Published in final edited form as:

Mayo Clin Proc. 2016 November ; 91(11): 1555–1562. doi:10.1016/j.mayocp.2016.06.028.

Increasing Incidence of Melanoma Among the Elderly: An Epidemiologic Study in Olmsted County, Minnesota

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Abstract

Objective—To estimate the age- and sex-specific incidence of melanoma in adults 61 years or older in Olmsted County, Minnesota, from 1970 through 2009.

Patients and Methods—With the use of Rochester Epidemiology Project resources, 397 patients were identified who were 61 years or older and who received a first lifetime diagnosis of melanoma from January 1, 1970, through December 31, 2009, in Olmsted County, Minnesota. The incidence of melanoma and the overall and disease-specific survival rates were compared by age, sex, year of diagnosis, and stage of disease.

Results—From 1970 through 2009, age- and sex-adjusted incidence increased significantly ($P < .001$), from 17.0 (95% CI, 8.6–25.4) to 124.6 (95% CI, 108.9–140.3) per 100,000 person-years, with a 4-fold increase for women and an increase of more than 11-fold for men. Among men, incidence rates increased with age ($P < .001$) and over time ($P < .001$). Among women, incidence rates increased over time ($P < .001$) but were constant across age ($P = .90$). The dramatic increase in the incidence of melanoma was observed mainly for stages 0 and I tumors for both men and women (>55-fold increase). Disease-specific survival increased across decades ($P < .001$); when year of diagnosis was compared to mortality, hazard ratios were 0.94 (95% CI, 0.90–0.99; $P = .010$) and 0.93 (95% CI, 0.89–0.98; $P = .006$) for men and women, respectively.

Conclusion—The incidence of melanoma among older men and women increased significantly over the past 4 decades in Olmsted County, Minnesota, with men experiencing higher rates of increase than did women.

Keywords

epidemiology; incidence; malignant melanoma

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Conflict of interest: None.

Introduction

Skin cancer is the most common cancer in the United States, with malignant melanoma being one of the most fatal forms.¹ Malignant melanoma is a major cause of morbidity and mortality, and it is currently the fifth most common cancer in men and the sixth most common cancer in women.² In the United States, the annual age-adjusted incidence of melanoma is 18.3 per 100,000 person-years, and the annual age-adjusted mortality from melanoma is 2.7 per 100,000 person-years.^{3,4} In addition, the incidence of melanoma is increasing faster than the incidence of any other neoplasm, with the exception of lung cancer in women.⁵ Recent studies have found a striking increase in the incidence of melanoma over the past 40 years in cohorts of women who were young (an 8-fold increase) or middle-aged (a 24-fold increase).^{6,7}

Older age is an independent, poor prognostic factor predicting worse survival from melanoma.^{8,9} Studies have also shown that elderly patients tend to have increased Breslow thickness, increased incidence of ulceration, and increased regression, all of which are associated with a poor prognosis.^{10,11} Melanoma incidence is projected to continue increasing among older adults.¹² The National Cancer Institute, using the Surveillance, Epidemiology, and End Results (SEER) Program database, reported that the number of new cases of melanoma increased from 7.9 cases per 100,000 persons in 1975 to 22.9 per 100,000 persons in 2012. In young and middle-aged adults, women account for the majority of melanoma cases; however, men are disproportionately affected in older populations. According to data from the SEER Program database, the incidence of melanoma among men aged 65 or older increased nearly 5-fold from 1969 to 1999 (18.8-91.9 per 100,000).¹² Older men also have the highest risk of dying of melanoma.

Reporting of melanoma to large national registries is often fraught with problems of underreporting and delayed reporting.^{13,14} Few true population-based epidemiology studies have analyzed the incidence and characteristics of melanoma in older men and women. Results from the present study were obtained from a well-defined patient population with estimates of the incidence and disease-specific survival of melanoma among older adults over the span of 4 decades. The current study is the culmination of a series of 3 studies aimed at studying melanoma and spanning 4 decades, from 1970 through 2009, in Olmsted County, Minnesota, in young, middle-aged, and older groups.

Methods

Patient Selection

After approval by the institutional review boards of Olmsted Medical Center and Mayo Clinic, the resources of the Rochester Epidemiology Project (REP)¹⁵ were used to identify 397 patients aged 61 years or older who were residents of Olmsted County, Minnesota, at their first lifetime diagnosis of cutaneous melanoma from January 1, 1970, through December 31, 2009. The REP was started in 1966 by Dr Leonard Kurland as indexes of diagnoses in Olmsted County, Minnesota, that were linked to all sources of medical data in the county. The REP allows researchers to estimate the true incidence of almost any disease that is somewhat common in the population.¹⁶

In the present study, International Classification of Diseases, Ninth Revision codes were adapted and used to identify patients with cutaneous malignant melanoma. If patients had received a diagnosis of noncutaneous melanoma, they were excluded. The diagnosis of cutaneous melanoma and residency status in Olmsted County, Minnesota, were confirmed. For all confirmed cases of melanoma, a date of diagnosis was established according to the date of biopsy. The age and residency of each patient were also established for that date. To be included in the study, patients had to 1) have a confirmed diagnosis of cutaneous melanoma, 2) be 61 years or older, 3) be an Olmsted County resident, and 4) have received the diagnosis from January 1, 1970, through December 31, 2009. After the inclusion criteria were confirmed, several features were identified from the medical record: patient demographics, melanoma location, pathologic stage, tumor subtype, Breslow thickness, clinical course, and mortality.

Statistical Methods

With the 397 incident cases as the numerator and the age- and sex-specific county population as the denominator, incidence rates per 100,000 person-years were calculated. The denominators were obtained from a complete enumeration of the Olmsted County population provided by the REP.¹⁷ To facilitate comparisons with other studies performed in different geographic areas, incidence rates spanning all ages and both sexes were directly age- and sex-adjusted to the structure of the 2000 US white population, and incidence rates spanning all ages for men and women separately were directly age-adjusted. The relationships of age group (61-64, 65-69, 70-74, 75-79, 80-84, 85-89, and 90 years), sex, and decade of diagnosis (1970-1979, 1980-1989, 1990-1999, and 2000-2009) with incidence rates were assessed by fitting Poisson regression models with use of the SAS GENMOD procedure (SAS Institute Inc).⁶

Continuous features were summarized with medians, interquartile ranges (IQRs), and ranges; categorical features were summarized with frequency counts and percentages. Overall survival and disease-specific survival were estimated with use of the Kaplan-Meier method. The duration of follow-up was calculated from the date of diagnosis to the date of death or latest follow-up. Disease-specific survival was compared between men and women with use of a log-rank test. Associations of death due to melanoma and death from any cause were evaluated with use of the Cox proportional hazards regression models and summarized with hazard ratios and 95% CIs. Statistical analyses were performed with the SAS software package version 9.3. All tests were 2-sided, and *P* values less than .05 were considered statistically significant.

Results

Demographic features for the 397 adults in the study are summarized in Table 1.

The overall age- and sex-adjusted incidence of malignant melanoma for adults 61 years or older was 72.4 (95% CI, 65.3-79.6) per 100,000 person-years. From 1970 through 2009, age- and sex-adjusted incidence increased significantly ($P < .001$), from 17.0 (95% CI, 8.6-25.4) to 124.6 (95% CI, 108.9-140.3) per 100,000 person-years, with a 4-fold increase among women and an increase of more than 11-fold among men. Incidence rates by age at

diagnosis and sex are shown in Figure 1, and incidence rates by year of diagnosis and sex are shown in Figure 2. Incidence rates by age, sex, and year of diagnosis are summarized in Table 2. Incidence rates differed significantly between men and women ($P<.001$). Among men, incidence rates increased with age ($P<.001$) and time ($P<.001$). Among women, incidence rates increased over time ($P<.001$) but were constant across age ($P=.90$). The age-adjusted increase in incidence was higher among men than among women (116.0 [95% CI, 101.5-130.5] vs 42.4 [95% CI, 35.4-49.5] cases per 100,000 person-years).

Among the 380 patients with pathologic stage data available, 132 (35%) had stage 0 disease, 182 (48%) had stage I disease, and 66 (17%) had stage II, III, or IV disease. Incidence rates by year of diagnosis and sex stratified by stage are summarized in Table 3.

One patient did not have any follow-up after diagnosis and was excluded from the assessments of overall and disease-specific survival. At latest follow-up, 208 of the remaining 396 patients had died at a median of 5.4 years after diagnosis (IQR, 2.7-9.5 years; range, 23 days to 33.7 years). Among the 188 patients still alive at latest follow-up, the median duration of follow-up was 8.1 years (IQR, 6.2-10.4 years; range, 1.1-27.8 years). The estimated overall survival rates (95% CI; number still at risk) at 5, 10, 15, and 20 years after diagnosis were 75% (71-79; 288); 53% (48-59; 101); 32% (25-39; 37); and 23% (17-31; 17), respectively.

Among the 208 patients who died, 36 died of melanoma (median, 3.3 years after diagnosis [IQR, 1.8-5.1 years; range, 0.4-15.2 years]); 139 died of other causes; and 33 died of an unknown cause and were therefore excluded from assessments of disease-specific survival. Estimated disease-specific survival rates (95% CI; number still at risk) at 5, 10, 15, and 20 years after diagnosis were 92% (89-95; 269); 89% (85-93; 92); 86% (81-91; 32); and 83% (76-91; 14), respectively. Among men, estimated disease-specific survival rates (95% CI; number still at risk) at 5, 10, 15, and 20 years after diagnosis were 92% (88-95; 174); 90% (86-94; 61); 87% (81-94; 17); and 87% (81-94; 5), respectively; by comparison, women had disease-specific survival rates of 92% (87-97; 95); 87% (80-94; 31); 84% (75-93; 15); and 78% (65-93; 9), respectively ($P=.54$).

Disease-specific survival appears to have increased across the decades ($P<.001$). Specifically, the estimated disease-specific survival rates (95% CI; number still at risk) at 5 years after diagnosis for patients treated in 1970-1979, 1980-1989, 1990-1999, and 2000-2009 were 73% (50-100; 7); 78% (64-96; 20); 92% (86-98; 61); and 95% (92-98; 181), respectively. However, the difference in disease-specific survival between those treated in the last 2 decades of the study (1990-1999 and 2000-2009) was not statistically different ($P=.79$). When year of diagnosis was compared to mortality, hazard ratios were 0.94 (95% CI, 0.90-0.99; $P=.010$) and 0.93 (95% CI, 0.89-0.98; $P=.006$) for men and women, respectively.

Discussion

The results of this study confirm that the incidence of melanoma is increasing in older populations, with the incidence increasing more than 7-fold from the 1970s to the 2000s in

Olmsted County, Minnesota, for all patients in our study. The incidence rates for all tumor thickness categories increased in both sexes in our study population during this period. Consistent with the SEER data set,¹⁸ our results showed that from the 1970s to the 2000s, the melanoma incidence rate increased more for older men than for older women, with men having an increase of more than 11-fold and women having an increase of 4-fold. The dramatic increase in the incidence of melanoma was seen mainly for stages 0 and I tumors for both men and women overall during the study period (>55-fold increase). During that period, the incidence of stages II, III, and IV melanomas increased relatively modestly (slightly >3-fold).

Older melanoma patients tend to present with different histopathologic subtypes compared to other age groups.^{6,7,19} In previous reports, the proportion of lentigo maligna melanoma and acral lentiginous melanoma tended to increase with age and commonly occurred in adults older than 60 years.^{9,19} We observed a decrease in the proportion of superficial spreading melanomas and an increase in the proportion of lentigo maligna type melanomas in this older population; however, we did not observe an increase in acral lentiginous melanoma in older adults (> 60 years old).

Older men have been reported to present with thicker melanomas, higher incidence rates, and poorer outcomes. Previous studies provided plausible explanations as to why men have poorer outcomes. Up until about the mid-1990s, many men thought that having a tan would enhance their physical appearance.²⁰ Additionally, men tend to have higher unprotected sun exposure but are less likely to use sunscreen²¹ and less likely to conduct self-examinations of the skin compared to women.²² Tsai et al²³ suggested that self-detection is less likely among older men because melanoma typically occurs on men's truncal regions. In that study, the back was the most common site for melanoma in older adults. In contrast, younger and middle-aged women tend to have melanomas on the extremities, which are more readily accessible for self-detection.^{6,7}

In the present study of older melanoma patients, we found that the disease-specific survival at 5 years after diagnosis increased across the decades ($P<.001$). The increase between the first 2 decades and the second 2 decades was statistically significant; however, the difference in disease-specific survival between patients treated in 1990-1999 and those treated in 2000-2009 was not statistically significant ($P=.78$).

Our study relied on the complete and accurate reporting of melanoma cases in the medical record. Because the final diagnosis of melanoma from pathologic specimens is input into the Olmsted County medical records, it is unlikely that any relevant cases were missed during data abstraction. Another potential limitation of this study is the demographic population of Olmsted County. Specifically, most of the patients in this study population were white and relatively well educated; most of the patients had education beyond high school. Thus, these demographic factors should be taken into consideration when extrapolating our data to other subpopulations.

Conclusion

The incidence of melanoma among older adults increased over the past 4 decades, especially for older men; however, disease-specific survival increased for both men and women. Older adults have different histopathologic subtypes compared to younger patients.

Acknowledgments

Financial support and disclosure: This study was made possible by use of the resources of the Rochester Epidemiology Project, which is supported by the National Institute on Aging of the National Institutes of Health (grant number R01-AG034676). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Abbreviations

IQR	interquartile range
REP	Rochester Epidemiology Project
SEER	Surveillance, Epidemiology, and End Results

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Figure 1.
Incidence of malignant melanoma by age at diagnosis and sex, Olmsted County, Minnesota.

Figure 2.
Incidence of malignant melanoma by year of diagnosis and sex, Olmsted County, Minnesota.

Table 1

Demographic and Clinical Features of 397 Patients

Feature ^a	Value ^b
Age at diagnosis, y	73 (67-80; 61-104)
Exact Breslow thickness, mm (n=233)	0.61 (0.34-1.30; 0.11-9.30)
Mitoses per 10 HPFs (n=64)	2 (0-6; 0-30)
Age at diagnosis, y	
61-64	58 (15)
65-69	89 (22)
70-74	86 (22)
75-79	63 (16)
80-84	55(14)
85-89	34 (9)
90	12 (3)
Sex	
Female	141 (36)
Male	256 (64)
Decade of diagnosis	
1970-1979	16 (4)
1980-1989	40 (10)
1990-1999	96 (24)
2000-2009	245 (62)
Race (n=385)	
White	384 (>99)
African American	1 (<1)
Education (n=258)	
Eighth grade or less	14 (5)
Some high school	21 (8)
Graduated from high school	82 (32)
Some college	47 (18)
Graduated from college	40 (16)
Postgraduate education	54 (21)
Family history of malignant melanoma (n=311)	
No	297 (96)
Yes	13 (4)
Adopted	1 (<1)
Fitzpatrick skin type (n=164)	
1	27 (16)
1.5	7 (4)
2	105 (64)
2.5	1 (1)
3	23 (14)

Feature ^a	Value ^b
4	1 (1)
Solid organ transplant (n=344)	2 (1)
Blood or bone marrow transplant (n=341)	5 (1)
History of chronic tobacco exposure (n=349)	165 (47)
Site	
Back	58 (15)
Cheek	47 (12)
Arm	40 (10)
Forearm	30 (8)
Ear	25 (6)
Abdomen	22 (6)
Chest	22 (6)
Leg	19 (5)
Neck	19 (5)
Foot	18 (5)
Shoulder	18 (5)
Thigh	13 (3)
Temple	12 (3)
Nose	12 (3)
Forehead	12 (3)
Scalp	9 (2)
Chin, jawline	7 (2)
Wrist, hand	6 (2)
Around eye	3 (1)
Buttock	1 (<1)
Anus	1 (<1)
Groin	1 (<1)
Eye	1 (<1)
Lip	1 (<1)
Location (n=381)	
Left	185 (49)
Right	176 (46)
Central	20 (5)
Type of biopsy (n=241)	
Excision	91 (38)
Shave	80 (33)
Punch	61 (25)
Removal	9 (4)
Breslow thickness, mm (n=360)	
1.00	282 (78)
1.01-2.00	39 (11)
2.01-4.00	26 (7)

Feature ^a	Value ^b
>4.00	13 (4)
Base transected	14 (4)
Clark level (n=360)	
I	126 (35)
II	111 (31)
III	58 (16)
IV	54 (15)
V	11 (3)
Ulceration (n=239)	23 (10)
Margins at initial incision (n=291)	
Negative for melanoma	75 (26)
Positive for melanoma	202 (69)
<1 mm	14 (5)
Histogenetic type of melanoma (n=353)	
SS	114 (32)
LM in situ	94 (27)
LM	47 (13)
Nodular	37 (10)
SS in situ	31 (9)
MMIS	13 (4)
Desmoplastic	7 (2)
Acral lentiginous	5 (1)
Mixed	4 (1)
Subungual	1 (<1)
Radial growth phase (n=168)	155 (92)
Vertical growth phase (n=170)	65 (38)
Type of vertical growth phase (n=61)	
Epithelioid	40 (66)
Nevoid	7 (11)
Mixed	6 (10)
Spindle	4 (7)
Desmoplastic	3 (5)
Unclassified	1 (2)
Regression (n=58)	16 (28)
Tumor infiltrating lymphocytes (n=61)	
Absent	43 (70)
Brisk	5 (8)
Nonbrisk	13 (21)
Microscopic satellites (n=54)	1 (2)
Neurotropism (n=53)	3 (6)
Angiolymphatic invasion (n=55)	2 (4)
Preexisting nevus (n=205)	

Feature ^a	Value ^b
Absent	175 (85)
CN	14 (7)
DN	8 (4)
Nevus NOS	8 (4)
Pathologic stage (n=380)	
0	132 (35)
I	182 (48)
IA	155 (41)
IB	27 (7)
II, III, or IV	66 (17)
IIA	18 (5)
IIB	14 (4)
IIC	1 (<1)
IIIB	3 (1)
IIIC	1 (<1)
IV	29 (8)
Treatment (n=387)	
WLE	310 (80)
WLE, SLN	31 (8)
Mohs surgery	24 (6)
WLE, ELND	6 (2)
Nothing (palliative treatment)	5 (1)
WLE, SLN, ELND	4 (1)
Nothing	3 (1)
Amputation	2 (1)
Choroidal brachytherapy	1 (<1)
Radiotherapy	1 (<1)

Abbreviations: CN, compound nevus; DN, dysplastic nevus; ELND, elective lymph node dissection; HPF, high-power field; LM, lentigo maligna; MMIS, malignant melanoma in situ; NOS, not otherwise specified; SLN, sentinel lymph node; SS, superficial spreading; WLE, wide local excision.

Categorical data are summarized as number of patients (percentage of sample).

^aNumber of patients is 397 unless indicated otherwise.

^bContinuous data are summarized as median (interquartile range; range).

Table 2

Incidence Rates of Malignant Melanoma by Age, Sex, and Year of Diagnosis

Age at Diagnosis, y	Women		Men		Overall	
	No.	Rate ^a	No.	Rate ^a	No.	Rate ^a
Diagnosis 1970-1979						
61-64	1	8.3 (0.2-46.0)	1	10.2 (0.3-57.0)	2	9.1 (1.1-33.0)
65-69	2	14.8 (1.8-53.4)	1	10.4 (0.3-57.8)	3	12.9 (2.7-37.8)
70-74	1	8.2 (0.2-45.9)	0	0	1	5.1 (0.1-28.1)
75-79	2	19.7 (2.4-71.0)	1	18.1 (0.5-100.9)	3	19.1 (3.9-55.9)
80-84	2	27.5 (3.3-99.5)	1	28.9 (0.7-161.1)	3	28.0 (5.8-81.8)
85-89	2	53.2 (6.4-192.2)	2	121.7 (14.7-439.7)	4	74.0 (20.2-189.6)
90	0	0	0	0	0	0
Total	10	16.6 (6.3-26.9) ^b	6	18.8 (3.3-34.4) ^b	16	17.0 (8.6-25.4) ^c
Diagnosis 1980-1989						
61-64	6	45.3 (16.6-98.6)	6	50.3 (18.5-109.5)	12	47.7 (24.6-83.3)
65-69	3	20.0 (4.1-58.6)	2	16.6 (2.0-59.8)	5	18.5 (6.0-43.1)
70-74	2	14.6 (1.8-52.8)	1	10.9 (0.3-60.8)	3	13.1 (2.7-38.4)
75-79	4	33.6 (9.1-85.9)	2	30.5 (3.7-110.1)	6	32.5 (11.9-70.7)
80-84	3	31.7 (6.5-92.6)	5	118.7 (38.5-277.0)	8	58.5 (25.3-115.3)
85-89	1	16.6 (0.4-92.2)	2	98.0 (11.9-354.0)	3	37.1 (7.7-108.5)
90	2	57.7 (7.0-20.84)	1	126.9 (3.2-707.1)	3	70.5 (14.5-206.1)
Total	21	28.5 (16.2-40.7) ^b	19	45.4 (24.0-66.9) ^b	40	34.1 (23.4-44.8) ^c
Diagnosis 1990-1999						
61-64	5	32.8 (10.7-76.6)	5	34.7 (11.3-81.1)	10	33.8 (16.2-62.1)
65-69	6	34.4 (12.6-74.9)	16	104.4 (59.7-169.5)	22	67.2 (42.1-101.7)
70-74	9	56.1 (25.7-106.6)	18	144.6 (85.7-228.5)	27	94.8 (62.5-137.9)
75-79	4	28.8 (7.8-73.6)	5	54.8 (17.8-127.9)	9	39.1 (17.9-74.2)
80-84	7	61.3 (24.6-126.3)	8	142.0 (61.3-279.8)	15	88.0 (49.2-145.1)
85-89	5	62.7 (20.4-146.3)	6	214.1 (78.6-466.1)	11	102.1 (51.0-182.6)
90	2	38.1 (4.6-137.5)	0	0	2	30.5 (3.7-110.1)
Total	38	42.7 (29.0-56.5) ^b	58	99.0 (73.0-125.0) ^b	96	66.2 (52.9-79.6) ^c
Diagnosis 2000-2009						
61-64	13	56.6 (30.2-96.9)	21	101.7 (63.0-155.5)	34	78.0 (54.0-109.0)
65-69	14	60.5 (33.1-101.4)	45	212.4 (155.0-284.3)	59	133.1 (101.3-171.6)
70-74	16	83.4 (47.7-135.5)	39	234.8 (167.0-321.0)	55	153.7 (115.8-200.0)
75-79	15	88.6 (49.6-146.2)	30	233.9 (157.8-333.9)	45	151.3 (110.3-202.4)
80-84	6	42.9 (15.8-93.4)	23	259.7 (164.6-389.7)	29	127.0 (85.1-182.4)
85-89	6	63.4 (23.3-137.9)	10	220.3 (105.6-405.1)	16	114.2 (65.3-185.5)
90	2	30.4 (3.7-109.7)	5	256.0 (83.1-597.5)	7	82.0 (33.0-168.9)
Total	72	66.4 (50.9-81.9) ^b	173	207.5 (176.2-238.9) ^b	245	124.6 (108.9-140.3) ^c

^aIncidence per 100,000 person-years (95% CI).

^bIncidence per 100,000 person-years (95% CI) age-adjusted to US white population in 2000.

^cIncidence per 100,000 person-years (95% CI) age- and sex-adjusted to US white population in 2000.

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Table 3

Incidence of Malignant Melanoma by Year of Diagnosis and Sex Stratified by Pathologic Stage

Year of Diagnosis	Women		Men		Overall	
	No.	Rate ^a	No.	Rate ^a	No.	Rate ^b
Stage 0						
1970-1979	1	1.6 (0.0-4.6)	0	0	1	0.8 (0.0-2.4)
1980-1989	3	4.2 (0.0-9.0)	4	8.2 (0.0-16.4)	7	6.0 (1.5-10.5)
1990-1999	8	8.6 (2.5-14.8)	13	21.9 (9.8-33.9)	21	14.4 (8.3-20.7)
2000-2009	28	26.9 (16.8-36.9)	75	91.1 (70.2-112.0)	103	52.5 (42.3-62.7)
Stage I						
1970-1979	1	1.6 (0.0-4.8)	0	0	1	1.0 (0.0-3.0)
1980-1989	10	14.1 (5.4-22.9)	5	11.9 (1.0-22.7)	15	12.3 (6.0-18.6)
1990-1999	21	23.9 (13.6-34.2)	36	62.7 (41.8-83.6)	57	39.5 (29.2-49.8)
2000-2009	32	28.9 (18.8-39.1)	77	91.3 (70.6-111.9)	109	55.5 (45.0-66.0)
Stage II, III, or IV						
1970-1979	3	5.0 (0.0-10.7)	2	5.6 (0.0-13.6)	5	5.3 (0.6-10.0)
1980-1989	5	6.8 (0.8-12.7)	6	14.0 (2.4-25.6)	11	9.6 (3.9-15.3)
1990-1999	9	10.3 (3.5-17.1)	9	14.5 (4.9-24.0)	18	12.2 (6.6-17.9)
2000-2009	11	9.8 (3.9-15.7)	21	25.1 (14.2-36.0)	32	16.1 (10.5-21.6)

^aIncidence per 100,000 person-years (95% CI) age-adjusted to US white population in 2000.

^bIncidence per 100,000 person-years (95% CI) age- and sex-adjusted to US white population in 2000.