

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,
1975-2016 With up to Five Joinpoints, 2000-2016 With up to Three Joinpoints,
Both Sexes by Race/Ethnicity

	JP Trend 1		JP Trend 2		JP Trend 3		JP Trend 4		JP Trend 5		JP Trend 6		AAPC ^d	
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	2007-16	2012-16
<u>SEER 9 Delay-Adjusted Incidence^a, 1975-2016</u>														
All Races	1975-87	1.5*	1987-16	-0.2*									-0.2*	-0.2*
White	1975-87	1.6*	1987-16	0.0									0.0	0.0
Black	1975-16	0.1											0.1	0.1
<u>SEER 21 Delay-Adjusted Incidence^b, 2000-2016</u>														
All Races	2000-16	-0.4*											-0.4*	-0.4*
White	2000-16	-0.3*											-0.3*	-0.3*
White NH ^{ef}	2000-16	0.0											0.0	0.0
Black	2000-16	-0.5											-0.5	-0.5
Black NH ^{ef}	2000-16	-0.4											-0.4	-0.4
API ^e	2000-16	0.5*											0.5*	0.5*
AI/AN ^{eg}	2000-16	-0.5											-0.5	-0.5
Hispanic ^f	2000-16	-0.8*											-0.8*	-0.8*
<u>U.S. Cancer Mortality^c, 1975-2016</u>														
All Races	1975-77	3.7	1977-81	-0.7	1981-91	1.3*	1991-07	-1.0*	2007-16	0.6*			0.6*	0.6*
White	1975-92	1.0*	1992-07	-0.9*	2007-16	0.7*							0.7*	0.7*
Black	1975-92	0.9*	1992-07	-1.1*	2007-16	0.9							0.9	0.9
<u>U.S. Cancer Mortality^c, 2000-2016</u>														
All Races	2000-06	-1.2*	2006-16	0.6*									0.6*	0.6*
White	2000-06	-1.1*	2006-16	0.6*									0.6*	0.6*
White NH ^{ef}	2000-07	-0.7*	2007-16	0.8*									0.8*	0.8*
Black	2000-16	0.1											0.1	0.1
Black NH ^{ef}	2000-16	0.2											0.2	0.2
API ^e	2000-16	1.2*											1.2*	1.2*
AI/AN ^{eg}	2000-16	0.7											0.7	0.7
Hispanic ^f	2000-16	0.3											0.3	0.3

Joinpoint Regression Program Version 4.7, February 2019, National Cancer Institute. (<https://surveillance.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). Trends are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).

Trends are from the SEER 21 areas (SEER 9 areas, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana, New Jersey, Georgia excluding ATL/RG, Idaho, New York and Massachusetts).

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

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

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

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.

Data for American Indian/Alaska Native are based on the Purchased/Referred Care Delivery Area (PRCDA) 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,
1975-2016 With up to Five Joinpoints, 2000-2016 With up to Three Joinpoints,
Males by Race/Ethnicity

	JP Trend 1		JP Trend 2		JP Trend 3		JP Trend 4		JP Trend 5		JP Trend 6		AAPC ^d	
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	2007-16	2012-16
<u>SEER 9 Delay-Adjusted Incidence^a, 1975-2016</u>														
All Races	1975-89	1.1*	1989-16	-0.3*									-0.3*	-0.3*
White	1975-89	1.3*	1989-16	-0.2									-0.2	-0.2
Black	1975-16	-0.1											-0.1	-0.1
<u>SEER 21 Delay-Adjusted Incidence^b, 2000-2016</u>														
All Races	2000-16	-0.4*											-0.4*	-0.4*
White	2000-16	-0.3*											-0.3*	-0.3*
White NH ^{ef}	2000-16	-0.1											-0.1	-0.1
Black	2000-16	-0.1											-0.1	-0.1
Black NH ^{ef}	2000-16	-0.1											-0.1	-0.1
API ^e	2000-16	0.5											0.5	0.5
AI/AN ^{eg}	2000-16	-0.3											-0.3	-0.3
Hispanic ^f	2000-16	-0.8*											-0.8*	-0.8*
<u>U.S. Cancer Mortality^c, 1975-2016</u>														
All Races	1975-77	4.4	1977-82	-0.4	1982-91	1.3*	1991-07	-1.0*	2007-16	0.6*			0.6*	0.6*
White	1975-77	4.7	1977-82	-0.3	1982-91	1.4*	1991-07	-0.9*	2007-16	0.7*			0.7*	0.7*
Black	1975-90	0.8*	1990-07	-1.0*	2007-16	0.9							0.9	0.9
<u>U.S. Cancer Mortality^c, 2000-2016</u>														
All Races	2000-06	-1.4*	2006-16	0.6*									0.6*	0.6*
White	2000-06	-1.2*	2006-16	0.7*									0.7*	0.7*
White NH ^{ef}	2000-06	-1.1*	2006-16	0.8*									0.8*	0.8*
Black	2000-16	0.1											0.1	0.1
Black NH ^{ef}	2000-16	0.2											0.2	0.2
API ^e	2000-16	0.2											0.2	0.2
AI/AN ^{eg}	2000-16	0.7											0.7	0.7
Hispanic ^f	2000-16	0.1											0.1	0.1

Joinpoint Regression Program Version 4.7, February 2019, National Cancer Institute. (<https://surveillance.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 21 areas (SEER 9 areas, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding

SF/SJM/LA, Kentucky, Louisiana, New Jersey, Georgia excluding ATL/RG, Idaho, New York and Massachusetts).

^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.

^g Data for American Indian/Alaska Native are based on the Purchased/Referred Care Delivery Area (PRCDA) 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,
1975-2016 With up to Five Joinpoints, 2000-2016 With up to Three Joinpoints,
Females by Race/Ethnicity

	JP Trend 1		JP Trend 2		JP Trend 3		JP Trend 4		JP Trend 5		JP Trend 6		AAPC ^d	
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	2007-16	2012-16
<u>SEER 9 Delay-Adjusted Incidence^a, 1975-2016</u>														
All Races	1975-87	1.6*	1987-16	-0.2									-0.2	-0.2
White	1975-87	1.8*	1987-16	0.0									0.0	0.0
Black	1975-16	0.4											0.4	0.4
<u>SEER 21 Delay-Adjusted Incidence^b, 2000-2016</u>														
All Races	2000-16	-0.4*											-0.4*	-0.4*
White	2000-16	-0.3											-0.3	-0.3
White NH ^{ef}	2000-16	0.0											0.0	0.0
Black	2000-16	-0.8*											-0.8*	-0.8*
Black NH ^{ef}	2000-16	-0.8											-0.8	-0.8
API ^e	2000-16	0.3											0.3	0.3
AI/AN ^{eg}	2000-16	-1.3											-1.3	-1.3
Hispanic ^f	2000-16	-0.8*											-0.8*	-0.8*
<u>U.S. Cancer Mortality^c, 1975-2016</u>														
All Races	1975-92	1.0*	1992-07	-1.1*	2007-16	0.6*							0.6*	0.6*
White	1975-92	1.0*	1992-07	-0.9*	2007-16	0.7*							0.7*	0.7*
Black	1975-90	1.2*	1990-16	-0.5*									-0.5*	-0.5*
<u>U.S. Cancer Mortality^c, 2000-2016</u>														
All Races	2000-06	-1.1*	2006-16	0.5*									0.5*	0.5*
White	2000-10	-0.4*	2010-16	1.1*									0.6*	1.1*
White NH ^{ef}	2000-10	-0.3	2010-16	1.2*									0.7*	1.2*
Black	2000-16	0.1											0.1	0.1
Black NH ^{ef}	2000-16	0.2											0.2	0.2
API ^e	2000-16	2.1*											2.1*	2.1*
AI/AN ^{eg}	2000-16	0.7											0.7	0.7
Hispanic ^f	2000-16	0.4											0.4	0.4

Joinpoint Regression Program Version 4.7, February 2019, National Cancer Institute. (<https://surveillance.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 21 areas (SEER 9 areas, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding

SF/SJM/LA, Kentucky, Louisiana, New Jersey, Georgia excluding ATL/RG, Idaho, New York and Massachusetts).

^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.

^g Data for American Indian/Alaska Native are based on the Purchased/Referred Care Delivery Area (PRCDA) 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)
Delay-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
1975-1979	5.95	7.19	4.91	6.34	7.66	5.23	3.71	4.66	2.93
1980	6.30	7.58	5.24	6.81	8.20	5.65	3.14	3.35	2.92
1981	6.51	8.07	5.20	6.90	8.44	5.63	5.02	7.24	3.16
1982	6.42	7.93	5.24	6.92	8.57	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	7.18	5.20	6.49	7.64	5.49	4.53	5.34	3.88
1985	6.94	8.50	5.66	7.43	9.07	6.07	4.88	5.62	4.18
1986	6.85	8.06	5.82	7.38	8.60	6.34	4.06	4.75	3.41
1987	7.01	8.16	6.05	7.60	8.73	6.68	4.25	5.63	3.13
1988	6.83	7.89	5.91	7.39	8.58	6.37	4.45	4.48	4.38
1989	6.87	8.52	5.46	7.44	9.25	5.91	4.90	5.93	4.12
1990	7.05	8.11	6.18	7.59	8.75	6.63	4.33	5.18	3.64
1991	6.96	8.57	5.65	7.62	9.29	6.24	3.62	4.43	3.09
1992	6.98	8.67	5.61	7.65	9.48	6.17	3.66	4.13	3.28
1993	6.76	8.06	5.67	7.38	8.87	6.15	3.93	3.97	3.80
1994	6.63	7.99	5.44	7.14	8.57	5.90	4.24	4.52	3.97
1995	6.50	7.97	5.30	7.04	8.60	5.76	4.11	5.15	3.31
1996	6.69	8.24	5.35	7.29	8.98	5.81	4.06	5.21	3.37
1997	6.77	8.11	5.63	7.43	8.88	6.18	4.03	5.30	3.12
1998	6.65	7.76	5.73	7.27	8.45	6.28	4.25	4.56	4.08
1999	6.93	8.37	5.70	7.69	9.22	6.37	3.75	5.05	2.70
2000	6.82	8.24	5.67	7.53	9.12	6.22	4.48	5.47	3.74
2001	6.65	7.99	5.55	7.32	8.68	6.17	4.10	5.20	3.38
2002	6.77	8.11	5.67	7.54	8.96	6.36	4.25	5.50	3.36
2003	6.67	7.65	5.85	7.27	8.37	6.33	4.67	4.49	4.65
2004	6.85	8.01	5.79	7.64	8.90	6.48	4.17	4.66	3.61
2005	6.76	7.82	5.85	7.49	8.71	6.42	4.54	4.97	4.16
2006	6.44	7.85	5.22	7.20	8.79	5.75	3.78	4.31	3.47
2007	6.61	7.78	5.58	7.33	8.77	6.04	4.60	4.87	4.36
2008	6.74	8.02	5.68	7.61	8.92	6.51	3.58	4.48	2.97
2009	6.87	8.03	5.85	7.61	8.99	6.36	4.69	4.32	4.89
2010	6.60	7.59	5.73	7.31	8.31	6.39	4.24	4.54	3.99
2011	6.70	7.91	5.64	7.52	8.73	6.43	4.48	4.95	4.09
2012	6.58	7.76	5.56	7.32	8.57	6.21	4.55	5.97	3.56
2013	6.58	7.60	5.68	7.29	8.32	6.37	4.12	5.09	3.30
2014	6.40	7.76	5.19	7.22	8.70	5.87	3.58	4.06	3.11
2015	6.70	8.02	5.55	7.55	9.01	6.25	3.71	4.08	3.44
2016	6.27	7.56	5.12	7.05	8.44	5.79	3.89	4.56	3.38

Reference: [Cancer Incidence Rates Adjusted for Reporting Delay](#).

Individual rates for diagnosis years 1975-1979 available in web browser version of [Cancer Statistics Review](#).

^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).

- Delay-adjusted rate is not shown for observed rates based on less than 16 cases for the time interval.

Table 3.5
Cancer of the Brain and Other Nervous System (Invasive)
Age-adjusted SEER Incidence^a Rates by Year, Race and Sex

	All Races			Whites			Blacks		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Year of Diagnosis:									
1975-2016	6.59	7.88	5.51	7.22	8.61	6.04	4.08	4.79	3.51
1975-1979	5.95	7.19	4.91	6.34	7.66	5.23	3.71	4.66	2.93
1980	6.30	7.58	5.24	6.81	8.20	5.65	3.14	3.35	2.92
1981	6.51	8.07	5.20	6.90	8.44	5.63	5.02	7.24	3.16
1982	6.42	7.93	5.24	6.92	8.57	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	7.18	5.20	6.49	7.64	5.49	4.53	5.34	3.88
1985	6.94	8.50	5.66	7.43	9.07	6.07	4.88	5.62	4.18
1986	6.85	8.06	5.82	7.38	8.60	6.34	4.06	4.75	3.41
1987	7.01	8.16	6.05	7.60	8.73	6.68	4.25	5.63	3.13
1988	6.83	7.89	5.91	7.39	8.58	6.37	4.45	4.48	4.38
1989	6.87	8.52	5.46	7.44	9.25	5.91	4.90	5.93	4.12
1990	7.05	8.11	6.18	7.59	8.75	6.63	4.33	5.18	3.64
1991	6.96	8.57	5.65	7.62	9.29	6.24	3.62	4.43	3.09
1992	6.98	8.67	5.61	7.65	9.48	6.17	3.66	4.13	3.28
1993	6.76	8.06	5.67	7.38	8.87	6.15	3.93	3.97	3.80
1994	6.63	7.99	5.44	7.14	8.57	5.90	4.24	4.52	3.97
1995	6.50	7.97	5.30	7.04	8.60	5.76	4.11	5.15	3.31
1996	6.69	8.24	5.35	7.29	8.98	5.81	4.06	5.21	3.37
1997	6.77	8.11	5.63	7.43	8.88	6.18	4.03	5.30	3.12
1998	6.65	7.76	5.73	7.27	8.45	6.28	4.25	4.56	4.08
1999	6.93	8.37	5.70	7.69	9.22	6.37	3.75	5.05	2.70
2000	6.82	8.24	5.67	7.53	9.12	6.22	4.48	5.47	3.74
2001	6.65	7.99	5.55	7.32	8.68	6.17	4.10	5.20	3.38
2002	6.77	8.11	5.67	7.54	8.96	6.36	4.25	5.50	3.36
2003	6.67	7.65	5.85	7.27	8.37	6.33	4.67	4.49	4.65
2004	6.85	8.01	5.79	7.64	8.90	6.48	4.17	4.66	3.61
2005	6.76	7.82	5.85	7.49	8.71	6.42	4.54	4.97	4.16
2006	6.44	7.85	5.22	7.20	8.79	5.75	3.78	4.31	3.47
2007	6.61	7.78	5.58	7.33	8.77	6.04	4.60	4.87	4.36
2008	6.73	8.01	5.68	7.60	8.91	6.50	3.57	4.47	2.97
2009	6.85	8.01	5.83	7.59	8.97	6.35	4.67	4.30	4.86
2010	6.58	7.56	5.70	7.28	8.28	6.36	4.21	4.51	3.96
2011	6.67	7.87	5.61	7.48	8.68	6.39	4.43	4.90	4.05
2012	6.54	7.71	5.52	7.28	8.52	6.17	4.50	5.91	3.52
2013	6.53	7.54	5.63	7.24	8.26	6.32	4.06	5.00	3.26
2014	6.33	7.67	5.13	7.14	8.60	5.81	3.52	3.98	3.06
2015	6.59	7.90	5.46	7.44	8.87	6.15	3.63	3.98	3.37
2016	6.10	7.36	4.99	6.85	8.21	5.63	3.76	4.40	3.27

Individual rates for diagnosis years 1975-1979 available in web browser version of [Cancer Statistics Review](#).
^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)
Age-adjusted U.S. Death^a Rates by Year, Race and Sex

	All Races			Whites			Blacks		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Year of Death:									
1975-2016	4.50	5.50	3.68	4.83	5.88	3.96	2.63	3.23	2.17
1975-1979	4.33	5.29	3.54	4.55	5.55	3.73	2.59	3.28	2.05
1980	4.37	5.45	3.47	4.62	5.77	3.66	2.46	3.04	2.02
1981	4.36	5.33	3.59	4.60	5.58	3.80	2.55	3.31	1.98
1982	4.43	5.38	3.67	4.67	5.67	3.88	2.64	3.37	2.09
1983	4.39	5.31	3.64	4.66	5.64	3.85	2.49	2.91	2.18
1984	4.55	5.57	3.74	4.82	5.86	4.00	2.56	3.35	1.94
1985	4.57	5.60	3.75	4.85	5.92	3.99	2.54	3.22	2.02
1986	4.53	5.59	3.68	4.78	5.90	3.87	2.77	3.47	2.27
1987	4.71	5.68	3.93	4.99	6.00	4.17	2.89	3.55	2.36
1988	4.72	5.89	3.79	4.98	6.21	4.00	2.91	3.63	2.39
1989	4.73	5.82	3.88	5.01	6.15	4.12	2.73	3.47	2.23
1990	4.87	5.97	3.99	5.16	6.30	4.24	2.97	3.66	2.42
1991	4.95	6.01	4.11	5.27	6.37	4.37	2.84	3.42	2.41
1992	4.85	5.88	4.03	5.17	6.26	4.30	2.82	3.41	2.39
1993	4.79	5.87	3.91	5.09	6.23	4.17	2.83	3.59	2.27
1994	4.84	5.88	3.97	5.17	6.26	4.25	2.69	3.23	2.26
1995	4.67	5.67	3.86	4.97	6.02	4.11	2.77	3.40	2.33
1996	4.73	5.74	3.91	5.07	6.14	4.19	2.64	3.24	2.21
1997	4.68	5.66	3.90	4.99	6.03	4.13	2.87	3.30	2.55
1998	4.68	5.70	3.83	5.00	6.06	4.12	2.73	3.39	2.24
1999	4.64	5.66	3.81	4.98	6.04	4.10	2.73	3.28	2.29
2000	4.53	5.58	3.67	4.86	5.96	3.93	2.70	3.28	2.24
2001	4.45	5.49	3.59	4.78	5.88	3.86	2.58	3.13	2.19
2002	4.45	5.46	3.62	4.78	5.83	3.90	2.63	3.20	2.21
2003	4.40	5.36	3.62	4.74	5.73	3.92	2.66	3.36	2.11
2004	4.31	5.22	3.53	4.64	5.59	3.82	2.46	2.98	2.04
2005	4.34	5.31	3.53	4.69	5.69	3.84	2.52	3.23	1.99
2006	4.17	5.12	3.39	4.53	5.53	3.67	2.34	2.91	1.93
2007	4.21	5.10	3.47	4.58	5.52	3.78	2.37	2.75	2.07
2008	4.28	5.25	3.46	4.64	5.65	3.77	2.48	3.15	2.01
2009	4.35	5.27	3.57	4.73	5.72	3.88	2.53	2.98	2.17
2010	4.25	5.22	3.42	4.59	5.63	3.68	2.54	3.08	2.15
2011	4.25	5.20	3.44	4.64	5.66	3.76	2.37	2.82	2.01
2012	4.40	5.43	3.52	4.78	5.84	3.85	2.67	3.44	2.14
2013	4.34	5.22	3.60	4.74	5.65	3.95	2.43	3.16	1.89
2014	4.43	5.41	3.58	4.81	5.87	3.87	2.80	3.30	2.42
2015	4.42	5.37	3.61	4.82	5.83	3.93	2.60	3.15	2.17
2016	4.49	5.48	3.63	4.91	5.97	3.99	2.57	3.19	2.11

^a Individual rates for years of death 1975-1979 available in web browser version of [Cancer Statistics Review](#).
US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.
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 3.7
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, 2012-2016									
All ages	6.4	7.5	5.4	7.0	8.3	6.0	3.9	4.7	3.3
Under 65	4.5	5.2	3.9	5.0	5.7	4.4	2.9	3.5	2.5
65 and over	19.0	23.6	15.4	21.0	26.1	17.0	10.5	13.1	8.9
All ages (WHO world std) ^c	5.5	6.4	4.7	6.1	7.0	5.2	3.5	4.1	2.9
Age-Specific Rates, 2012-2016									
<1	3.7	3.8	3.7	3.7	3.9	3.6	3.1	3.1	3.2
1-4	4.3	4.5	4.1	4.6	4.8	4.4	3.3	3.4	3.1
5-9	3.5	3.6	3.4	3.7	3.8	3.6	2.9	2.7	3.1
10-14	2.8	3.1	2.6	3.0	3.3	2.8	2.1	2.4	1.7
15-19	2.4	2.6	2.1	2.5	2.7	2.3	2.1	2.2	2.0
20-24	2.2	2.4	1.9	2.5	2.8	2.1	1.2	1.1	1.3
25-29	2.9	3.3	2.5	3.2	3.6	2.8	1.8	2.2	1.3
30-34	3.4	3.9	2.9	3.9	4.4	3.3	2.0	2.1	1.8
35-39	3.7	4.2	3.3	4.1	4.5	3.7	2.4	3.0	1.9
40-44	4.2	5.0	3.5	4.7	5.4	4.0	2.5	3.2	1.8
45-49	5.3	6.2	4.5	5.9	6.9	5.0	3.3	4.1	2.6
50-54	7.4	8.7	6.2	8.3	9.6	7.0	4.9	6.1	3.9
55-59	10.1	12.1	8.2	11.3	13.5	9.2	6.2	7.9	4.8
60-64	12.6	15.2	10.2	14.1	16.9	11.6	6.4	8.5	4.7
65-69	16.0	19.4	12.9	17.7	21.3	14.4	9.3	12.2	7.1
70-74	18.8	23.4	15.0	20.9	26.1	16.4	10.7	11.6	10.0
75-79	21.4	26.6	17.3	23.9	29.4	19.4	11.3	15.6	8.5
80-84	22.1	28.0	18.1	24.4	31.2	19.5	11.5	11.4	11.6
85+	18.1	23.1	15.5	19.5	25.0	16.6	10.4	15.3	8.4
<u>U.S. Mortality</u>									
<u>Age at Death</u>									
Age-Adjusted Rates, 2012-2016									
All ages	4.4	5.4	3.6	4.8	5.8	3.9	2.6	3.2	2.1
Under 65	2.4	2.9	1.9	2.7	3.2	2.2	1.5	1.9	1.2
65 and over	18.2	22.5	15.0	19.6	24.1	16.2	10.1	12.7	8.5
All ages (WHO world std) ^c	3.1	3.8	2.5	3.4	4.1	2.8	1.9	2.4	1.6
Age-Specific Rates, 2012-2016									
<1	0.4	0.4	0.3	0.4	0.4	0.3	-	-	-
1-4	0.6	0.7	0.5	0.6	0.7	0.6	0.6	0.7	0.6
5-9	0.9	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9
10-14	0.7	0.8	0.6	0.7	0.8	0.6	0.6	0.6	0.6
15-19	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.7	0.4
20-24	0.5	0.6	0.5	0.6	0.7	0.5	0.3	0.4	0.3
25-29	0.7	0.9	0.5	0.8	1.0	0.6	0.5	0.6	0.4
30-34	1.2	1.4	0.9	1.3	1.6	1.0	0.6	0.7	0.5
35-39	1.7	2.1	1.4	1.9	2.3	1.5	1.0	1.2	0.8
40-44	2.3	2.8	1.9	2.6	3.1	2.1	1.4	1.4	1.3
45-49	3.6	4.4	2.7	4.0	4.9	3.0	2.2	2.7	1.8
50-54	5.5	6.6	4.3	6.0	7.3	4.8	3.5	4.5	2.6
55-59	8.1	10.0	6.4	9.0	11.0	7.1	4.6	5.8	3.5
60-64	11.1	13.3	9.1	12.2	14.4	10.1	6.6	8.8	4.7
65-69	14.4	17.4	11.7	15.7	18.9	12.8	8.2	10.1	6.7
70-74	17.4	21.2	14.1	18.9	22.9	15.4	9.4	12.1	7.5
75-79	20.5	25.1	16.8	22.2	27.1	18.3	10.2	12.3	8.9
80-84	21.9	27.2	18.2	23.4	28.9	19.5	12.4	16.2	10.3
85+	20.1	26.2	17.0	21.1	27.5	17.7	13.3	16.4	12.0

^a SEER 21 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 world (WHO 2000-2025) standard million.

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

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

5-Year Relative and Period Survival (Percent) 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 (Percent)									
Year of Diagnosis:									
1960-1963 ^a	-	-	-	18	16	21	19	17	21
1970-1973 ^a	-	-	-	20	18	22	19	19	19
1975-1977 ^b	22.5	20.7	24.8	21.9	20.2	24.1	25.4	19.6	34.7 ^g
1978-1980 ^b	23.6	22.4	25.1	23.0	22.0	24.4	28.2	28.7	27.5
1981-1983 ^b	24.1	23.0	25.5	23.4	22.4	24.6	30.8	31.7	29.2 ^g
1984-1986 ^b	26.9	25.6	28.5	26.2	24.8	27.8	30.9	32.8	28.5
1987-1989 ^b	29.0	27.4	31.1	28.3	26.3	30.8	31.9	34.0	29.3
1990-1992 ^b	30.2	30.5	29.7	29.2	29.4	28.9	39.3	40.2	38.1
1993-1995 ^b	32.2	33.0	31.3	30.8	31.4	30.2	41.9	46.1	37.3
1996-1998 ^b	31.3	30.7	32.1	30.6	30.2	31.0	35.9	33.6	38.3
1999-2001 ^b	33.9	30.9	37.8	33.1	30.4	36.6	38.6	33.4	45.6
2002-2004 ^b	35.1	34.2	36.1	34.2	33.9	34.5	39.4	33.3	45.8
2005-2008 ^b	35.5	34.3	37.0	33.9	33.0	35.1	43.6	39.7	47.3
2009-2015 ^b	34.0 ^f	32.6 ^f	35.7 ^f	32.6 ^f	31.1 ^f	34.4 ^f	39.8 ^f	39.3 ^f	40.2
5-Year Period Survival (Percent)^{cd}									
2015	32.5	31.1	34.5	31.1	29.5	33.2	40.2	39.7	40.6
Stage Distribution (%) 2009-2015^{ce}									
All Stages									
Number of cases	34,898	19,445	15,453	29,776	16,710	13,066	2,532	1,328	1,204
Percent	100%	100%	100%	100%	100%	100%	100%	100%	100%
Localized	77	78	77	78	78	77	77	78	75
Regional	15	15	15	15	15	15	15	13	16
Distant	2	3	2	2	2	2	3	3	4
Unstaged/Unknown	5	4	6	5	4	5	5	5	5
5-Year Relative Survival (Percent), 2009-2015^c									
Age at Diagnosis:									
Ages <45	69.2	67.1	71.9	69.8	67.7	72.6	65.6	63.5	67.8
Ages 45-54	32.5	29.5	36.8	32.3	29.1	36.9	28.9	26.3	32.4
Ages 55-64	15.8	14.2	18.1	15.2	13.8	17.2	17.5	12.8	23.3
Ages 65-74	9.0	7.7	10.7	8.9	7.2	11.0	8.6	10.9	7.2
Ages 75+	4.3	4.2	4.4	3.9	4.1	3.8	8.5	-	9.0
Ages <65	44.9	42.2	48.7	44.0	41.2	47.9	47.0	43.4	51.1
Ages 65+	6.9	6.2	7.6	6.6	5.9	7.4	8.6	9.5	7.8
Stage^e:									
All Stages	32.9	31.6	34.6	31.7	30.4	33.4	38.7	37.1	40.4
Localized	35.7	34.3	37.6	34.5	33.0	36.5	40.7	39.7	41.7
Regional	20.2	19.6	21.0	19.2	18.7	19.8	26.2	20.5	31.3
Distant	32.4	29.3	36.8	30.9	27.9	35.3	42.2 ^g	39.8 ^g	45.5 ^g
Unstaged/Unknown	28.2	27.4	28.9	25.5	24.6	26.3	42.3	39.0 ^g	45.2 ^g

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

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

Based on follow-up of patients into 2016. [Expected survival rates](#) are derived from the U.S. Annual Life Tables.

^c SEER 18 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, New Jersey and Georgia excluding ATL/RG). Expected survival rates are derived from life tables by socio-economic status, geography and race developed by the SEER program.

Based on follow-up of patients into 2016.

^d Period survival provides a 2015 estimate of survival by piecing together the most recent conditional survival estimates from several cohorts. It is computed here using three year calendar blocks (2010-2012: 0-1 year survival), (2009-2011: 1-2 year survival), (2008-2010: 2-3 year survival), (2007-2009: 3-4 year survival), (2006-2008: 4-5 years survival).

^e Stage at diagnosis is classified using SEER Summary Stage 2000. Stage distribution percentages may not sum to 100 due to rounding.

^f The difference between 1975-1977 and 2009-2015 is statistically significant ($p < .05$).

^g The standard error is between 5 and 10 percentage points.

^h The standard error is greater than 10 percentage points.

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

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

SEER^a Relative Survival (Percent)
By Year of Diagnosis

All Races, Males and Females

Year of Diagnosis

	1975- 1979	1980- 1984	1985- 1989	1990- 1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Survival Time																									
1-year	46.4	47.4	50.9	52.7	52.3	53.3	51.5	54.2	55.1	55.6	57.3	59.4	57.1	57.2	58.5	61.7	61.9	62.4	62.7	62.0	61.1	63.2	64.5	63.7	62.2
2-year	32.3	33.8	36.9	38.9	39.1	40.7	38.1	40.8	40.3	41.8	42.4	46.6	43.5	43.1	45.8	47.2	47.4	46.5	47.0	46.8	45.2	46.3	48.5	45.2	
3-year	27.9	29.4	32.7	34.9	36.0	36.6	34.1	35.7	36.0	38.3	39.0	40.6	38.1	38.2	40.0	40.6	41.0	40.9	41.5	39.9	39.5	38.6	40.0		
4-year	25.2	26.5	30.0	32.5	34.3	34.5	31.9	32.9	33.7	36.1	36.7	38.2	36.0	36.0	37.1	38.2	37.5	37.5	38.1	36.9	35.8	35.3			
5-year	23.1	24.6	28.0	30.8	33.3	32.5	30.3	31.1	32.3	34.8	34.7	36.1	34.1	35.0	34.8	35.9	35.5	35.9	36.3	34.2	33.3				
6-year	21.5	23.1	26.6	29.5	32.3	31.2	28.3	29.8	30.8	33.3	33.8	34.4	32.9	33.5	32.8	34.1	33.5	34.3	34.6	32.3					
7-year	20.4	21.9	25.5	28.2	31.2	30.3	27.5	28.7	30.1	31.8	32.5	33.5	31.3	32.1	31.8	33.3	32.5	33.0	33.6						
8-year	19.4	20.9	24.2	27.4	30.4	28.8	26.8	27.9	29.3	31.0	31.6	32.7	30.4	31.1	30.5	31.7	31.7	31.9							
9-year	18.4	19.9	23.4	26.6	29.9	27.7	25.7	27.2	28.3	30.1	31.0	31.7	29.6	30.2	29.7	30.5	30.7								
10-year	17.8	18.9	22.6	25.9	28.9	27.1	24.6	26.4	27.8	29.3	30.5	30.9	29.2	29.3	29.0	29.9									
11-year	17.2	18.1	22.0	25.2	28.0	26.1	24.0	25.9	26.9	28.3	29.6	30.0	28.9	28.5	28.0										
12-year	16.6	17.6	21.4	24.6	27.7	25.1	23.1	25.2	26.1	27.5	28.9	29.4	28.3	28.0											
13-year	16.2	17.0	20.9	24.1	26.6	24.8	22.9	24.5	25.5	26.8	28.3	28.9	27.6												
14-year	15.9	16.6	20.2	23.4	25.9	24.4	22.5	23.8	25.1	26.3	27.7	28.3													
15-year	15.4	16.1	19.6	22.9	25.3	23.9	22.5	22.6	24.9	26.0	27.2														
16-year	15.1	15.5	19.3	22.5	24.2	23.2	21.6	22.2	24.6	25.1															
17-year	14.7	15.2	18.8	21.9	24.0	23.1	21.2	22.0	24.3																
18-year	14.4	14.9	18.3	21.5	23.8	22.8	21.0	21.9																	
19-year	14.1	14.4	17.8	21.2	23.1	22.5	20.5																		
20-year	13.8	14.0	17.6	20.7	23.0	22.5																			

^a Based on the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).
[Expected survival rates](#) are derived from the U.S. Annual Life Tables.

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

SEER^a Relative Survival (Percent)
By Year of Diagnosis

All Races, Males

Year of Diagnosis

	1975- 1979	1980- 1984	1985- 1989	1990- 1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Survival Time																									
1-year	45.9	48.4	51.0	54.5	54.5	54.6	54.5	54.3	55.0	54.2	55.0	59.1	57.1	59.3	57.9	63.8	61.8	62.8	64.1	63.4	62.1	63.4	66.0	64.9	60.3
2-year	31.3	33.5	36.1	39.7	40.3	39.7	39.6	39.9	38.9	39.6	38.4	46.2	42.0	44.5	44.8	47.2	45.8	46.0	46.2	47.1	44.8	46.9	47.4	44.1	
3-year	26.4	29.3	31.6	35.4	37.2	35.8	35.1	35.3	34.2	35.8	35.2	39.2	36.3	39.4	39.2	39.8	39.4	40.2	41.2	39.4	39.3	38.5	38.4		
4-year	23.9	25.9	28.5	33.1	35.9	33.6	32.7	31.9	31.6	33.3	32.5	36.3	34.5	36.6	36.6	36.9	34.7	35.6	37.0	36.2	35.1	34.9			
5-year	21.6	23.6	26.4	31.1	34.8	31.2	30.6	30.1	29.9	32.1	30.8	33.6	33.2	35.8	34.4	35.4	33.3	34.1	35.1	33.7	32.4				
6-year	20.0	22.2	25.0	30.0	33.4	29.6	28.3	28.1	28.5	30.6	29.8	31.5	31.8	34.4	31.7	33.4	31.2	32.2	33.1	31.2					
7-year	19.0	21.1	23.8	28.5	32.1	28.7	27.3	27.0	27.9	28.5	28.7	30.5	30.1	32.8	30.3	32.6	30.5	31.0	32.2						
8-year	17.9	20.2	22.6	27.8	30.9	27.0	26.8	26.2	27.0	27.7	27.7	29.6	28.9	31.3	28.8	30.7	29.4	29.9							
9-year	16.9	19.0	21.9	26.8	30.1	25.9	26.0	25.3	25.4	26.7	27.2	28.7	28.3	30.2	28.2	29.5	28.5								
10-year	16.3	18.1	21.1	26.1	29.1	25.5	25.0	24.7	24.6	25.6	27.2	28.0	27.9	28.9	27.6	28.6									
11-year	15.6	17.5	20.6	25.4	28.3	24.7	24.5	23.8	23.2	24.8	26.2	26.8	27.9	27.9	26.9										
12-year	15.0	17.0	20.1	24.8	28.0	23.5	23.3	23.1	22.6	23.9	25.1	25.9	27.1	27.3											
13-year	14.6	16.4	19.6	24.3	26.5	23.2	23.2	22.7	22.4	23.7	24.8	25.2	26.2												
14-year	14.4	15.9	19.0	23.6	25.5	23.0	22.8	22.1	21.9	23.2	24.3	24.7													
15-year	14.0	15.4	18.4	22.9	24.8	22.6	22.8	21.1	21.7	22.9	24.2														
16-year	13.8	14.9	18.1	22.5	23.1	21.8	22.2	20.9	21.4	22.1															
17-year	13.5	14.5	17.8	22.0	22.8	21.5	21.9	20.7	21.2																
18-year	13.3	14.2	17.2	21.7	22.6	21.4	21.9	20.2																	
19-year	12.9	13.7	16.8	21.4	21.8	21.1	21.4																		
20-year	12.7	13.4	16.6	20.9	21.6	21.0																			

^a

Based on the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).
[Expected survival rates](#) are derived from the U.S. Annual Life Tables.

Table 3.11
Cancer of the Brain and Other Nervous System (Invasive)

SEER^a Relative Survival (Percent)
By Year of Diagnosis

All Races, Females

Year of Diagnosis

	1975- 1979	1980- 1984	1985- 1989	1990- 1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Survival Time																									
1-year	47.0	46.2	50.7	50.4	49.4	51.7	47.6	54.0	55.2	57.5	60.3	59.9	57.0	54.6	59.3	58.8	62.0	61.9	61.0	60.2	59.8	62.9	62.6	62.0	64.7
2-year	33.6	34.2	37.9	37.8	37.5	42.0	36.2	41.9	42.3	44.7	47.4	47.0	45.3	41.3	46.9	47.2	49.4	47.2	47.9	46.4	45.5	45.6	49.8	46.9	
3-year	29.8	29.5	34.0	34.3	34.4	37.8	33.0	36.3	38.3	41.6	43.8	42.2	40.3	36.8	40.9	41.7	43.1	41.7	41.8	40.4	39.7	38.6	42.3		
4-year	26.8	27.3	31.8	31.8	32.2	35.7	30.8	34.2	36.5	39.7	42.1	40.5	37.7	35.1	37.8	39.8	41.0	39.8	39.5	37.7	36.7	35.6			
5-year	25.1	25.9	30.0	30.3	31.3	34.1	29.8	32.3	35.4	38.3	39.7	39.1	35.2	34.1	35.3	36.4	38.3	38.1	37.7	34.9	34.5				
6-year	23.4	24.2	28.6	29.0	30.7	33.2	28.2	31.6	33.8	36.8	38.8	38.0	34.1	32.4	34.1	35.0	36.3	36.8	36.5	33.7					
7-year	22.4	22.9	27.5	27.9	30.1	32.3	27.9	30.7	32.8	35.9	37.4	37.3	32.8	31.2	33.7	34.1	35.2	35.3	35.2						
8-year	21.4	21.7	26.2	26.9	29.7	31.1	26.7	29.8	32.3	35.2	36.6	36.4	32.1	30.8	32.5	33.0	34.5	34.2							
9-year	20.4	20.9	25.2	26.2	29.6	29.9	25.3	29.4	32.0	34.4	35.8	35.3	30.9	30.2	31.4	31.9	33.5								
10-year	19.7	19.9	24.5	25.6	28.6	29.2	24.1	28.4	31.9	34.0	34.8	34.4	30.6	29.8	30.6	31.6									
11-year	19.2	18.9	23.8	25.0	27.6	28.0	23.2	28.2	31.6	32.8	34.1	33.8	30.2	29.2	29.1										
12-year	18.7	18.4	23.2	24.3	27.4	27.2	22.8	27.5	30.7	32.0	33.7	33.6	29.5	28.9											
13-year	18.3	17.7	22.4	23.8	26.6	26.8	22.4	26.4	29.5	30.7	32.8	33.5	29.1												
14-year	17.7	17.5	21.8	23.2	26.4	26.2	22.2	25.8	29.2	30.3	32.1	32.7													
15-year	17.2	16.9	21.1	22.8	25.9	25.6	22.1	24.3	28.9	30.0	30.8														
16-year	16.7	16.4	20.8	22.4	25.6	25.0	20.8	23.8	28.7	28.9															
17-year	16.2	16.2	20.1	21.9	25.4	25.0	20.4	23.6	28.4																
18-year	15.9	15.8	19.6	21.3	25.4	24.7	19.8	23.6																	
19-year	15.7	15.2	19.2	21.0	24.7	24.4	19.3																		
20-year	15.2	14.8	18.9	20.3	24.7	24.3																			

^a

Based on the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).
[Expected survival rates](#) are derived from the U.S. Annual Life Tables.

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

Risk of Being Diagnosed With Cancer in 10, 20 and 30 Years,
Lifetime Risk of Being Diagnosed with Cancer Given Alive and Cancer-Free at Current Age, and
Lifetime Risk of Dying from Cancer Given Alive at Current Age
Both Sexes, 2014-2016 By Race/Ethnicity

Race/ Ethnicity	Current Age	Risk of Being Diagnosed with Cancer				Risk of Dying from Cancer	Race/ Ethnicity	Current Age	Risk of Being Diagnosed with Cancer				Risk of Dying from Cancer
		+10 yrs	+20 yrs	+30 yrs	Ever				+10 yrs	+20 yrs	+30 yrs	Ever	
All Races	0	0.04	0.06	0.09	0.62	0.47	Asian/ Pacific Islander	0	0.03	0.05	0.07	0.41	0.31
	10	0.02	0.05	0.08	0.59	0.47		10	0.02	0.03	0.06	0.38	0.31
	20	0.02	0.06	0.10	0.56	0.47		20	0.02	0.04	0.07	0.36	0.30
	30	0.03	0.08	0.16	0.54	0.47		30	0.02	0.05	0.09	0.34	0.30
	40	0.05	0.13	0.25	0.51	0.46		40	0.03	0.07	0.14	0.32	0.29
	50	0.08	0.21	0.36	0.48	0.44		50	0.04	0.11	0.20	0.30	0.28
	60	0.13	0.29	0.39	0.42	0.40		60	0.07	0.16	0.23	0.26	0.25
	70	0.17	0.29	-	0.32	0.32		70	0.09	0.17	-	0.20	0.21
White	80	0.16	-	-	0.19	0.20	American Indian/ Alaska Native ^a	80	0.09	-	-	0.13	0.16
	0	0.04	0.07	0.09	0.68	0.52		0	0.02	0.04	0.06	0.31	0.23
	10	0.03	0.05	0.09	0.65	0.52		10	0.02	0.03	0.05	0.29	0.23
	20	0.03	0.07	0.12	0.62	0.51		20	0.02	0.04	0.06	0.27	0.22
	30	0.04	0.09	0.18	0.60	0.51		30	0.02	0.04	0.09	0.26	0.23
	40	0.05	0.14	0.28	0.57	0.50		40	0.03	0.07	0.11	0.25	0.22
	50	0.09	0.23	0.40	0.53	0.48		50	0.04	0.09	0.14	0.23	0.21
	60	0.15	0.32	0.44	0.46	0.43		60	0.05	0.11	0.11	0.20	0.19
Black	70	0.19	0.32	-	0.35	0.34	Hispanic ^b	70	0.07	0.08	-	0.17	0.17
	80	0.17	-	-	0.21	0.21		80	0.01	-	-	0.14	0.12
	0	0.03	0.04	0.06	0.33	0.26		0	0.03	0.05	0.07	0.53	0.37
	10	0.02	0.03	0.05	0.31	0.25		10	0.02	0.04	0.06	0.51	0.37
	20	0.02	0.04	0.06	0.29	0.25		20	0.02	0.04	0.08	0.49	0.37
	30	0.02	0.05	0.10	0.28	0.25		30	0.02	0.06	0.13	0.47	0.36
	40	0.03	0.08	0.14	0.27	0.25		40	0.04	0.10	0.20	0.45	0.36
	50	0.05	0.11	0.19	0.25	0.24		50	0.06	0.16	0.30	0.42	0.35
	60	0.07	0.15	0.19	0.21	0.21		60	0.10	0.24	0.34	0.37	0.32
	70	0.09	0.14	-	0.17	0.17		70	0.15	0.26	-	0.30	0.27
	80	0.07	-	-	0.11	0.13		80	0.14	-	-	0.18	0.18

Devcan 6.7.7, April 2019, National Cancer Institute (<https://surveillance.cancer.gov/devcan/>).

Source: Incidence data are from the SEER 21 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, New Jersey, Georgia excluding ATL/RG, Idaho, New York and Massachusetts). Mortality data are from the NCHS public use data file for the total US.

^a Underlying incidence and mortality data for American Indian/Alaska Native are based on the PRCDA (Purchased/Referred Care Delivery Areas) counties.

^b Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives.

- Underlying incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.

- Statistic could not be calculated.

A percent of 0.00 represents a value that is below 0.005.

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

Risk of Being Diagnosed With Cancer in 10, 20 and 30 Years,
Lifetime Risk of Being Diagnosed with Cancer Given Alive and Cancer-Free at Current Age, and
Lifetime Risk of Dying from Cancer Given Alive at Current Age
Males, 2014-2016 By Race/Ethnicity

Race/ Ethnicity	Current Age	Risk of Being Diagnosed with Cancer				Risk of Dying from Cancer	Race/ Ethnicity	Current Age	Risk of Being Diagnosed with Cancer				Risk of Dying from Cancer
		+10 yrs	+20 yrs	+30 yrs	Ever				+10 yrs	+20 yrs	+30 yrs	Ever	
All Races	0	0.04	0.06	0.09	0.69	0.53	Asian/ Pacific Islander	0	0.03	0.06	0.07	0.44	0.32
	10	0.03	0.06	0.09	0.66	0.53		10	0.02	0.04	0.07	0.41	0.32
	20	0.03	0.07	0.12	0.64	0.53		20	0.02	0.05	0.08	0.38	0.31
	30	0.04	0.09	0.19	0.61	0.53		30	0.03	0.06	0.11	0.37	0.31
	40	0.05	0.15	0.30	0.59	0.52		40	0.03	0.08	0.16	0.34	0.30
	50	0.10	0.25	0.42	0.55	0.50		50	0.05	0.13	0.23	0.32	0.28
	60	0.16	0.34	0.46	0.48	0.45		60	0.08	0.18	0.25	0.27	0.26
	70	0.21	0.35	-	0.37	0.36		70	0.11	0.18	-	0.21	0.21
White	80	0.19	-	-	0.22	0.23	American Indian/ Alaska Native ^a	80	0.09	-	-	0.12	0.15
	0	0.04	0.07	0.10	0.76	0.58		0	0.03	0.05	0.07	0.30	0.22
	10	0.03	0.06	0.10	0.73	0.58		10	0.02	0.04	0.06	0.28	0.22
	20	0.03	0.07	0.13	0.70	0.57		20	0.02	0.04	0.07	0.26	0.21
	30	0.04	0.10	0.21	0.68	0.57		30	0.02	0.05	0.10	0.24	0.21
	40	0.06	0.17	0.33	0.65	0.56		40	0.03	0.08	0.11	0.23	0.21
	50	0.11	0.28	0.47	0.60	0.54		50	0.05	0.09	0.16	0.21	0.20
	60	0.18	0.38	0.51	0.53	0.49		60	0.04	0.11	0.13	0.17	0.18
Black	70	0.24	0.38	-	0.41	0.39	Hispanic ^b	70	0.09	0.10	-	0.15	0.17
	80	0.21	-	-	0.24	0.24		80	0.02	-	-	0.09	0.13
	0	0.03	0.05	0.06	0.36	0.28		0	0.03	0.05	0.07	0.58	0.41
	10	0.02	0.04	0.06	0.34	0.28		10	0.02	0.04	0.07	0.56	0.40
	20	0.02	0.04	0.08	0.33	0.27		20	0.02	0.05	0.09	0.54	0.40
	30	0.02	0.06	0.12	0.31	0.27		30	0.03	0.07	0.14	0.52	0.40
	40	0.04	0.10	0.17	0.30	0.27		40	0.05	0.12	0.22	0.50	0.39
	50	0.06	0.14	0.22	0.27	0.26		50	0.07	0.18	0.33	0.47	0.38
	60	0.09	0.17	0.21	0.23	0.23		60	0.11	0.27	0.38	0.42	0.36
	70	0.11	0.15	-	0.18	0.19		70	0.18	0.31	-	0.34	0.30
	80	0.07	-	-	0.11	0.14		80	0.17	-	-	0.22	0.20

Devcan 6.7.7, April 2019, National Cancer Institute (<https://surveillance.cancer.gov/devcan/>).

Source: Incidence data are from the SEER 21 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, New Jersey, Georgia excluding ATL/RG, Idaho, New York and Massachusetts). Mortality data are from the NCHS public use data file for the total US.

^a Underlying incidence and mortality data for American Indian/Alaska Native are based on the PRCDA (Purchased/Referred Care Delivery Areas) counties.

^b Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives.

- Underlying incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.

- Statistic could not be calculated.

A percent of 0.00 represents a value that is below 0.005.

Table 3.14
Cancer of the Brain and Other Nervous System (Invasive)

Risk of Being Diagnosed With Cancer in 10, 20 and 30 Years,
Lifetime Risk of Being Diagnosed with Cancer Given Alive and Cancer-Free at Current Age, and
Lifetime Risk of Dying from Cancer Given Alive at Current Age
Females, 2014-2016 By Race/Ethnicity

Race/ Ethnicity	Current Age	Risk of Being Diagnosed with Cancer				Risk of Dying from Cancer	Race/ Ethnicity	Current Age	Risk of Being Diagnosed with Cancer				Risk of Dying from Cancer
		+10 yrs	+20 yrs	+30 yrs	Ever				+10 yrs	+20 yrs	+30 yrs	Ever	
All Races	0	0.04	0.06	0.08	0.55	0.42	Asian/ Pacific Islander	0	0.03	0.04	0.06	0.38	0.30
	10	0.02	0.04	0.07	0.51	0.42		10	0.01	0.03	0.05	0.35	0.30
	20	0.02	0.05	0.09	0.49	0.41		20	0.01	0.03	0.06	0.34	0.29
	30	0.03	0.07	0.14	0.47	0.41		30	0.02	0.04	0.08	0.32	0.29
	40	0.04	0.11	0.21	0.45	0.40		40	0.02	0.06	0.12	0.30	0.28
	50	0.07	0.17	0.30	0.42	0.39		50	0.04	0.10	0.17	0.28	0.27
	60	0.11	0.24	0.34	0.36	0.35		60	0.06	0.13	0.21	0.25	0.25
	70	0.14	0.25	-	0.28	0.28		70	0.08	0.16	-	0.20	0.21
White	80	0.13	-	-	0.17	0.18	American Indian/ Alaska Native ^a	80	0.09	-	-	0.14	0.16
	0	0.04	0.06	0.09	0.60	0.46		0	0.02	0.03	0.05	0.31	0.24
	10	0.02	0.05	0.08	0.57	0.45		10	0.01	0.03	0.04	0.29	0.24
	20	0.02	0.06	0.10	0.55	0.45		20	0.01	0.03	0.05	0.28	0.24
	30	0.03	0.08	0.15	0.53	0.45		30	0.02	0.04	0.07	0.27	0.24
	40	0.04	0.12	0.24	0.50	0.44		40	0.02	0.06	0.11	0.25	0.23
	50	0.08	0.19	0.33	0.46	0.42		50	0.03	0.08	0.13	0.24	0.22
	60	0.12	0.27	0.37	0.40	0.38		60	0.05	0.10	0.10	0.21	0.20
Black	70	0.16	0.27	-	0.30	0.29	Hispanic ^b	70	0.05	0.06	-	0.18	0.17
	80	0.14	-	-	0.18	0.19		80	0.01	-	-	0.16	0.11
	0	0.03	0.04	0.06	0.31	0.24		0	0.03	0.05	0.06	0.49	0.35
	10	0.02	0.03	0.05	0.28	0.24		10	0.02	0.03	0.05	0.46	0.34
	20	0.01	0.03	0.05	0.27	0.23		20	0.02	0.04	0.07	0.45	0.34
	30	0.02	0.04	0.08	0.25	0.23		30	0.02	0.05	0.11	0.43	0.34
	40	0.02	0.06	0.11	0.24	0.23		40	0.03	0.09	0.17	0.41	0.33
	50	0.04	0.09	0.16	0.22	0.22		50	0.06	0.14	0.27	0.38	0.32
	60	0.06	0.13	0.18	0.20	0.20		60	0.09	0.22	0.31	0.34	0.29
	70	0.08	0.14	-	0.16	0.16		70	0.14	0.23	-	0.27	0.24
	80	0.08	-	-	0.11	0.12		80	0.11	-	-	0.15	0.17

Devcan 6.7.7, April 2019, National Cancer Institute (<https://surveillance.cancer.gov/devcan/>).

Source: Incidence data are from the SEER 21 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, New Jersey, Georgia excluding ATL/RG, Idaho, New York and Massachusetts). Mortality data are from the NCHS public use data file for the total US.

^a Underlying incidence and mortality data for American Indian/Alaska Native are based on the PRCDA (Purchased/Referred Care Delivery Areas) counties.

^b Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives.

- Underlying incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.

- Statistic could not be calculated.

A percent of 0.00 represents a value that is below 0.005.

Table 3.15
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 21 Areas ^b Rate 2012-2016 Rate per 100,000 persons			SEER 21 Areas ^b Trend 2007-2016 ^c AAPC (%)			SEER 9 Areas ^b Trend 2007-2016 ^d AAPC (%)		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
	Race/Ethnicity								
All Races	6.4	7.5	5.4	-0.5*	-1.1*	-0.6*	-0.2*	-0.3*	-1.2
White	7.0	8.3	6.0	-0.4*	-0.5*	-0.4*	-0.1	-0.2*	-1.0
White Hispanic ^e	5.3	6.1	4.6	-0.9*	-0.9*	-0.9*	-	-	-
White Non-Hispanic ^e	7.5	8.9	6.4	-0.2	-0.2	-0.2	-	-	-
Black	3.9	4.7	3.3	-0.7*	-0.3	-1.0*	0.0	-0.2	0.3
Asian/Pacific Islander	3.8	4.3	3.3	0.2	0.2	0.0	-	-	-
Amer Ind/Alaska Nat ^f	3.0	3.7	2.4	-1.0	-0.9	-1.9	-	-	-
Hispanic ^e	5.0	5.8	4.4	-0.9*	-1.0*	-0.9*	-	-	-
<u>U.S. Mortality^g</u>									
U.S. Mortality ^g	Rate 2012-2016 Rate per 100,000 persons			Trend 2007-2016 ^h AAPC (%)					
	Total	Males	Females	Total	Males	Females			
	Race/Ethnicity								
All Races	4.4	5.4	3.6	0.6*	0.6*	0.5*			
White	4.8	5.8	3.9	0.6*	0.7*	0.6*			
White Hispanic ^e	3.2	3.7	2.7	0.4*	0.3	0.5*			
White Non-Hispanic ^e	5.0	6.1	4.1	0.8*	0.8*	0.7*			
Black	2.6	3.2	2.1	0.1	0.1	0.1			
Asian/Pacific Islander	2.2	2.6	1.9	1.2*	0.2	2.1*			
Amer Ind/Alaska Nat									
Total U.S.	1.9	2.3	1.6	0.2	-0.4	0.6			
PRCDA Counties	2.4	2.8	2.1	0.7	0.7	0.7			
Non-PRCDA Counties	1.4	1.7	1.0	-0.4	3.0	0.4			
Hispanic ^e	3.0	3.5	2.6	0.3	0.1	0.4			

The AAPC is the Average Annual Percent Change over the time interval. The AAPCs are calculated by the Joinpoint Regression Program Version 4.7, February 2019, National Cancer Institute.

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

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

b 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).

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

The SEER 21 areas comprise the SEER 9 areas plus San Jose-Monterey, Los Angeles, the Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana, New Jersey, Georgia excluding ATL/RG, Idaho, New York and Massachusetts.

c The 2007-2016 AAPC estimates are based on a Joinpoint analysis with up to 3 Joinpoints over diagnosis years 2000-2016.

d The 2007-2016 AAPC estimates are based on a Joinpoint analysis with up to 5 Joinpoints over diagnosis years 1975-2016.

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.

f Incidence data for American Indian/Alaska Native are based on the Purchased/Referred Care Delivery Area (PRCDA) counties.

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

h The 2007-2016 mortality AAPCs are based on a Joinpoint analysis using years of death 2000-2016.

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

Table 3.16
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, 2012-2016</u>									
California	5.92	7.03	4.95	6.63	7.80	5.58	3.68	4.74	2.75
Greater Bay Area	6.08	7.39	4.92	7.10	8.53	5.80	3.68	4.52	2.83
San Francisco-Oakland	5.87	7.27	4.62	7.02	8.60	5.56	3.50	4.39	2.66
San Jose-Monterey	6.46	7.62	5.45	7.24	8.45	6.16	4.89	-	-
Los Angeles	5.27	6.31	4.39	6.12	7.28	5.11	3.49	4.71	2.50
Greater California	6.17	7.24	5.22	6.71	7.82	5.72	3.89	4.93	2.98
Connecticut	6.85	8.18	5.70	7.11	8.52	5.90	4.18	4.50	3.72
Detroit	6.47	7.64	5.54	7.19	8.58	5.99	4.22	4.54	4.09
Georgia	6.19	7.32	5.28	7.16	8.43	6.08	4.01	4.55	3.69
Atlanta	5.90	7.56	4.57	7.52	9.16	6.12	3.75	5.17	2.78
Rural Georgia	5.24	4.96	5.45	6.18	-	7.31	-	-	-
Greater Georgia	6.34	7.26	5.64	7.04	8.25	6.02	4.21	3.99	4.47
Hawaii	4.15	4.81	3.52	6.42	7.65	5.03	-	-	-
Idaho	7.38	9.13	5.78	7.43	9.21	5.81	-	-	-
Iowa	7.07	8.15	6.07	7.17	8.32	6.12	3.97	-	-
Kentucky	7.51	8.72	6.39	7.79	9.05	6.62	4.65	5.12	4.11
Louisiana	6.03	7.26	4.98	7.15	8.41	6.02	3.61	4.51	2.90
Massachusetts	6.34	7.26	5.57	6.65	7.70	5.75	3.25	3.42	3.12
New Jersey	6.90	8.29	5.73	7.50	8.91	6.30	4.27	5.33	3.55
New Mexico	5.27	6.17	4.46	5.61	6.68	4.64	-	-	-
New York	6.58	7.79	5.54	7.35	8.59	6.27	3.90	4.92	3.09
Seattle-Puget Sound	7.60	8.83	6.50	8.25	9.47	7.13	3.97	4.37	3.43
Utah	6.69	7.89	5.55	6.91	8.10	5.80	-	-	-
SEER 9 Areas ^b	6.42	7.64	5.34	7.19	8.50	6.01	3.89	4.64	3.30
SEER 13 Areas ^b	6.15	7.32	5.12	6.94	8.20	5.81	3.82	4.70	3.14
SEER 18 Areas ^b	6.31	7.46	5.30	7.00	8.24	5.91	3.94	4.68	3.36
SEER 21 Areas ^b	6.37	7.52	5.36	7.04	8.27	5.95	3.90	4.68	3.28

^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 13 areas comprise the SEER 9 areas plus San Jose-Monterey, Los Angeles, the Alaska Native Registry and Rural Georgia.
 The SEER 18 areas comprise the SEER 13 areas plus California excluding SF/SJM/LA, Kentucky, Louisiana, New Jersey and Georgia excluding ATL/RG.
 The SEER 21 areas comprise the SEER 18 areas plus Idaho, New York and Massachusetts.
 - Statistic not shown. Rate based on less than 16 cases for the time interval.

Table 3.17
Cancer of the Brain and Other Nervous System (Invasive)

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

	All Races			Whites			Blacks		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
<u>SEER Death Rates^a, 2012-2016</u>									
California	4.38	5.39	3.53	4.94	6.04	3.99	2.97	3.94	2.15
Greater Bay Area	4.12	5.10	3.28	4.88	5.98	3.90	2.76	3.90	1.78
San Francisco-Oakland	3.90	4.97	2.99	4.77	5.95	3.69	2.73	4.12	1.57
San Jose-Monterey	4.51	5.35	3.81	5.07	6.03	4.24	-	-	-
Los Angeles	4.11	5.07	3.33	4.84	5.94	3.91	2.79	3.29	2.45
Greater California	4.60	5.64	3.70	5.00	6.09	4.04	3.20	4.46	2.07
Connecticut	4.28	5.43	3.30	4.51	5.73	3.47	2.86	2.86	2.66
Detroit	4.44	5.43	3.65	4.94	6.00	4.05	2.84	3.45	2.46
Georgia	4.25	5.23	3.42	5.01	6.08	4.05	2.53	3.09	2.13
Atlanta	4.07	5.24	3.14	5.32	6.65	4.16	2.37	2.98	1.97
Rural Georgia	5.20	7.58	-	6.54	8.59	-	-	-	-
Greater Georgia	4.34	5.22	3.59	4.89	5.87	4.02	2.65	3.09	2.31
Hawaii	2.83	3.35	2.35	4.74	5.26	4.32	-	-	-
Idaho	5.16	6.88	3.59	5.24	6.99	3.65	-	-	-
Iowa	5.10	6.20	4.09	5.18	6.32	4.14	-	-	-
Kentucky	4.92	5.89	4.06	5.06	6.06	4.15	3.54	4.25	2.96
Louisiana	4.34	5.34	3.53	4.95	5.94	4.08	2.91	3.81	2.28
Massachusetts	4.49	5.56	3.61	4.79	5.96	3.83	1.98	2.70	1.45
New Jersey	4.02	4.96	3.24	4.52	5.55	3.65	2.30	3.26	1.74
New Mexico	3.60	4.15	3.12	3.80	4.49	3.17	-	-	-
New York	3.84	4.61	3.21	4.42	5.28	3.70	2.04	2.55	1.69
Seattle-Puget Sound	4.91	5.84	4.11	5.35	6.27	4.53	2.25	2.45	-
Utah	4.68	5.96	3.52	4.81	6.10	3.64	-	-	-
SEER 9 Areas ^b	4.32	5.32	3.45	4.88	5.96	3.91	2.59	3.18	2.13
SEER 13 Areas ^b	4.28	5.25	3.45	4.88	5.94	3.94	2.66	3.27	2.19
SEER 18 Areas ^b	4.37	5.35	3.53	4.88	5.95	3.96	2.73	3.49	2.17
SEER 21 Areas ^b	4.29	5.26	3.48	4.80	5.85	3.90	2.52	3.23	2.01
Total U.S.	4.42	5.38	3.59	4.81	5.84	3.92	2.62	3.24	2.15

^a US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.
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 13 areas comprise the SEER 9 areas plus San Jose-Monterey, Los Angeles, the Alaska Native Registry and Rural Georgia.
The SEER 18 areas comprise the SEER 13 areas plus California excluding SF/SJM/LA, Kentucky, Louisiana, New Jersey and Georgia excluding ATL/RG.

The SEER 21 areas comprise the SEER 18 areas plus Idaho, New York and Massachusetts.

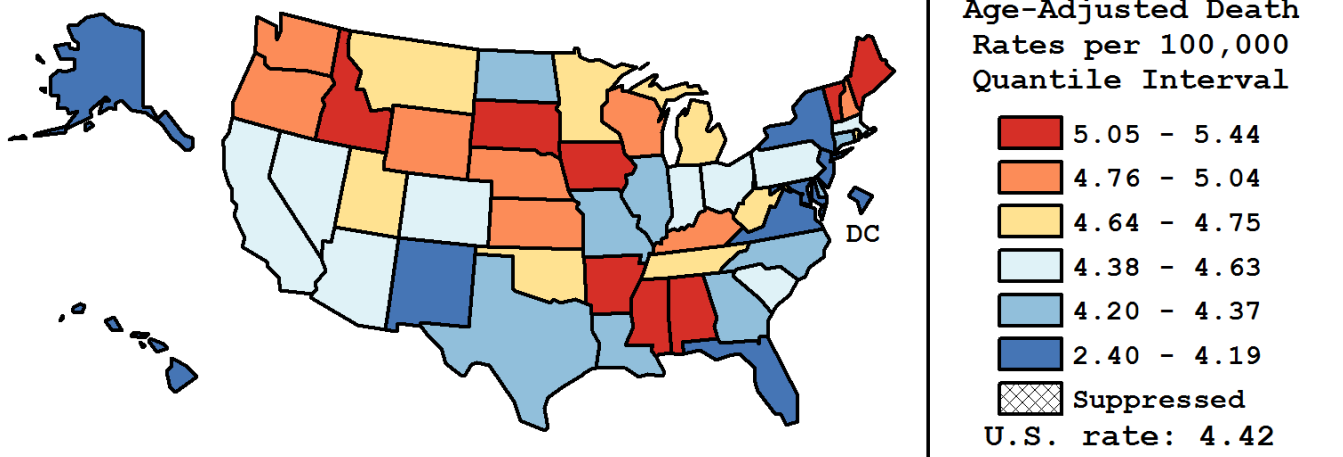
- Statistic not shown. Rate based on less than 16 cases for the time interval.

Table 3.18
Cancer of the Brain and Other Nervous System (Invasive)
Age-Adjusted Cancer Death^a Rates By State, All Races, 2012-2016

Males and Females

State	Rate	SE	Rank(CI) ^d	PD
TOTAL U.S.	4.42	0.02		
High Five States				
Vermont	5.44	0.39	01(01,37)	23.13 ^c
South Dakota	5.29	0.34	02(01,36)	19.89 ^c
Mississippi	5.29	0.18	03(01,18)	19.80 ^c
Alabama	5.18	0.14	04(01,19)	17.33 ^c
Idaho	5.16	0.24	05(01,32)	16.80 ^c
Low Five States				
New Jersey	4.02	0.09	47(36,49)	-9.03
New York	3.84	0.06	48(45,49)	-13.08
New Mexico	3.60	0.18	49(43,50)	-18.40 ^c
Hawaii	2.83	0.19	50(49,51)	-35.91 ^c
D.C.	2.40	0.28	51(50,51)	-45.54 ^c

State	Rate	SE	Rank(CI) ^d	PD	State	Rate	SE	Rank(CI) ^d	PD
Alabama	5.18	0.14	04(01,19)	17.33 ^c	Montana	4.72	0.28	18(01,47)	6.91
Alaska	4.13	0.38	44(03,49)	-6.53	Nebraska	5.04	0.22	09(01,34)	14.10
Arizona	4.41	0.11	31(17,45)	-0.03	Nevada	4.40	0.17	32(12,47)	-0.27
Arkansas	5.12	0.18	06(01,24)	15.96 ^c	New Hampshire	4.88	0.25	15(01,43)	10.40
California	4.38	0.05	33(25,41)	-0.71	New Jersey	4.02	0.09	47(36,49)	-9.03
Colorado	4.44	0.13	29(16,45)	0.56	New Mexico	3.60	0.18	49(43,50)	-18.40 ^c
Connecticut	4.28	0.14	39(19,47)	-3.14	New York	3.84	0.06	48(45,49)	-13.08
Delaware	4.35	0.28	36(04,49)	-1.51	North Carolina	4.36	0.09	35(21,45)	-1.23
D.C.	2.40	0.28	51(50,51)	-45.54 ^c	North Dakota	4.33	0.33	38(03,49)	-1.92
Florida	4.19	0.06	43(32,47)	-5.14	Ohio	4.60	0.08	26(14,36)	4.17
Georgia	4.25	0.09	40(26,47)	-3.86	Oklahoma	4.70	0.15	20(05,38)	6.42
Hawaii	2.83	0.19	50(49,51)	-35.91 ^c	Oregon	5.04	0.15	10(01,25)	14.04
Idaho	5.16	0.24	05(01,32)	16.80 ^c	Pennsylvania	4.42	0.08	30(20,41)	0.18
Illinois	4.20	0.08	42(30,47)	-4.85	Rhode Island	4.67	0.28	24(01,48)	5.77
Indiana	4.63	0.11	25(10,38)	4.94	South Carolina	4.49	0.13	27(13,44)	1.76
Iowa	5.10	0.17	07(01,24)	15.54 ^c	South Dakota	5.29	0.34	02(01,36)	19.89 ^c
Kansas	5.03	0.18	11(01,28)	13.92	Tennessee	4.75	0.12	17(07,33)	7.64
Kentucky	4.92	0.14	14(02,28)	11.32	Texas	4.22	0.06	41(31,46)	-4.50
Louisiana	4.34	0.13	37(18,47)	-1.62	Utah	4.68	0.19	22(03,44)	5.96
Maine	5.06	0.25	08(01,38)	14.58	Vermont	5.44	0.39	01(01,37)	23.13 ^c
Maryland	4.08	0.11	46(31,48)	-7.60	Virginia	4.12	0.10	45(31,48)	-6.80
Massachusetts	4.49	0.11	28(16,43)	1.61	Washington	4.96	0.11	13(02,24)	12.41
Michigan	4.70	0.09	21(10,33)	6.34	West Virginia	4.70	0.21	19(03,44)	6.53
Minnesota	4.68	0.13	23(08,37)	5.89	Wisconsin	4.86	0.12	16(04,29)	10.02
Mississippi	5.29	0.18	03(01,18)	19.80 ^c	Wyoming	5.01	0.41	12(01,47)	13.37
Missouri	4.37	0.11	34(19,46)	-0.98					



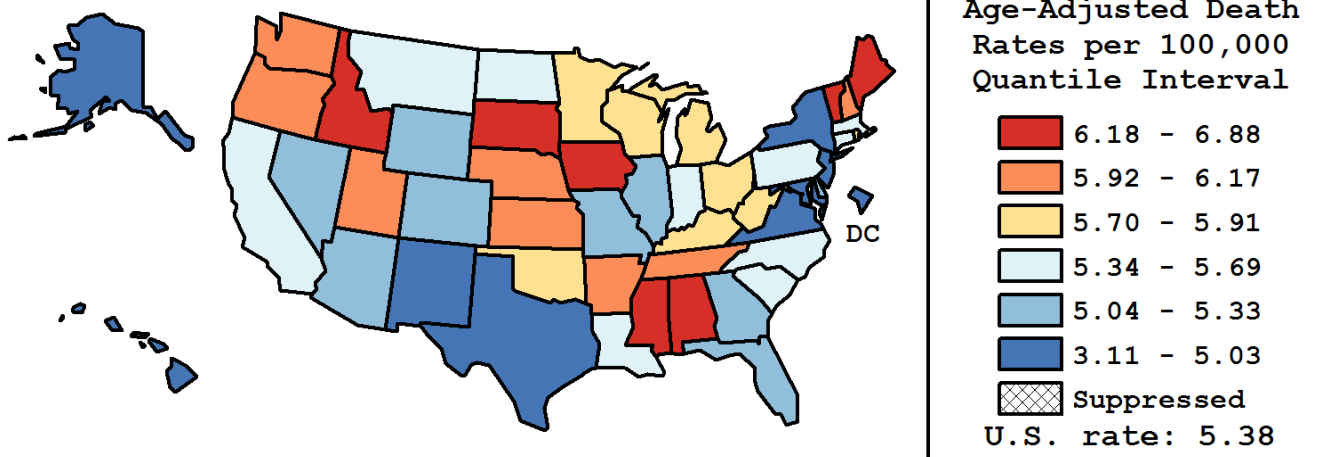
- ^a US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention. Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
- ^b Difference between state rate and total U.S. rate is statistically significant ($p \leq .0002$).
- ^c Absolute percent difference between state rate and total U.S. rate is 15% or more.
- ^d Rank of state level death rate and the 95% confidence intervals (low, high) for the rank.
- SE Standard error of the rate.
- PD Percent difference between state rate and total U.S. rate.
- Statistic not shown. Rate based on less than 16 cases for the time interval.

Table 3.19
Cancer of the Brain and Other Nervous System (Invasive)
Age-Adjusted Cancer Death^a Rates By State, All Races, 2012-2016

Males

State	Rate	SE	Rank(CI) ^d	PD
TOTAL U.S.	5.38	0.03		
High Five States				
Idaho	6.88	0.41	01(01,24)	27.69 ^c
Maine	6.64	0.42	02(01,31)	23.25 ^c
Alabama	6.34	0.23	03(01,24)	17.66 ^c
South Dakota	6.31	0.53	04(01,46)	17.23 ^c
Mississippi	6.29	0.30	05(01,30)	16.89 ^c
Low Five States				
New York	4.61	0.10	47(42,49)	-14.38
Alaska	4.28	0.55	48(13,51)	-20.53 ^c
New Mexico	4.15	0.28	49(42,51)	-22.99 ^c
Hawaii	3.35	0.29	50(48,51)	-37.84 ^c
D.C.	3.11	0.47	51(47,51)	-42.17 ^c

State	Rate	SE	Rank(CI) ^d	PD	State	Rate	SE	Rank(CI) ^d	PD
Alabama	6.34	0.23	03(01,24)	17.66 ^c	Montana	5.67	0.44	26(01,48)	5.21
Alaska	4.28	0.55	48(13,51)	-20.53 ^c	Nebraska	6.11	0.36	11(01,41)	13.46
Arizona	5.25	0.17	36(20,46)	-2.45	Nevada	5.04	0.26	42(17,49)	-6.34
Arkansas	6.16	0.29	09(01,32)	14.42	New Hampshire	6.13	0.42	10(01,44)	13.93
California	5.39	0.08	31(22,39)	0.10	New Jersey	4.96	0.15	45(29,48)	-7.81
Colorado	5.11	0.20	39(20,48)	-5.18	New Mexico	4.15	0.28	49(42,51)	-22.99 ^c
Connecticut	5.43	0.24	29(09,46)	0.77	New York	4.61	0.10	47(42,49)	-14.38
Delaware	5.08	0.46	41(04,49)	-5.66	North Carolina	5.36	0.15	32(18,45)	-0.47
D.C.	3.11	0.47	51(47,51)	-42.17 ^c	North Dakota	5.59	0.55	27(01,49)	3.79
Florida	5.09	0.09	40(30,46)	-5.49	Ohio	5.78	0.14	18(07,32)	7.30
Georgia	5.23	0.15	37(21,46)	-2.80	Oklahoma	5.72	0.24	23(04,42)	6.27
Hawaii	3.35	0.29	50(48,51)	-37.84 ^c	Oregon	6.08	0.24	12(01,32)	12.95
Idaho	6.88	0.41	01(01,24)	27.69 ^c	Pennsylvania	5.41	0.13	30(18,42)	0.39
Illinois	5.16	0.13	38(25,46)	-4.21	Rhode Island	5.77	0.46	20(01,48)	7.09
Indiana	5.69	0.19	25(07,39)	5.59	South Carolina	5.69	0.22	24(05,40)	5.65
Iowa	6.20	0.28	06(01,31)	15.11 ^c	South Dakota	6.31	0.53	04(01,46)	17.23 ^c
Kansas	6.17	0.29	08(01,32)	14.66	Tennessee	5.99	0.19	14(03,31)	11.28
Kentucky	5.89	0.23	17(02,37)	9.34	Texas	5.03	0.09	43(32,46)	-6.57
Louisiana	5.34	0.22	33(12,46)	-0.91	Utah	5.96	0.32	15(01,42)	10.73
Maine	6.64	0.42	02(01,31)	23.25 ^c	Vermont	6.20	0.61	07(01,47)	15.08 ^c
Maryland	5.01	0.19	44(24,48)	-6.94	Virginia	4.81	0.16	46(34,49)	-10.76
Massachusetts	5.56	0.18	28(10,42)	3.18	Washington	6.02	0.18	13(02,30)	11.88
Michigan	5.73	0.15	22(08,35)	6.35	West Virginia	5.76	0.33	21(02,46)	6.94
Minnesota	5.91	0.21	16(03,36)	9.74	Wisconsin	5.77	0.20	19(05,37)	7.22
Mississippi	6.29	0.30	05(01,30)	16.89 ^c	Wyoming	5.33	0.60	34(01,49)	-0.97
Missouri	5.31	0.18	35(16,46)	-1.39					

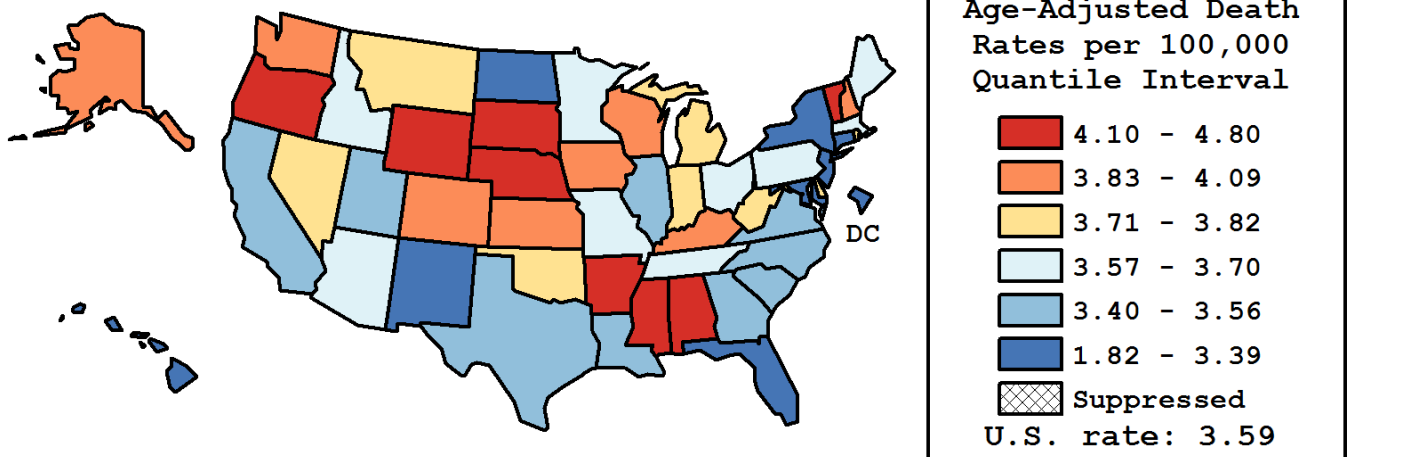


- ^a US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention. Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
- ^b Difference between state rate and total U.S. rate is statistically significant ($p \leq .0002$).
- ^c Absolute percent difference between state rate and total U.S. rate is 15% or more.
- ^d Rank of state level death rate and the 95% confidence intervals (low, high) for the rank.
- SE Standard error of the rate.
- PD Percent difference between state rate and total U.S. rate.
- Statistic not shown. Rate based on less than 16 cases for the time interval.

Table 3.20
Cancer of the Brain and Other Nervous System (Invasive)
Age-Adjusted Cancer Death^a Rates By State, All Races, 2012-2016

Females									
State	Rate	SE	Rank(CI) ^d	PD					
TOTAL U.S.	3.59	0.02							
High Five States									
Wyoming	4.80	0.56	01(01,46)	33.62 ^c					
Vermont	4.78	0.51	02(01,44)	33.15 ^c					
Mississippi	4.51	0.23	03(01,19)	25.56 ^c					
South Dakota	4.48	0.44	04(01,45)	24.76 ^c					
Arkansas	4.29	0.22	05(01,27)	19.51 ^c					
Low Five States									
New Jersey	3.24	0.11	47(30,49)	-9.72					
New York	3.21	0.07	48(37,49)	-10.56					
New Mexico	3.12	0.23	49(17,50)	-13.10					
Hawaii	2.35	0.24	50(48,51)	-34.44 ^c					
D.C.	1.82	0.33	51(49,51)	-49.37 ^c					

State	Rate	SE	Rank(CI) ^d	PD	State	Rate	SE	Rank(CI) ^d	PD
Alabama	4.23	0.17	06(01,24)	17.84 ^c	Montana	3.80	0.35	20(01,49)	5.88
Alaska	3.97	0.51	14(01,50)	10.73	Nebraska	4.12	0.28	07(01,43)	14.66
Arizona	3.66	0.14	27(10,46)	1.96	Nevada	3.78	0.22	21(03,48)	5.36
Arkansas	4.29	0.22	05(01,27)	19.51 ^c	New Hampshire	3.83	0.32	16(01,49)	6.62
California	3.53	0.06	36(22,44)	-1.76	New Jersey	3.24	0.11	47(30,49)	-9.72
Colorado	3.87	0.17	15(04,42)	7.71	New Mexico	3.12	0.23	49(17,50)	-13.10
Connecticut	3.30	0.17	45(18,49)	-7.94	New York	3.21	0.07	48(37,49)	-10.56
Delaware	3.82	0.37	18(01,49)	6.37	North Carolina	3.52	0.11	37(17,47)	-1.86
D.C.	1.82	0.33	51(49,51)	-49.37 ^c	North Dakota	3.29	0.40	46(03,50)	-8.21
Florida	3.39	0.07	43(27,48)	-5.65	Ohio	3.60	0.10	30(15,45)	0.39
Georgia	3.42	0.11	41(21,49)	-4.62	Oklahoma	3.82	0.18	17(04,45)	6.51
Hawaii	2.35	0.24	50(48,51)	-34.44 ^c	Oregon	4.10	0.19	08(02,33)	14.14
Idaho	3.59	0.28	31(04,49)	0.15	Pennsylvania	3.61	0.10	29(15,44)	0.52
Illinois	3.40	0.10	42(23,49)	-5.22	Rhode Island	3.72	0.34	24(02,49)	3.64
Indiana	3.75	0.14	23(07,44)	4.48	South Carolina	3.49	0.15	40(13,49)	-2.76
Iowa	4.09	0.21	09(01,37)	14.05	South Dakota	4.48	0.44	04(01,45)	24.76 ^c
Kansas	4.04	0.22	11(02,42)	12.68	Tennessee	3.69	0.14	26(08,45)	2.80
Kentucky	4.06	0.18	10(02,33)	13.00	Texas	3.52	0.07	38(21,45)	-2.00
Louisiana	3.53	0.16	35(12,49)	-1.71	Utah	3.52	0.23	39(06,49)	-2.05
Maine	3.70	0.30	25(02,49)	3.15	Vermont	4.78	0.51	02(01,44)	33.15 ^c
Maryland	3.32	0.14	44(22,49)	-7.50	Virginia	3.56	0.12	34(13,48)	-0.84
Massachusetts	3.61	0.13	28(12,47)	0.61	Washington	4.02	0.14	13(03,31)	11.99
Michigan	3.81	0.11	19(07,37)	6.27	West Virginia	3.77	0.25	22(03,49)	5.02
Minnesota	3.57	0.15	33(11,48)	-0.45	Wisconsin	4.03	0.15	12(03,32)	12.22
Mississippi	4.51	0.23	03(01,19)	25.56 ^c	Wyoming	4.80	0.56	01(01,46)	33.62 ^c
Missouri	3.58	0.14	32(12,48)	-0.28					



^a US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention. Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

^b Difference between state rate and total U.S. rate is statistically significant ($p \leq .0002$).

^c Absolute percent difference between state rate and total U.S. rate is 15% or more.

^d Rank of state level death rate and the 95% confidence intervals (low, high) for the rank.

SE Standard error of the rate.

PD Percent difference between state rate and total U.S. rate.

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

Table 3.21
Brain and Other Nervous System (Invasive)

Estimated United States Cancer Prevalence Counts^a on January 1, 2016
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 <24	0 to <24 ^b	>=24 ^d	Complete ^e
Race	Sex								
All Races	Both Sexes	48,165	27,446	22,184	17,297	11,295	126,388	39,426	165,813
	Males	26,796	14,537	11,213	8,983	5,952	67,482	18,482	85,964
	Females	21,369	12,909	10,971	8,314	5,343	58,906	20,944	79,850
White	Both Sexes	41,387	23,514	19,265	15,074	9,729	108,971	38,377	149,087
	Males	23,187	12,576	9,881	7,889	5,085	58,618	19,472	79,085
	Females	18,200	10,939	9,385	7,185	4,645	50,353	18,905	70,002
Black	Both Sexes	3,998	2,399	1,832	1,454	983	10,666	4,539	15,205
	Males	2,150	1,114	800	707	545	5,316	1,807	7,123
	Females	1,848	1,285	1,032	747	438	5,350	2,732	8,082
Asian/ Pacific Islander	Both Sexes	1,727	968	754	481	295	4,224	+	+
	Males	882	512	349	212	158	2,112	+	+
	Females	845	456	405	268	137	2,111	+	+
Hispanic	Both Sexes	5,549	3,632	2,739	2,095	1,058	15,073	+	+
	Males	2,920	1,950	1,472	1,086	495	7,922	+	+
	Females	2,629	1,682	1,267	1,009	563	7,151	+	+

Estimated prevalence percent^a on January 1, 2016, of the SEER population diagnosed in the previous 24 years
By Age at Prevalence, Race/Ethnicity and Sex

Age at Prevalence		Age Specific (Crude)										Age-Adjusted ^c
		All Ages	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	All Ages
Race	Sex											
All Races	Both Sexes	0.0392	0.0160	0.0350	0.0415	0.0410	0.0421	0.0509	0.0497	0.0440	0.0262	0.0382
	Males	0.0425	0.0160	0.0365	0.0440	0.0436	0.0458	0.0557	0.0566	0.0518	0.0316	0.0414
	Females	0.0360	0.0160	0.0334	0.0388	0.0385	0.0384	0.0462	0.0434	0.0374	0.0228	0.0352
White	Both Sexes	0.0432	0.0170	0.0383	0.0457	0.0454	0.0468	0.0566	0.0536	0.0471	0.0272	0.0419
	Males	0.0469	0.0168	0.0402	0.0488	0.0476	0.0507	0.0620	0.0604	0.0556	0.0338	0.0453
	Females	0.0396	0.0172	0.0363	0.0425	0.0432	0.0429	0.0513	0.0472	0.0399	0.0231	0.0387
Black	Both Sexes	0.0237	0.0122	0.0229	0.0289	0.0277	0.0248	0.0226	0.0288	0.0247	0.0208	0.0236
	Males	0.0246	0.0131	0.0224	0.0299	0.0287	0.0267	0.0218	0.0361	0.0261	0.0133	0.0246
	Females	0.0228	0.0113	0.0235	0.0280	0.0268	0.0231	0.0233	0.0229	0.0237	0.0245	0.0227
Asian/ Pacific Islander	Both Sexes	0.0207	0.0101	0.0227	0.0212	0.0197	0.0214	0.0274	0.0246	0.0237	0.0138	0.0205
	Males	0.0217	0.0106	0.0242	0.0200	0.0228	0.0217	0.0290	0.0261	0.0264	0.0114	0.0215
	Females	0.0199	0.0095	0.0211	0.0225	0.0170	0.0210	0.0259	0.0234	0.0214	0.0154	0.0196
Hispanic	Both Sexes	0.0264	0.0123	0.0251	0.0265	0.0253	0.0296	0.0417	0.0388	0.0392	0.0235	0.0278
	Males	0.0275	0.0118	0.0262	0.0273	0.0246	0.0329	0.0465	0.0426	0.0371	0.0263	0.0292
	Females	0.0253	0.0128	0.0240	0.0256	0.0262	0.0262	0.0370	0.0354	0.0408	0.0219	0.0264

^a US 2016 cancer prevalence counts are based on 2016 cancer prevalence proportions from the SEER 13 Areas (excluding the Alaska Native Registry) and 1/1/2016 US population estimates based on the average of 2015 and 2016 population estimates from the US Bureau of the Census.

^b Prevalence was calculated using the first invasive tumor for each cancer site diagnosed during the previous 24 years.

^c Maximum limited-duration prevalence is 24 years for 1992-2016 data.

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

^e Cases diagnosed more than 24 years ago were estimated using the completeness index method (Capocaccia et. al. 1997, Merrill et. al. 2000).

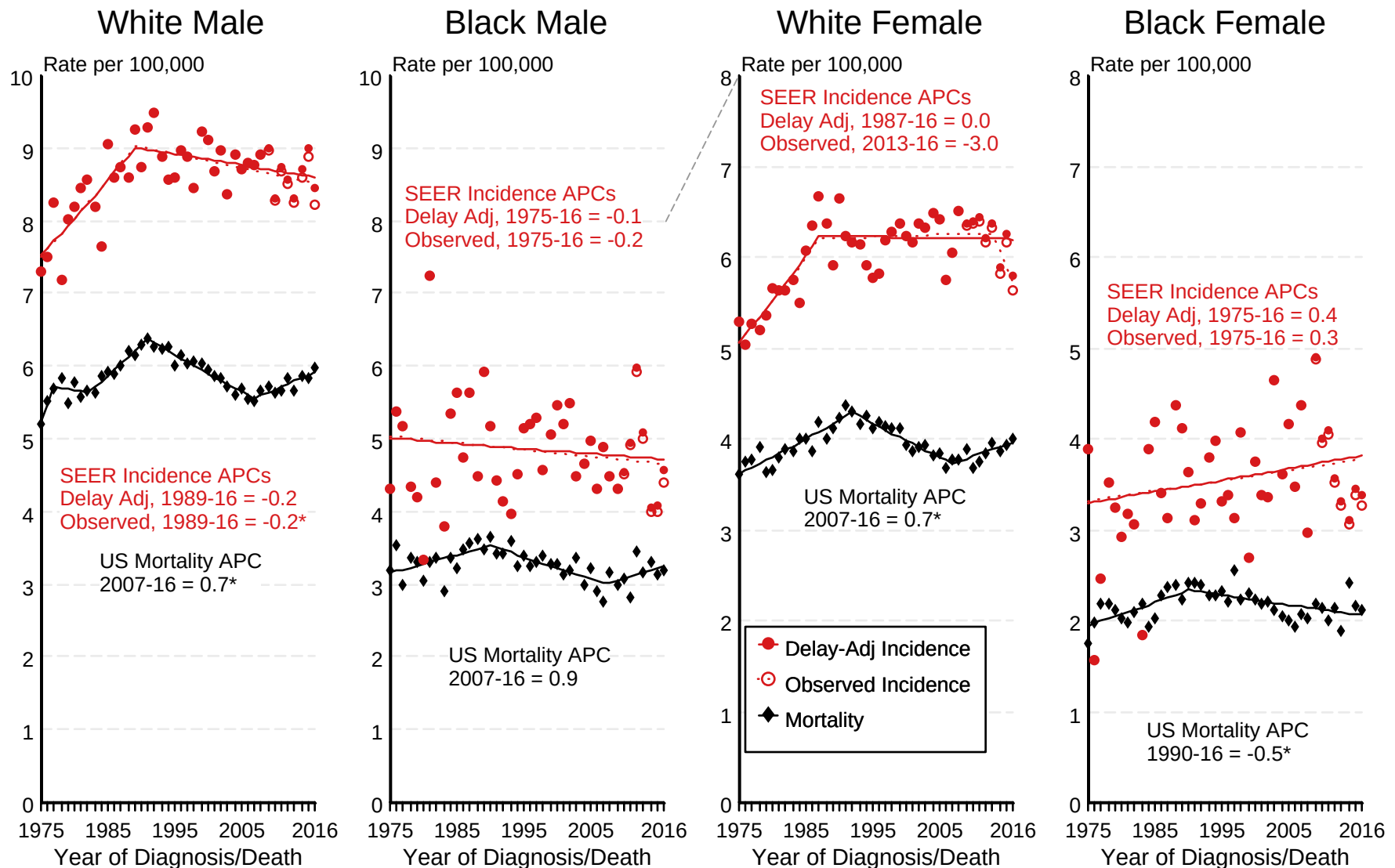
Complete prevalence is obtained by summing 0 to <24 and >=24.

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

+ Not available.

Figure 3.1

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



Source: SEER 9 areas and 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 and APCs are calculated using the Joinpoint Regression Program Version 4.7, February 2019, 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 ($p < 0.05$).

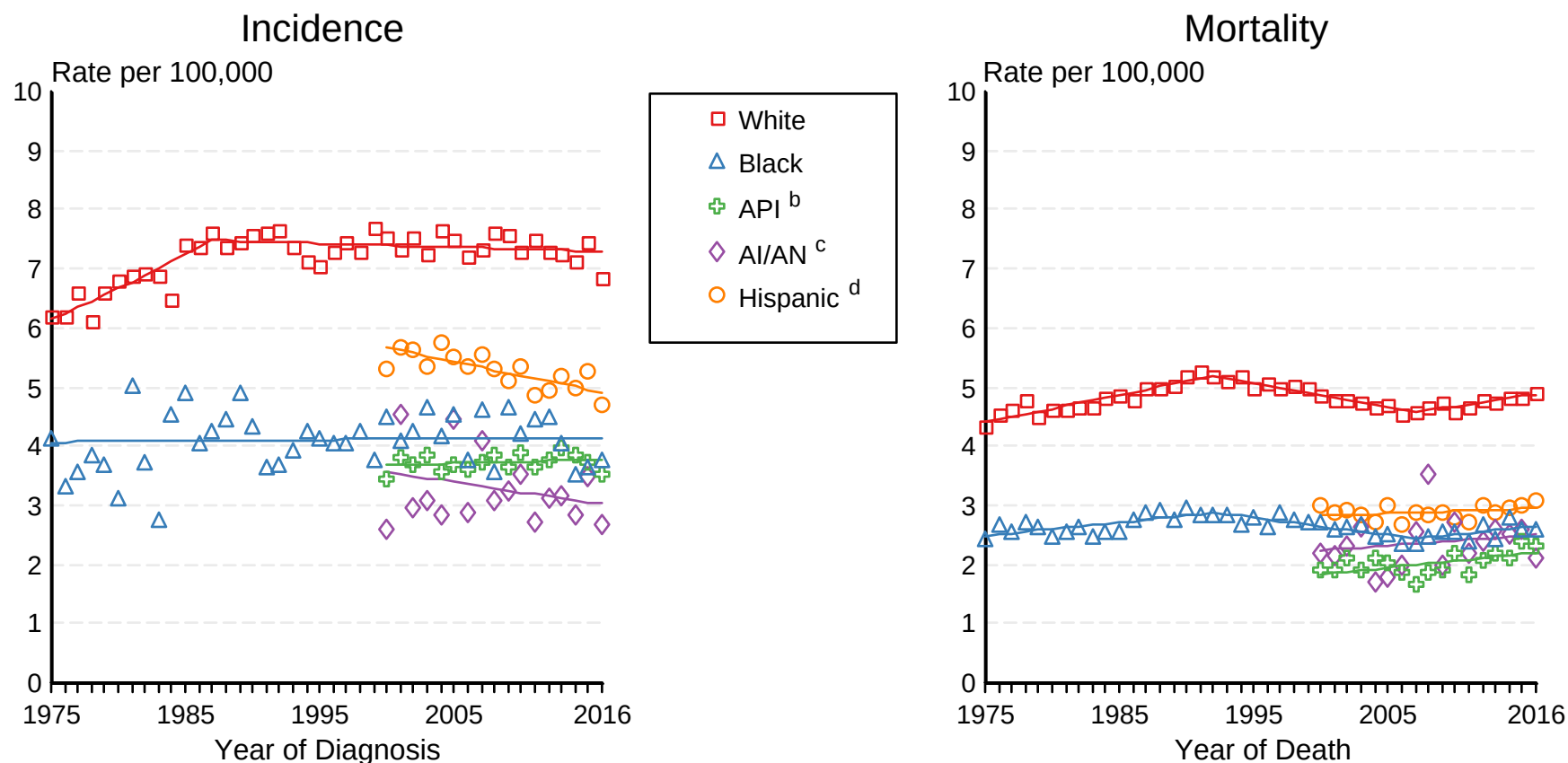
Figure 3.2

SEER Incidence and US Death Rates^a

Cancer of the Brain and Other Nervous System, Both Sexes

Joinpoint Analyses for Whites and Blacks from 1975-2016

and for Asian/Pacific Islanders, American Indians/Alaska Natives and Hispanics from 2000-2016



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 21 areas (SEER 9 areas, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana, New Jersey, Georgia excluding ATL/RG, Idaho, New York and Massachusetts).

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 4.7, February 2019, National Cancer Institute. Joinpoint analyses for Whites and Blacks during the 1975-2016 period allow a maximum of 5 joinpoints. Analyses for other ethnic groups during the period 2000-2016 allow a maximum of 3 joinpoints.

^b API = Asian/Pacific Islander.

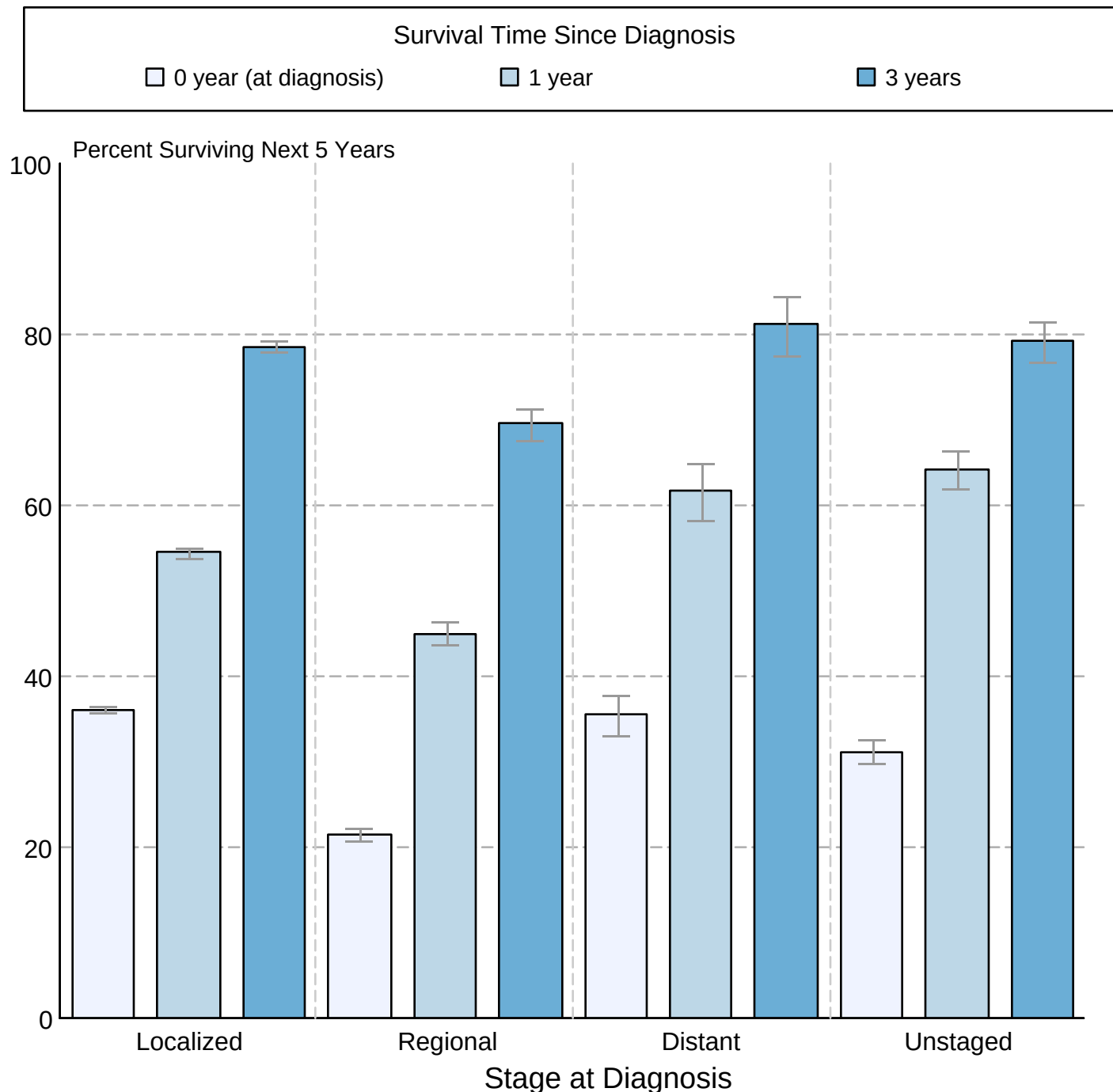
^c AI/AN = American Indian/Alaska Native. Rates for American Indian/Alaska Native are based on the Purchased/Referred Care Delivery Area (PRCDA) counties.

^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.

Figure 3.3

Cancer of the Brain and Other Nervous System 5-Year SEER Conditional Relative Survival and 95% Confidence Intervals

Probability of surviving the next 5 years given the cohort
has already survived 0, 1, or 3 years
2000-2015 by stage at diagnosis



Source: SEER 18 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, New Jersey and Georgia excluding ATL/RG).

Percent surviving is not shown if based on less than 25 cases.

Confidence intervals are not shown if length of the confidence interval is greater than 5 times the standard error.