

Table 3.1
Cancer of the Brain and Other Nervous System (Invasive)

Trends in SEER Incidence^{ab} and U.S. Mortality^c Using the Joinpoint Regression Program,
1975-2006 With up to Four Joinpoints, 1992-2006 With up to Two Joinpoints,
Both Sexes by Race/Ethnicity

	<u>Joinpoint Trend 1</u>		<u>Joinpoint Trend 2</u>		<u>Joinpoint Trend 3</u>		<u>Joinpoint Trend 4</u>		<u>Joinpoint Trend 5</u>		<u>AAPC^d</u>	
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	1997-2006	2002-2006
<u>SEER 9 Delay-Adjusted Incidence^a, 1975-2006</u>												
All Races	1975-1987	1.5*	1987-2006	-0.2							-0.2*	-0.2*
White	1975-1987	1.6*	1987-2006	0.0							0.0	0.0
Black	1975-2006	0.3									0.3	0.3
<u>SEER 13 Delay-Adjusted Incidence^b, 1992-2006</u>												
All Races	1992-2006	-0.2									-0.2	-0.2
White	1992-2006	0.0									0.0	0.0
Black	1992-2006	0.1									0.1	0.1
<u>SEER 9 Observed Incidence^a, 1975-2006</u>												
All Races	1975-1988	1.4*	1988-2006	-0.4*							-0.4*	-0.4*
White	1975-1988	1.5*	1988-2006	-0.2							-0.2	-0.2
Black	1975-2006	0.2									0.2	0.2
<u>SEER 13 Observed Incidence^b, 1992-2006</u>												
All Races	1992-2006	-0.4*									-0.4*	-0.4*
White	1992-2006	-0.2									-0.2	-0.2
White NH ^{ef}	1992-2006	-0.1									-0.1	-0.1
Black	1992-2006	-0.2									-0.2	-0.2
Black NH ^{ef}	1992-2006	-0.2									-0.2	-0.2
API ^e	1992-2000	-2.5*	2000-2003	6.9	2003-2006	-9.1*					-1.8	-5.3
AI/AN ^{eg}	1992-2006	4.9*									4.9*	4.9*
Hispanic ^e	1992-2006	0.3									0.3	0.3
<u>U.S. Cancer Mortality^c, 1975-2006</u>												
All Races												
White												
Black												
<u>U.S. Cancer Mortality^c, 1992-2006</u>												
All Races												
White												
White NH ^{ef}												
Black												
Black NH ^{ef}												
API ^e												
AI/AN ^{eg}												
Hispanic ^e												

Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute. (<http://srab.cancer.gov/joinpoint/>).

The APC is the Annual Percent Change based on rates age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

^a Trends are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).

^b Trends are from the SEER 13 areas (SEER 9 Areas, Los Angeles, San Jose-Monterey, Rural Georgia, and the Alaska Native Registry).

^c Trends are from US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

^d The AAPC is the Average Annual Percent Change and is based on the APCs calculated by Joinpoint.

^e API - Asian/Pacific Islander, AI/AN - American Indian/Alaska Native, NH - Non-Hispanic

^f Hispanic and Non-Hispanic are not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska

Natives. Incidence data for Hispanics and Non-Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.

The Hispanic and Non-Hispanic mortality trends exclude deaths from CT, ME, MD, MN, NH, NY, ND, OK and VT.

^g Data for American Indian/Alaska Native are based on the CHSDA (Contract Health Service Delivery Area) counties.

* The APC/AAPC is significantly different from zero ($p < .05$).

- Joinpoint regression line analysis could not be performed on data series.

Table 3.2
Cancer of the Brain and Other Nervous System (Invasive)

Trends in SEER Incidence^{ab} and U.S. Mortality^c Using the Joinpoint Regression Program,
1975-2006 With up to Four Joinpoints, 1992-2006 With up to Two Joinpoints,
Males by Race/Ethnicity

	<u>Joinpoint Trend 1</u>		<u>Joinpoint Trend 2</u>		<u>Joinpoint Trend 3</u>		<u>Joinpoint Trend 4</u>		<u>Joinpoint Trend 5</u>		<u>AAPC^d</u>	
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	1997-2006	2002-2006
<u>SEER 9 Delay-Adjusted Incidence^a, 1975-2006</u>												
All Races	1975-1991	1.0*	1991-2006	-0.5*							-0.5*	-0.5*
White	1975-1991	1.2*	1991-2006	-0.3							-0.3	-0.3
Black	1975-2006	0.0									0.0	0.0
<u>SEER 13 Delay-Adjusted Incidence^b, 1992-2006</u>												
All Races	1992-2006	-0.4*									-0.4*	-0.4*
White	1992-2006	-0.2									-0.2	-0.2
Black	1992-2006	0.0									0.0	0.0
<u>SEER 9 Observed Incidence^a, 1975-2006</u>												
All Races	1975-1991	1.1*	1991-2006	-0.7*							-0.7*	-0.7*
White	1975-1991	1.2*	1991-2006	-0.5*							-0.5*	-0.5*
Black	1975-2006	-0.1									-0.1	-0.1
<u>SEER 13 Observed Incidence^b, 1992-2006</u>												
All Races	1992-2006	-0.6*									-0.6*	-0.6*
White	1992-2006	-0.4									-0.4*	-0.4*
White NH ^{ef}	1992-2006	-0.4									-0.4	-0.4
Black	1992-2006	-0.3									-0.3	-0.3
Black NH ^{ef}	1992-2006	-0.3									-0.3	-0.3
API ^e	1992-2006	-1.2									-1.2	-1.2
AI/AN ^{eg}	1992-2006	1.0									1.0	1.0
Hispanic ^e	1992-2006	1.0									1.0	1.0
<u>U.S. Cancer Mortality^c, 1975-2006</u>												
All Races												
White												
Black												
<u>U.S. Cancer Mortality^c, 1992-2006</u>												
All Races												
White												
White NH ^{ef}												
Black												
Black NH ^{ef}												
API ^e												
AI/AN ^{eg}												
Hispanic ^e												

Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute. (<http://srab.cancer.gov/joinpoint/>).

The APC is the Annual Percent Change based on rates age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

^a Trends are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).

^b Trends are from the SEER 13 areas (SEER 9 Areas, Los Angeles, San Jose-Monterey, Rural Georgia, and the Alaska Native Registry).

^c Trends are from US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

^d The AAPC is the Average Annual Percent Change and is based on the APCs calculated by Joinpoint.

^e API - Asian/Pacific Islander, AI/AN - American Indian/Alaska Native, NH - Non-Hispanic

^f Hispanic and Non-Hispanic are not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska

Natives. Incidence data for Hispanics and Non-Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.

The Hispanic and Non-Hispanic mortality trends exclude deaths from CT, ME, MD, MN, NH, NY, ND, OK and VT.

^g Data for American Indian/Alaska Native are based on the CHSDA (Contract Health Service Delivery Area) counties.

* The APC/AAPC is significantly different from zero ($p < .05$).

- Joinpoint regression line analysis could not be performed on data series.

Table 3.3
Cancer of the Brain and Other Nervous System (Invasive)

Trends in SEER Incidence^{ab} and U.S. Mortality^c Using the Joinpoint Regression Program,
1975-2006 With up to Four Joinpoints, 1992-2006 With up to Two Joinpoints,
Females by Race/Ethnicity

	<u>Joinpoint Trend 1</u>		<u>Joinpoint Trend 2</u>		<u>Joinpoint Trend 3</u>		<u>Joinpoint Trend 4</u>		<u>Joinpoint Trend 5</u>		<u>AAPC^d</u>	
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	1997-2006	2002-2006
<u>SEER 9 Delay-Adjusted Incidence^a, 1975-2006</u>												
All Races	1975-1987	1.6*	1987-2006	-0.1							-0.1	-0.1
White	1975-1984	1.2*	1984-1987	4.6	1987-1995	-1.3*	1995-2004	1.1*	2004-2006	-4.9	-0.3	-2.0
Black	1975-2006	0.6									0.6	0.6
<u>SEER 13 Delay-Adjusted Incidence^b, 1992-2006</u>												
All Races	1992-2006	0.0									0.0	0.0
White	1992-2006	0.1									0.1	0.1
Black	1992-2006	0.2									0.2	0.2
<u>SEER 9 Observed Incidence^a, 1975-2006</u>												
All Races	1975-1987	1.6*	1987-2006	-0.3							-0.3	-0.3
White	1975-1984	1.2*	1984-1987	4.5	1987-1995	-1.3*	1995-2004	0.9	2004-2006	-6.2	-0.7	-2.7
Black	1975-2006	0.5									0.5	0.5
<u>SEER 13 Observed Incidence^b, 1992-2006</u>												
All Races	1992-2006	-0.2									-0.2	-0.2
White	1992-2006	-0.1									-0.1	-0.1
White NH ^{ef}	1992-2006	0.2									0.2	0.2
Black	1992-2006	-0.1									-0.1	-0.1
Black NH ^{ef}	1992-2006	-0.1									-0.1	-0.1
API ^e	1992-2006	-0.5									-0.5	-0.5
AI/AN ^{eg}	-	-									-	-
Hispanic ^e	1992-2006	-0.6									-0.6	-0.6
<u>U.S. Cancer Mortality^c, 1975-2006</u>												
All Races												
White												
Black												
<u>U.S. Cancer Mortality^c, 1992-2006</u>												
All Races												
White												
White NH ^{ef}												
Black												
Black NH ^{ef}												
API ^e												
AI/AN ^{eg}												
Hispanic ^e												

Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute. (<http://srab.cancer.gov/joinpoint/>).

The APC is the Annual Percent Change based on rates age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

^a Trends are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).

^b Trends are from the SEER 13 areas (SEER 9 Areas, Los Angeles, San Jose-Monterey, Rural Georgia, and the Alaska Native Registry).

^c Trends are from US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

^d The AAPC is the Average Annual Percent Change and is based on the APCs calculated by Joinpoint.

^e API - Asian/Pacific Islander, AI/AN - American Indian/Alaska Native, NH - Non-Hispanic

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Natives. Incidence data for Hispanics and Non-Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.

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^g Data for American Indian/Alaska Native are based on the CHSDA (Contract Health Service Delivery Area) counties.

* The APC/AAPC is significantly different from zero ($p < .05$).

- Joinpoint regression line analysis could not be performed on data series.

Table 3.4
 Cancer of the Brain and Other Nervous System (Invasive)
 Age-adjusted SEER Incidence^a Rates by Year, Race and Sex

Year of Diagnosis:	All Races			Whites			Blacks		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
1975	5.85	6.83	5.01	6.21	7.31	5.28	4.13	4.27	3.88
1976	5.82	7.14	4.68	6.19	7.51	5.05	3.32	5.37	-
1977	6.17	7.76	4.88	6.60	8.26	5.26	3.55	5.17	2.47
1978	5.76	6.79	4.91	6.10	7.20	5.19	3.86	4.34	3.51
1979	6.12	7.41	5.01	6.60	8.02	5.37	3.67	4.19	3.20
1980	6.29	7.57	5.24	6.80	8.18	5.65	3.14	3.35	2.92
1981	6.50	8.07	5.18	6.89	8.45	5.60	5.02	7.24	3.16
1982	6.43	7.93	5.25	6.92	8.58	5.64	3.71	4.40	3.05
1983	6.31	7.60	5.19	6.88	8.20	5.74	2.75	3.79	1.84
1984	6.12	7.16	5.22	6.49	7.63	5.51	4.52	5.31	3.88
1985	6.94	8.53	5.63	7.43	9.11	6.04	4.88	5.62	4.18
1986	6.84	8.07	5.80	7.36	8.62	6.30	4.13	4.75	3.54
1987	6.99	8.12	6.03	7.59	8.71	6.68	4.18	5.49	3.13
1988	6.83	7.87	5.92	7.39	8.56	6.39	4.42	4.48	4.31
1989	6.85	8.49	5.46	7.42	9.20	5.91	4.90	5.93	4.12
1990	7.04	8.11	6.15	7.58	8.76	6.61	4.33	5.18	3.64
1991	6.94	8.55	5.63	7.60	9.28	6.22	3.66	4.51	3.09
1992	6.97	8.66	5.61	7.63	9.46	6.16	3.61	4.01	3.28
1993	6.77	8.08	5.67	7.39	8.89	6.14	3.93	3.97	3.80
1994	6.59	7.95	5.41	7.10	8.52	5.89	4.24	4.52	3.97
1995	6.47	7.91	5.31	7.03	8.56	5.78	3.97	5.02	3.15
1996	6.65	8.21	5.31	7.25	8.96	5.76	4.02	5.09	3.37
1997	6.73	8.08	5.58	7.39	8.87	6.11	4.03	5.30	3.12
1998	6.60	7.71	5.67	7.24	8.44	6.23	4.04	4.26	3.85
1999	6.89	8.36	5.64	7.67	9.23	6.34	3.70	5.12	2.56
2000	6.77	8.18	5.62	7.46	9.04	6.15	4.39	5.39	3.62
2001	6.55	7.90	5.44	7.19	8.57	6.02	4.10	5.27	3.31
2002	6.67	7.98	5.59	7.40	8.81	6.23	4.22	5.30	3.47
2003	6.56	7.51	5.77	7.14	8.21	6.23	4.60	4.37	4.65
2004	6.67	7.76	5.66	7.44	8.61	6.34	3.95	4.43	3.44
2005	6.60	7.63	5.72	7.31	8.52	6.25	4.43	4.88	4.07
2006	6.12	7.41	5.02	6.81	8.29	5.49	3.51	3.95	3.28
1975-2006	6.57	7.88	5.47	7.14	8.55	5.96	4.05	4.81	3.43

^a SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).
 Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
 - Statistic not shown. Rate based on less than 16 cases for the time interval.

Table 3.6
Cancer of the Brain and Other Nervous System (Invasive)
SEER Incidence^a and U.S. Death^b Rates, Age-Adjusted and Age-Specific Rates, by Race and Sex

	All Races			Whites			Blacks		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
<u>SEER Incidence</u>									
<u>Age at Diagnosis</u>									
Age-Adjusted Rates, 2002-2006									
All ages	6.4	7.6	5.4	7.1	8.4	5.9	4.0	4.7	3.4
Under 65	4.6	5.3	3.9	5.1	5.8	4.3	2.8	3.2	2.5
65 and over	19.3	23.9	15.9	21.0	26.0	17.4	11.9	15.0	9.8
All ages (IARC world std) ^c	5.3	6.2	4.5	5.8	6.8	4.9	3.3	3.8	2.9
Age-Specific Rates, 2002-2006									
<1	3.6	3.9	3.3	3.7	4.2	3.3	2.8	-	-
1-4	4.0	4.2	3.8	4.3	4.6	3.9	2.9	2.6	3.2
5-9	3.1	3.2	3.0	3.3	3.5	3.1	2.5	2.4	2.6
10-14	2.5	2.8	2.3	2.7	3.0	2.4	1.7	1.8	1.7
15-19	2.1	2.4	1.9	2.3	2.6	2.0	1.4	1.6	1.3
20-24	2.3	2.3	2.3	2.6	2.5	2.6	1.4	1.7	1.1
25-29	2.8	3.1	2.5	3.2	3.5	2.9	1.5	1.4	1.6
30-34	3.2	3.6	2.8	3.5	4.0	3.0	1.9	1.6	2.1
35-39	3.6	4.0	3.3	4.1	4.5	3.7	2.1	2.3	1.9
40-44	4.6	5.4	3.8	5.1	5.9	4.2	2.7	3.1	2.3
45-49	5.8	7.1	4.6	6.5	7.9	5.1	3.2	4.3	2.2
50-54	7.7	9.0	6.5	8.6	10.0	7.2	4.9	5.4	4.5
55-59	10.3	12.8	8.0	11.3	13.9	8.9	6.6	8.7	4.9
60-64	13.7	16.7	10.9	15.2	18.5	12.0	7.4	9.6	5.6
65-69	16.0	19.1	13.3	17.6	21.0	14.7	10.5	13.7	8.0
70-74	19.9	24.8	16.0	22.0	27.3	17.6	10.6	12.5	9.2
75-79	22.6	28.5	18.4	24.8	30.9	20.4	14.1	20.4	10.2
80-84	21.3	26.5	17.9	22.7	28.3	19.1	14.2	20.1	11.0
85+	17.2	21.8	15.0	18.0	23.2	15.5	10.9	-	12.4
<u>U.S. Mortality</u>									
<u>Age at Death</u>									
Age-Adjusted Rates, 2002-2006									
All ages									
Under 65									
65 and over									
All ages (IARC world std) ^c									
Age-Specific Rates, 2002-2006									
<1									
1-4									
5-9									
10-14									
15-19									
20-24									
25-29									
30-34									
35-39									
40-44									
45-49									
50-54									
55-59									
60-64									
65-69									
70-74									
75-79									
80-84									
85+									

^a SEER 17 areas. Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130), unless noted.

^b US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

^c Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130), unless noted.

- Rates are per 100,000 and are age-adjusted to the IARC world standard population.

- Statistic not shown. Rate based on less than 16 cases for the time interval.

Table 3.7
Cancer of the Brain and Other Nervous System (Invasive)
Survival Rates, by Race, Sex, Diagnosis Year, Stage and Age

	All Races			Whites			Blacks		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
5-Year Relative Survival Rates									
Year of Diagnosis:									
1960-1963 ^a	-	-	-	18	16	21	19	17	21
1970-1973 ^a	-	-	-	20	18	22	19	19	19
1975-1977 ^b	23.7	22.1	25.7	23.1	21.6	25.0	26.6	20.6	35.9 ^f
1978-1980 ^b	25.1	23.9	26.5	24.6	23.6	25.9	29.1	29.5	28.4 ^f
1981-1983 ^b	25.5	24.5	26.7	24.7	23.9	25.6	32.5	33.4	30.6 ^f
1984-1986 ^b	28.7	27.6	30.1	28.0	26.8	29.4	32.2	34.3	29.4
1987-1989 ^b	30.8	29.2	32.7	30.1	28.2	32.5	32.9	34.9	30.4
1990-1992 ^b	32.2	32.8	31.5	31.3	31.8	30.6	41.2	43.1	38.7
1993-1995 ^b	34.2	34.9	33.2	33.0	33.4	32.4	42.5	47.1	37.5
1996-1998 ^b	32.9	32.4	33.5	32.2	31.9	32.6	36.3	35.0	37.7
1999-2005 ^b	35.9 ^e	34.0 ^e	38.2 ^e	35.1 ^e	33.6 ^e	36.9 ^e	41.1 ^e	35.4 ^e	47.7
5-Year Period Survival Rates^{cd}									
Year of Diagnosis:									
1999-2005	35.5	33.6	37.8	34.8	33.2	36.8	38.9	32.8	45.6
Stage Distribution (%) 1999-2005^c									
All Stages									
Number of cases	27,103	15,039	12,064	23,809	13,285	10,524	1,702	899	803
Percent	100%	100%	100%	100%	100%	100%	100%	100%	100%
Localized	73	74	72	74	75	72	72	70	74
Regional	16	16	16	16	16	16	14	16	13
Distant	2	2	2	2	2	2	3	4	3
Unstaged	8	7	9	8	7	9	10	10	10
5-Year Relative Survival Rates, 1999-2005^c									
Age at Diagnosis:									
Ages <45	64.0	61.4	67.1	64.9	62.6	67.8	57.6	51.2	64.8
Ages 45-54	29.7	26.4	34.6	29.4	26.0	34.5	31.3	26.6	37.0
Ages 55-64	14.2	11.8	17.5	13.6	11.6	16.5	17.8	12.0	24.2
Ages 65-74	7.9	5.7	10.4	7.6	5.3	10.3	9.1	7.9	10.4
Ages 75+	3.9	3.2	4.3	3.8	3.2	4.2	5.9	-	6.3
Ages <65	44.7	41.4	49.0	44.3	41.2	48.5	45.0	39.0	52.1
Ages 65+	6.1	4.7	7.5	5.9	4.5	7.3	7.9	6.9	8.6
Stage:									
All Stages	34.8	32.9	37.1	34.0	32.4	36.1	38.6	33.9	43.7
Localized	37.2	35.1	39.9	36.5	34.6	39.0	41.5	36.9	45.9
Regional	23.5	22.1	25.2	22.7	21.7	23.9	25.9	21.4	31.6 ^f
Distant	38.8	36.3	41.6	40.1	37.1	43.2	33.4 ^f	32.3 ^f	-
Unstaged	33.7	33.1	34.1	32.5	32.4	32.4	35.4	29.2 ^f	42.6 ^f

^a Rates are based on End Results data from a series of hospital registries and one population-based registry.

^b Rates are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta).

Rates are based on follow-up of patients into 2006.

^c Rates are from the SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey). California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey contribute cases for diagnosis years 2000-2005.

^d The remaining 13 SEER Areas contribute cases for the entire period 1999-2005. Rates are based on follow-up of patients into 2006.

Period survival provides a more up-to-date estimate of survival by piecing together the most recent conditional survival estimates from several cohorts. It is computed here using three year calendar blocks (2003-2005: 0-1 year survival),

(2002-2004: 1-2 year survival), (2001-2003: 2-3 year survival), (2000-2002: 3-4 year survival), (1999-2001: 4-5 years survival).

^e The difference in rates between 1975-1977 and 1999-2005 is statistically significant ($p < .05$).

^f The standard error of the survival rate is between 5 and 10 percentage points.

^g The standard error of the survival rate is greater than 10 percentage points.

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

Table 3.8
Cancer of the Brain and Other Nervous System (Invasive)

Survival Rates^a
By Year of Diagnosis

All Races, Males and Females

Year of Diagnosis

	1975- 1979	1980- 1984	1985- 1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Relative Survival Rates (SEER ^b)																			
1-year	47.7	48.9	52.5	54.5	55.2	53.2	53.5	54.7	53.7	54.7	52.6	55.3	56.1	56.6	58.4	60.3	58.3	57.9	58.9
2-year	32.9	34.8	37.7	38.0	41.3	40.0	39.4	41.1	40.1	41.3	38.6	41.4	40.9	42.5	42.9	46.8	44.2	43.1	
3-year	28.8	30.4	33.7	33.4	37.9	35.9	36.1	37.5	37.1	37.8	35.0	36.4	36.9	39.0	39.7	41.0	38.4		
4-year	26.3	27.8	31.3	31.6	36.1	33.1	34.4	35.3	35.7	35.7	33.0	34.0	34.9	37.2	37.8	38.8			
5-year	24.4	26.2	29.8	30.4	34.4	31.9	33.3	33.9	35.2	34.4	31.7	32.5	33.9	36.4	36.2				
6-year	23.1	25.0	28.7	29.8	33.4	30.3	32.7	33.5	34.4	33.4	30.1	31.7	32.7	35.3					
7-year	22.3	24.0	27.9	29.0	32.8	29.4	31.6	32.2	33.9	32.8	29.7	31.0	32.6						
8-year	21.5	23.3	27.0	28.5	32.3	28.8	31.6	31.4	33.3	31.8	29.2	30.6							
9-year	20.7	22.5	26.6	28.1	32.2	27.9	31.3	31.1	33.3	31.1	28.4								
10-year	20.3	21.9	26.2	27.9	31.7	27.6	30.9	31.0	32.9	30.8									
11-year	19.9	21.4	25.9	27.5	31.6	27.4	30.9	30.6	32.2										
12-year	19.7	21.2	25.8	27.5	31.2	27.4	30.6	30.5											
13-year	19.5	20.9	25.6	27.4	30.9	27.3	30.5												
14-year	19.5	20.8	25.3	27.4	30.6	27.3													
15-year	19.3	20.6	25.1	27.2	30.4														
16-year	19.3	20.3	25.1	27.2															
17-year	19.2	20.3	25.1																
18-year	19.2	20.3																	
19-year	19.2	20.2																	
20-year	19.2	20.1																	

^a

Survival rates are relative rates expressed as percents.

^b

Rates are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).

Table 3.9
Cancer of the Brain and Other Nervous System (Invasive)

Survival Rates^a
By Year of Diagnosis

All Races, Males

Year of Diagnosis

	1975- 1979	1980- 1984	1985- 1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Relative Survival Rates (SEER ^b)																			
1-year	47.6	49.8	52.8	57.2	57.1	55.3	55.1	56.3	55.6	56.2	55.6	55.5	55.6	55.4	56.4	60.2	57.9	59.9	58.3
2-year	32.0	34.6	37.0	39.7	41.2	40.6	41.1	41.5	41.5	40.3	40.2	40.6	39.2	40.3	39.3	46.7	43.0	44.7	
3-year	27.4	30.4	32.8	33.9	38.0	36.7	37.2	38.1	38.3	36.7	35.9	36.2	35.1	36.4	36.2	39.8	36.3		
4-year	25.2	27.3	29.9	32.1	36.3	34.2	35.3	36.3	37.3	34.8	34.1	33.1	32.6	34.2	33.5	37.2			
5-year	23.0	25.2	28.3	31.1	34.1	33.1	33.3	34.5	36.6	32.9	32.3	31.8	31.3	33.6	32.4				
6-year	21.8	24.2	27.2	30.9	33.7	31.4	32.4	34.1	35.5	31.8	30.6	30.3	30.1	32.6					
7-year	21.1	23.4	26.3	29.6	32.4	30.2	31.8	33.1	34.6	31.1	29.8	29.4	30.0						
8-year	20.1	22.8	25.5	29.5	31.8	29.6	31.8	32.6	33.7	29.8	29.8	29.0							
9-year	19.4	21.9	25.2	29.3	31.6	28.5	31.7	32.0	33.3	29.0	29.3								
10-year	19.0	21.2	24.8	29.0	31.3	28.2	31.0	31.8	32.7	28.8									
11-year	18.4	21.0	24.6	28.7	31.3	27.9	30.9	30.7	32.2										
12-year	18.2	20.8	24.3	28.7	30.9	27.9	30.2	30.7											
13-year	18.0	20.5	24.3	28.7	30.6	27.9	30.1												
14-year	18.0	20.3	24.1	28.7	30.0	27.9													
15-year	18.0	20.1	23.8	28.4	29.4														
16-year	18.0	19.8	23.7	28.4															
17-year	18.0	19.7	23.7																
18-year	18.0	19.7																	
19-year	18.0	19.7																	
20-year	18.0	19.7																	

^a Survival rates are relative rates expressed as percents.
^b Rates are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).

Table 3.10
Cancer of the Brain and Other Nervous System (Invasive)

Survival Rates^a
By Year of Diagnosis

All Races, Females

Year of Diagnosis

	1975- 1979	1980- 1984	1985- 1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Relative Survival Rates (SEER ^b)																			
1-year	47.9	47.7	52.0	51.2	52.9	50.3	51.6	52.6	51.1	52.8	48.6	55.0	56.8	58.1	61.0	60.4	58.6	55.4	59.5
2-year	34.0	35.2	38.5	36.1	41.5	39.1	37.3	40.6	38.3	42.7	36.5	42.3	43.2	45.2	47.6	47.0	45.7	41.1	
3-year	30.5	30.4	35.0	32.7	37.9	34.7	34.6	36.8	35.6	39.1	33.7	36.7	39.2	42.3	44.2	42.4	40.8		
4-year	27.6	28.4	32.9	31.0	35.8	31.5	33.3	34.2	33.6	37.0	31.6	35.2	37.9	41.0	43.3	40.8			
5-year	26.2	27.3	31.6	29.6	34.8	30.2	33.0	33.2	33.3	36.2	30.7	33.4	37.3	39.9	41.0				
6-year	24.8	26.0	30.5	28.5	33.0	28.8	32.8	32.4	32.7	35.5	29.4	33.1	36.0	38.7					
7-year	23.9	24.8	29.9	28.2	33.0	28.2	31.4	30.8	32.7	35.0	29.4	32.8	35.6						
8-year	23.2	23.9	28.9	27.1	32.9	27.6	31.3	29.8	32.7	34.4	28.5	32.2							
9-year	22.4	23.3	28.2	26.7	32.9	27.0	30.7	29.8	32.7	33.8	27.3								
10-year	22.0	22.7	27.9	26.7	32.1	26.7	30.7	29.8	32.7	33.5									
11-year	21.6	21.9	27.6	26.0	31.9	26.6	30.7	29.8	32.0										
12-year	21.5	21.7	27.4	25.8	31.3	26.4	30.7	29.8											
13-year	21.4	21.3	27.2	25.7	31.1	26.3	30.7												
14-year	21.0	21.3	26.9	25.5	31.1	25.9													
15-year	20.9	21.1	26.6	25.5	31.1														
16-year	20.6	20.9	26.6	25.4															
17-year	20.4	20.9	26.6																
18-year	20.4	20.9																	
19-year	20.4	20.7																	
20-year	20.4	20.6																	

^a

Survival rates are relative rates expressed as percents.

^b

Rates are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).

Table 3.12
Cancer of the Brain And Other Nervous System (Invasive)

SEER Incidence and U.S. Mortality
Age-Adjusted Rates and Trends^a
By Race/Ethnicity and Sex

SEER Incidence	SEER 17 Areas ^b			SEER 13 Areas ^b			SEER 9 Areas ^b		
	Rate 2002-2006			Trend 1997-2006 ^c			Trend 1997-2006 ^d		
	Rate per 100,000 persons			AAPC (%)			AAPC (%)		
RACE/ETHNICITY	Total	Males	Females	Total	Males	Females	Total	Males	Females
All Races	6.4	7.6	5.4	-0.4*	-0.6*	-0.2	-0.4*	-0.7*	-0.3
White	7.1	8.4	5.9	-0.2	-0.4*	-0.1	-0.2	-0.5*	-0.7
White Hispanic ^e	5.4	6.3	4.7	0.1	0.8	-0.7	-	-	-
White Non-Hispanic ^e	7.5	8.9	6.2	-0.1	-0.4	0.2	-	-	-
Black	4.0	4.7	3.4	-0.2	-0.3	-0.1	0.2	-0.1	0.5
Asian/Pacific Islander	3.5	3.9	3.1	-1.8	-1.2	-0.5	-	-	-
Amer Ind/Alaska Nat ^f	3.3	3.7	3.0	-	-	-	-	-	-
Hispanic ^e	5.3	6.1	4.6	0.3	1.0	-0.6	-	-	-
<u>U.S. Mortality^g</u>									
	Rate 2002-2006			Trend 1997-2006 ^h					
	Rate per 100,000 persons			AAPC (%)					
RACE/ETHNICITY	Total	Males	Females	Total	Males	Females			
All Races									
White									
White Hispanic ^e									
White Non-Hispanic ^e									
Black									
Asian/Pacific Islander									
Amer Ind/Alaska Nat									
Total U.S.									
CHSDA Counties									
Non-CHSDA Counties									
Hispanic ^e									

The AAPC is the Average Annual Percent Change over the time interval. The AAPCs are calculated by the Joinpoint Regression Program Version 3.3, April 2008, National Cancer Institute.

Statistic not shown. Rate based on less than 16 cases for the time interval.

Trend based on less than 10 cases for at least one year within the time interval.

^a Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130). Trends are based on rates age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

^b The SEER 9 areas are San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah and Atlanta.

The SEER 13 areas comprise the SEER 9 areas plus San Jose-Monterey, Los Angeles, the Alaska Native Registry and Rural Georgia.

The SEER 17 areas comprise the SEER 13 areas plus California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey.

^c The 1997-2006 AAPC estimates are based on a Joinpoint analysis with up to 2 Joinpoints over diagnosis years 1992-2006.

^d The 1997-2006 AAPC estimates are based on a Joinpoint analysis with up to 4 Joinpoints over diagnosis years 1975-2006.

^e Hispanic and Non-Hispanic are not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives. Incidence data for Hispanics and Non-Hispanics are based on NHIA and exclude cases from the Alaska Native Registry. The 2002-2006 Hispanic and Non-Hispanic death rates exclude deaths from Minnesota, New Hampshire and North Dakota. The 1997-2006 Hispanic and Non-Hispanic mortality trends exclude deaths from Connecticut, Maine, Maryland, Minnesota, New Hampshire, New York, North Dakota, Oklahoma and Vermont.

^f Incidence data for American Indian/Alaska Native are based on the CHSDA (Contract Health Service Delivery Area) counties.

^g US Mortality Files, National Center for Health Statistics, CDC.

^h The 1997-2006 mortality AAPCs are based on a Joinpoint analysis using years of death 1992-2006.

* The APC is significantly different from zero (p<.05).

Table 3.13
Cancer of the Brain and Other Nervous System (Invasive)

Age-Adjusted SEER Incidence Rates^a
By Registry, Race and Sex

	All Races			Whites			Blacks		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
<u>SEER Incidence Rates^a, 2002-2006</u>									
Atlanta & Rural Georgia	5.67	6.53	4.96	6.66	7.63	5.78	4.05	4.69	3.60
Atlanta	5.69	6.52	5.01	6.63	7.51	5.84	4.20	4.96	3.68
Rural Georgia	5.16	6.46	-	7.03	9.69	-	-	-	-
California	6.21	7.36	5.22	6.87	8.14	5.77	3.88	4.64	3.28
Greater Bay Area	6.05	7.25	5.03	6.98	8.51	5.64	3.84	4.11	3.64
San Francisco-Oakland	6.02	7.23	4.99	7.01	8.57	5.62	3.92	4.18	3.70
San Jose-Monterey	6.10	7.34	5.08	6.94	8.45	5.64	-	-	-
Los Angeles	5.69	6.74	4.82	6.49	7.62	5.53	3.80	4.88	3.06
Greater California	6.52	7.70	5.49	7.00	8.24	5.91	3.99	4.58	3.40
Connecticut	7.05	8.27	5.98	7.49	8.72	6.40	2.92	3.27	2.44
Detroit	6.45	7.36	5.71	7.17	8.16	6.34	4.40	4.80	4.15
Hawaii	4.00	4.39	3.67	5.65	6.01	5.44	-	-	-
Iowa	7.39	8.66	6.31	7.45	8.77	6.31	6.86	-	-
Kentucky	6.71	7.87	5.68	6.89	8.05	5.84	4.21	5.08	3.73
Louisiana	5.89	7.44	4.66	6.72	8.40	5.36	3.86	4.96	3.08
New Jersey	7.03	8.53	5.79	7.63	9.27	6.26	3.84	4.55	3.28
New Mexico	5.64	6.98	4.40	5.87	7.28	4.56	-	-	-
Seattle-Puget Sound	7.49	8.96	6.23	7.97	9.52	6.60	3.96	4.62	3.48
Utah	7.07	8.15	6.11	7.32	8.43	6.34	-	-	-
9 SEER Areas ^b	6.52	7.66	5.55	7.22	8.49	6.11	4.14	4.59	3.77
11 SEER Areas ^b	6.30	7.42	5.35	7.03	8.28	5.95	4.05	4.67	3.58
13 SEER Areas ^b	6.30	7.41	5.35	7.03	8.28	5.94	4.02	4.62	3.56
17 SEER Areas ^b	6.44	7.64	5.41	7.07	8.38	5.93	3.97	4.69	3.42

^a Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130)

^b The SEER 9 areas are San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah and Atlanta.

The SEER 11 areas comprise the SEER 9 areas plus San Jose-Monterey and Los Angeles.

The SEER 13 areas comprise the SEER 11 areas plus the Alaska Native Registry and Rural Georgia.

The SEER 17 areas comprise the SEER 13 areas plus California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey.

- Statistic not shown. Rate based on less than 16 cases for the time interval.

Table 3.18
Brain and Other Nervous System (Invasive)

Estimated United States Cancer Prevalence Counts^a on January 1, 2006
By Race/Ethnicity, Sex and Years Since Diagnosis

Years Since Diagnosis		0 to <5	5 to <10	10 to <15	15 to <20	20 to <25	25 to <30	0 to <16 ^e	0 to <31 ^e	>=31 ^g	Complete ^h
<u>Race</u>	<u>Sex</u>										
All Races ^b	Both Sexes	39,632	22,564	18,270	13,267	8,008	5,917	83,594	108,661	14,026	122,687
	Males	21,221	11,940	10,182	6,986	4,240	2,979	45,088	58,031	6,401	64,432
	Females	18,411	10,624	8,088	6,281	3,768	2,938	38,506	50,630	7,625	58,255
White ^b	Both Sexes	35,067	19,983	16,065	11,742	7,089	5,361	73,757	96,220	7,226	103,446
	Males	19,035	10,677	8,903	6,072	3,772	2,712	40,080	51,619	4,000 ⁱ	55,619
	Females	16,032	9,306	7,162	5,670	3,317	2,649	33,677	44,601	3,226 ⁱ	47,827
Black ^b	Both Sexes	2,947	1,678	1,409	1,105	687	419	6,413	8,325	+	+
	Males	1,396	851	811	658	363	190	3,282	4,300	+	+
	Females	1,551	827	598	447	324	229	3,131	4,025	+	+
Asian/ Pacific Islander ^c	Both Sexes	1,062	568	427	+	+	+	2,121	+	+	+
	Males	527	262	237	+	+	+	1,062	+	+	+
	Females	535	306	190	+	+	+	1,059	+	+	+
Hispanic ^d	Both Sexes	3,873	2,236	1,413	+	+	+	7,807	+	+	+
	Males	2,145	1,120	714	+	+	+	4,140	+	+	+
	Females	1,728	1,116	699	+	+	+	3,667	+	+	+

Estimated prevalence percent^a on January 1, 2006, of the SEER 11 population diagnosed in the previous 16 years
By Age at Prevalence, Race/Ethnicity and Sex

Age at Prevalence	All Ages	Age Specific (Crude)									Age-Adjusted ^f	
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	All Ages	
<u>Race</u>	<u>Sex</u>											
All Races ^c	Both Sexes	0.0249%	0.0137%	0.0279%	0.0239%	0.0244%	0.0303%	0.0303%	0.0281%	0.0241%	0.0138%	0.0248%
	Males	0.0270%	0.0143%	0.0299%	0.0249%	0.0260%	0.0327%	0.0341%	0.0315%	0.0266%	0.0155%	0.0268%
	Females	0.0229%	0.0131%	0.0259%	0.0228%	0.0228%	0.0279%	0.0267%	0.0250%	0.0223%	0.0128%	0.0229%
White ^c	Both Sexes	0.0279%	0.0149%	0.0311%	0.0261%	0.0283%	0.0346%	0.0341%	0.0312%	0.0264%	0.0142%	0.0278%
	Males	0.0303%	0.0159%	0.0333%	0.0270%	0.0300%	0.0369%	0.0385%	0.0357%	0.0287%	0.0168%	0.0300%
	Females	0.0256%	0.0139%	0.0288%	0.0251%	0.0264%	0.0323%	0.0298%	0.0270%	0.0246%	0.0128%	0.0256%
Black ^c	Both Sexes	0.0156%	0.0094%	0.0184%	0.0183%	0.0150%	0.0142%	0.0185%	0.0160%	0.0181%	0.0133%	0.0156%
	Males	0.0162%	0.0085%	0.0202%	0.0188%	0.0165%	0.0144%	0.0200%	0.0152%	0.0227%	-	0.0162%
	Females	0.0150%	0.0104%	0.0164%	0.0177%	0.0136%	0.0140%	0.0173%	0.0165%	0.0151%	0.0181%	0.0151%
Asian/ Pacific Islander ^c	Both Sexes	0.0145%	0.0094%	0.0182%	0.0148%	0.0122%	0.0175%	0.0153%	0.0159%	0.0141%	0.0088%	0.0145%
	Males	0.0148%	0.0101%	0.0185%	0.0156%	0.0119%	0.0197%	0.0149%	0.0116%	0.0164%	0.0111%	0.0149%
	Females	0.0141%	0.0087%	0.0179%	0.0141%	0.0125%	0.0155%	0.0157%	0.0195%	0.0124%	0.0072%	0.0142%
Hispanic ^d	Both Sexes	0.0176%	0.0112%	0.0202%	0.0129%	0.0160%	0.0247%	0.0256%	0.0235%	0.0215%	0.0131%	0.0188%
	Males	0.0180%	0.0117%	0.0208%	0.0130%	0.0173%	0.0248%	0.0264%	0.0236%	0.0207%	0.0175%	0.0194%
	Females	0.0171%	0.0108%	0.0196%	0.0129%	0.0145%	0.0247%	0.0247%	0.0235%	0.0221%	0.0106%	0.0183%

^a US 2006 cancer prevalence counts are based on 2006 cancer prevalence proportions from the SEER registries and 1/1/2006 US population estimates based on the average of 2005 and 2006 population estimates from the US Bureau of the Census. Prevalence was calculated using the First Malignant Primary Only for a person.

^{b c d} Statistics based on (b) SEER 9 Areas (c) SEER 11 Areas and Rural Georgia (d) NHIA for Hispanic for SEER 11 Areas and Rural Georgia.

^e Maximum limited-duration prevalence: 31 years for 1975-2006 SEER 9 data; 16 years for 1990-2006 SEER 11 data (used to calculate prevalence for Hispanics and Asian Pacific Islanders).

^f Percentages are age-adjusted to the 2000 US Standard Population (19 age groups - Census P25-1130) by 5-year age groups.

^{g h i} (g) Cases diagnosed more than 31 years ago were estimated using the completeness index method (Capocaccia et. al. 1997, Merrill et. al. 2000). (h) Complete prevalence is obtained by summing 0 to <31 and >=31. (i) Age-specific completeness index was approximated using empirical data from historical Connecticut tumor registry.

- Statistic not shown. Statistic based on fewer than 5 cases estimated alive in SEER for the time interval.

+ Not available.

SEER Observed Incidence, SEER Delay Adjusted Incidence and US Death Rates^a Cancer of the Brain and Other Nervous System, by Race and Sex

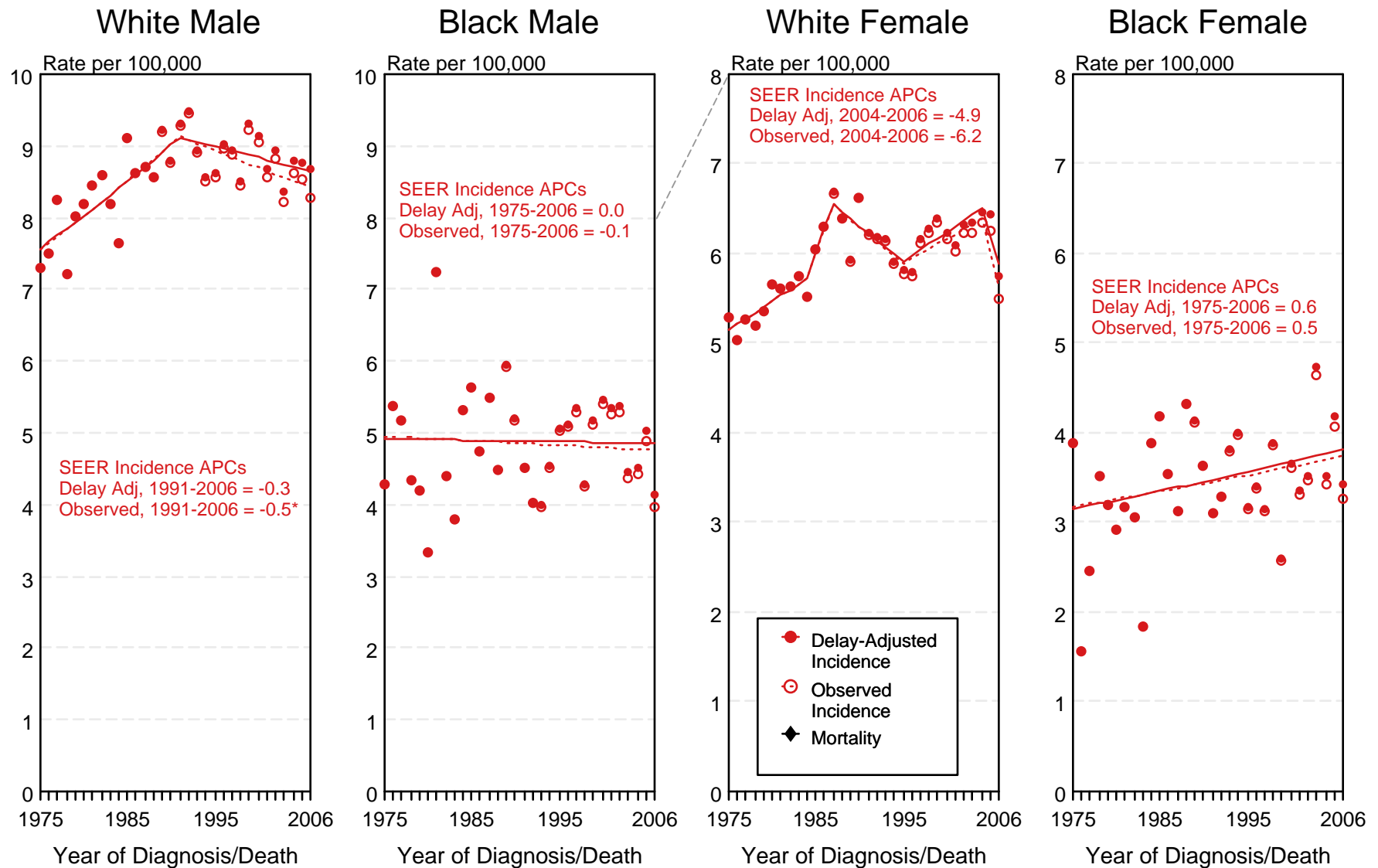


Figure 3.1

^a Source: SEER 9 areas and US Mortality Files (National Center for Health Statistics, CDC). Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103). Regression lines and APCs are calculated using the Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute. The APC is the Annual Percent Change for the regression line segments. The APC shown on the graph is for the most recent trend.

* The APC is significantly different from zero ($p < 0.05$).

SEER Incidence and US Death Rates^a

Cancer of the Brain and Other Nervous System, Both Sexes

Joinpoint Analyses for Whites and Blacks from 1975-2006

and for Asian/Pacific Islanders, American Indians/Alaska Natives and Hispanics from 1992-2006

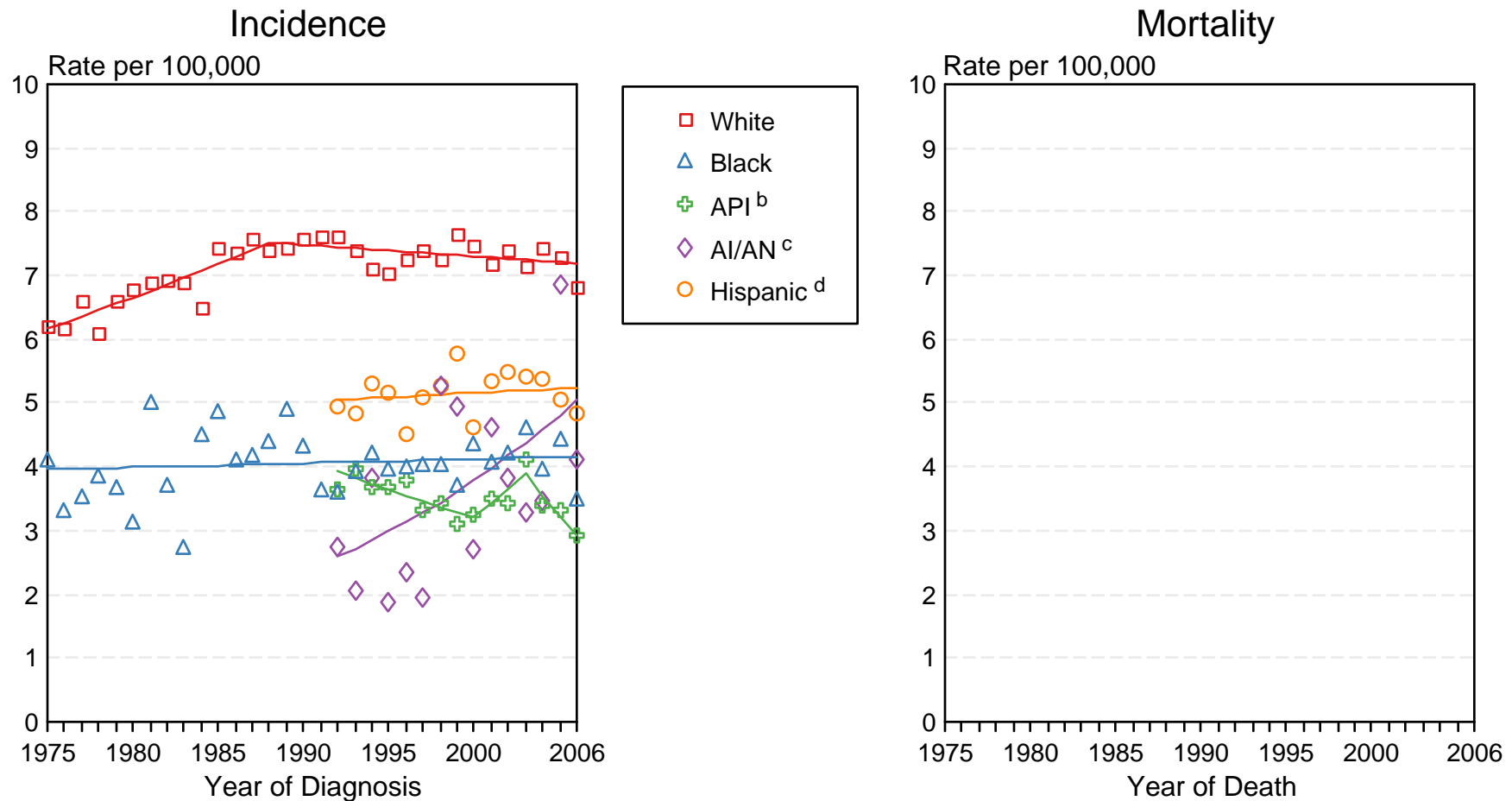


Figure 3.2

Source: Incidence data for whites and blacks are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta). Incidence data for Asian/Pacific Islanders, American Indians/Alaska Natives and Hispanics are from the SEER 13 Areas (SEER 9 Areas, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Mortality data are from US Mortality Files, National Center for Health Statistics, CDC.

^a Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).

Regression lines are calculated using the Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute. Joinpoint analyses for Whites and Blacks during the 1975-2006 period allow a maximum of 4 joinpoints. Analyses for other ethnic groups during the period 1992-2006 allow a maximum of 2 joinpoints.

^b API = Asian/Pacific Islander.

^c AI/AN = American Indian/Alaska Native. Rates for American Indian/Alaska Native are based on the CHSDA(Contract Health Service Delivery Area) counties.

^d Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives. Incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry. Mortality data for Hispanics exclude cases from Connecticut, Maine, Maryland, Minnesota, New Hampshire, New York, North Dakota, Oklahoma, and Vermont.