

Section 28
Childhood Cancer by Site
Incidence, Survival and Mortality

The site groupings used in this section correspond to those used in the rest of the Cancer Statistics Review. While these groupings are not as appropriate for children as they are for adults, they are necessary in order to be able to compare incidence to mortality. Benign brain tumors(2004+) and myelodysplastic syndromes(2001+) are not included.

Childhood cancer is better categorized by groupings based on histologic type and site rather than primary site alone (see section 29 for Childhood Cancer by the International Classification of Childhood Cancer). For the leukemias and lymphomas, the categories are similar, but for solid tumors the categories can be quite different and the different terminology confusing. For example, in this section 'soft tissue' refers to any type of tumor that arises in connective or soft tissue in contrast to 'soft tissue sarcomas' in the other section, which refers to soft tissue sarcomas in any primary site.

Rates are presented per 100,000 children in this section. In contrast in the other childhood cancer section rates are presented per million children.

Table 28.1

Age-Adjusted SEER Cancer Incidence^a and U.S. Death^b Rates, 2011-2015

By Primary Cancer Site

All Races, Males and Females

Site	Ages 0-14						Ages 0-19					
	Incidence			Mortality			Incidence			Mortality		
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
All Sites												
All Races	16.4	17.0	15.9	2.1	2.3	1.9	18.2	18.7	17.6	2.3	2.5	2.1
Whites	17.3	17.9	16.6	2.2	2.3	2.0	19.3	19.9	18.7	2.4	2.6	2.1
Blacks	13.1	13.0	13.2	2.0	2.1	1.9	13.7	13.8	13.6	2.2	2.4	2.0
Bone & Joint	0.8	0.8	0.8	0.1	0.1	0.1	1.0	1.1	0.9	0.2	0.3	0.2
Brain & Other nervous	3.4	3.5	3.2	0.7	0.8	0.7	3.1	3.3	3.0	0.7	0.7	0.6
Hodgkin lymphoma	0.5	0.7	0.4	-	-	-	1.2	1.3	1.1	0.0	0.0	0.0
Kidney & Renal pelvis	0.9	0.8	1.0	0.1	0.1	0.1	0.7	0.7	0.8	0.1	0.0	0.1
Leukemia	5.3	5.5	5.0	0.6	0.6	0.5	4.7	5.1	4.4	0.6	0.7	0.5
Acute lymphocytic	4.2	4.3	4.0	0.2	0.3	0.2	3.6	3.8	3.3	0.3	0.3	0.2
Non-Hodgkin lymphoma	1.1	1.4	0.7	0.1	0.1	0.0	1.3	1.7	0.9	0.1	0.1	0.1
Soft tissue	1.1	1.0	1.2	0.2	0.2	0.1	1.1	1.1	1.2	0.2	0.2	0.2

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

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).

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

- Statistic could not be calculated. Rate based on less than 16 cases for the time interval.

Table 28.2

Age-Adjusted SEER Cancer Incidence Rates^a, 1975-2015

By Primary Cancer Site

All Races, Males and Females

Year of Diagnosis

Age/Site	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<u>Ages 0-14</u>																					
All Sites																					
All Races	11.6	12.9	14.6	14.3	14.1	15.4	15.8	15.6	13.3	15.3	16.8	14.5	14.8	15.9	16.2	16.7	16.2	15.8	15.8	16.2	16.9
Whites	12.1	13.2	15.7	14.4	14.9	16.7	17.0	17.1	14.1	16.2	17.7	15.3	15.7	16.3	16.9	17.6	17.2	16.2	16.4	17.0	18.0
Blacks	8.6	11.1	9.9	12.3	11.8	12.2	11.0	11.6	10.3	13.4	13.0	11.7	12.0	15.5	13.2	13.2	13.1	15.7	12.3	12.1	11.5
Bone & Joint	0.5	0.7	0.8	0.7	0.8	0.6	0.6	0.7	0.5	0.6	0.6	0.6	0.6	0.7	0.9	0.7	0.7	0.8	0.7	0.8	0.8
Brain & Other nervous	2.3	2.8	3.0	3.5	3.4	3.5	4.0	3.8	3.1	3.3	3.4	3.1	3.4	3.6	3.8	4.2	3.5	3.1	3.6	3.3	3.8
Hodgkin lymphoma	0.7	0.5	0.7	0.7	-	0.6	0.5	0.5	0.4	0.5	0.5	0.6	0.6	0.7	0.6	0.5	0.6	0.7	0.6	0.5	0.6
Kidney & Renal pelvis	0.7	0.8	0.9	0.8	0.6	1.0	0.9	0.9	0.7	0.7	0.9	0.6	0.7	1.1	0.9	0.9	0.9	0.6	0.9	1.1	0.9
Leukemia	3.3	4.0	4.6	4.5	4.5	4.6	4.4	4.8	4.1	5.0	5.3	4.6	4.2	4.8	4.8	5.0	5.2	4.8	4.9	4.7	4.7
Acute lymphocytic	2.2	3.1	3.5	3.5	3.7	3.5	3.5	4.0	3.2	3.8	4.1	3.5	3.6	3.7	3.9	3.9	4.3	3.8	4.0	3.7	3.5
Non-Hodgkin lymphoma	1.0	0.7	0.7	0.8	0.9	1.0	1.0	1.0	0.9	0.8	1.1	0.9	1.0	1.1	1.1	1.3	0.9	1.4	1.1	1.3	1.1
Soft tissue	0.9	0.9	0.9	0.7	1.0	1.0	1.2	1.0	0.8	1.0	1.5	0.9	1.1	0.9	1.0	1.0	1.2	1.3	1.0	1.1	1.1
<u>Ages 0-19</u>																					
All Sites																					
All Races	13.0	14.4	16.0	15.7	15.8	16.9	17.1	17.6	15.8	16.5	17.9	15.7	17.0	17.7	17.9	17.7	18.4	17.8	17.5	18.6	19.2
Whites	13.4	14.9	17.2	16.0	16.7	18.3	18.5	19.5	16.8	17.8	19.2	16.7	18.4	18.5	19.2	18.6	20.0	18.6	18.3	19.7	20.6
Blacks	10.8	10.9	10.4	13.3	12.4	13.0	11.7	11.4	11.8	13.2	13.2	12.4	13.1	15.3	13.1	14.2	13.4	15.8	13.6	13.2	12.7
Bone & Joint	0.7	0.9	1.0	0.8	0.9	0.8	0.9	1.1	0.8	0.8	0.9	0.9	0.8	1.0	1.1	0.7	0.9	1.0	0.9	1.1	1.1
Brain & Other nervous	2.1	2.5	2.7	3.2	3.0	3.2	3.5	3.4	2.9	3.0	3.0	2.8	3.1	3.3	3.3	3.6	3.2	2.9	3.4	3.3	3.5
Hodgkin lymphoma	1.5	1.2	1.4	1.3	0.9	1.2	1.1	1.2	1.0	1.1	0.9	1.1	1.4	1.4	1.3	1.3	1.3	1.5	1.1	1.2	1.4
Kidney & Renal pelvis	0.5	0.6	0.7	0.6	0.5	0.8	0.7	0.7	0.6	0.6	0.8	0.5	0.6	0.9	0.7	0.7	0.8	0.5	0.7	0.9	0.8
Leukemia	3.0	3.5	4.0	3.9	4.0	4.1	4.0	4.5	3.8	4.4	4.7	4.1	4.0	4.3	4.1	4.3	4.7	4.3	4.3	4.3	4.3
Acute lymphocytic	1.9	2.5	2.9	2.9	3.1	3.1	2.9	3.5	2.9	3.3	3.4	3.0	3.2	3.1	3.1	3.2	3.7	3.1	3.3	3.1	3.1
Non-Hodgkin lymphoma	1.0	0.8	1.0	1.0	1.1	1.3	1.1	1.2	1.3	1.1	1.3	1.2	1.3	1.3	1.4	1.5	1.1	1.4	1.2	1.7	1.4
Soft tissue	0.8	0.9	0.9	0.8	1.1	1.2	1.1	1.0	0.9	1.0	1.5	1.0	1.1	0.9	1.0	0.9	1.2	1.2	1.0	1.2	1.1

^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 could not be calculated. Rate based on less than 16 cases for the time interval.

Table 28.3

Age-Adjusted Cancer U.S. Death Rates^a, 1975-2015

By Primary Cancer Site

All Races, Males and Females

Year of Death

Age/Site	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<u>Ages 0-14</u>																					
All Sites	4.9	4.3	3.6	3.1	2.7	2.5	2.5	2.6	2.5	2.5	2.4	2.2	2.3	2.2	2.2	2.2	2.1	2.2	2.1	2.0	2.1
Bone & Joint	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Brain & Other nervous	1.0	0.9	0.8	0.9	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7
Hodgkin lymphoma	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kidney & Renal pelvis	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1
Leukemia	2.1	1.7	1.4	1.1	1.0	0.8	0.8	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.6
Acute lymphocytic	1.2	0.9	0.8	0.5	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
Non-Hodgkin lymphoma	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1
Soft tissue	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2
<u>Ages 0-19</u>																					
All Sites	5.1	4.6	3.8	3.4	3.0	2.8	2.8	2.8	2.7	2.7	2.7	2.5	2.5	2.4	2.3	2.3	2.3	2.4	2.3	2.2	2.3
Bone & Joint	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Brain & Other nervous	0.9	0.8	0.8	0.8	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.6
Hodgkin lymphoma	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	-
Kidney & Renal pelvis	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1
Leukemia	2.0	1.8	1.4	1.2	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
Acute lymphocytic	1.0	0.9	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3
Non-Hodgkin lymphoma	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Soft tissue	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

^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).
- Statistic could not be calculated. Rate based on less than 16 cases for the time interval.

Table 28.4

Age-Adjusted Cancer U.S. Death Rates^a, 1975-2015

By Primary Cancer Site

Whites, Males and Females

Year of Death

Age/Site	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<u>Ages 0-14</u>																					
All Sites	5.0	4.4	3.7	3.2	2.7	2.6	2.5	2.6	2.6	2.5	2.5	2.3	2.4	2.3	2.2	2.2	2.2	2.3	2.2	2.1	2.2
Bone & Joint	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Brain & Other nervous	1.0	0.9	0.9	0.9	0.7	0.8	0.7	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.8	0.8	0.7	0.7
Hodgkin lymphoma	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kidney & Renal pelvis	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1
Leukemia	2.3	1.8	1.4	1.1	1.0	0.9	0.8	0.8	0.9	0.8	0.7	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.6
Acute lymphocytic	1.2	1.0	0.8	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Non-Hodgkin lymphoma	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1
Soft tissue	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.2
<u>Ages 0-19</u>																					
All Sites	5.3	4.7	3.9	3.5	2.9	2.9	2.8	2.8	2.8	2.8	2.7	2.5	2.6	2.5	2.4	2.3	2.4	2.5	2.4	2.3	2.3
Bone & Joint	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
Brain & Other nervous	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7
Hodgkin lymphoma	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	-	-	-	-	-	-
Kidney & Renal pelvis	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1
Leukemia	2.1	1.8	1.4	1.2	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
Acute lymphocytic	1.1	1.0	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3
Non-Hodgkin lymphoma	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Soft tissue	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

^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).
- Statistic could not be calculated. Rate based on less than 16 cases for the time interval.

Table 28.5

Age-Adjusted Cancer U.S. Death Rates^a, 1975-2015

By Primary Cancer Site

Blacks, Males and Females

Year of Death

Age/Site	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<u>Ages 0-14</u>																					
All Sites	4.5	3.8	3.3	3.0	2.9	2.3	2.3	2.6	2.4	2.4	2.5	2.2	2.1	2.2	2.0	2.0	2.0	2.2	1.9	2.1	1.9
Bone & Joint	0.3	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	0.2	-
Brain & Other nervous	0.9	0.9	0.6	0.7	0.8	0.7	0.5	0.8	0.7	0.7	0.7	0.7	0.5	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.7
Hodgkin lymphoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kidney & Renal pelvis	-	-	0.2	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leukemia	1.6	1.2	1.2	0.9	1.0	0.5	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.6	0.5	0.5	0.4
Acute lymphocytic	0.8	0.6	0.7	0.5	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	0.2	0.2	0.2	0.2	0.2
Non-Hodgkin lymphoma	0.4	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soft tissue	-	-	-	0.3	-	-	0.2	0.2	-	0.2	-	-	-	0.2	0.2	-	-	0.2	0.2	-	0.2
<u>Ages 0-19</u>																					
All Sites	4.8	4.2	3.5	3.4	3.1	2.8	2.6	2.8	2.5	2.8	2.6	2.4	2.3	2.4	2.3	2.2	2.1	2.3	2.2	2.3	2.1
Bone & Joint	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Brain & Other nervous	0.9	0.8	0.6	0.7	0.7	0.7	0.5	0.8	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.7	0.7	0.6	0.6	0.6
Hodgkin lymphoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kidney & Renal pelvis	0.2	-	0.2	-	-	0.1	0.2	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-
Leukemia	1.6	1.4	1.1	1.0	1.1	0.8	0.8	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.4
Acute lymphocytic	0.7	0.6	0.6	0.5	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Non-Hodgkin lymphoma	0.4	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	-	-	0.1	0.1	-	-	-	-	0.1
Soft tissue	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2

^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).
- Statistic could not be calculated. Rate based on less than 16 cases for the time interval.

Table 28.6

Trends in SEER Incidence^a Using the Joinpoint Regression Program,
1975-2015 With up to Five Joinpoints By Primary Cancer Site And Age At Diagnosis
Males and Females

	JP Trend 1		JP Trend 2		JP Trend 3		JP Trend 4		JP Trend 5		JP Trend 6		AAPC ^b 2011-15
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	
<u>Ages 0-14</u>													
All Sites													
All Races	1975-15	0.6*											0.6*
White	1975-15	0.7*											0.7*
Black	1975-15	0.6*											0.6*
Bone & Joint	1975-15	0.5*											0.5*
Brain & Other nervous system	1975-89	2.2*	1989-15	0.4									0.4
Hodgkin lymphoma	1975-15	-0.5*											-0.5*
Kidney & Renal pelvis	1975-15	0.0											0.0
Leukemia	1975-15	0.6*											0.6*
Acute lymphocytic leukemia	1975-15	0.7*											0.7*
Non-Hodgkin lymphoma	1975-15	1.0*											1.0*
Soft tissue	1975-15	1.1*											1.1*
<u>Ages 0-19</u>													
All Sites													
All Races	1975-15	0.7*											0.7*
White	1975-15	0.7*											0.7*
Black	1975-15	0.5*											0.5*
Bone & Joint	1975-15	0.4											0.4
Brain & Other nervous system	1975-83	-0.5	1983-86	8.0	1986-15	0.3	1986-15	0.3*					0.3
Hodgkin lymphoma	1975-15	-0.5*											-0.5*
Kidney & Renal pelvis	1975-15	0.1											0.1
Leukemia	1975-15	0.6*											0.6*
Acute lymphocytic leukemia	1975-15	0.7*											0.7*
Non-Hodgkin lymphoma	1975-15	1.2*											1.2*
Soft tissue	1975-15	1.0*											1.0*

Joinpoint Regression Program Version 4.6, February 2018, 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 The AAPC is the Average Annual Percent Change and is based on the APCs calculated by Joinpoint.

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

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

Table 28.7

Trends in U.S. Mortality^a Using the Joinpoint Regression Program,
1975-2015 With up to Five Joinpoints By Primary Cancer Site and Age at Death
All Races, Both Sexes

	JP Trend 1		JP Trend 2		JP Trend 3		JP Trend 4		JP Trend 5		JP Trend 6		AAPC ^b
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	2011-15
<u>Ages 0-14</u>													
All Sites	1975-96	-2.9*	1996-15	-1.3*									-1.3*
Bone & Joint	1975-89	-3.6*	1989-15	-0.2									-0.2
Brain & Other nervous system	1975-15	-0.9*											-0.9*
Hodgkin lymphoma	-	-											-
Kidney & Renal pelvis	1975-15	-2.7*											-2.7*
Leukemia	1975-90	-4.4*	1990-15	-2.9*									-2.9*
Acute lymphocytic leukemia	1975-93	-5.2*	1993-15	-3.1*									-3.1*
Non-Hodgkin lymphoma	1975-15	-4.9*											-4.9*
Soft tissue	1975-79	11.2	1979-96	-2.6*	1996-15	0.5							0.5
<u>Ages 0-19</u>													
All Sites	1975-96	-2.7*	1996-15	-1.4*	2002-09	-2.4*	2009-15	-0.7					-1.4*
Bone & Joint	1975-89	-3.1*	1989-15	-0.2									-0.2
Brain & Other nervous system	1975-09	-1.0*	2009-15	1.4									1.4
Hodgkin lymphoma	1975-15	-5.1*											-5.1*
Kidney & Renal pelvis	1975-15	-2.5*											-2.5*
Leukemia	1975-98	-3.6*	1998-01	-0.1	2001-15	-3.1*							-3.1*
Acute lymphocytic leukemia	1975-82	-3.0*	1982-88	-6.3*	1988-15	-3.1*							-3.1*
Non-Hodgkin lymphoma	1975-15	-4.1*											-4.1*
Soft tissue	1975-79	9.8*	1979-01	-1.3*	2001-15	0.5							0.5

Joinpoint Regression Program Version 4.6, February 2018, 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 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 over the time range of 1975-2015.
* The APC/AAPC is significantly different from zero (p<.05).
- Joinpoint regression line analysis could not be performed on data series.

Table 28.7 - continued

Trends in U.S. Mortality^a Using the Joinpoint Regression Program,
1975-2015 With up to Five Joinpoints By Primary Cancer Site and Age at Death
White, Both Sexes

	JP Trend 1		JP Trend 2		JP Trend 3		JP Trend 4		JP Trend 5		JP Trend 6		AAPC ^b 2011-15
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	
<u>Ages 0-14</u>													
All Sites	1975-96	-3.0*	1996-15	-1.2*									-1.2*
Bone & Joint	1975-91	-3.0*	1991-15	-0.1									-0.1
Brain & Other nervous system	1975-15	-0.8*											-0.8*
Hodgkin lymphoma	-	-											-
Kidney & Renal pelvis	1975-15	-2.6*											-2.6*
Leukemia	1975-89	-4.6*	1989-15	-2.8*									-2.8*
Acute lymphocytic leukemia	1975-90	-5.6*	1990-15	-3.2*									-3.2*
Non-Hodgkin lymphoma	1975-15	-5.0*											-5.0*
Soft tissue	1975-79	12.8*	1979-95	-2.9*	1995-15	0.7							0.7
<u>Ages 0-19</u>													
All Sites	1975-96	-2.7*	1996-15	-1.3*									-1.3*
Bone & Joint	1975-89	-2.8*	1989-15	-0.1									-0.1
Brain & Other nervous system	1975-15	-0.8*											-0.8*
Hodgkin lymphoma	1975-15	-5.1*											-5.1*
Kidney & Renal pelvis	1975-15	-2.4*											-2.4*
Leukemia	1975-88	-4.1*	1988-15	-2.7*									-2.7*
Acute lymphocytic leukemia	1975-99	-4.4*	1999-02	3.4	2002-15	-4.3*							-4.3*
Non-Hodgkin lymphoma	1975-15	-4.3*											-4.3*
Soft tissue	1975-79	11.6*	1979-96	-1.6*	1996-15	0.3							0.3

Joinpoint Regression Program Version 4.6, February 2018, 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 US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

^b The AAPC is the Average Annual Percent Change and is based on the APCs calculated by Joinpoint over the time range of 1975-2015.

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

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

Table 28.7 - continued

Trends in U.S. Mortality^a Using the Joinpoint Regression Program,
1975-2015 With up to Five Joinpoints By Primary Cancer Site and Age at Death
Black, Both Sexes

	JP Trend 1		JP Trend 2		JP Trend 3		JP Trend 4		JP Trend 5		JP Trend 6		AAPC ^b 2011-15
	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	Years	APC	
<u>Ages 0-14</u>													
All Sites	1975-96	-2.6*	1996-15	-1.4*									-1.4*
Bone & Joint	1975-81	-10.5*	1981-15	-0.6									-0.6
Brain & Other nervous system	1975-15	-1.0*											-1.0*
Hodgkin lymphoma	-	-											-
Kidney & Renal pelvis	1975-15	-2.9*											-2.9*
Leukemia	1975-15	-3.2*											-3.2*
Acute lymphocytic leukemia	1975-84	-1.5	1984-04	-6.2*	2004-15	0.6							0.6
Non-Hodgkin lymphoma	1975-15	-4.1*											-4.1*
Soft tissue	1975-15	-1.0*											-1.0*
<u>Ages 0-19</u>													
All Sites	1975-15	-2.0*											-2.0*
Bone & Joint	1975-84	-6.8*	1984-15	-0.3									-0.3
Brain & Other nervous system	1975-15	-0.9*											-0.9*
Hodgkin lymphoma	-	-											-
Kidney & Renal pelvis	1975-15	-2.6*											-2.6*
Leukemia	1975-15	-2.9*											-2.9*
Acute lymphocytic leukemia	1975-15	-3.9*											-3.9*
Non-Hodgkin lymphoma	1975-15	-3.3*											-3.3*
Soft tissue	1975-15	-0.8*											-0.8*

Joinpoint Regression Program Version 4.6, February 2018, 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 US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

^b The AAPC is the Average Annual Percent Change and is based on the APCs calculated by Joinpoint over the time range of 1975-2015.

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

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

Table 28.8

5-Year Relative Survival (Percent)
By Selected Primary Cancer Site and Year of Diagnosis

All Races, Males and Females

Site	Ages 0-14										
	1975-1977	1978-1980	1981-1983	1984-1986	1987-1989	1990-1992	1993-1995	1996-1998	1999-2001	2003-2007	2008-2014
All Sites											
All Races	58.0	62.4	67.1	68.1	71.7	75.8	77.4	79.3	80.8	82.8	83.8 ^c
Whites	57.9	63.0	67.8	69.9	72.5	76.8	78.3	80.6	81.8	84.8	84.6 ^c
Blacks	57.3	57.7	62.2	56.6	65.3	70.8	73.3	75.6	74.0	73.4	79.8 ^c
Bone & Joint	49.9 ^d	47.8	56.8 ^d	57.3 ^d	66.8 ^d	67.4	74.2	70.3	69.3	77.6	80.7 ^c
Brain & ONS	57.2	57.7	56.9	61.8	64.4	64.5	70.7	75.4	74.2	75.5	75.0 ^c
Hodgkin lymphoma	80.9	86.8	88.1	89.9	87.1	96.8	94.6	96.1	94.4	97.5	97.9 ^c
Leukemia	49.7	58.0	63.0	63.7	71.0	75.5	76.0	80.3	82.7	86.1	87.6 ^c
Acute lymphocytic	57.2	65.7	71.3	72.3	77.7	83.1	83.9	87.0	88.5	91.9	90.6 ^c
Acute myeloid	18.8	25.8	27.8 ^d	30.6 ^d	37.1 ^d	42.2	40.6 ^d	48.7	58.6	61.5	68.8 ^c
Neuroblastoma ^a	52.5	56.6	54.8	52.3	63.2	76.0	66.5	66.5	72.2	73.7	74.8 ^c
Non-Hodgkin lymphoma	43.2	52.7	67.0	69.8	70.8	76.9	80.7	83.2	89.8	84.6	88.5 ^c
Soft tissue	61.3	74.2	69.2	73.0	66.4	79.8	76.7	70.6	76.9	84.7	80.9 ^c
Wilms' tumor ^b	73.1	79.0	86.7	90.7	92.2	91.9	91.7	91.6	93.8	89.4	91.0 ^c

Site	Ages 0-19										
	1975-1977	1978-1980	1981-1983	1984-1986	1987-1989	1990-1992	1993-1995	1996-1998	1999-2001	2003-2007	2008-2014
All Sites											
All Races	61.5	65.2	68.4	70.6	73.5	76.3	77.8	79.9	80.3	82.6	84.0 ^c
Whites	61.3	65.9	69.3	72.5	75.0	77.6	78.5	81.1	81.4	84.1	84.8 ^c
Blacks	59.4	60.3	62.5	58.3	64.3	68.7	74.2	73.9	74.8	73.3	78.8 ^c
Bone & Joint	50.4	48.1	51.2	56.1	64.0	68.8	69.0	67.0	66.3	73.5	73.4 ^c
Brain & ONS	59.1	58.1	58.5	63.9	66.0	66.5	71.5	76.2	74.7	75.5	75.5 ^c
Hodgkin lymphoma	86.2	88.3	85.5	90.6	88.7	94.3	93.9	95.2	95.1	96.3	98.3 ^c
Leukemia	44.9	53.2	58.1	60.4	67.6	71.3	71.9	76.6	77.6	81.9	85.4 ^c
Acute lymphocytic	53.8	61.9	67.1	69.9	75.0	79.8	81.5	84.4	84.8	88.1	89.2 ^c
Acute myeloid	18.7	26.2	27.2	31.4	37.6	41.9	38.6	46.3	51.9	59.8	67.1 ^c
Neuroblastoma ^a	53.1	56.7	53.7	52.5	61.8	75.7	66.5	66.7	71.9	73.4	75.2 ^c
Non-Hodgkin lymphoma	44.6	53.4	63.7	67.6	70.4	72.7	78.0	81.1	84.3	84.5	84.3 ^c
Soft tissue	64.8	68.9	68.2	72.7	68.0	69.7	73.8	72.4	72.4	76.9	80.1 ^c
Wilms' tumor ^b	72.6	78.4	86.8	91.0	92.2	91.3	91.8	91.6	93.8	89.5	90.4 ^c

Source: SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).

Based on follow-up of patients into 2015. [Expected survival rates](#) are derived from the U.S. Annual Life Tables.

Note: Neuroblastoma and Wilms' tumor are not mutually exclusive from the other tumors presented in table.

^a Neuroblastoma is defined as histologies 9490-9509.

^b Wilms' tumor is defined as histologies 8959-8960.

^c The difference between 1975-1977 and 2008-2014 is statistically significant ($p < .05$).

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

^e 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 28.9

Childhood Cancer
SEER Incidence Rates, U.S. Death Rates and 5-Year Relative Survival Percentages
For Top Cancer Sites^f By 5-Year Age Groups
All Races, Males and Females

Age/Site	SEER Incidence ^a					US Mortality ^b					5-year Relative Survival ^a	
	2011-2015 Num Cases	2011-2015 Rate	1975-2015 APC	1975-1995 APC	1996-2015 APC	2011-2015 Num Deaths	2011-2015 Rate	1975-2015 APC	1975-1995 APC	1996-2015 APC	1975-1978	2008-2014
Ages 0-4												
All Sites	6,346	22.2	0.7*	1.1*	0.4 [®]	2,051	2.0	-2.5*	-2.9*	-1.6* [#]	57.2	85.3 ^c
Soft tissue	495	1.7	1.1*	1.3	1.3	123	0.1	-1.5*	-1.6*	0.4 [®]	62.0 ^d	83.9 ^c
Kidney and Renal pelvis	555	1.9	-0.1	0.6	-0.4	65	0.1	-	-5.3*	-	71.9	93.7 ^c
Eye and Orbit	407	1.4	0.0	1.9*	-0.7 [#]	21	0.0	-	-	-	87.2 ^d	96.2 ^c
Brain and Other nervous	1,160	4.1	1.1*	2.3*	0.6 [#]	575	0.6	-1.3*	-1.1*	-1.5*	52.0	73.7 ^c
Other endocrine ^g	420	1.5	-	-	-	319	0.3	-	-	-	35.7 ^d	78.1 ^c
Leukemia	2,370	8.3	0.7*	0.7	0.4	638	0.6	-2.8*	-3.6*	-1.8* [#]	55.4	89.4 ^c
Acute lymphocytic	1,899	6.6	0.7*	0.7*	0.2	197	0.2	-3.8*	-5.7*	-2.1* [#]	63.2	94.5 ^c
Ages 5-9												
All Sites	3,768	12.9	0.5*	0.5	0.9*	2,203	2.2	-2.4*	-3.3*	-1.1* [#]	58.4	84.1 ^c
Brain and Other nervous	1,006	3.4	0.5*	1.2	0.9	931	0.9	-0.4*	-0.7*	0.4 [#]	59.1	71.8 ^c
Leukemia	1,268	4.3	0.4*	0.9	0.2	487	0.5	-4.6*	-5.2*	-3.3* [#]	51.0	89.3 ^c
Acute lymphocytic	1,069	3.7	0.7*	1.1	0.2	238	0.2	-5.2*	-6.2*	-3.7* [#]	54.8	91.4 ^c
Ages 10-14												
All Sites	4,244	14.5	0.7*	0.9*	0.6*	2,232	2.2	-2.0*	-2.5*	-1.3* [#]	58.7	85.6 ^c
Bone and Joint	445	1.5	0.3	1.2	1.0	266	0.3	-1.1*	-2.4*	0.2 [#]	52.8 ^d	73.1 ^c
Brain and Other nervous	779	2.7	0.7*	1.9*	-0.4 [#]	658	0.6	-1.0*	-1.7*	-0.5 [#]	59.5	83.4 ^c
Hodgkin lymphoma	340	1.2	-0.5*	-0.8	0.6	-	-	-	-	-	79.0	98.8 ^c
Leukemia	966	3.3	0.7*	0.7	1.1*	631	0.6	-2.9*	-3.1*	-2.8*	34.0	82.2 ^c
Acute lymphocytic	672	2.3	1.0*	1.5	1.4*	316	0.3	-3.3*	-3.4*	-3.0*	43.0 ^d	86.4 ^c
Ages 15-19												
All Sites	6,997	23.3	0.6*	0.9*	1.0*	3,107	2.9	-1.9*	-2.1*	-1.6* [#]	67.8	86.1 ^c
Bone and Joint	446	1.5	0.2	1.1	0.0	506	0.5	-1.0*	-2.3*	-0.6 [#]	51.0 ^d	70.4 ^c
Melanoma of the skin	291	1.0	0.6	2.0*	-1.0 [#]	28	0.0	-	-	-	76.2 ^d	98.4 ^c
Testis(males)	624	4.0	1.2*	1.8	1.2	35	0.1	-	-	-	66.0 ^d	94.8 ^c
Brain and Other nervous	725	2.4	0.5	1.2	1.0	574	0.5	-1.0*	-1.1*	-0.2 [®]	65.3	76.2 ^c
Thyroid	921	3.1	2.5*	0.5	4.4* [#]	-	-	-	-	-	100.0	99.5
Hodgkin lymphoma	905	3.0	-0.5*	0.0	0.2	46	0.0	-	-4.0*	-	89.0	96.9 ^c
Non-Hodgkin lymphoma	592	2.0	1.5*	2.7*	1.2	157	0.1	-3.1*	-2.4*	-4.1* [#]	47.7 ^d	88.7 ^c
Leukemia	963	3.2	0.7*	0.7	0.6	815	0.8	-2.3*	-2.0*	-2.6*	23.8	72.0 ^c
Acute lymphocytic	533	1.8	0.9*	0.9	0.4	325	0.3	-2.4*	-1.7*	-3.1* [#]	30.0 ^d	79.2 ^c

The APC is the Annual Percent Change over the time interval.

Note: Incidence and death rates are per 100,000 and are age-adjusted(as appropriate) to the 2000 US Std Population (19 age groups - Census P25-1130).

^a Incidence data used in calculating the rates are from the 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).

Incidence data used in calculating the trends and survival estimates are from the 9 SEER areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).

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

^c The difference between 1975-1978 and 2008-2014 is statistically significant (p<.05).

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

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

^f Sites were chosen based on more than 100 SEER incidence cases between 2011-2015.

^g APCs suppressed because of inconsistent classification across ICD: ICD-8 (1975-1978), ICD-9 (1979-1998), ICD-10 (1999-2008).

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

The APC for 1996-2015 is significantly different from the APC for 1975-1995 (p<.05).

® The APC for 1996-2015 is significantly different from the APC for 1975-1995 (p<.10).

- Statistic not shown. Age-adjusted 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. Survival rate based on less than 25 cases for the time interval.

Table 28.10
All Cancer Sites (Invasive)

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

All Races, Males and Females

Ages 0-14

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
Survival Time																								
1-year	80.5	84.6	86.7	89.6	90.4	92.8	90.9	90.7	91.1	92.5	92.0	91.5	93.3	92.7	92.5	94.0	92.3	92.5	92.3	93.1	95.0	93.8	93.6	92.2
2-year	70.9	75.5	78.4	83.0	84.6	86.5	84.8	84.4	85.4	86.0	86.9	87.3	89.3	88.3	87.9	89.3	87.8	88.2	86.5	89.7	91.0	89.2	89.0	
3-year	65.3	70.7	74.3	79.7	81.0	83.7	82.4	81.6	82.9	83.2	84.1	84.0	86.2	85.4	84.9	87.8	86.2	86.1	84.0	87.1	89.7	87.5		
4-year	62.1	67.6	71.9	77.6	79.0	80.9	80.6	78.9	81.5	81.6	82.5	82.4	85.2	83.9	83.4	86.5	84.9	84.3	83.1	86.1	88.2			
5-year	59.8	65.9	70.7	76.5	77.4	80.6	79.3	78.1	79.6	80.7	81.9	81.4	84.2	83.1	82.1	85.7	83.7	83.5	82.6	85.4				
6-year	58.1	64.8	69.7	75.8	76.4	79.8	78.5	76.7	79.2	79.6	81.1	80.6	83.8	82.8	81.1	85.1	82.3	83.1	81.8					
7-year	57.1	63.9	68.8	75.2	75.9	79.2	78.1	76.2	78.4	79.0	80.1	80.2	83.2	82.1	80.8	84.7	81.8	83.0						
8-year	56.5	63.2	68.2	74.8	75.0	78.8	77.0	75.8	78.2	78.3	80.0	79.6	82.6	81.4	80.1	83.8	80.9							
9-year	56.1	62.7	67.8	74.3	74.7	78.4	76.9	75.2	77.6	78.3	79.6	79.4	81.9	81.0	79.8	83.2								
10-year	55.8	62.1	67.4	74.2	74.6	78.1	76.3	74.9	77.2	78.0	79.4	78.9	81.7	80.8	79.6									
11-year	55.5	61.8	67.1	73.8	74.3	78.0	76.1	74.4	76.9	77.8	79.2	78.2	81.2	80.7										
12-year	55.2	61.3	66.8	73.6	74.1	77.9	75.8	74.2	76.8	77.7	79.0	77.6	80.9											
13-year	54.9	61.0	66.6	73.4	74.0	77.8	75.6	73.7	76.5	77.3	79.0	77.2												
14-year	54.6	60.7	66.2	73.1	74.0	77.6	75.5	73.7	76.5	77.2	78.9													
15-year	54.3	60.4	66.1	72.9	73.9	77.3	75.4	73.6	76.4	77.0														
16-year	54.0	60.2	65.8	72.6	73.2	77.3	75.1	73.2	76.3															
17-year	53.6	59.9	65.7	72.3	72.9	77.1	74.8	73.2																
18-year	53.4	59.6	65.5	72.1	72.8	76.9	74.7																	
19-year	53.1	59.4	65.4	71.9	72.6	76.9																		
20-year	53.0	59.3	65.1	71.8	72.5																			

^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 28.11
All Cancer Sites (Invasive)

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

All Races, Males and Females

Ages 0-19

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
Survival Time																								
1-year	82.4	85.7	88.2	90.2	90.1	93.1	91.4	91.7	90.9	91.3	92.3	92.3	93.5	92.4	92.8	94.1	93.2	93.8	93.7	93.0	95.3	94.8	94.2	93.5
2-year	73.1	77.3	80.3	83.3	84.6	87.5	85.1	85.3	85.8	84.4	87.3	87.4	89.1	88.0	88.6	89.0	88.4	89.4	88.5	89.5	91.5	90.0	90.1	
3-year	68.0	72.5	76.5	80.0	81.3	85.1	82.0	82.5	83.1	81.9	84.3	84.2	86.3	84.8	86.1	87.4	86.6	87.2	86.0	87.0	89.2	87.4		
4-year	64.9	69.6	74.0	78.0	79.8	82.4	80.5	79.9	81.4	80.3	82.6	82.3	85.3	83.6	84.5	85.9	85.0	85.2	85.0	86.0	88.0			
5-year	62.8	67.9	72.9	76.8	78.3	81.9	78.9	78.9	79.9	79.2	81.8	81.1	84.2	82.5	83.3	85.0	83.6	84.0	84.4	85.2				
6-year	61.2	66.5	72.0	76.1	77.4	81.3	77.8	77.7	79.5	78.4	81.2	80.2	83.8	82.2	82.1	84.0	82.4	83.4	83.5					
7-year	60.3	65.8	71.1	75.4	76.9	80.8	77.5	77.4	79.0	77.7	80.2	79.9	83.2	81.5	81.8	83.5	81.9	82.8						
8-year	59.5	65.0	70.5	74.9	76.0	80.3	76.8	77.0	78.8	77.2	80.0	79.1	82.5	80.9	81.0	82.6	81.0							
9-year	59.0	64.3	70.1	74.5	75.7	79.9	76.6	76.5	78.4	77.0	79.7	78.8	82.1	80.4	80.5	82.3								
10-year	58.7	63.9	69.7	74.3	75.5	79.6	76.0	76.2	78.0	76.7	79.6	78.4	82.0	80.1	80.4									
11-year	58.3	63.5	69.4	74.0	75.4	79.4	75.8	75.8	77.7	76.6	79.4	77.8	81.7	80.0										
12-year	58.0	63.1	69.1	73.8	75.1	79.3	75.6	75.3	77.5	76.3	79.1	77.3	81.3											
13-year	57.7	62.7	68.8	73.5	75.0	79.2	75.3	74.9	77.3	76.0	78.9	77.0												
14-year	57.5	62.4	68.3	73.2	75.0	79.1	75.3	74.9	77.3	75.7	78.8													
15-year	57.2	62.2	68.2	73.1	74.9	78.8	75.1	74.9	77.1	75.5														
16-year	56.9	61.7	67.8	72.8	74.3	78.7	74.7	74.5	77.1															
17-year	56.6	61.5	67.7	72.5	74.1	78.4	74.6	74.5																
18-year	56.3	61.3	67.4	72.3	74.0	78.1	74.5																	
19-year	56.1	61.0	67.2	72.1	73.9	78.0																		
20-year	55.8	60.8	66.9	72.0	73.6																			

^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 28.12
Childhood Cancer (Invasive, <20 Years old at diagnosis)

Estimated United States Cancer Prevalence Counts^a on January 1, 2015
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 <20 ^e	0 to <40 ^e	>=40 ^f	Complete ^g
<u>Race</u>	<u>Sex</u>										
All Races ^b	Both Sexes	67,259	59,060	53,942	47,223	41,853	35,953	269,336	360,164	+	+
	Males	34,605	31,090	28,427	24,463	21,777	18,070	140,362	184,580	+	+
	Females	32,654	27,970	25,515	22,760	20,076	17,883	128,974	175,584	+	+
White ^b	Both Sexes	53,402	48,206	45,501	39,627	35,381	31,216	222,117	301,847	+	+
	Males	27,454	25,493	24,107	20,419	18,565	15,699	116,037	155,127	+	+
	Females	25,948	22,713	21,394	19,208	16,816	15,517	106,080	146,720	+	+
Black ^b	Both Sexes	8,181	6,695	5,327	4,677	4,084	3,016	28,964	36,461	+	+
	Males	4,175	3,499	2,658	2,449	2,031	1,464	14,812	18,179	+	+
	Females	4,006	3,196	2,669	2,228	2,053	1,552	14,152	18,282	+	+
Asian/ Pacific	Both Sexes	3,301	2,515	1,996	+	+	+	10,620	+	+	+
	Males	1,750	1,291	1,053	+	+	+	5,536	+	+	+
Islander ^c	Females	1,551	1,224	943	+	+	+	5,084	+	+	+
Hispanic ^d	Both Sexes	14,196	11,923	9,581	+	+	+	47,098	+	+	+
	Males	7,734	6,664	5,316	+	+	+	25,977	+	+	+
	Females	6,462	5,259	4,265	+	+	+	21,121	+	+	+

^a US 2015 cancer prevalence counts are based on 2015 cancer prevalence proportions from the SEER registries and 1/1/2015 US population estimates based on the average of 2014 and 2015 population estimates from the US Bureau of the Census.

^{b c d} Prevalence was calculated using the First Malignant Primary Only for a person. Statistics based on (b) SEER 9 Areas (c) SEER 13 Areas excluding the Alaska Native Registry (d) NHIA for Hispanic for SEER 13 Areas excluding the Alaska Native Registry.

^e Maximum limited-duration prevalence: 40 years for 1975-2015 SEER 9 data; 23 years for 1992-2015 SEER 13 data (excluding the Alaska Native Registry) used to calculate prevalence for Hispanics and Asian Pacific Islanders.

^{f g} (f) Cases diagnosed more than 40 years ago were estimated using the completeness index method (Capocaccia et. al. 1997, Merrill et. al. 2000). (g) Complete prevalence is obtained by summing 0 to <39 and >=39.

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

+ Not available.

Table 28.13
Age-Specific Rates^a and Counts for the Top 5 Cancer Sites^b by Single Year of Age at Diagnosis

SEER Cancer Incidence^c 2011-2015

Age <1			Age 1			Age 2		
	Rate	Cases		Rate	Cases		Rate	Cases
All Sites	23.6	1,335	All Sites	21.9	1,242	All Sites	24.1	1,370
Leukemia	4.7	265	Leukemia	6.8	383	Leukemia	10.3	586
Acute Lymphocytic Leukemia	2.1	116	Acute Lymphocytic Leukemia	4.4	249	Acute Lymphocytic Leukemia	9.1	519
Brain and ONS ^d	3.6	205	Brain and ONS ^d	4.5	254	Brain and ONS ^d	4.7	267
Soft Tissue	3.5	199	Kidney and Renal Pelvis	2.0	115	Kidney and Renal Pelvis	2.2	127
Eye and Orbit	3.3	189	Eye and Orbit	1.8	100	Soft Tissue	1.5	84
Other Endocrine	2.7	152	Soft Tissue	1.7	96	Other Endocrine	1.4	79
Age 3			Age 4			Age 5		
	Rate	Cases		Rate	Cases		Rate	Cases
All Sites	23.0	1,319	All Sites	18.6	1,080	All Sites	14.9	867
Leukemia	11.2	643	Leukemia	8.5	493	Leukemia	5.9	346
Acute Lymphocytic Leukemia	10.1	583	Acute Lymphocytic Leukemia	7.4	432	Acute Lymphocytic Leukemia	5.0	294
Brain and ONS ^d	3.8	219	Brain and ONS ^d	3.7	215	Brain and ONS ^d	3.7	213
Kidney and Renal Pelvis	2.2	127	Kidney and Renal Pelvis	1.5	87	Kidney and Renal Pelvis	1.2	70
Soft Tissue	1.1	61	Non-Hodgkin Lymphoma	1.1	63	Non-Hodgkin Lymphoma	1.1	64
Other Endocrine	1.0	59	Soft Tissue	0.9	55	Soft Tissue	0.7	40
Age 6			Age 7			Age 8		
	Rate	Cases		Rate	Cases		Rate	Cases
All Sites	14.1	824	All Sites	12.2	718	All Sites	11.0	641
Leukemia	5.0	292	Leukemia	3.8	221	Leukemia	3.5	202
Acute Lymphocytic Leukemia	4.4	260	Acute Lymphocytic Leukemia	3.2	189	Acute Lymphocytic Leukemia	2.9	168
Brain and ONS ^d	3.9	231	Brain and ONS ^d	3.5	204	Brain and ONS ^d	3.0	173
Non-Hodgkin Lymphoma	1.2	71	Non-Hodgkin Lymphoma	1.2	73	Non-Hodgkin Lymphoma	1.1	64
Kidney and Renal Pelvis	0.8	48	Soft Tissue	0.8	46	Bones and Joints	0.7	40
Soft Tissue	0.6	38	Bones and Joints	0.6	34	Soft Tissue	0.6	34
Age 9			Age 10			Age 11		
	Rate	Cases		Rate	Cases		Rate	Cases
All Sites	12.3	718	All Sites	11.9	695	All Sites	12.2	715
Leukemia	3.6	207	Brain and ONS ^d	2.9	171	Leukemia	2.8	163
Acute Lymphocytic Leukemia	2.7	158	Leukemia	2.8	161	Acute Lymphocytic Leukemia	1.9	110
Brain and ONS ^d	3.2	185	Acute Lymphocytic Leukemia	2.2	129	Brain and ONS ^d	2.6	154
Non-Hodgkin Lymphoma	1.4	80	Non-Hodgkin Lymphoma	1.3	76	Bones and Joints	1.5	86
Bones and Joints	1.1	65	Bones and Joints	1.1	62	Non-Hodgkin Lymphoma	1.0	61
Hodgkin Lymphoma	0.7	38	Soft Tissue	0.8	46	Hodgkin Lymphoma	0.9	50

^a Rates are per 100,000 per year.

^b Top 5 cancer sites were determined based on the 2011-2015 age-specific rate.

^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).

^d ONS = Other Nervous System. IBD = Intrahepatic Bile Duct.

^e The rates for sex-specific cancer sites are calculated using the population for both sexes combined.

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

Table 28.13 - continued
Age-Specific Rates^a and Counts for the Top 5 Cancer Sites^b by Single Year of Age at Diagnosis

SEER Cancer Incidence^c 2011-2015

Age 12			Age 13			Age 14		
	Rate	Cases		Rate	Cases		Rate	Cases
All Sites	15.1	885	All Sites	15.7	921	All Sites	17.3	1,028
Leukemia	3.9	227	Leukemia	3.2	186	Leukemia	3.9	229
Acute Lymphocytic Leukemia	2.7	161	Acute Lymphocytic Leukemia	2.1	124	Acute Lymphocytic Leukemia	2.5	148
Brain and ONS ^d	2.5	147	Brain and ONS ^d	2.6	155	Brain and ONS ^d	2.6	152
Bones and Joints	1.8	105	Bones and Joints	1.8	105	Thyroid	1.7	103
Non-Hodgkin Lymphoma	1.3	75	Non-Hodgkin Lymphoma	1.6	97	Non-Hodgkin Lymphoma	1.7	100
Hodgkin Lymphoma	1.2	71	Hodgkin Lymphoma	1.3	78	Hodgkin Lymphoma	1.6	96
Age 15			Age 16			Age 17		
	Rate	Cases		Rate	Cases		Rate	Cases
All Sites	20.0	1,192	All Sites	20.2	1,208	All Sites	23.7	1,437
Leukemia	3.6	212	Leukemia	3.2	190	Leukemia	3.5	210
Acute Lymphocytic Leukemia	2.3	138	Acute Lymphocytic Leukemia	1.9	116	Acute Lymphocytic Leukemia	1.8	112
Brain and ONS ^d	2.5	150	Brain and ONS ^d	2.8	169	Hodgkin Lymphoma	3.2	193
Hodgkin Lymphoma	2.2	128	Thyroid	2.3	139	Thyroid	3.0	182
Bones and Joints	2.0	118	Hodgkin Lymphoma	2.3	139	Brain and ONS ^d	2.4	148
Non-Hodgkin Lymphoma	1.9	116	Non-Hodgkin Lymphoma	1.8	110	Non-Hodgkin Lymphoma	2.1	129
Age 18			Age 19					
	Rate	Cases		Rate	Cases			
All Sites	24.9	1,509	All Sites	27.5	1,651			
Thyroid	3.7	227	Thyroid	4.3	258			
Hodgkin Lymphoma	3.4	207	Hodgkin Lymphoma	4.0	238			
Testis ^e	3.0	180	Testis ^e	3.4	204			
Leukemia	2.9	177	Leukemia	2.9	174			
Acute Lymphocytic Leukemia	1.6	97	Acute Lymphocytic Leukemia	1.2	70			
Brain and ONS ^d	2.2	133	Brain and ONS ^d	2.1	125			

^a Rates are per 100,000 per year.

^b Top 5 cancer sites were determined based on the 2011-2015 age-specific rate.

^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).

^d ONS = Other Nervous System. IBD = Intrahepatic Bile Duct.

^e The rates for sex-specific cancer sites are calculated using the population for both sexes combined.

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

Table 28.14
Age-Specific Rates^a and Deaths for the Top 5 Cancer Sites^b by Single Year of Age at Death

U.S. Mortality^c 2011-2015

Age <1			Age 1			Age 2		
	Rate	Deaths		Rate	Deaths		Rate	Deaths
All Sites	1.5	302	All Sites	2.0	403	All Sites	2.0	407
Leukemia	0.5	95	Leukemia	0.8	167	Leukemia	0.8	155
Acute Lymphocytic Leukemia	0.1	17	Acute Lymphocytic Leukemia	0.3	59	Acute Lymphocytic Leukemia	0.2	48
Brain and ONS ^d	0.4	72	Brain and ONS ^d	0.4	76	Brain and ONS ^d	0.5	90
Other Endocrine	0.2	30	Other Endocrine	0.2	48	Other Endocrine	0.3	65
Soft Tissue	0.1	24	Liver & IBD ^d	0.1	28	Soft Tissue	0.1	27
Liver & IBD ^d	-	-	Soft Tissue	0.1	28	Liver & IBD ^d	0.1	22
Age 3			Age 4			Age 5		
	Rate	Deaths		Rate	Deaths		Rate	Deaths
All Sites	2.4	481	All Sites	2.3	457	All Sites	2.5	511
Brain and ONS ^d	0.7	132	Brain and ONS ^d	1.0	194	Brain and ONS ^d	1.1	228
Leukemia	0.6	130	Leukemia	0.4	91	Leukemia	0.5	112
Acute Lymphocytic Leukemia	0.2	47	Acute Lymphocytic Leukemia	0.2	32	Acute Lymphocytic Leukemia	0.2	46
Other Endocrine	0.5	95	Other Endocrine	0.4	78	Other Endocrine	0.3	70
Soft Tissue	0.1	29	Soft Tissue	0.1	26	Soft Tissue	0.2	32
Liver & IBD ^d	0.1	23	Kidney and Renal Pelvis	0.1	22	Liver & IBD ^d	0.1	16
Age 6			Age 7			Age 8		
	Rate	Deaths		Rate	Deaths		Rate	Deaths
All Sites	2.1	437	All Sites	1.9	397	All Sites	2.0	414
Brain and ONS ^d	1.0	199	Brain and ONS ^d	0.9	180	Brain and ONS ^d	0.8	169
Leukemia	0.4	77	Leukemia	0.4	83	Leukemia	0.5	100
Acute Lymphocytic Leukemia	0.2	38	Acute Lymphocytic Leukemia	0.2	43	Acute Lymphocytic Leukemia	0.2	44
Other Endocrine	0.3	66	Other Endocrine	0.2	51	Other Endocrine	0.2	40
Soft Tissue	0.1	27	Soft Tissue	0.1	20	Soft Tissue	0.1	27
Kidney and Renal Pelvis	0.1	16	Bones and Joints	-	-	Bones and Joints	0.1	18
Age 9			Age 10			Age 11		
	Rate	Deaths		Rate	Deaths		Rate	Deaths
All Sites	2.2	442	All Sites	1.9	395	All Sites	1.9	395
Brain and ONS ^d	0.9	180	Brain and ONS ^d	0.8	154	Brain and ONS ^d	0.7	140
Leukemia	0.5	95	Leukemia	0.5	95	Leukemia	0.5	102
Acute Lymphocytic Leukemia	0.2	50	Acute Lymphocytic Leukemia	0.2	51	Acute Lymphocytic Leukemia	0.3	55
Other Endocrine	0.2	47	Bones and Joints	0.2	36	Bones and Joints	0.2	43
Bones and Joints	0.2	39	Other Endocrine	0.2	34	Soft Tissue	0.2	37
Soft Tissue	0.2	32	Soft Tissue	0.1	30	Other Endocrine	0.1	25

^a Rates are per 100,000 per year. Deaths are for the entire United States over the time period 2011-2015.

^b Top 5 cancer sites were determined based on the 2011-2015 age-specific rate.

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

^d ONS = Other Nervous System. IBD = Intrahepatic Bile Duct.

^e The rates for sex-specific cancer sites are calculated using the population for both sexes combined.

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

Table 28.14 - continued
Age-Specific Rates^a and Deaths for the Top 5 Cancer Sites^b by Single Year of Age at DeathU.S. Mortality^c 2011-2015

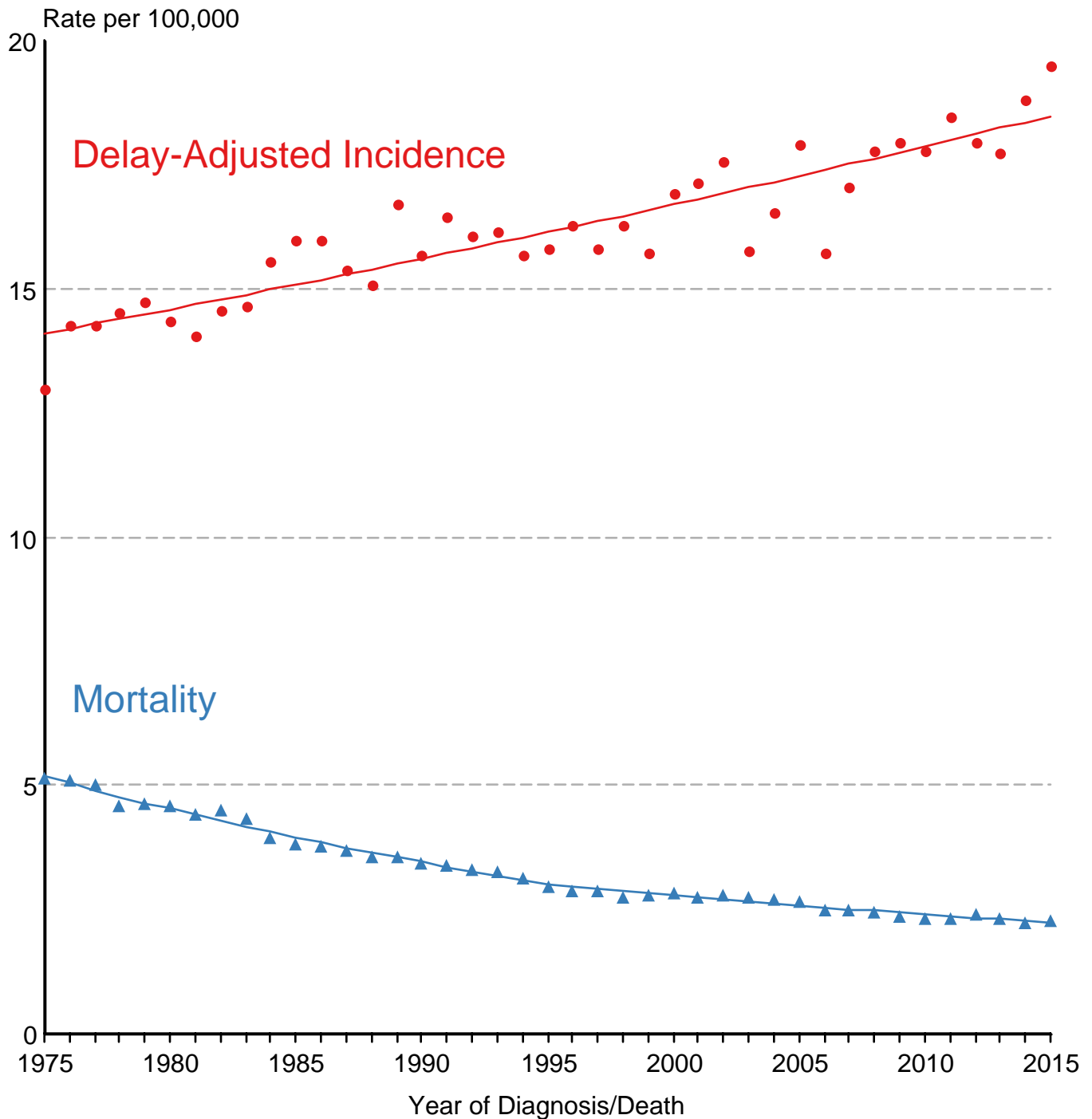
Age 12			Age 13			Age 14		
	Rate	Deaths		Rate	Deaths		Rate	Deaths
All Sites	2.0	422	All Sites	2.1	435	All Sites	2.6	536
Leukemia	0.6	127	Leukemia	0.6	121	Leukemia	0.8	159
Acute Lymphocytic Leukemia	0.4	74	Acute Lymphocytic Leukemia	0.3	59	Acute Lymphocytic Leukemia	0.3	70
Brain and ONS ^d	0.6	122	Brain and ONS ^d	0.6	120	Brain and ONS ^d	0.6	128
Bones and Joints	0.2	48	Bones and Joints	0.3	57	Bones and Joints	0.5	94
Soft Tissue	0.1	27	Soft Tissue	0.2	43	Soft Tissue	0.3	58
Other Endocrine	0.1	20	Non-Hodgkin Lymphoma	0.1	21	Non-Hodgkin Lymphoma	0.1	23
Age 15			Age 16			Age 17		
	Rate	Deaths		Rate	Deaths		Rate	Deaths
All Sites	2.7	554	All Sites	2.6	536	All Sites	3.0	633
Leukemia	0.8	158	Leukemia	0.6	134	Leukemia	0.8	170
Acute Lymphocytic Leukemia	0.3	71	Acute Lymphocytic Leukemia	0.2	52	Acute Lymphocytic Leukemia	0.3	70
Brain and ONS ^d	0.6	128	Brain and ONS ^d	0.5	115	Brain and ONS ^d	0.5	114
Bones and Joints	0.5	94	Bones and Joints	0.5	106	Bones and Joints	0.5	109
Soft Tissue	0.2	50	Soft Tissue	0.2	51	Soft Tissue	0.4	78
Non-Hodgkin Lymphoma	0.1	26	Non-Hodgkin Lymphoma	0.1	31	Non-Hodgkin Lymphoma	0.1	23
Age 18			Age 19					
	Rate	Deaths		Rate	Deaths			
All Sites	3.1	673	All Sites	3.2	693			
Leukemia	0.8	164	Leukemia	0.8	173			
Acute Lymphocytic Leukemia	0.3	62	Acute Lymphocytic Leukemia	0.3	64			
Bones and Joints	0.6	121	Brain and ONS ^d	0.5	112			
Brain and ONS ^d	0.5	118	Bones and Joints	0.4	98			
Soft Tissue	0.4	89	Soft Tissue	0.3	74			
Non-Hodgkin Lymphoma	0.2	39	Non-Hodgkin Lymphoma	0.2	36			

^a Rates are per 100,000 per year. Deaths are for the entire United States over the time period 2011-2015.^b Top 5 cancer sites were determined based on the 2011-2015 age-specific rate.^c US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.^d ONS = Other Nervous System. IBD = Intrahepatic Bile Duct.^e The rates for sex-specific cancer sites are calculated using the population for both sexes combined.

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

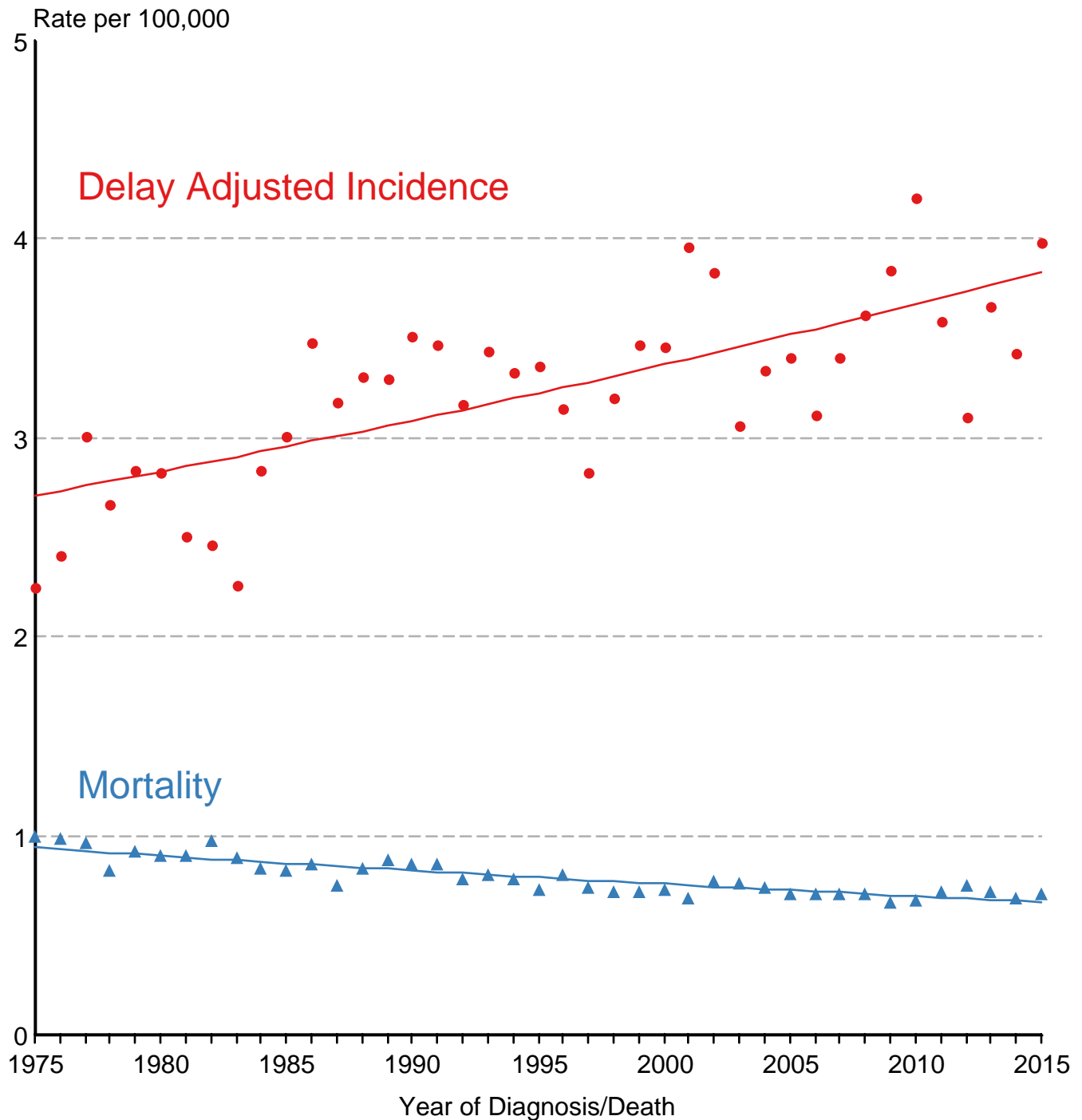
Figure 28.1

SEER Delay-Adjusted Incidence and US Mortality All Childhood Cancers, Under 20 Years of Age Both Sexes, All Races, 1975-2015



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 are calculated using the Joinpoint Regression Program Version 4.6, February 2018,
National Cancer Institute.

SEER Delay-Adjusted Incidence and US Mortality Brain and CNS, Under 15 Years of Age Both Sexes, All Races, 1975-2015

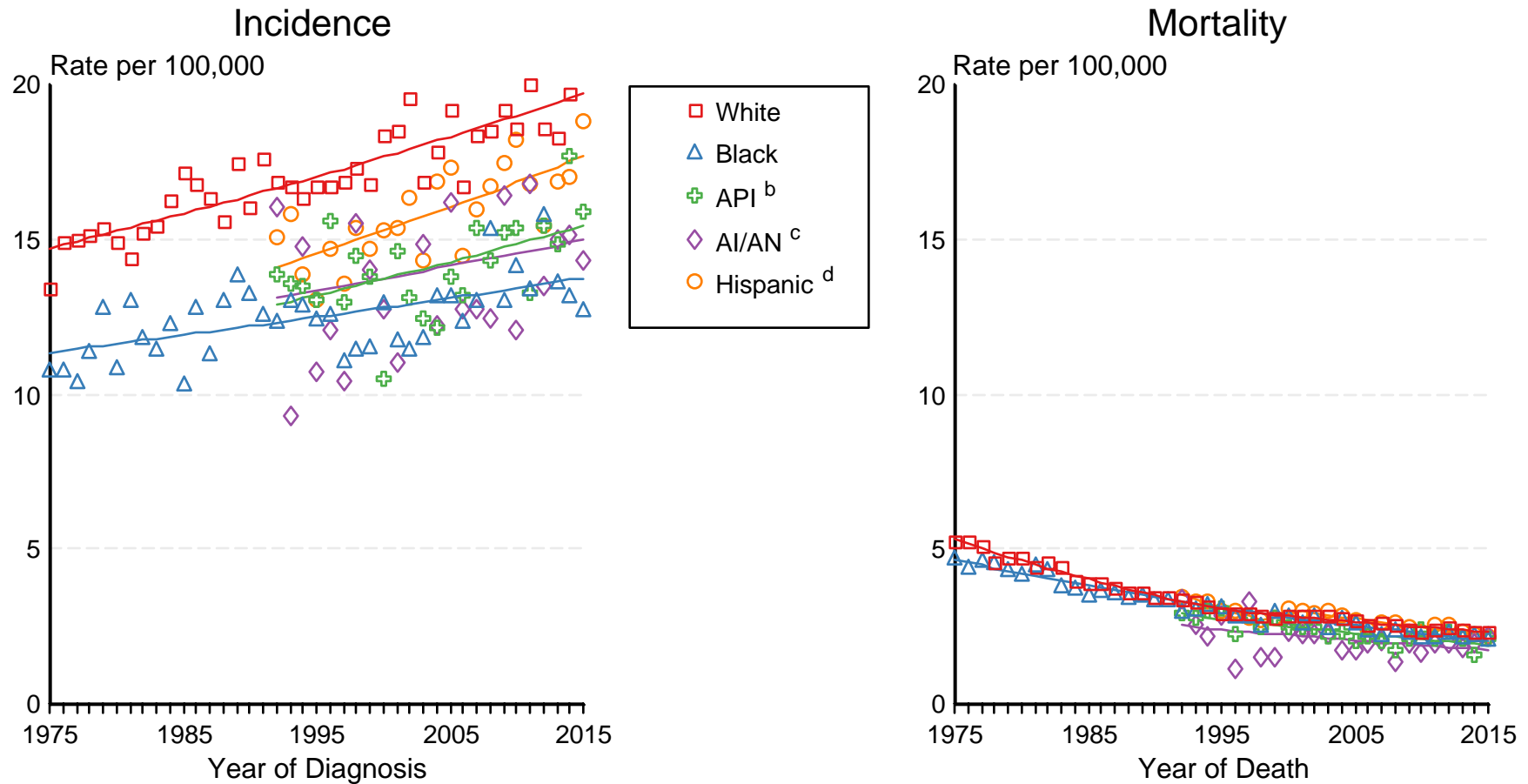


Source: SEER 9 areas and US Mortality Files (National Center for Health Statistics, CDC). Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103). Regression lines are calculated using the Joinpoint Regression Program Version 4.6, February 2018, National Cancer Institute.

Figure 28.3

SEER Incidence and US Death Rates^a All Cancer Sites, Ages <20, Both Sexes

Joinpoint Analyses for Whites and Blacks from 1975-2015 and for Asian/Pacific Islanders, American Indians/Alaska Natives and Hispanics from 1992-2015



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 4.6, February 2018, National Cancer Institute. Joinpoint analyses for Whites and Blacks during the 1975-2015 period allow a maximum of 5 joinpoints. Analyses for other ethnic groups during the period 1992-2015 allow a maximum of 4 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 New Hampshire and Oklahoma.