

Melanoma of the Skin In Ohio, 2000-2004

This Report on Melanoma of the Skin Contains:

- Incidence and Mortality Rates in Ohio and the US
- Incidence Rates by Race, County and Age Group
- Trends in Incidence, Mortality and Stage at Diagnosis
- Survival Probability by Stage at Diagnosis
- Topography Information
- Risk Factors
- Signs and Symptoms
- Clinical Trials
- Sources of Data and Additional Information

Melanoma of the Skin Incidence and Mortality

There are three primary types of skin cancer: basal cell carcinoma, squamous cell carcinoma and melanoma of the skin. Melanoma of the skin develops from the cells of the skin that produce coloring – the melanocytes. Non-melanoma (usually basal and squamous cell) skin cancer is more common than melanoma of the skin and develops from skin cells other than melanocytes. Non-melanoma skin cancer is less serious than melanoma of the skin, although it may spread to tissues beneath the skin and is associated with disfigurement and an increased risk of developing melanoma. Non-melanoma skin cancer is not required to be reported in Ohio or the United States; therefore, the incidence of non-melanoma skin cancer is unknown. This report focuses on melanoma skin cancer only.

Melanoma of the skin made up 3.3 percent of incident (newly diagnosed) cancers reported to the Ohio Cancer Incidence Surveillance System (OCISS) for 2000 to 2004 (Table 1). The average annual age-adjusted melanoma of the skin incidence rate in Ohio from 2000 to 2004 was 15.7 cases per 100,000 persons, or an average of 1,855 cases per year (N). The average annual age-adjusted U.S. (SEER¹) incidence rate for 2000-2004 (18.5 cases per 100,000) was 17.8 percent greater than the rate for Ohio. Reporting of melanoma of the skin in Ohio was estimated to be only 85 percent complete in 2000-2004; therefore, the Ohio melanoma of the skin incidence rates presented in this report may underestimate the true burden of this disease. The 2000-2004 Ohio age-adjusted mortality rate for melanoma of the skin of 2.6 deaths per 100,000 persons was identical to that in the United States (NCHS²).

Table 1: Leading Sites/Types of Cancer and Melanoma of the Skin: Average Annual Number (N), Percent and Age-adjusted Rates of Invasive Cancer Cases and Cancer Deaths in Ohio with Comparison to the US (SEER and NCHS), 2000-2004^{1,2}

Incidence	N	%	Ohio	U.S.	Mortality	N	%	Ohio	U.S.
			Rate	Rate				Rate	Rate
All Sites/Types	55,880		464.8	470.1	All Sites/Types	24,894		205.4	192.7
Lung and Bronchus	9,028	16.2%	74.9	64.5	Lung and Bronchus	7,326	29.4%	60.6	54.7
Breast (Female)*	8,118	14.5%	123.7	127.8	Colon and Rectum	2,577	10.4%	21.2	19.4
Prostate*	7,778	13.9%	149.6	168.0	Breast (Female)*	1,919	7.7%	27.9	25.5
Colon and Rectum	6,559	11.7%	54.2	51.6	Prostate*	1,272	5.1%	28.3	27.9
Bladder	2,638	4.7%	21.8	21.1	Pancreas	1,266	5.1%	10.4	10.6
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Melanoma of the Skin	1,855	3.3%	15.7	18.5	Melanoma of the Skin	307	1.2%	2.6	2.6

Source: Ohio Cancer Incidence Surveillance System, Chronic Disease and Behavioral Epidemiology Section and the Vital Statistics Program, Ohio Department of Health, 2007.

[1] SEER: Surveillance, Epidemiology and End Results Program, National Cancer Institute, 2007.

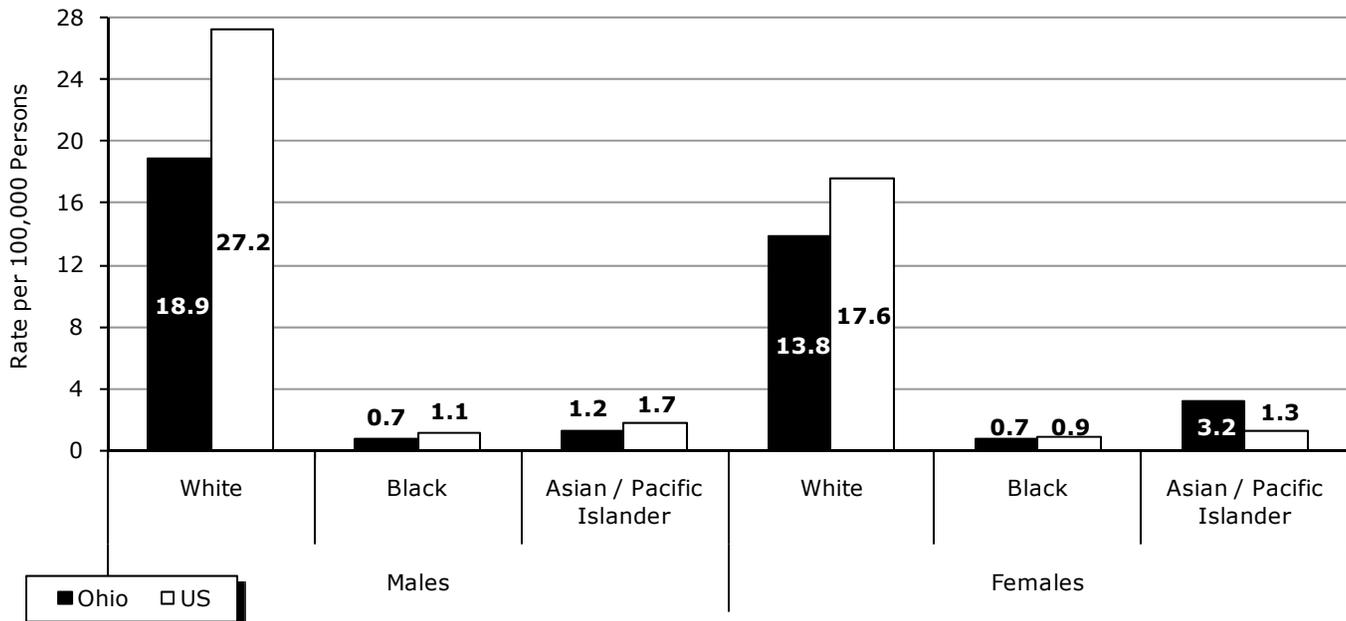
[2] NCHS: National Center for Health Statistics, 2005.

*The rates of female breast and prostate cancer are gender specific (i.e., the population denominator is females or males only).

N = Average number of cases per year rounded to the nearest integer.

Melanoma of the Skin Incidence in Ohio Compared to the United States

Figure 1: Melanoma of the Skin: Average Annual Age-adjusted Incidence Rates per 100,000 Persons, by Gender and Race in Ohio with Comparison to the US (SEER), 2000-2004



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2007, and the Surveillance, Epidemiology and End Results Program, National Cancer Institute, 2007.

Figure 1 shows that the 2000-2004 melanoma of the skin age-adjusted incidence rates for whites were considerably higher than those of blacks and Asian/Pacific Islanders in both Ohio and the United States. Race differences in melanoma of the skin incidence rates result, for the most part, from differences in skin pigmentation. In both Ohio and the United States, the 2000-2004 incidence rates among white males were greater than those of white females. The melanoma of the skin incidence rates among white males and white females were 43.9 percent and 27.5 percent greater in the United States compared to Ohio, respectively. This difference may result from underreporting of melanoma of the skin in Ohio. Melanoma of the skin is rare among blacks and Asian/Pacific Islanders; thus, rates and percentages are based on only small numbers of cases and should be interpreted with caution.

Melanoma of the Skin Cases and Rates by County of Residence

Figure 2 presents 2000-2004 average annual age-adjusted melanoma of the skin incidence rates by county of residence. County-specific melanoma of the skin incidence rates in Ohio ranged from 8.8 to 26.0 per 100,000 residents. The geographic pattern of melanoma of the skin incidence is relatively sporadic; however, there may be areas of higher incidence located in the central, northwestern and north-eastern portions of the state. The following counties had the highest incidence rates for this time period (20.0 or more cases per 100,000 residents): Ashtabula (N = 23), Auglaize (N = 11), Carroll (N = 8), Delaware (N = 25), Erie (N = 19), Hardin (N = 7), Medina (N = 36), Mercer (N = 10), Muskingum (N = 20) and Stark (N = 83).

Melanoma of the Skin Cases and Rates by Age at Diagnosis

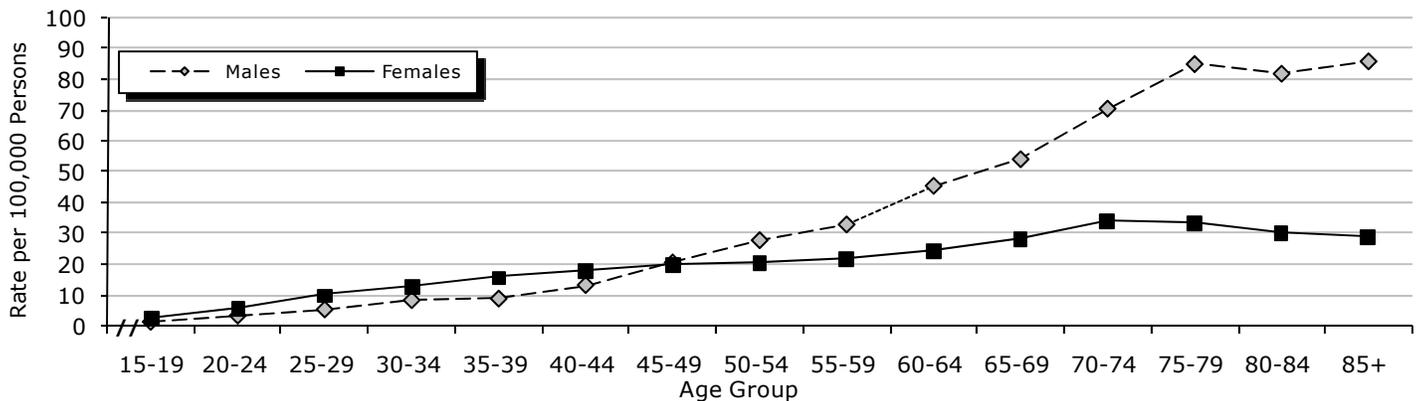
Table 2: Melanoma of the Skin: Average Annual Number of Cases (N), Incidence Rates per 100,000 Persons and Cumulative Percentages (Cum%), by Age Group and Gender in Ohio, 2000-2004

Age Group	Males			Females			Total		
	N	Rate	Cum%	N	Rate	Cum%	N	Rate	Cum%
<1	0	*	0.0%	<1	*	0.0%	<1	*	0.0%
1-4	<1	*	0.0%	<1	*	0.1%	1	0.2	0.1%
5-9	<1	*	0.1%	<1	*	0.2%	1	0.2	0.1%
10-14	2	0.4	0.3%	1	0.3	0.3%	3	0.3	0.3%
15-19	6	1.5	0.9%	10	2.5	1.5%	16	2.0	1.2%
20-24	14	3.5	2.2%	23	5.9	4.2%	36	4.7	3.1%
25-29	19	5.5	4.2%	35	9.9	8.3%	54	7.7	6.0%
30-34	33	8.5	7.4%	49	12.6	14.1%	82	10.6	10.5%
35-39	37	9.0	11.1%	66	15.7	21.9%	103	12.4	16.0%
40-44	60	13.4	17.1%	83	17.9	31.7%	143	15.7	23.7%
45-49	89	20.7	25.9%	89	20.0	42.1%	178	20.4	33.3%
50-54	106	27.9	36.4%	82	20.7	51.9%	188	24.3	43.5%
55-59	97	33.0	46.0%	68	21.7	59.9%	165	27.2	52.4%
60-64	103	45.5	56.3%	62	24.4	67.2%	165	34.4	61.3%
65-69	99	54.1	66.1%	61	28.0	74.4%	160	40.0	69.9%
70-74	111	70.5	77.2%	70	34.0	82.6%	181	49.9	79.7%
75-79	113	84.9	88.4%	64	33.2	90.2%	177	54.3	89.2%
80-84	69	81.8	95.3%	44	29.9	95.3%	113	48.9	95.3%
85+	47	85.8	100.0%	39	28.6	100.0%	87	45.0	100.0%

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2007.

* Rates may be unstable and are not presented when the case count for 2000-2004 is less than five (i.e., N<1).

Figure 3: Melanoma of the Skin: Age-specific Incidence Rates (Ages 15+) per 100,000 Persons, by Gender in Ohio, 2000-2004

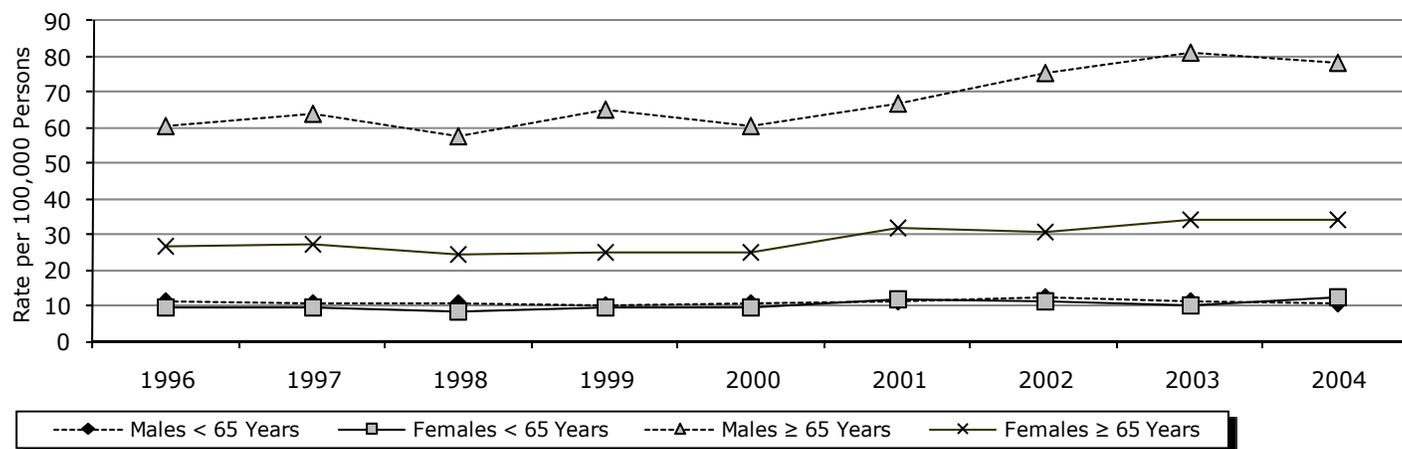


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2007.

Table 2 and Figure 3 show 2000-2004 age-specific incidence rates for melanoma of the skin by gender. The median age at diagnosis of melanoma of the skin occurred in the 60-64 years age group for males and in the 50-54 years age group for females. Among males, melanoma of the skin incidence rates increased with advancing age group from ages 10-14 years to 75-79 years, slightly declined in the 80-84 years age group and then slightly increased among males ages 85 years and older. Among females, melanoma of the skin incidence rates increased with advancing age group from ages 10-14 years to 70-74 years and then declined with advancing age groups. In addition, the increase in incidence with advancing age group was much greater among males compared to females. Cumulative percentages in Table 2 indicate that 66.1 percent and 74.4 percent of melanomas of the skin among males and females, respectively, were diagnosed under 70 years of age.

Melanoma of the Skin Incidence and Mortality Trends

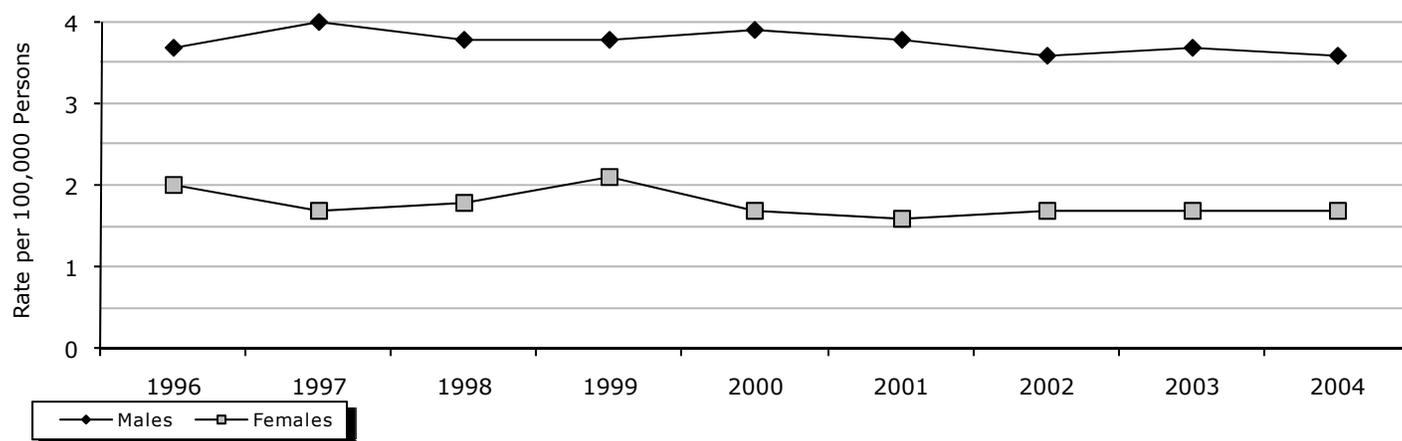
Figure 4: Melanoma of the Skin: Trends in Average Annual Age-adjusted Incidence Rates per 100,000 Persons, by Gender and Age Group (<65 and ≥ 65 Years) in Ohio, 1996-2004



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2007.

Figure 4 shows incidence rates of melanoma of the skin in Ohio according to year of diagnosis (1996 to 2004) by gender and age group. Incidence rates among males and females under 65 years of age remained relatively stable from 1996 to 2004. However, among males and females 65 years of age and older, incidence rates increased from 1996 to 2004 by 29.4 percent and 26.5 percent, respectively. Melanoma of the skin incidence rates among those 65 years of age and older are much greater than those of younger age groups, and the increase in the overall incidence of melanoma of the skin during this time period is largely the result of changes in older age groups.

Figure 5: Melanoma of the Skin: Trends in Average Annual Age-adjusted Mortality Rates per 100,000 Persons, by Gender in Ohio, 1996-2004

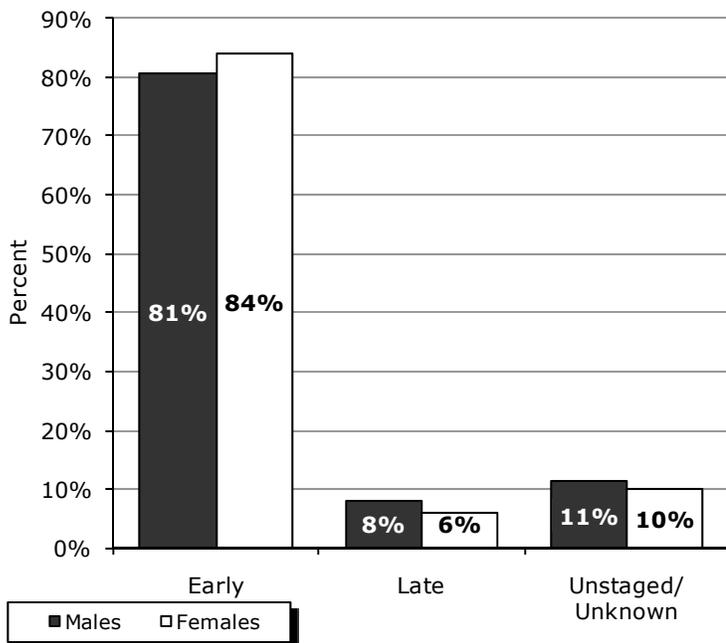


Source: Chronic Disease and Behavioral Epidemiology Section and the Vital Statistics Program, Ohio Department of Health, 2007.

Figure 5 shows trends in mortality rates of melanoma of the skin according to year of death (1996 to 2004) by gender. For each year of comparison, males had approximately two times the mortality rate of females. Comparing 1996 to 2004, the melanoma of the skin mortality rate remained relatively stable for males; however, among females, the mortality rate decreased about 18 percent over this time period.

Melanoma of the Skin Cases and Survival by Stage at Diagnosis

Figure 6: Melanoma of the Skin: Proportion of Cases (%) by Stage at Diagnosis and Gender in Ohio, 2000-2004



N = 2,882 cases per year

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2007.

The stage at diagnosis of melanoma of the skin is an important determinant of survival. For *in situ* cancers, the tumor has not invaded or penetrated surrounding tissue. In the localized stage, the tumor is confined to the organ in which it originated. In the regional stage, the tumor has spread to surrounding tissues. In the distant stage, the malignancy has spread, or metastasized, to other organs. The 2000-2004 Ohio data presented in Figure 6 reveal 81 percent of melanomas of the skin among males were diagnosed at *in situ* or localized (early) stages, which is slightly lower than the 84 percent of females diagnosed early stage. Eight percent of males compared to 6 percent of females were diagnosed at later (regional and distant) stages. The percentage of melanomas of the skin reported unstaged/unknown stage was similar among males and females. The proportions shown in Figure 6 and the slight gender differences in stage at diagnosis were similar to those for the United States.

Table 3 shows that the U.S. (SEER) five-year survival probability for melanoma of the skin diagnosed in 1996-2003 was 91.1 percent for all stages combined. Five-year survival probabilities were 98.5 percent for those diagnosed at the localized stage, 65.2 percent at the regional stage and only 15.3 percent for distant-stage tumors. Five-year survival probabilities for all stages combined were higher for females (93.5 percent) compared to males (89.1 percent) and for whites (90.8 percent) compared to blacks (74.4 percent).

The best way to detect melanoma of the skin at an earlier, more survivable stage is to routinely perform self-examinations of one's skin using the guidelines described on page 8, and to have regular examinations by a physician who can conduct a thorough examination of your skin.

Table 3: Melanoma of the Skin: Five-year Survival Probability (%) by Stage at Diagnosis in the US (SEER), 1996-2003

Stage	Overall Five-year Survival Probability (%)
All Stages	91.1%
Localized	98.5%
Regional	65.2%
Distant	15.3%

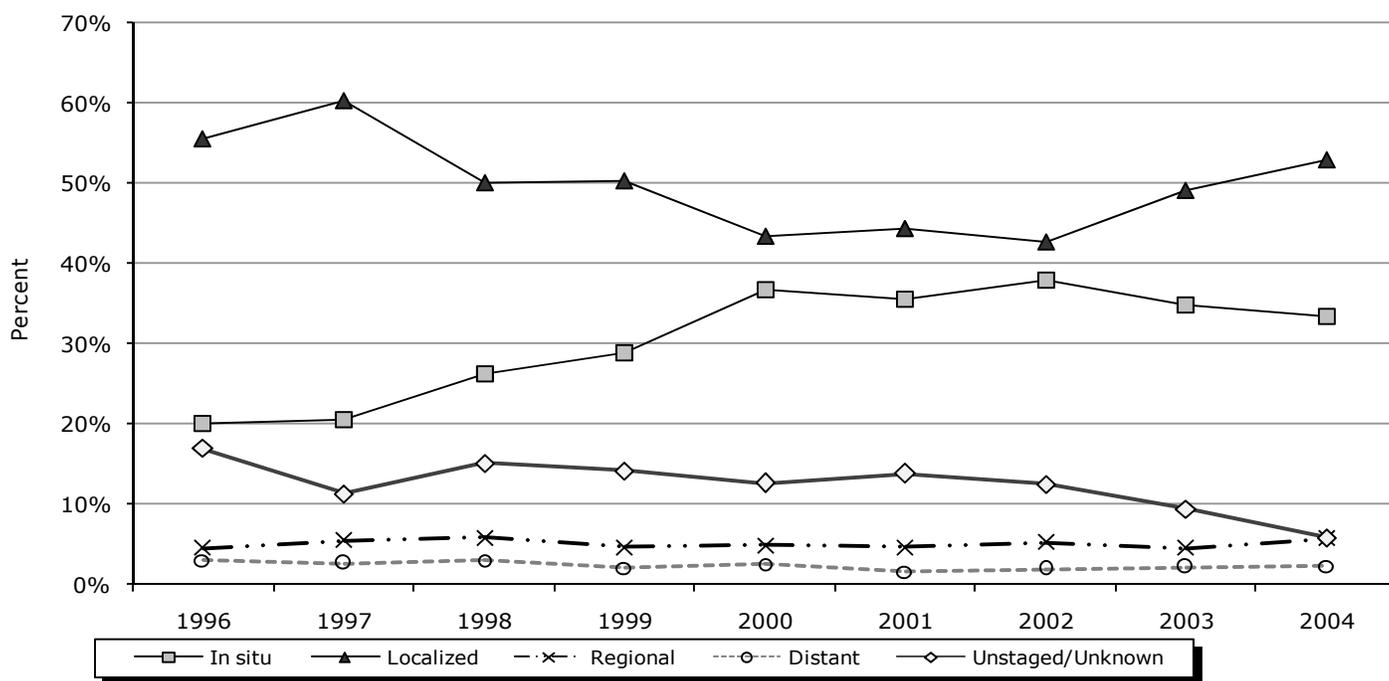
Source: SEER Cancer Statistics Review 1975-2004, National Cancer Institute, 2007.

Did You Know?

The age-adjusted incidence rate of melanoma of the skin has increased more than twofold in the United States from 7.9 per 100,000 in 1975 to 19.6 per 100,000 in 2004. Reasons for this increase may include changes in the frequency and duration of sun exposure and environmental changes affecting the intensity of the sun's rays.

Melanoma of the Skin Stage at Diagnosis Trends

Figure 7: Melanoma of the Skin: Trends in the Proportion of Cases (%) by Stage at Diagnosis in Ohio, 1996-2004



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2007.

Figure 7 shows the distribution of stage at diagnosis of melanoma of the skin according to year of diagnosis from 1996 to 2004. The proportion of cases diagnosed at the *in situ* stage increased considerably from 20.0 percent in 1996 to 33.3 percent in 2004. This increase in the proportion of *in situ* melanomas of the skin corresponded to a decrease in the proportion diagnosed at the localized stage (55.6 percent in 1996 to 53.0 percent in 2004), a slight decrease in the proportion diagnosed late stage (3.0 percent in 1996 to 2.3 percent in 2004) and a decline in the proportion with an unstaged/unknown stage at diagnosis (16.9 percent in 1996 to 5.8 percent in 2004). The proportion diagnosed at the regional stage remained relatively stable over the time period.

Melanoma of the Skin By Area of the Body (Topography)

Table 4: Melanoma of the Skin: Percent Distribution by Topography and Gender in Ohio, 2000-2004

Topography (ICD-3 Code)	Male	Female	Total
Skin of the Lip, NOS (C440)	0.2%	0.1%	0.2%
Eyelid (C441)	0.3%	0.5%	0.4%
External Ear (C442)	4.1%	1.1%	2.7%
Skin of Other and Unspecified Parts of Face (C443)	10.2%	7.8%	9.1%
Skin of Scalp and Neck (C444)	8.6%	4.2%	6.6%
Skin of Trunk (C445)	38.1%	28.1%	33.5%
Skin of Upper Limb and Shoulder (C446)	23.7%	25.1%	24.4%
Skin of Lower Limb and Hip (C447)	8.2%	29.4%	17.9%
Overlapping Lesion of Skin (C448)	0.2%	0.1%	0.2%
Skin, NOS* (C449)	6.3%	3.6%	5.1%

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2007.

*NOS = Not Otherwise Specified.

Table 4 shows the distribution of invasive melanoma of the skin in Ohio by topography and gender. In general, a greater proportion of melanomas of the skin occurred on the face and trunk of males and on the upper limb and shoulder and lower limb and hip of females. Specifically, a greater proportion of melanomas of the skin among males, as compared to females, occurred on the lip; external ear; other and unspecified parts of the face; scalp and neck; trunk; and skin, not otherwise specified. These gender differences in topography were also observed in the United States. Reasons for these gender differences are largely unknown but may be partially explained by differential topographic exposure to ultraviolet radiation.

Did You Know?

The "A, B, C, D" rule can help you remember what to look for when examining moles for characteristics of melanoma of the skin:

- **Assymetry** — one half does not match the other half.
- **Border** — borders are ragged, notched, blurred or irregular.
- **Color** — uneven color and multiple colors, including black, gray, brown, red, blue and white.
- **Diameter** — change in the size of the mole and/or the mole is larger than the size of the eraser of a pencil (1/4 of an inch or 5 millimeters).

If you have a mole with any of these characteristics, you should talk to your doctor.

Risk Factors for Melanoma of the Skin

Exposure to Ultraviolet Radiation — A high degree of exposure to ultraviolet (UV) radiation (either sunlight or artificial sunlight, such as tanning beds) increases risk. Also, residence in a location that receives a lot of UV radiation from the sun increases risk. Intermittent, intense exposures are more associated with melanoma risk than lower-level, chronic exposures.

Childhood Sunburns — Severe, blistering sunburns, particularly in childhood and/or adolescence, increase risk.

Fair Complexion — Having a fair complexion (especially red or blonde hair and blue eyes) increases risk. Also, having skin that burns or freckles easily increases risk.

Avoiding Sunscreen — Not using chemical sunscreen during solar exposure may increase risk.

Race — Whites are at much greater risk for melanoma of the skin compared to other race groups because lighter skin is more easily damaged by sun.

Age — Advancing age increases risk. Approximately half of all melanomas of the skin occur in individuals who are over 50 years of age; although, melanoma of the skin is one of the most common cancers among persons less than 30 years of age.

Gender — The incidence of melanoma of the skin is greater among males.

Moles — Having many (especially large and/or irregular) moles (also known as nevi) increases risk.

Family History — Having one or more first-degree relatives (mother, father, sibling, child) who has been diagnosed with melanoma of the skin increases risk.

Previous Diagnoses of Any Skin Cancer — Having previously been diagnosed with melanoma of the skin or basal or squamous cell skin cancer increases risk of melanoma of the skin.

Suppressed Immune System — Having a suppressed immune system, such as that resulting from certain cancers, drugs given following organ transplantation or HIV infection, increases risk.

Xeroderma Pigmentosum — Xeroderma pigmentosum, a rare, inherited condition that decreases the ability of the skin to repair sun damage, increases risk.

Melanoma of the Skin Signs and Symptoms

Melanoma of the skin usually develops as, or within, a mole. Suspicious moles are those with any of the following features:

- Increasing size
- Changing shape, particularly getting an irregular edge
- Changing color - getting darker, becoming patchy or multi-shaded
- Itching or painful
- Bleeding or becoming crusty
- Looks inflamed (red, swollen)

If you have a mole with any of these features, you should be seen by a doctor.

Clinical Trials Information

Clinical trials test many types of treatments including new drugs, surgical procedures, radiation therapy and combinations of these. The goal of conducting clinical trials is to find better ways to treat cancer. To obtain information concerning clinical trials for melanoma of the skin, please talk with your doctor or visit one of the following Web sites:

- **National Cancer Institute:**
<http://www.cancer.gov/clinicaltrials>
- **American Cancer Society:**
http://www.cancer.org/docroot/ETO/ETO_6.asp?sitearea=ETO
- **The Ohio State University Comprehensive Cancer Center—Arthur G. James Cancer Hospital and Richard J. Solove Research Institute:**
<http://www.jamesline.com/trials>
- **The Cleveland Clinic:**
<http://cms.clevelandclinic.org/cancer/body.cfm?id=68&oTopID=68>
- **Case Western Reserve University Comprehensive Cancer Center:**
<http://henge.case.edu/sip/SIPControlServlet>
- **University of Cincinnati:**
<http://uccancercenter.uc.edu/research/clinicaltrials>
- **Toledo Community Hospital Oncology Program:**
<http://www.tchop.com>
- **Dayton Clinical Oncology Program:**
<http://www.med.wright.edu/dcop>
- **Columbus Community Clinical Oncology Program:**
<http://www.columbusccop.org>

Sources of Data and Additional Information

- **Ohio Cancer Incidence Surveillance System:**
http://www.odh.ohio.gov/ODHPrograms/svio/ci_surv/ci_surv1.aspx
- **National Cancer Institute:**
<http://www.cancer.gov/cancertopics/types/melanoma>
- **American Cancer Society:**
http://www.cancer.org/docroot/CRI/CRI_2_3x.asp?dt=39

Technical Notes

[1] Melanoma of the skin cases were defined as follows: International Classification of Diseases for Oncology, Third Edition (ICD-O-3), codes C440-C449 (types 8720-8790). Melanoma of the skin deaths were defined as follows: International Statistical Classification of Diseases and Related Health Problems, Tenth Edition (ICD-10), codes C430-C439.

[2] The 2000-2004 Ohio rates were calculated using the following populations: vintage 2005 postcensal estimates for July 1, 2000-2004 (U.S. Census Bureau, 2006). Rates were direct age-adjusted to the U.S. 2000 standard population.

The Ohio Cancer Incidence Surveillance System (OCISS)

Ohio Department of Health

and

The Ohio State University Comprehensive Cancer Center —
Arthur G. James Cancer Hospital and
Richard J. Solove Research Institute

To address comments and information requests:

Ohio Cancer Incidence Surveillance System
Ohio Department of Health

246 North High Street
Columbus, OH 43215

Phone: (614) 752-2689

Fax: (614) 644-1909

E-mail: ociss@odh.ohio.gov

