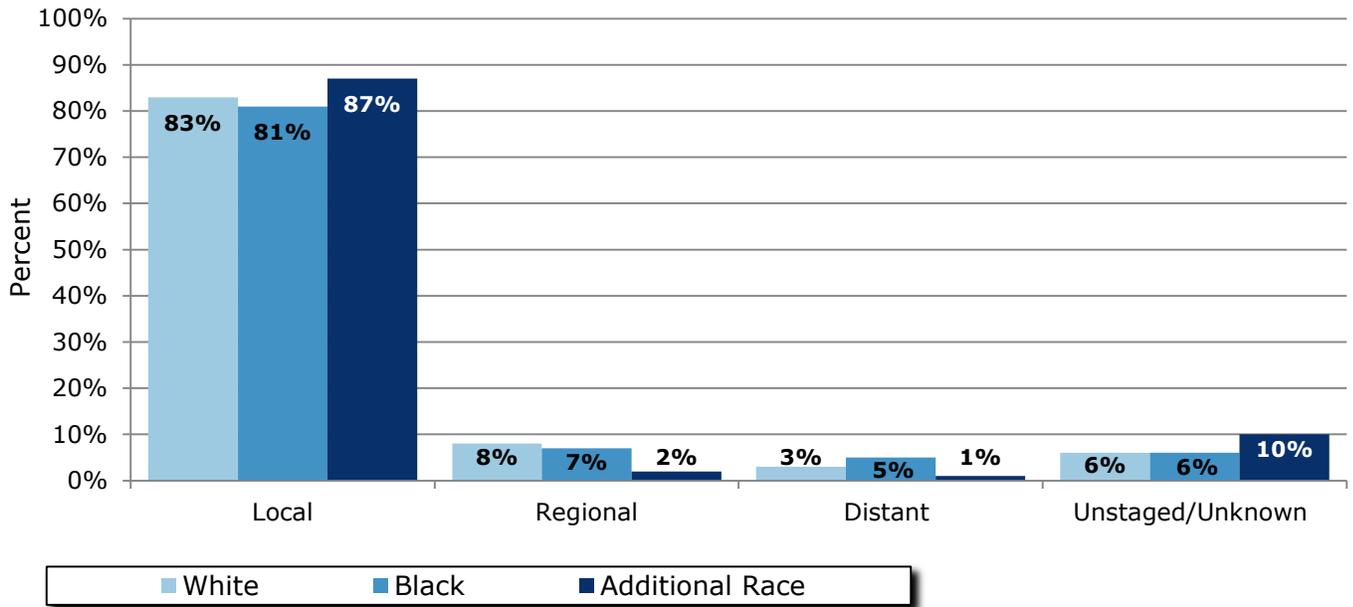
- There were similar percentages of prostate cancers among blacks diagnosed at each stage.
- There were higher percentages of prostate cancers among additional races diagnosed at the localized stage and with an unstaged/unknown stage, while there were lower percentages of additional races diagnosed at the regional stage.

Figure 7.3 shows that, in Ohio:

- A higher percentage of prostate cancers were diagnosed with an unstaged/unknown stage among those 45 years and older, while there were higher percentages diagnosed at the regional stage among those under 45 years.

Prostate Cancer

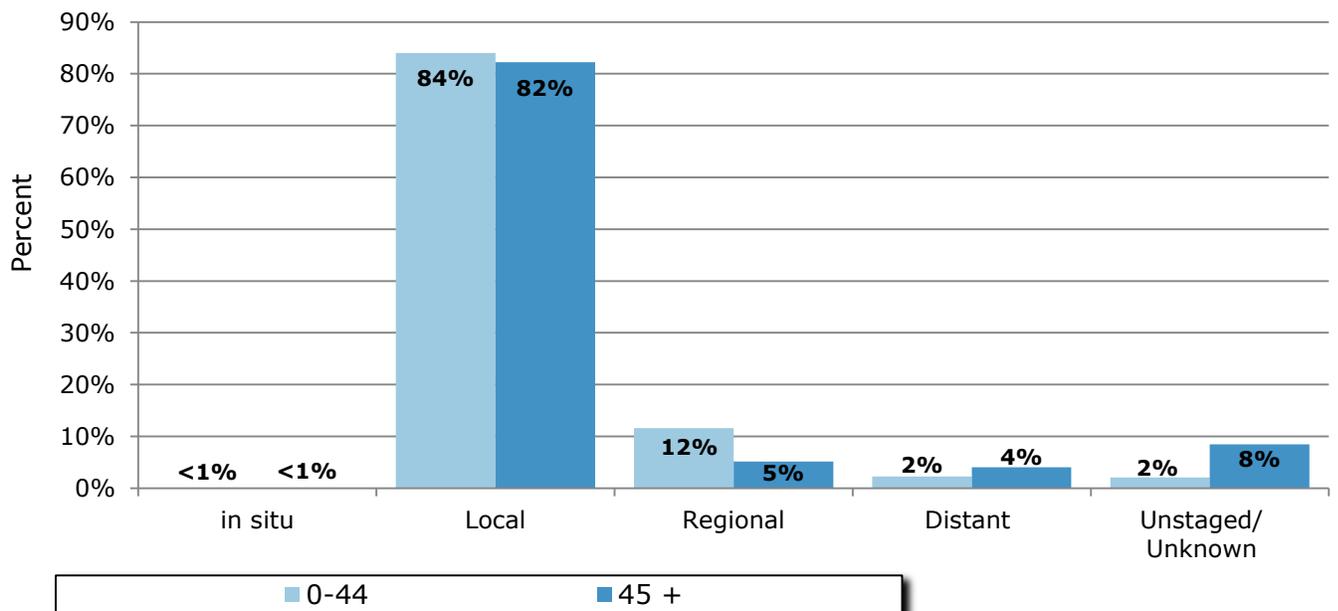
Figure 7.2: Prostate Cancer: Proportion of Cases (%) by Stage at Diagnosis and Race¹ in Ohio, 2004-2008 (Average Annual N=8,161)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

¹Additional Race includes Asian/Pacific Islander, American Indian/Alaskan Native, Other and Unknown races.

Figure 7.3: Prostate Cancer: Proportion of Cases (%) by Stage at Diagnosis and Age Group in Ohio, 2004-2008 (Average Annual N=8,161)

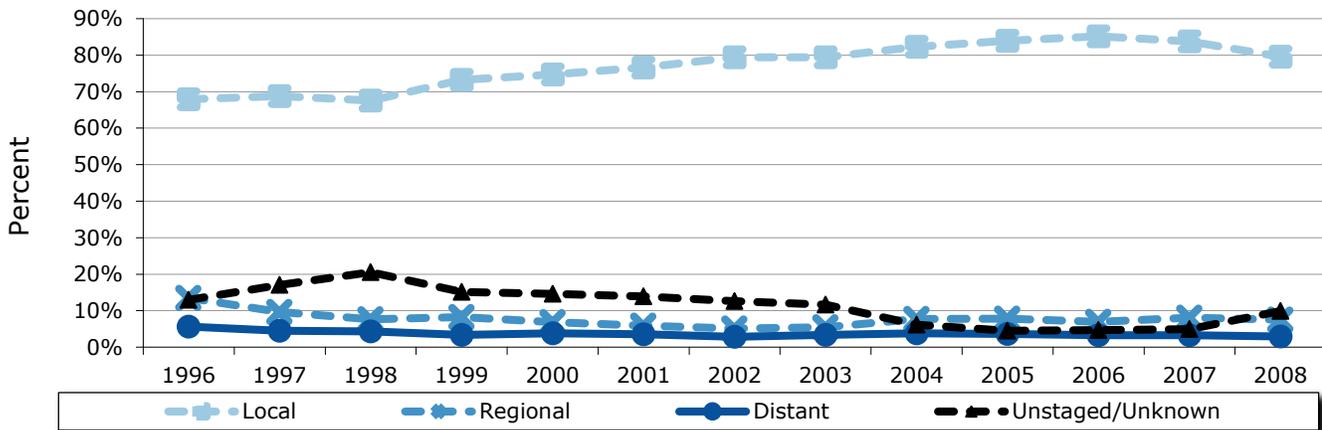


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Prostate Cancer

Figure 7.4 shows that the proportions of prostate cancer cases diagnosed at the localized stage increased from 1996 to 2008, while the proportions diagnosed at regional and distant stages were stable over this time period. Some of the changes over time may be explained by the decline in the proportion of prostate cancer cases diagnosed at unstaged/unknown stage.

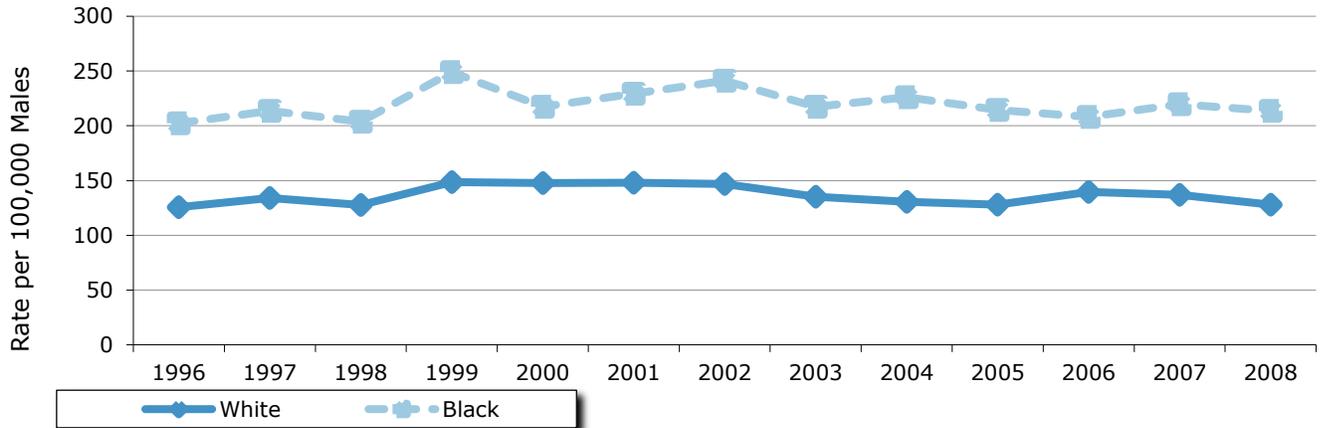
Figure 7.4: Prostate Cancer: Trends in the Proportion of Cases (%) by Stage at Diagnosis in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

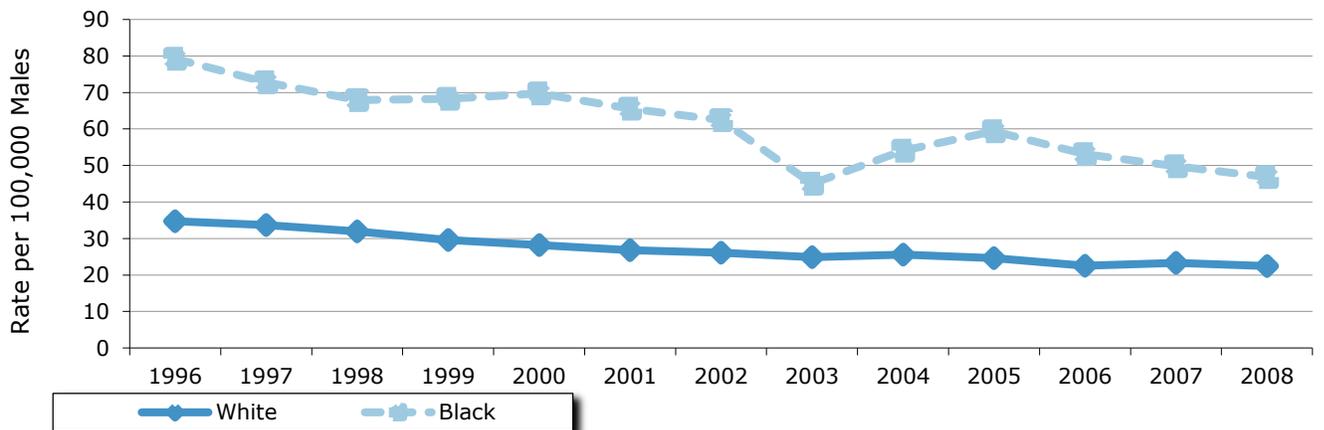
- Prostate cancer incidence rates (Figure 7.5) slightly increased among blacks in Ohio from 1996 to 2008, while the rate for whites remained relatively constant over this time period.
- Prostate cancer mortality rates (Figure 7.6) decreased among whites and blacks in Ohio from 1996 to 2008, and this decrease was greater for blacks.
- For both whites and blacks, there was a decrease in the percentage of prostate cancer cases diagnosed at late stage from 1996 to 2008 (Figure 7.7).

Figure 7.5: Prostate Cancer: Trends in Average Annual Age-adjusted Incidence Rates per 100,000 Males by Race in Ohio, 1996-2008



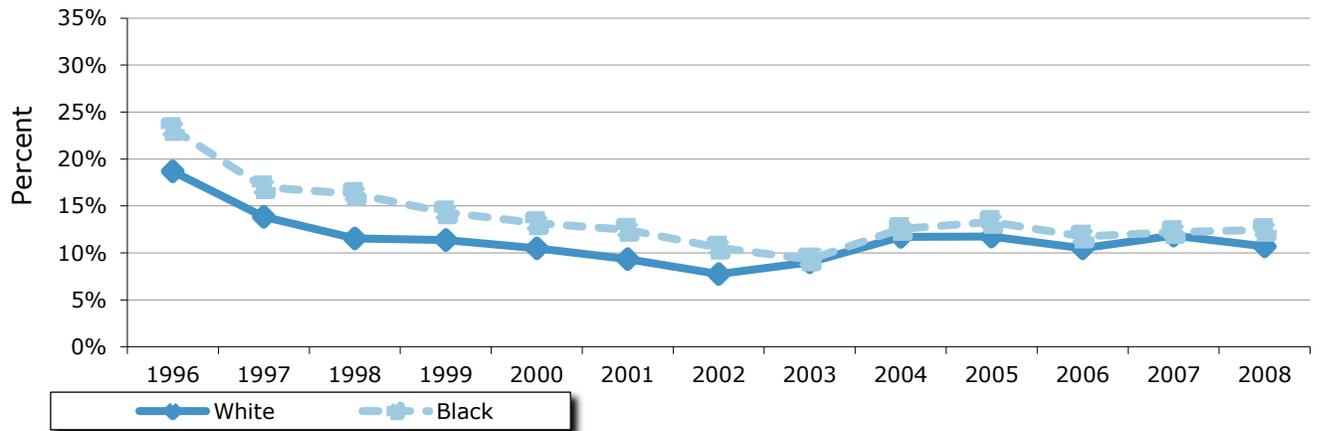
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 7.6: Prostate Cancer: Trends in Average Annual Age-adjusted Mortality Rates per 100,000 Males by Race in Ohio, 1996-2008



Source: Ohio Vital Statistics Program, Ohio Department of Health, 2010.

Figure 7.7: Prostate Cancer: Trends in the Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by Race in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Prostate Cancer

- Prostate-specific antigen (PSA) is a protein produced by the prostate. The PSA test measures the level of PSA in the blood. The U.S. Food and Drug Administration (FDA) has approved the PSA test along with the digital (finger) rectal exam (DRE) to help detect prostate cancer in men age 50 years and older.
- Figure 7.1 shows that, in Ohio, the prevalence of PSA testing and/or DRE in the past year varied according to age group, education and annual household income in 2010. There were only slight differences by race. A higher percentage of men had PSA tests, compared to DRE.

Table 7.1: Prevalence of Men 50 and Older Who Reported Having Had a Prostate-specific Antigen (PSA) Test and/or Digital Rectal Exam (DRE) in the Past Year by Demographics in Ohio, 2010

| | Had a PSA test in the past year | Had a DRE in the past year |
|--------------------------------|------------------------------------|-------------------------------|
| AGE | | |
| 50-64 | 47% | 43% |
| 65+ | 71% | 52% |
| RACE | | |
| White | 56% | 47% |
| African American | 55% | 46% |
| EDUCATION | | |
| Less Than High School | 42% | 35% |
| High School or GED | 55% | 44% |
| Some College | 54% | 46% |
| College Graduate | 61% | 52% |
| ANNUAL HOUSEHOLD INCOME | | |
| < \$24,999 | 47% | 34% |
| \$25,000-\$49,999 | 62% | 49% |
| \$50,000+ | 55% | 51% |
| Total (Men 50+) | 56% | 47% |

Source: Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2011.

The weighted percentages were adjusted to: 1) probability of selection, *i.e.*, the number of different phone numbers that reach the household, the number of adults in each household, and the number of completed interviews in each cluster; and 2) demographic distribution, *i.e.*, age and sex.

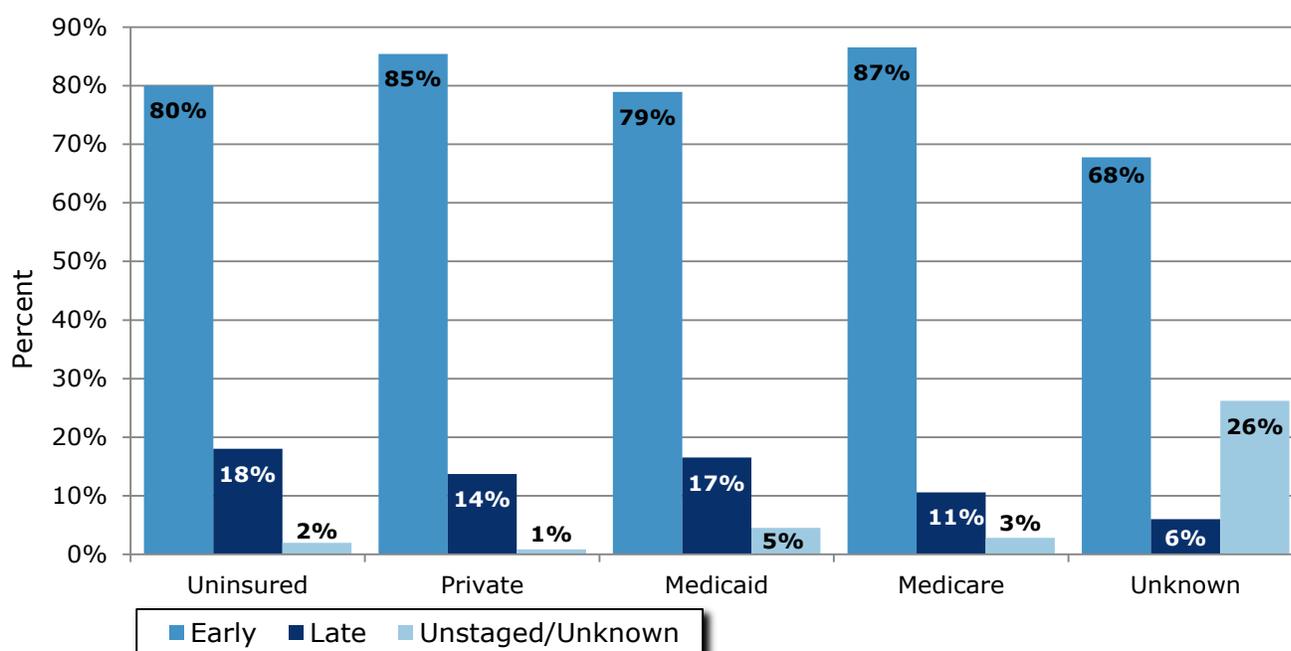
"Don't Know" and "Refused" were excluded from the denominator. This can cause an artificially high percentage.

Table 7.2: Prostate Cancer: Survival Probability (%) by Stage at Diagnosis and Race in the U.S. (SEER), 2001-2007

| Five-year Survival Probability (%) | | | |
|------------------------------------|---------|------------|------------|
| Stage | Overall | White Male | Black Male |
| All Stages | 99.4% | 99.7% | 96.2% |
| Localized | 100.0% | 100.0% | 100.0% |
| Regional | 100.0% | 100.0% | 100.0% |
| Distant | 28.7% | 28.1% | 27.9% |
| Unstaged/ Unknown Stage | 69.9% | 68.8% | 58.8% |

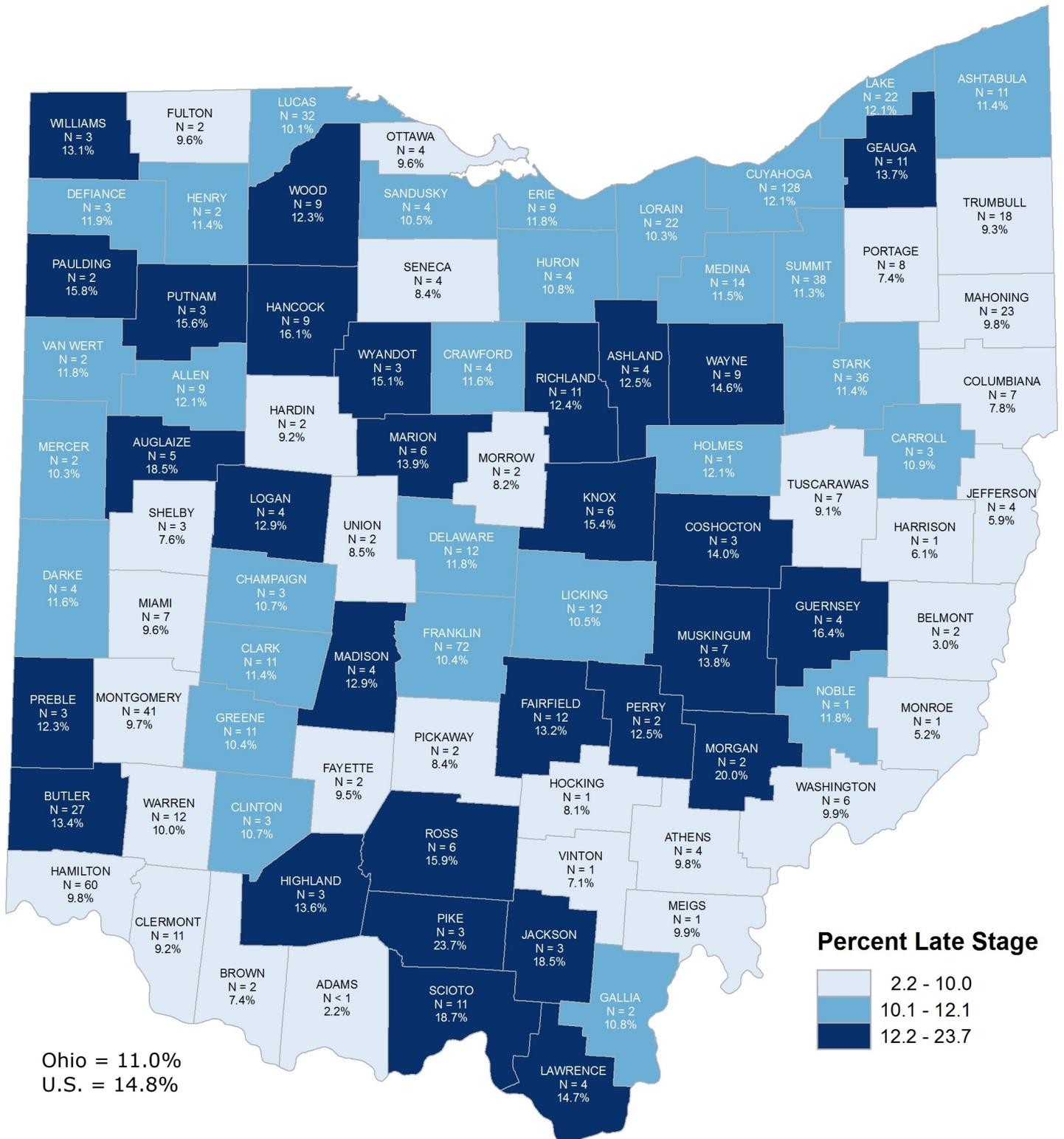
Source: Surveillance Epidemiology and End Results Program, *SEER Cancer Statistics Review, 1975-2008*, National Cancer Institute, 2011.

- Table 7.2 shows that five-year survival probability is at or near 100 percent for all stages combined, localized and regional stages but only 29 percent for men diagnosed at distant stage.
- Figure 7.8 shows that the highest percentage of prostate cancers diagnosed at late stage occurred among those uninsured at diagnosis, followed closely by those with Medicaid as their primary insurance payer. Those with unknown insurance type had the highest percentage of unstaged/unknown stage at diagnosis for prostate cancer.

Figure 7.8: Prostate Cancer: Proportion of Cases by Stage and Primary Payer (Insurance) at Diagnosis in Ohio, 2004-2008

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 7.9: Prostate Cancer: Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by County of Residence, Ohio, 2004-2008 (Average Annual N=8,161)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.
* Note: Each category represents approximately 33%, or 29, of the 88 Ohio counties.

Table 7.3: Prostate Cancer: Proportion of Cases (%) by County of Residence and Stage at Diagnosis in Ohio and the U.S. (SEER), 2004-2008

| | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases | | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases |
|-------------|---------------|--------------|---------------------|----------------------|------------|---------------|--------------|---------------------|----------------------|
| Ohio | 83% | 11% | 6% | 8,161 | Lawrence | 76% | 15% | 9% | 29 |
| SEER | 81% | 16% | 4% | | Licking | 84% | 11% | 5% | 114 |
| Adams | 88% | 2% | 10% | 18 | Logan | 80% | 13% | 7% | 34 |
| Allen | 79% | 12% | 8% | 71 | Lorain | 85% | 10% | 5% | 213 |
| Ashland | 80% | 13% | 7% | 35 | Lucas | 86% | 10% | 4% | 314 |
| Ashtabula | 81% | 11% | 8% | 95 | Madison | 83% | 13% | 4% | 28 |
| Athens | 86% | 10% | 4% | 41 | Mahoning | 83% | 10% | 7% | 238 |
| Auglaize | 78% | 18% | 3% | 26 | Marion | 82% | 14% | 4% | 40 |
| Belmont | 94% | 3% | 3% | 60 | Medina | 85% | 11% | 4% | 119 |
| Brown | 84% | 7% | 9% | 33 | Meigs | 82% | 10% | 8% | 14 |
| Butler | 81% | 13% | 5% | 201 | Mercer | 81% | 10% | 9% | 23 |
| Carroll | 86% | 11% | 3% | 26 | Miami | 88% | 10% | 3% | 77 |
| Champaign | 80% | 11% | 9% | 24 | Monroe | 94% | 5% | 1% | 15 |
| Clark | 82% | 11% | 6% | 100 | Montgomery | 82% | 10% | 8% | 423 |
| Clermont | 86% | 9% | 4% | 122 | Morgan | 76% | 20% | 4% | 10 |
| Clinton | 80% | 11% | 9% | 28 | Morrow | 86% | 8% | 5% | 22 |
| Columbiana | 84% | 8% | 8% | 90 | Muskingum | 79% | 14% | 8% | 48 |
| Coshocton | 75% | 14% | 11% | 21 | Noble | 86% | 12% | 2% | 10 |
| Crawford | 82% | 12% | 6% | 36 | Ottawa | 83% | 10% | 7% | 37 |
| Cuyahoga | 82% | 12% | 6% | 1056 | Paulding | 75% | 16% | 9% | 11 |
| Darke | 83% | 12% | 6% | 35 | Perry | 84% | 13% | 3% | 18 |
| Defiance | 75% | 12% | 13% | 27 | Pickaway | 86% | 8% | 6% | 29 |
| Delaware | 84% | 12% | 4% | 102 | Pike | 64% | 24% | 12% | 12 |
| Erie | 78% | 12% | 10% | 74 | Portage | 86% | 7% | 7% | 111 |
| Fairfield | 83% | 13% | 4% | 89 | Preble | 84% | 12% | 4% | 28 |
| Fayette | 83% | 10% | 7% | 17 | Putnam | 77% | 16% | 7% | 22 |
| Franklin | 84% | 10% | 5% | 691 | Richland | 82% | 12% | 6% | 90 |
| Fulton | 83% | 10% | 8% | 21 | Ross | 75% | 16% | 9% | 36 |
| Gallia | 87% | 11% | 2% | 19 | Sandusky | 81% | 10% | 8% | 42 |
| Geauga | 82% | 14% | 5% | 83 | Scioto | 76% | 19% | 5% | 59 |
| Greene | 80% | 10% | 10% | 102 | Seneca | 85% | 8% | 7% | 45 |
| Guernsey | 79% | 16% | 4% | 23 | Shelby | 87% | 8% | 6% | 34 |
| Hamilton | 86% | 10% | 4% | 614 | Stark | 84% | 11% | 4% | 317 |
| Hancock | 80% | 16% | 4% | 57 | Summit | 82% | 11% | 7% | 336 |
| Hardin | 86% | 9% | 5% | 24 | Trumbull | 84% | 9% | 6% | 195 |
| Harrison | 91% | 6% | 3% | 13 | Tuscarawas | 85% | 9% | 5% | 77 |
| Henry | 77% | 11% | 11% | 16 | Union | 85% | 8% | 7% | 26 |
| Highland | 79% | 14% | 7% | 22 | Van Wert | 81% | 12% | 8% | 19 |
| Hocking | 84% | 8% | 8% | 17 | Vinton | 90% | 7% | 2% | 8 |
| Holmes | 74% | 12% | 14% | 12 | Warren | 85% | 10% | 5% | 120 |
| Huron | 84% | 11% | 6% | 39 | Washington | 87% | 10% | 4% | 56 |
| Jackson | 78% | 18% | 3% | 18 | Wayne | 74% | 15% | 11% | 59 |
| Jefferson | 91% | 6% | 3% | 71 | Williams | 80% | 13% | 7% | 26 |
| Knox | 79% | 15% | 6% | 38 | Wood | 82% | 12% | 5% | 73 |
| Lake | 75% | 12% | 13% | 182 | Wyandot | 83% | 15% | 2% | 17 |

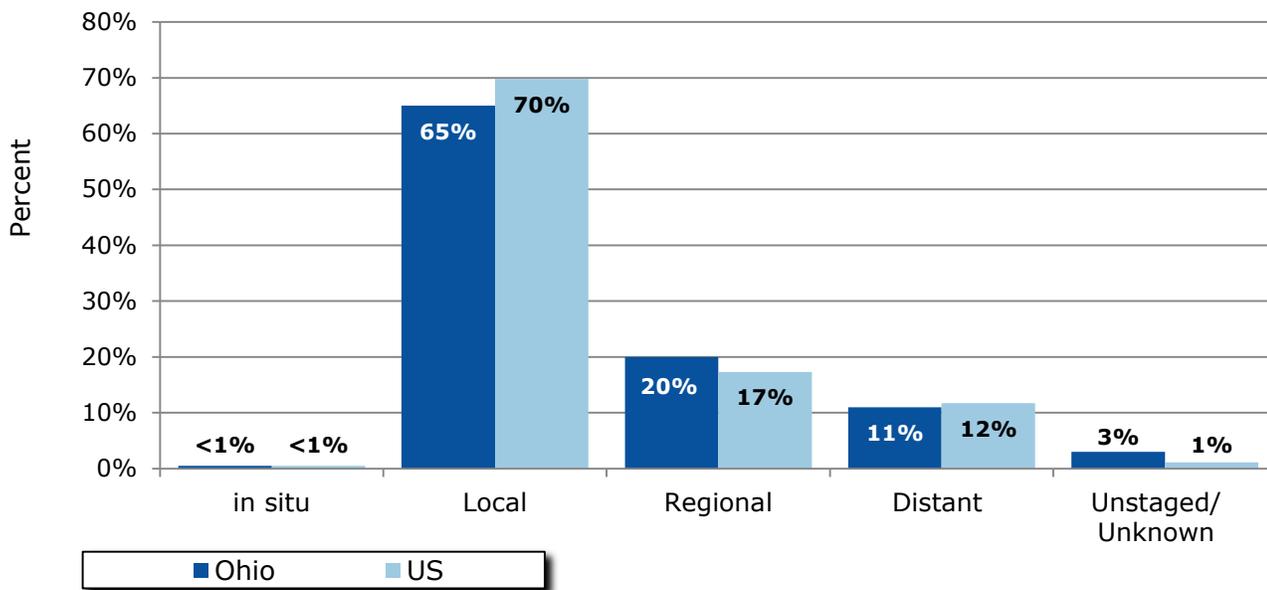
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Testicular Cancer

Figure 8.1 shows that, in Ohio, compared to the United States:

- A lower percentage of testicular cancer cases were diagnosed at the localized stage.
- A higher percentage of testicular cancer cases were diagnosed at the regional stage.

Figure 8.1: Testicular Cancer: Proportion of Cases (%) by Stage at Diagnosis in Ohio, with Comparison to the U.S. (SEER), 2004-2008 (Average Annual N=310)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute,

Figure 8.2 shows that, compared to whites, in Ohio:

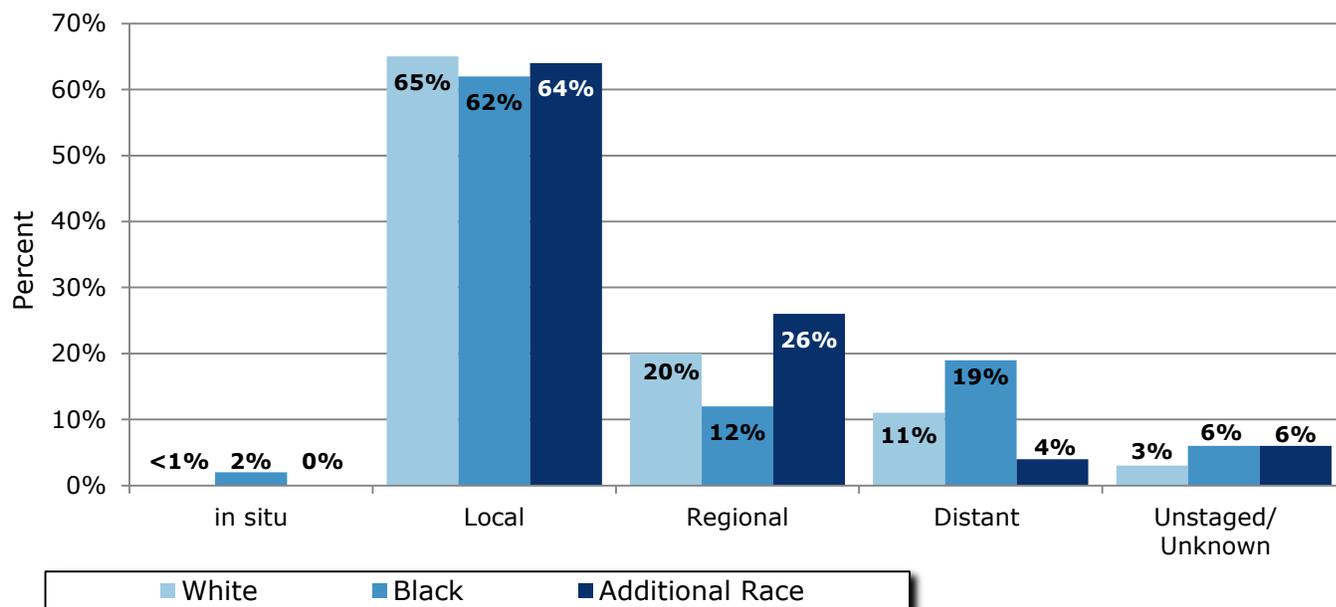
- A higher percentage of testicular cancers among blacks were diagnosed at distant stage or unstaged/unknown stage, and a lower percentage of blacks were diagnosed at localized and regional stages.
- There were higher percentages of testicular cancers among additional races diagnosed at the regional stage and unstaged/unknown stage, while there were lower percentages of additional races diagnosed at distant stage.

Figure 8.3 shows that, in Ohio:

- There were no clear trends with respect to stage at diagnosis of testicular cancer by age group.
- Men aged 0-29 years were most likely to be diagnosed at regional or distant stages, compared to men 30-44 and 45 years and older.

Testicular Cancer

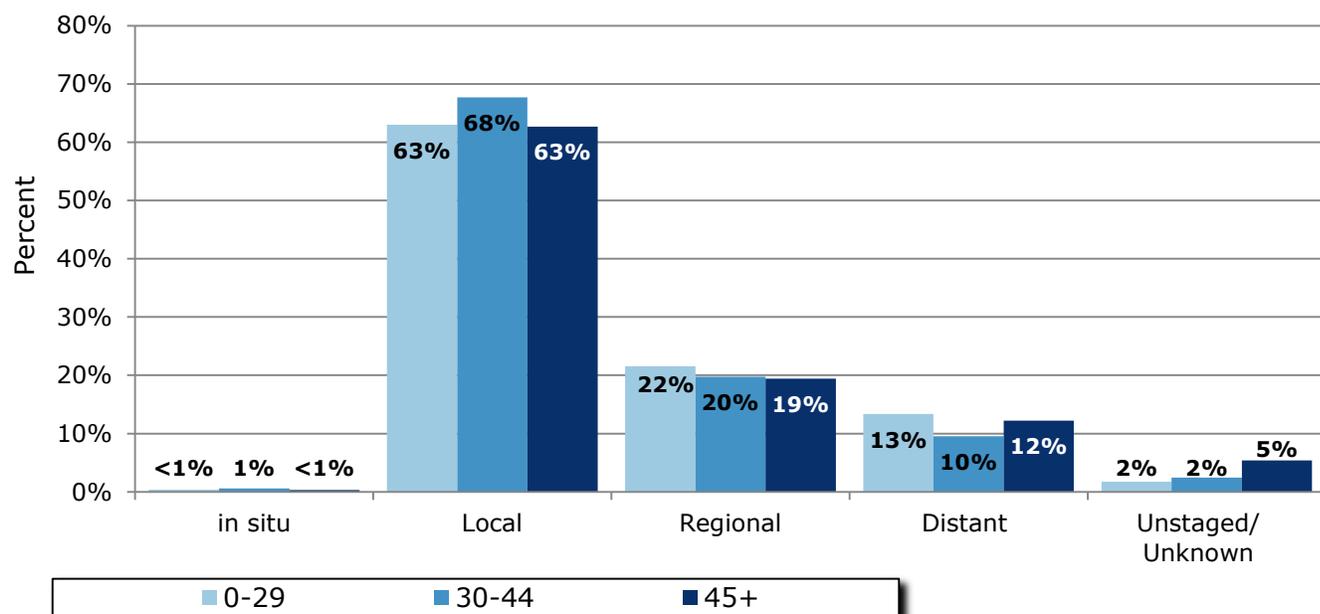
Figure 8.2: Testicular Cancer: Proportion of Cases (%) by Stage at Diagnosis and Race¹ in Ohio, 2004-2008 (Average Annual N=310)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

¹Additional Race includes Asian/Pacific Islander, American Indian/Alaskan Native, Other and Unknown races.

Figure 8.3: Testicular Cancer: Proportion of Cases (%) by Stage at Diagnosis and Age Group in Ohio, 2004-2008 (Average Annual N=310)

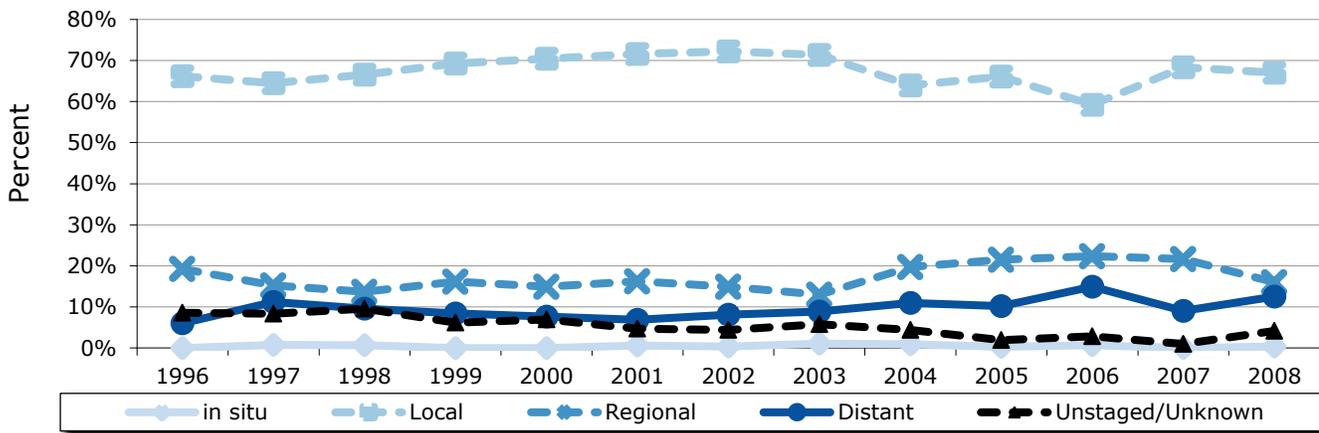


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Testicular Cancer

Figure 8.4 shows that the proportions of testicular cancer cases diagnosed at localized, regional and distant stages were variable from 1996 to 2008. The proportion of testicular cancer cases reported unstaged/unknown stage decreased slightly over this time period.

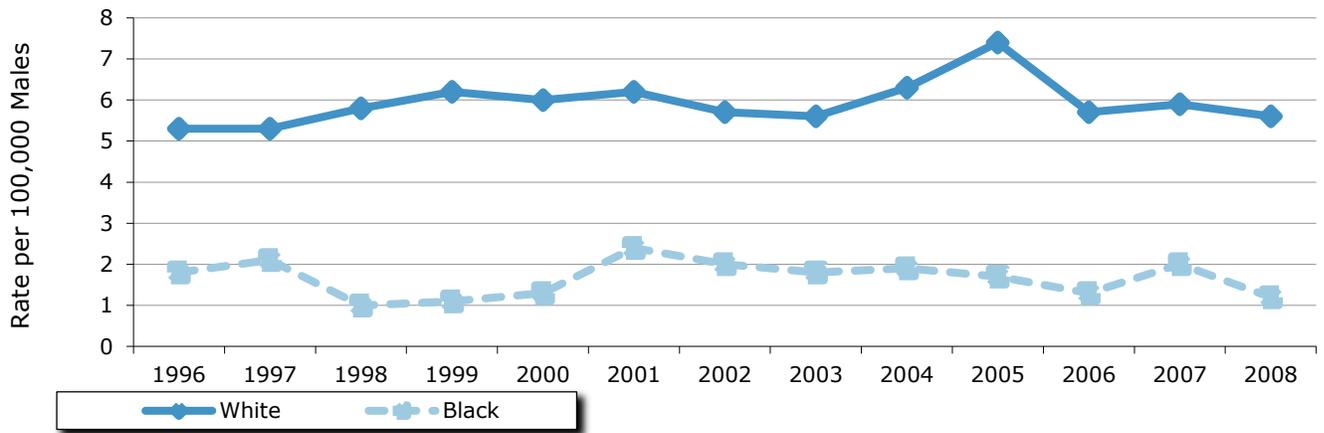
Figure 8.4: Testicular Cancer: Trends in the Proportion of Cases (%) by Stage at Diagnosis in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

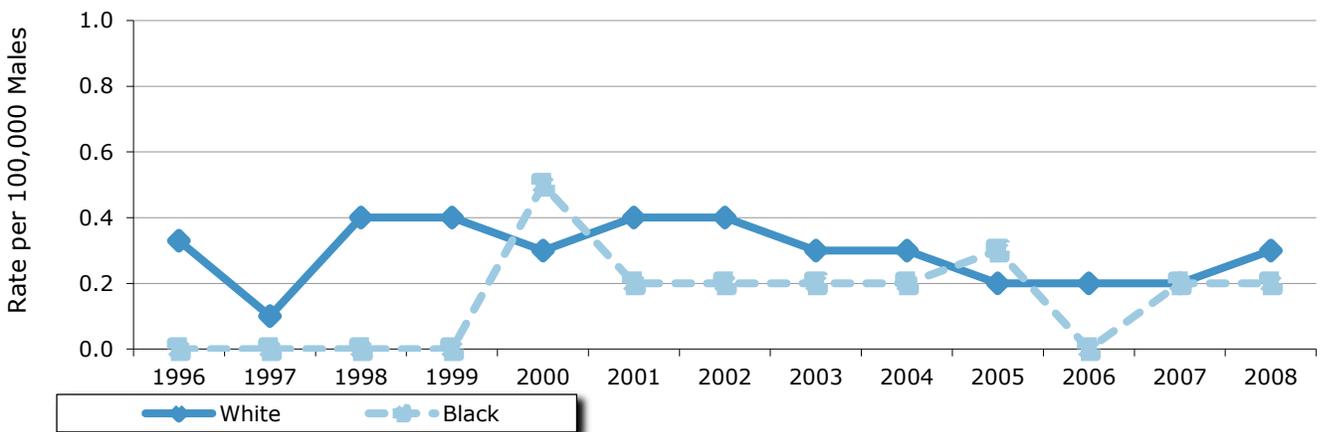
- Testicular cancer incidence rates (Figure 8.5) were much higher and slightly increased among whites in Ohio from 1996 to 2008, compared to blacks who had lower and more variable rates during this time period.
- For both whites and blacks, testicular cancer mortality rates (Figure 8.6) were sporadic but extremely low from 1996 to 2008.
- For whites, there was a slight increase from 1996 to 2008 in the percentage of testicular cancer cases diagnosed at late stage (Figure 8.7), while, for blacks, the percentage was inconsistent with no apparent directional trend. The variability in the percent diagnosed at late stage for blacks is due to the small number of cases diagnosed each year, ranging from six to 14 over the time period.

Figure 8.5: Testicular Cancer: Trends in Average Annual Age-adjusted Incidence Rates per 100,000 Males by Race in Ohio, 1996-2008



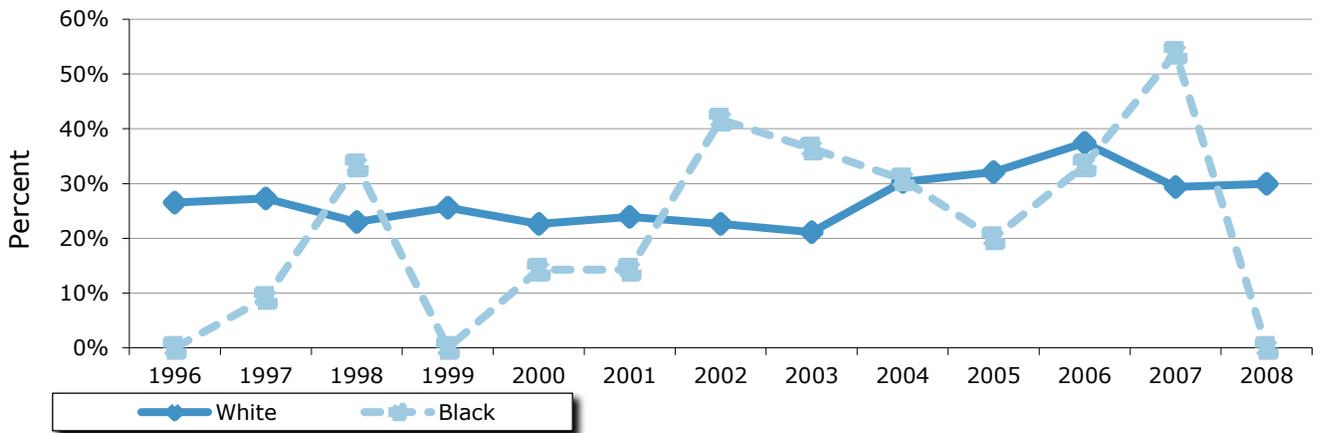
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 8.6: Testicular Cancer: Trends in Average Annual Age-adjusted Mortality Rates per 100,000 Males by Race in Ohio, 1996-2008



Source: Ohio Vital Statistics Program, Ohio Department of Health, 2010.

Figure 8.7: Testicular Cancer: Trends in the Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by Race in Ohio, 1996-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Testicular Cancer

Did You Know?

Testicular cancer is a highly treatable cancer with more than 90 percent of the cases labeled cured following therapy. The cure rate is nearly 98 percent when the cancer is detected early.

Table 8.1 shows that five-year survival probability decreases with advancing stage. For each stage, survival probability is greater among whites, compared to blacks.

Table 8.1: Testicular Cancer: Survival Probability (%) by Stage at Diagnosis and Race in the U.S. (SEER), 2001-2007

| Five-year Survival Probability (%) | | | |
|------------------------------------|---------|------------|------------|
| Stage | Overall | White Male | Black Male |
| All Stages | 95.3% | 95.7% | 86.5% |
| Localized | 99.0% | 99.1% | 98.5% |
| Regional | 96.1% | 96.8% | 84.6% |
| Distant | 72.7% | 73.7% | 51.9% |
| Unstaged/ Unknown Stage | 85.5% | 87.1% | -- |

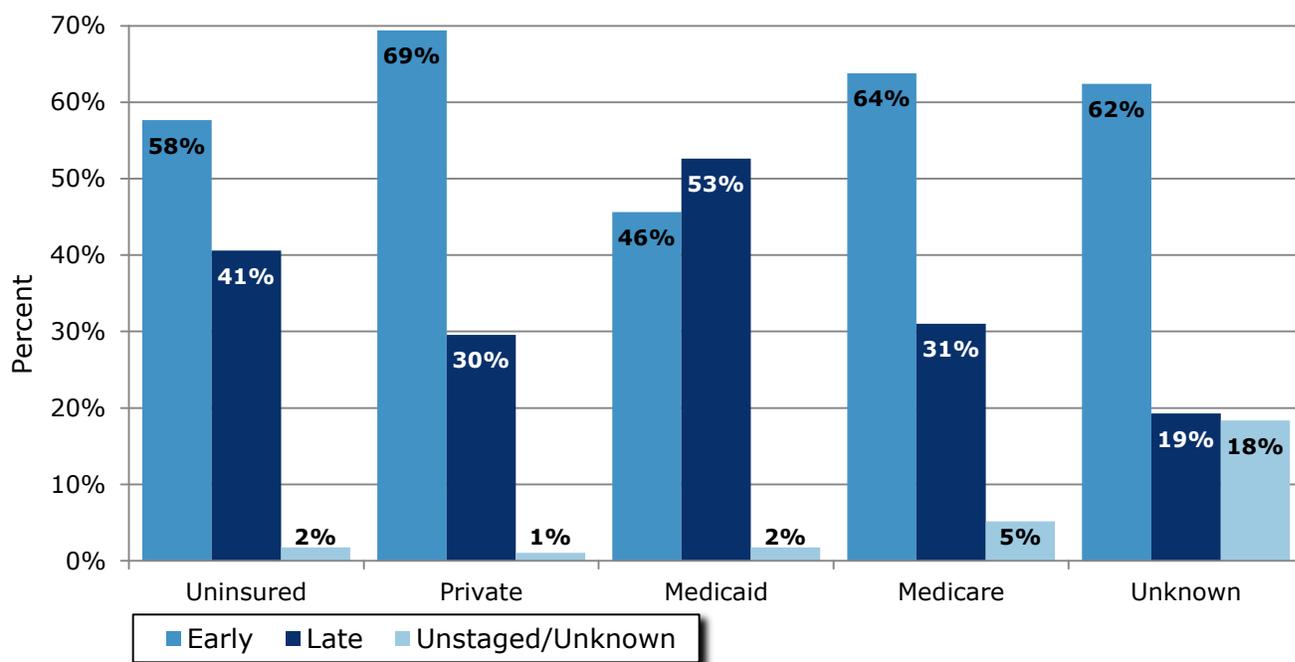
Source: Surveillance Epidemiology and End Results Program, *SEER Cancer Statistics Review, 1975-2008*, National Cancer Institute, 2011.

- Statistic could not be calculated due to fewer than 25 cases during the time period.

Testicular Cancer

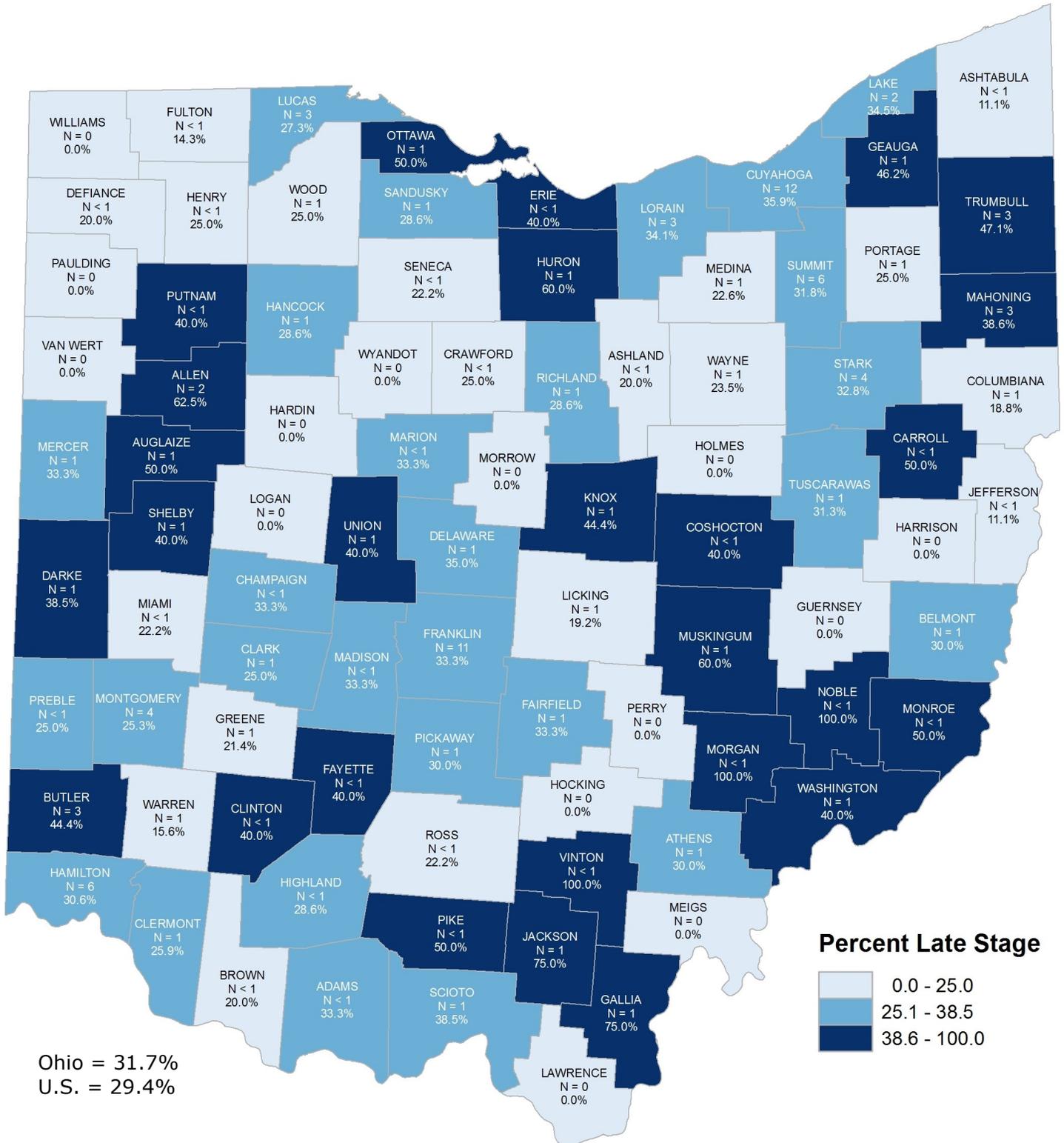
Figure 8.8 shows that the percentage of late stage testicular cancers was greatest among those with Medicaid as their primary insurance payer at diagnosis, followed by those who were uninsured. Those with unknown insurance had the highest percentage of unstaged/unknown stage testicular cancer.

Figure 8.8: Testicular Cancer: Proportion of Cases by Stage and Primary Payer (Insurance) at Diagnosis in Ohio, 2004-2008



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Figure 8.9: Testicular Cancer: Proportion of Cases (%) Diagnosed at Late (Regional or Distant) Stage by County of Residence, Ohio, 2004-2008 (Average Annual N=310)



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.
* Note: Each category represents approximately 33%, or 29, of the 88 Ohio counties.

Table 8.2: Testicular Cancer: Proportion of Cases (%) by County of Residence and Stage at Diagnosis in Ohio and the U.S. (SEER), 2004-2008

| | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases | | Early Stage % | Late Stage % | Unstaged/ Unknown % | Average Annual Cases |
|-------------|---------------|--------------|---------------------|----------------------|------------|---------------|--------------|---------------------|----------------------|
| Ohio | 65% | 32% | 3% | 310 | Lawrence | 100% | 0% | 0% | <1 |
| SEER | 70% | 29% | 1% | | Licking | 77% | 19% | 4% | 5 |
| Adams | 67% | 33% | 0% | <1 | Logan | 100% | 0% | 0% | <1 |
| Allen | 31% | 63% | 6% | 3 | Lorain | 63% | 34% | 2% | 8 |
| Ashland | 80% | 20% | 0% | 1 | Lucas | 71% | 27% | 2% | 11 |
| Ashtabula | 89% | 11% | 0% | 2 | Madison | 67% | 33% | 0% | 1 |
| Athens | 60% | 30% | 10% | 2 | Mahoning | 61% | 39% | 0% | 9 |
| Auglaize | 38% | 50% | 13% | 2 | Marion | 67% | 33% | 0% | 1 |
| Belmont | 60% | 30% | 10% | 2 | Medina | 71% | 23% | 6% | 6 |
| Brown | 80% | 20% | 0% | 1 | Meigs | 100% | 0% | 0% | <1 |
| Butler | 50% | 44% | 6% | 7 | Mercer | 58% | 33% | 8% | 2 |
| Carroll | 50% | 50% | 0% | <1 | Miami | 78% | 22% | 0% | 2 |
| Champaign | 67% | 33% | 0% | <1 | Monroe | 50% | 50% | 0% | <1 |
| Clark | 75% | 25% | 0% | 3 | Montgomery | 68% | 25% | 7% | 15 |
| Clermont | 74% | 26% | 0% | 5 | Morgan | 0% | 100% | 0% | <1 |
| Clinton | 60% | 40% | 0% | 1 | Morrow | 100% | 0% | 0% | 1 |
| Columbiana | 63% | 19% | 19% | 3 | Muskingum | 40% | 60% | 0% | 2 |
| Coshocton | 60% | 40% | 0% | 1 | Noble | 0% | 100% | 0% | <1 |
| Crawford | 50% | 25% | 25% | <1 | Ottawa | 33% | 50% | 17% | 1 |
| Cuyahoga | 61% | 36% | 3% | 33 | Paulding | 0% | 0% | 0% | 0 |
| Darke | 62% | 38% | 0% | 3 | Perry | 100% | 0% | 0% | <1 |
| Defiance | 80% | 20% | 0% | 1 | Pickaway | 70% | 30% | 0% | 2 |
| Delaware | 65% | 35% | 0% | 4 | Pike | 50% | 50% | 0% | <1 |
| Erie | 60% | 40% | 0% | 1 | Portage | 75% | 25% | 0% | 3 |
| Fairfield | 67% | 33% | 0% | 4 | Preble | 63% | 25% | 13% | 2 |
| Fayette | 60% | 40% | 0% | 1 | Putnam | 60% | 40% | 0% | 1 |
| Franklin | 65% | 33% | 1% | 32 | Richland | 71% | 29% | 0% | 3 |
| Fulton | 86% | 14% | 0% | 1 | Ross | 78% | 22% | 0% | 2 |
| Gallia | 25% | 75% | 0% | <1 | Sandusky | 64% | 29% | 7% | 3 |
| Geauga | 46% | 46% | 8% | 3 | Scioto | 62% | 38% | 0% | 3 |
| Greene | 79% | 21% | 0% | 3 | Seneca | 56% | 22% | 22% | 2 |
| Guemsey | 100% | 0% | 0% | 1 | Shelby | 50% | 40% | 10% | 2 |
| Hamilton | 66% | 31% | 3% | 20 | Stark | 67% | 33% | 0% | 12 |
| Hancock | 71% | 29% | 0% | 3 | Summit | 67% | 32% | 1% | 18 |
| Hardin | 100% | 0% | 0% | <1 | Trumbull | 50% | 47% | 3% | 7 |
| Harrison | 100% | 0% | 0% | <1 | Tuscarawas | 56% | 31% | 13% | 3 |
| Henry | 75% | 25% | 0% | <1 | Union | 50% | 40% | 10% | 2 |
| Highland | 71% | 29% | 0% | 1 | Van Wert | 100% | 0% | 0% | <1 |
| Hocking | 100% | 0% | 0% | <1 | Vinton | 0% | 100% | 0% | <1 |
| Holmes | 100% | 0% | 0% | 1 | Warren | 81% | 16% | 3% | 6 |
| Huron | 40% | 60% | 0% | 1 | Washington | 60% | 40% | 0% | 2 |
| Jackson | 25% | 75% | 0% | <1 | Wayne | 76% | 24% | 0% | 3 |
| Jefferson | 89% | 11% | 0% | 2 | Williams | 100% | 0% | 0% | 1 |
| Knox | 56% | 44% | 0% | 2 | Wood | 75% | 25% | 0% | 2 |
| Lake | 66% | 34% | 0% | 6 | Wyandot | 100% | 0% | 0% | 1 |

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011; and the Surveillance Epidemiology and End Results Program, SEER*Stat Database: Incidence, Nov 2010 submission, National Cancer Institute, 2011.

Appendix I: American Cancer Society Recommendations for the Early Detection of Cancer in Average Risk, Asymptomatic People

| Gender | Age | Primary Site | Test or Procedure* | Frequency |
|----------------|--|---|---|-----------------------------------|
| Female | Under Age 21 ¹ | Cervix | Conventional Pap Test | Every year OR |
| | | | Liquid-based Pap Test | Every 2 years |
| | 21-39 | Cervix | Conventional Pap Test | Every year ² OR |
| | | | Liquid-based Pap Test | Every 2 years |
| | 40-49 | Breast | Clinical Breast Exam | Every 3 years |
| | | | Breast Self-exam ³ | Every month |
| | 50+ | Cervix | Conventional Pap Test | Every year ² OR |
| | | | Liquid-based Pap Test | Every 2 years |
| | | Breast | Mammogram ⁴ | Every year |
| | | | Clinical Breast Exam Breast Self-exam ³ | Every year Every month |
| Colon & Rectum | | Colonoscopy | Every 10 years OR | |
| | | Flexible Sigmoidoscopy ⁵ | Every 5 years OR | |
| | Double-contrast Barium Enema ⁵ | Every 5 years OR | | |
| | CT Colonography (virtual colonoscopy) ⁵ | Every 5 years OR | | |
| Prostate | Fecal Occult Blood Test (FOBT) ^{5,6} | Every year OR | | |
| | Fecal Immunochemical Test (FIT) ^{5,6} | Every year OR | | |
| | Stool DNA (sDNA) Test ⁵ | Interval Uncertain | | |
| Male | 50+ | Colon & Rectum | Colonoscopy | Every 10 years OR |
| | | | Flexible Sigmoidoscopy ⁵ | Every 5 years OR |
| | | | Double-contrast Barium Enema ⁵ | Every 5 years OR |
| | | | CT Colonography (virtual colonoscopy) ⁵ | Every 5 years OR |
| | | | Fecal Occult Blood Test (FOBT) ^{5,6} | Every year OR |
| | | | Fecal Immunochemical Test (FIT) ^{5,6} | Every year OR |
| | Stool DNA (sDNA) Test ⁵ | Interval Uncertain | | |
| | Prostate | Begin discussion about prostate cancer testing ⁷ | Periodic | |

Source: American Cancer Society Ohio Division, Ohio Department of Health, The Ohio State University. Ohio Cancer Facts & Figures 2010.

¹ Screening should begin within three years after a woman begins having vaginal intercourse, but no later than 21.

² Women 30+ who have had three consecutive normal annual exams may get screened every two to three years. Alternately HPV DNA testing and conventional or liquid-based cytology could be performed every three years. Women who have risk factors such as HIV infection or a weak immune system may need to get screened more often. Women 70+ who have had three or more consecutive normal Pap tests in the last 10 years may choose to stop cervical cancer screening. Screening after a total hysterectomy is not necessary unless the surgery was done as a treatment for cervical cancer.

³ Breast self-exam is an option for women starting in their 20s. Women should know how their breasts normally feel and report any breast change promptly to their health care provider.

⁴ Women with a 20% or greater lifetime risk, such as those with known BRCA1 or BRCA2 mutations, strong family history of breast or ovarian cancer, or radiation to the chest between ages 10 to 30, should begin annual mammography and magnetic resonance imaging (MRI) at 30. Women with moderate (15%-20%) lifetime risk should talk with their doctors about the benefits and limitations of adding MRI screening to their yearly mammograms.

⁵ All positive tests should be followed up with a colonoscopy.

⁶ For FOBT or FIT to be a screening test, the take-home multiple-sample method should be used.

⁷ The American Cancer Society does not support routine prostate testing, such as digital rectal exam and prostate-specific antigen blood test, at this time. Men at high risk, such as African-American men or those with one or more first-degree relatives diagnosed with prostate cancer before 65, should discuss potential benefits and limitations of testing beginning at 45. Men at average risk should begin this discussion at 50.

*In addition to recommended cancer screenings named in the table, men and women 21 and older should seek periodic health counseling and exam of thyroid, ovaries/testes, lymph nodes, oral cavity and skin.

Appendix II: U.S. Preventive Services Task Force (USPSTF) Recommendations* for the Early Detection of Cancer in Average Risk, Asymptomatic People

| Gender | Age | Primary Site/Type | Test or Procedure** | Frequency |
|--------|---------------------------|---|---------------------------------|--------------------------|
| Female | Under Age 21 ¹ | Cervix | Regular Pap Test ² | Every three years |
| | 21-49 | Cervix | Regular Pap Test ² | Every three years |
| | 50+ | Cervix | Regular Pap Test ^{2,3} | Every three years |
| | | Breast | Mammogram ⁴ | Every two years |
| | | Colon & Rectum | Colonoscopy ⁵ | Every 10 years OR |
| | | Flexible Sigmoidoscopy | Every 5 years AND | |
| | | High Sensitivity Fecal Occult Blood Test (FOBT) | Every 3 years OR | |
| | | High Sensitivity FOBT | Every year | |

| | | | | |
|------|-----|----------------|--------------------------|--------------------------|
| Male | 50+ | Colon & Rectum | Colonoscopy ⁵ | Every 10 years OR |
| | | | Flexible Sigmoidoscopy | Every 5 years AND |
| | | | High Sensitivity FOBT | Every 3 years OR |
| | | | High Sensitivity FOBT | Every year |

¹ Screening should begin within three years after a woman begins having vaginal intercourse, but no later than 21.

² Screening after a total hysterectomy is not recommended.

³ Women >65 who have had adequate recent screenings with normal Pap smears and are not at high risk may choose to stop cervical cancer screening.

⁴ The decision to start regular, biennial screening mammograms before 50 should be an individual one and should take into account the patient's values regarding the benefits and harms. Evidence is insufficient to assess the benefits and harms of screening mammograms in women 75+.

⁵ Colorectal cancer screening is not recommended for adults 76 to 85, although there may be considerations that support screening in an individual patient. Screening is not recommended for adults >85.

* This summary of recommendations is based on information available on the USPSTF Web site (<http://www.uspreventiveservicestaskforce.org>) as of November 8, 2011.

** The USPSTF states that the evidence is insufficient to assess the benefits and harms of screening for bladder, lung and oral cancer, as well as prostate cancer in men <75. The USPSTF recommends against screening for ovarian, pancreatic and testicular cancer, as well as prostate cancer in men 75+.

Appendix III: Proportion of Cases (%) by Cancer Site, Stage and Year of Diagnosis in Ohio, 1996-2008

| Cervix | | | | | | | | | | | | | |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| In situ | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Localized | 58% | 54% | 53% | 54% | 55% | 49% | 53% | 52% | 51% | 46% | 42% | 39% | 45% |
| Regional | 29% | 27% | 26% | 30% | 29% | 31% | 27% | 30% | 31% | 39% | 39% | 43% | 36% |
| Distant | 8% | 5% | 5% | 7% | 6% | 6% | 9% | 8% | 9% | 10% | 11% | 11% | 13% |
| Unstaged/ Unknown | 5% | 14% | 16% | 8% | 10% | 14% | 11% | 10% | 9% | 6% | 7% | 6% | 6% |

| Colon and Rectum | | | | | | | | | | | | | |
|-------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| In situ | 8% | 7% | 7% | 7% | 7% | 7% | 7% | 7% | 7% | 6% | 7% | 7% | 5% |
| Localized | 29% | 27% | 29% | 30% | 29% | 29% | 30% | 32% | 37% | 39% | 37% | 35% | 37% |
| Regional | 39% | 36% | 36% | 36% | 38% | 37% | 36% | 35% | 31% | 29% | 30% | 31% | 29% |
| Distant | 16% | 15% | 15% | 14% | 13% | 14% | 14% | 15% | 16% | 16% | 16% | 17% | 17% |
| Unstaged/ Unknown | 8% | 14% | 13% | 12% | 13% | 13% | 13% | 11% | 9% | 9% | 10% | 10% | 11% |

| Female Breast | | | | | | | | | | | | | |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| In situ | 13% | 14% | 16% | 16% | 17% | 18% | 19% | 18% | 19% | 18% | 19% | 19% | 19% |
| Localized | 52% | 49% | 52% | 51% | 50% | 50% | 49% | 50% | 48% | 50% | 49% | 49% | 48% |
| Regional | 24% | 22% | 23% | 23% | 23% | 22% | 23% | 23% | 25% | 25% | 25% | 25% | 25% |
| Distant | 5% | 4% | 4% | 3% | 4% | 3% | 3% | 4% | 5% | 4% | 4% | 4% | 4% |
| Unstaged/ Unknown | 6% | 10% | 6% | 6% | 6% | 7% | 6% | 5% | 3% | 3% | 3% | 3% | 4% |

| Lung and Bronchus | | | | | | | | | | | | | |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| In situ | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Localized | 20% | 18% | 17% | 19% | 18% | 18% | 17% | 19% | 16% | 17% | 17% | 17% | 17% |
| Regional | 27% | 24% | 25% | 25% | 25% | 25% | 25% | 25% | 25% | 24% | 23% | 23% | 24% |
| Distant | 35% | 31% | 31% | 34% | 34% | 35% | 36% | 37% | 45% | 45% | 45% | 47% | 46% |
| Unstaged/ Unknown | 18% | 28% | 27% | 22% | 22% | 22% | 21% | 18% | 14% | 14% | 14% | 14% | 12% |

Appendix III (cont.): Proportion of Cases (%) by Cancer Site, Stage and Year of Diagnosis in Ohio, 1996-2008

| Melanoma of the Skin | | | | | | | | | | | | | |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| In situ | 20% | 20% | 26% | 29% | 37% | 35% | 37% | 35% | 33% | 34% | 38% | 37% | 39% |
| Localized | 55% | 60% | 50% | 50% | 43% | 45% | 43% | 48% | 52% | 52% | 49% | 50% | 47% |
| Regional | 5% | 5% | 6% | 5% | 5% | 5% | 5% | 5% | 6% | 5% | 6% | 6% | 7% |
| Distant | 3% | 3% | 3% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 3% | 2% | 2% |
| Unstaged/ Unknown | 17% | 12% | 15% | 14% | 13% | 14% | 12% | 10% | 7% | 6% | 5% | 4% | 5% |

| Oral Cavity and Pharynx | | | | | | | | | | | | | |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| In situ | 2% | 2% | 2% | 3% | 2% | 3% | 3% | 2% | 1% | 2% | 3% | 2% | 2% |
| Localized | 36% | 33% | 36% | 35% | 37% | 35% | 35% | 34% | 30% | 27% | 29% | 30% | 26% |
| Regional | 42% | 40% | 40% | 46% | 44% | 45% | 43% | 47% | 42% | 46% | 45% | 43% | 46% |
| Distant | 6% | 5% | 5% | 6% | 4% | 6% | 6% | 5% | 18% | 18% | 17% | 18% | 18% |
| Unstaged/ Unknown | 13% | 19% | 17% | 11% | 13% | 12% | 13% | 11% | 9% | 8% | 7% | 7% | 7% |

| Prostate | | | | | | | | | | | | | |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| In situ | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Localized | 68% | 69% | 68% | 73% | 75% | 77% | 79% | 79% | 82% | 84% | 85% | 84% | 80% |
| Regional | 13% | 10% | 8% | 8% | 7% | 6% | 5% | 5% | 8% | 8% | 7% | 8% | 8% |
| Distant | 6% | 4% | 4% | 3% | 4% | 4% | 3% | 3% | 4% | 4% | 3% | 3% | 3% |
| Unstaged/ Unknown | 13% | 17% | 21% | 15% | 15% | 14% | 13% | 12% | 6% | 5% | 5% | 5% | 10% |

| Testis | | | | | | | | | | | | | |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| In situ | 0% | 1% | 1% | 0% | 0% | 1% | 0% | 1% | 1% | 0% | 1% | 0% | 0% |
| Localized | 66% | 64% | 67% | 69% | 70% | 72% | 72% | 71% | 64% | 66% | 59% | 68% | 67% |
| Regional | 19% | 15% | 14% | 16% | 15% | 16% | 15% | 13% | 20% | 21% | 22% | 22% | 16% |
| Distant | 6% | 11% | 10% | 8% | 8% | 7% | 8% | 9% | 11% | 10% | 15% | 9% | 13% |
| Unstaged/ Unknown | 9% | 8% | 10% | 6% | 7% | 5% | 4% | 6% | 4% | 2% | 3% | 1% | 4% |

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Appendix IV: Proportion of Cases (%) by Cancer Site and Primary Payer (Insurance) at Diagnosis in Ohio, 2004-2008

| Cancer Site/Type | Uninsured | Private | Medicaid | Medicare | Other Public | Insured Source NOS | Unknown |
|-------------------------|------------------|----------------|-----------------|-----------------|---------------------|---------------------------|----------------|
| Cervix | 8.9% | 34.7% | 16.0% | 19.3% | 0.6% | 13.7% | 6.8% |
| Colon and Rectum | 2.6% | 20.1% | 3.6% | 54.2% | 0.6% | 8.8% | 10.0% |
| Female Breast | 2.3% | 36.1% | 4.2% | 37.9% | 0.5% | 12.4% | 6.7% |
| Lung and Bronchus | 2.9% | 16.8% | 5.7% | 54.1% | 0.8% | 6.4% | 13.3% |
| Melanoma of the Skin | 1.6% | 27.8% | 1.8% | 26.5% | 0.5% | 17.0% | 24.9% |
| Oral Cavity and Pharynx | 4.8% | 29.1% | 9.0% | 35.4% | 1.5% | 9.8% | 10.5% |
| Prostate | 1.5% | 25.3% | 1.8% | 44.4% | 1.1% | 9.9% | 16.0% |
| Testis | 11.0% | 49.7% | 7.4% | 3.7% | 0.7% | 20.6% | 7.0% |

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011.

Appendix V: Cancer Site and Histology Codes
International Classification of Diseases for Oncology, Third Edition (ICD-O-3)^{1,2}

| Cancer Site/Type | ICD-O-3 Site and Histology Code(s) |
|----------------------------------|--|
| All Cancer Sites/Types | C000-C809 |
| Oral Cavity and Pharynx | C000-C009; C019-C029; C079-C089; C040-C049; C030-C039; C050-C059; C060-C069; C110-C119; C090-C099; C100-C109; C129; C130-C139; C140-C142; C148 |
| Esophagus | C150-C159 |
| Stomach | C160-C169 |
| Colon and Rectum | C180-C189; C199; C209; C260 |
| Liver and Intrahepatic Bile Duct | C220-C221 |
| Pancreas | C250-C259 |
| Larynx | C320-C329 |
| Lung and Bronchus | C340-C349 |
| Melanoma of the Skin | C440-C449 (Types 8720-8790) |
| Breast | C500-C509 |
| Cervix | C530-C539 |
| Corpus Uterus | C540-C549; C559 |
| Ovary | C569 |
| Prostate | C619 |
| Testis | C620-C629 |
| Bladder | C670-C679 |
| Kidney and Renal Pelvis | C649; C659 |
| Brain and Other CNS ³ | C700-C729 |
| Thyroid | C739 |
| Hodgkin's Lymphoma | Types 9650-9667 |
| Non-Hodgkin's Lymphoma | Types 9590-9596, 9670-9671; 9673; 9675; 9678; 9680; 9684; 9687; 9689-9691; 9695; 9698-9702; 9705; 9708-9709; 9714-9719; 9727-9729; 9823 (excluding sites C420, C421 and C424); 9827 (excluding sites C420, C421 and C424) |
| Multiple Myeloma | Types 9731-9732; 9734 |
| Leukemia | Types 9733; 9742; 9800; 9801; 9805; 9820; 9823 (sites C420, C421 and C424); 9826; 9827 (sites C420, C421 and C424); 9831; 9832-9834; 9835-9837; 9840; 9860; 9861; 9863; 9866; 9867; 9870; 9871-9874; 9875; 9876; 9891; 9895-9897; 9910; 9920; 9930; 9931; 9940; 9945; 9946; 9948; 9963; 9964 |

[1] Source of Table: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, April 2004, adapted from the International Classification of Diseases for Oncology, Third Edition, World Health Organization, Geneva, 2000.

[2] Types 9590-9989 are excluded for all cancer sites except where indicated.

[3] CNS = Central Nervous System.

**Appendix VI: Cancer Mortality Codes
International Statistical Classification of Diseases and Related Health Problems, 10th
Edition (ICD-10)¹**

| Cancer Site/Type | ICD-10 |
|----------------------------------|---|
| All Cancer Sites/Types | C000-C979 |
| Oral Cavity and Pharynx | C000-C149 |
| Esophagus | C150-C159 |
| Stomach | C160-C169 |
| Colon and Rectum | C180-C209; C260 |
| Liver and Intrahepatic Bile Duct | C220-C229 |
| Pancreas | C250-C259 |
| Larynx | C320-C329 |
| Lung and Bronchus | C340-C349 |
| Melanoma of the Skin | C430-C439 |
| Breast | C500-C509 |
| Cervix | C530-C539 |
| Corpus Uterus | C540-C559 |
| Ovary | C560-C569 |
| Prostate | C610-C619 |
| Testis | C620-C629 |
| Bladder | C670-C679 |
| Kidney and Renal Pelvis | C640-C659 |
| Brain and Other CNS ² | C700-C729 |
| Thyroid | C730-C739 |
| Hodgkin's Lymphoma | C810-C819 |
| Non-Hodgkin's Lymphoma | C820-C829; C830-C839; C840-C849; C850-C859; C963 |
| Multiple Myeloma | C900; C902 |
| Leukemia | C901; C910-C959 |

[1] Source of Table: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, August 2006, adapted from the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, World Health Organization, Geneva, 1992.

[2] CNS = Central Nervous System.

**Appendix VII: Estimated Percent of OCISS Case Completeness
By Cancer Site/Type, Ohio, 2004-2008^{1,2,3}**

| Sites/Types | % Complete |
|----------------------------------|-------------------|
| All Cancer Sites/Types | 94% |
| Bladder | 92% |
| Brain and Other CNS ⁴ | >100% |
| Female Breast | 88% |
| Cervix | 94% |
| Colon and Rectum | 96% |
| Corpus Uterus | >100% |
| Esophagus | >100% |
| Hodgkin's Lymphoma | 91% |
| Kidney and Renal Pelvis | 94% |
| Larynx | >100% |
| Leukemia | 86% |
| Liver and Intrahepatic Bile Duct | 75% |
| Lung and Bronchus | >100% |
| Melanoma of the Skin | 93% |
| Multiple Myeloma | 87% |
| Non-Hodgkin's Lymphoma | 91% |
| Oral Cavity and Pharynx | 89% |
| Ovary | 96% |
| Pancreas | 94% |
| Prostate | 89% |
| Stomach | 87% |
| Testis | 90% |
| Thyroid | 89% |

[1] Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, November 2011.

[2] The 2004-2008 rates were calculated using vintage 2009 post-censal estimates for July 1, 2004-2008 (U.S. Census Bureau, 2010). Rates are direct age-adjusted to the U.S. 2000 standard population.

[3] Expected incidence rates were estimated based on the Surveillance, Epidemiology, and End Results (SEER) Program cancer incidence to mortality rate ratio for 2004-2008, SEER Cancer Statistics Review 1975-2008, National Cancer Institute, 2011.

[4] CNS=Central Nervous System

Note: Completeness may exceed 100 percent if the observed number of cases exceeds the number expected based on the SEER incidence to mortality rate ratio and Ohio mortality rates.

Data Sources

[1] Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2011 (data release February 2011).

[2] Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Incidence – SEER 17 Regs Public-Use, Nov 2010 Sub (1975-2008), National Cancer Institute, 2011.

[3] Ohio Vital Statistics Program, Ohio Department of Health, 2010.

[4] Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2011.

[5] Howlader N, Noone AM, Krapcho M, et. al. (eds). *SEER Cancer Statistics Review, 1975-2008*, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2008/, based on November 2010 SEER data submission, posted to the SEER web site, 2011.

Technical Notes

Additional Race—Includes Asian/Pacific Islander, American Indian/Alaskan Native, Other and Unknown races. These races were combined due to the fact that small numbers prevent examination of each race separately.

Age-Adjusted Rate—A summary rate that is a weighted average of age-specific rates, where the weights represent the age distribution of a standard population (direct adjustment). The incidence and mortality rates presented in this report were standardized to the age distribution of the 2000 U.S. Standard Population. Under the direct method, the population was first divided into 19 five-year age groups, i.e., <1, 1-4, 5-9, 10-14...85+, and the age-specific rate was calculated for each age group. Each age-specific rate was then multiplied by the standard population proportion for the respective age group and summed to give an overall age-adjusted rate. Rates are presented as the number of cases per 100,000 persons per year. Age-adjustment allows for the comparison of rates between populations with different age distributions.

Average Annual Number—The number of cases or deaths diagnosed per year, on average, for the time period of interest (e.g., 2004-2008). Average annual numbers are calculated by summing the number of cases or deaths for a given time period, dividing by the number of years that comprise the time period and rounding to the nearest whole number.

Cancer Case—All primary malignancies diagnosed among Ohio residents from 2004-2008 and reported to the OCISS. Cases were categorized according to the International Classification of Diseases for Oncology, Third Edition (ICD-O-3), World Health Organization, Geneva, Switzerland, 2000. Data are presented by cancer site/type groupings created in the manner of the SEER Program at the National Cancer Institute. Case counts represent the number of primary cancers reported to the OCISS, not the number of persons; one person may be diagnosed with more than one primary tumor (e.g., lung cancer and melanoma of the skin) and therefore counted as more than one case. Only invasive cases, with the addition of *in situ* bladder cancer, were used in the calculation of incidence rates.

Incidence—The number of new cases diagnosed during a specified time period (e.g., 2004-2008).

Invasive Cancer—A malignant tumor that has infiltrated the organ in which the tumor originated. Invasive cancers consist of those diagnosed at the localized, regional, distant and unstaged/unknown stages.

Mortality—The number of deaths during a specified time period (e.g., 2004-2008). Deaths for 2004-2008 were coded using the International Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), World Health Organization, Geneva, Switzerland, 1992.

Technical Notes (cont.)

Rate—The number of cases or deaths per unit of population (e.g., per 100,000 persons) over a specified time period (e.g., 2004-2008). Rates may be unstable and are not presented when the case count for 2004-2008 is less than five. Rates were age-adjusted to the 2000 U.S. Standard Population.

Stage at Diagnosis—The stage of a cancer case refers to the degree to which the cancer has spread at the time it is diagnosed. The stage at diagnosis of cancer is an important determinant of survival. Patients with early stage disease often have better long-term survival, and detecting cancers at an early stage may lead to a reduction in mortality. The stages presented in this report, in the order of increasing spread, are *in situ*, localized, regional and distant. In addition, 15 percent of cancers in 2004-2008 were reported as unstaged or with an unknown stage at diagnosis. *In situ* and localized tumors are referred to as early stage tumors, and regional and distant tumors are termed late stage. Cancers diagnosed at the localized, regional, distant and unstaged/unknown stages are categorized as invasive.

in situ: A tumor that has not invaded or penetrated surrounding tissue

Localized: An invasive malignant tumor that is confined to the organ in which it originated.

Regional: An invasive malignant tumor that has spread by direct extension to adjacent organs or tissues and/or has spread to regional lymph nodes.

Distant: An invasive malignant tumor that has spread by direct extension beyond adjacent organs or tissues and/or metastasized to distant lymph nodes or tissues.

Unstaged/Unknown: Insufficient information is available to determine the stage of cancer at the time of diagnosis, or the case was reported with missing stage data.

Survival Probability—Five-year relative survival probabilities are from the SEER 17 areas, which contributed cases for diagnosis years 2001-2007. Probabilities are based on follow-up of patients into 2008.