Cancer Statistics, 2009

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Abstract

Each year, the American Cancer Society estimates the number of new cancer cases and deaths expected in the United States in the current year and compiles the most recent data on cancer incidence, mortality, and survival based on incidence data from the National Cancer Institute, Centers for Disease Control and Prevention, and the North American Association of Central Cancer Registries and mortality data from the National Center for Health Statistics. Incidence and death rates are standardized by age to the 2000 United States standard million population. A total of 1,479,350 new cancer cases and 562,340 deaths from cancer are projected to occur in the United States in 2009. Overall cancer incidence rates decreased in the most recent time period in both men (1.8% per year from 2001 to 2005) and women (0.6% per year from 1998 to 2005), largely because of decreases in the three major cancer sites in men (lung, prostate, and colon and rectum [colorectum]) and in two major cancer sites in women (breast and colorectum). Overall cancer death rates decreased in men by 19.2% between 1990 and 2005, with decreases in lung (37%), prostate (24%), and colorectal (17%) cancer rates accounting for nearly 80% of the total decrease. Among women, overall cancer death rates between 1991 and 2005 decreased by 11.4%, with decreases in breast (37%) and colorectal (24%) cancer rates accounting for 60% of the total decrease. The reduction in the overall cancer death rates has resulted in the avoidance of about 650,000 deaths from cancer over the 15-year period. This report also examines cancer incidence, mortality, and survival by site, sex, race/ethnicity, education, geographic area, and calendar year. Although progress has been made in reducing incidence and mortality rates and improving survival, cancer still accounts for more deaths than heart disease in persons younger than 85 years of age. Further progress can be accelerated by applying existing cancer control knowledge across all segments of the population and by supporting new discoveries in cancer prevention, early detection, and treatment. **CA Cancer J Clin 2009;59:000-000. ©2009 American Cancer Society, Inc.**

Introduction

Cancer is a major public health problem in the United States and many other parts of the world. Currently, one in four deaths in the United States is due to cancer. In this article, we provide an overview of cancer statistics, including updated incidence, mortality and survival rates, and expected numbers of new cancer cases and deaths in 2009.

Materials and Methods

Data Sources

Mortality data from 1930 to 2006 in the United States were obtained from the National Center for Health Statistics (NCHS).[1] Incidence data for long-term trends (1975-2005), 5-year relative survival rates, and data on lifetime probability of developing cancer were obtained from the Surveillance, Epidemiology, and End Results

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TABLE 1. Estimated New Cancer Cases and Deaths by Sex, United States, 2009*

	ESTIMATED NEW CASES			ESTIMATED DEATHS		
	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE
All Sites	**1,479,350**	**766,130**	**713,220**	**562,340**	**292,540**	**269,800**
Oral cavity & pharynx	**35,720**	**25,240**	**10,480**	**7,600**	**5,240**	**2,360**
Tongue	10,530	7,470	3,060	1,910	1,240	670
Mouth	10,750	6,450	4,300	1,810	1,110	700
Pharynx	12,610	10,020	2,590	2,230	1,640	590
Other oral cavity	1,830	1,300	530	1,650	1,250	400
Digestive system	**275,720**	**150,020**	**125,700**	**135,830**	**76,020**	**59,810**
Esophagus	16,470	12,940	3,530	14,530	11,490	3,040
Stomach	21,130	12,820	8,310	10,620	6,320	4,300
Small intestine	6,230	3,240	2,990	1,110	580	530
Colon†	106,100	52,010	54,090	49,920	25,240	24,680
Rectum	40,870	23,580	17,290			
Anus, anal canal, & anorectum	5,290	2,100	3,190	710	260	450
Liver & intrahepatic bile duct	22,620	16,410	6,210	18,160	12,090	6,070
Gallbladder & other biliary	9,760	4,320	5,440	3,370	1,250	2,120
Pancreas	42,470	21,050	21,420	35,240	18,030	17,210
Other digestive organs	4,780	1,550	3,230	2,170	760	1,410
Respiratory system	**236,990**	**129,710**	**107,280**	**163,790**	**92,240**	**71,550**
Larynx	12,290	9,920	2,370	3,660	2,900	760
Lung & bronchus	219,440	116,090	103,350	159,390	88,900	70,490
Other respiratory organs	5,260	3,700	1,560	740	440	300
Bones & joints	**2,570**	**1,430**	**1,140**	**1,470**	**800**	**670**
Soft tissue (including heart)	**10,660**	**5,780**	**4,880**	**3,820**	**1,960**	**1,860**
Skin (excluding basal & squamous)	**74,610**	**42,920**	**31,690**	**11,590**	**7,670**	**3,920**
Melanoma-skin	68,720	39,080	29,640	8,650	5,550	3,100
Other nonepithelial skin	5,890	3,840	2,050	2,940	2,120	820
Breast	**194,280**	**1,910**	**192,370**	**40,610**	**440**	**40,170**
Genital system	**282,690**	**201,970**	**80,720**	**56,160**	**28,040**	**28,120**
Uterine cervix	11,270		11,270	4,070		4,070
Uterine corpus	42,160		42,160	7,780		7,780
Ovary	21,550		21,550	14,600		14,600
Vulva	3,580		3,580	900		900
Vagina & other genital, female	2,160		2,160	770		770
Prostate	192,280	192,280		27,360	27,360	
Testis	8,400	8,400		380	380	
Penis & other genital, male	1,290	1,290		300	300	
Urinary system	**131,010**	**89,640**	**41,370**	**28,100**	**18,800**	**9,300**
Urinary bladder	70,980	52,810	18,170	14,330	10,180	4,150
Kidney & renal pelvis	57,760	35,430	22,330	12,980	8,160	4,820
Ureter & other urinary organs	2,270	1,400	870	790	460	330
Eye & orbit	**2,350**	**1,200**	**1,150**	**230**	**120**	**110**
Brain & other nervous system	**22,070**	**12,010**	**10,060**	**12,920**	**7,330**	**5,590**
Endocrine system	**39,330**	**11,070**	**28,260**	**2,470**	**1,100**	**1,370**
Thyroid	37,200	10,000	27,200	1,630	690	940
Other endocrine	2,130	1,070	1,060	840	410	430
Lymphoma	**74,490**	**40,630**	**33,860**	**20,790**	**10,630**	**10,160**
Hodgkin lymphoma	8,510	4,640	3,870	1,290	800	490
Non-Hodgkin lymphoma	65,980	35,990	29,990	19,500	9,830	9,670
Myeloma	**20,580**	**11,680**	**8,900**	**10,580**	**5,640**	**4,940**
Leukemia	**44,790**	**25,630**	**19,160**	**21,870**	**12,590**	**9,280**
Acute lymphocytic leukemia	5,760	3,350	2,410	1,400	740	660
Chronic lymphocytic leukemia	15,490	9,200	6,290	4,390	2,630	1,760
Acute myeloid leukemia	12,810	6,920	5,890	9,000	5,170	3830
Chronic myeloid leukemia	5,050	2,930	2,120	470	220	250
Other leukemia‡	5,680	3,230	2,450	6,610	3,830	2,780
Other & unspecified primary sites‡	**31,490**	**15,290**	**16,200**	**44,510**	**23,920**	**20,590**

*Rounded to the nearest 10; estimated new cases exclude basal and squamous cell skin cancers and in situ carcinomas except urinary bladder.

About 62,280 female carcinoma in situ of the breast and 53,120 melanoma in situ will be newly diagnosed in 2009.

†Estimated deaths for colon and rectum cancers are combined.

‡More deaths than cases may suggest lack of specificity in recording underlying cause of death on death certificates.

Source: Estimated new cases are based on 1995-2005 incidence rates from 41 states and the District of Columbia as reported by the North American Association of Central Cancer Registries (NAACCR), representing about 85% of the US population. Estimated deaths are based on US Mortality Data, 1969 to 2006, National Center for Health Statistics, Centers for Disease Control and Prevention, 2009.

TABLE 2. Age-standardized Incidence Rates for All Cancers Combined, 2001-2005, and Estimated New Cases* for Selected Cancers by State, United States, 2009

STATE	INCIDENCE RATE†	ALL CASES	FEMALE BREAST	UTERINE CERVIX	COLON & RECTUM	UTERINE CORPUS	LEUKEMIA	LUNG & BRONCHUS	MELANOMA OF THE SKIN	NON-HODGKIN LYMPHOMA	PROSTATE	URINARY BLADDER
Alabama	449.2	24,090	2,970	190	2,480	510	590	4,040	930	950	2,800	960
Alaska	466.1	2,530	370	‡	250	70	70	350	80	110	360	120
Arizona	416.8	27,600	3,470	210	2,680	660	810	3,960	1,460	1,250	3,530	1,460
Arkansas	455.4	14,800	1,820	130	1,540	310	420	2,580	500	680	2,140	610
California	446.2	152,170	21,740	1,350	14,680	4,230	4,570	17,910	9,080	7,140	20,790	6,870
Colorado	447.1	20,340	2,840	150	1,860	530	720	2,240	1,260	920	3,070	940
Connecticut	508.3	20,650	2,790	110	1,950	660	540	2,720	1,260	920	2,400	1,120
Delaware	507.3	4,690	600	‡	440	140	120	800	220	190	550	220
Dist. of Columbia	§	2,600	340	‡	260	80	50	370	70	90	380	90
Florida	470.3	102,210	12,650	800	10,420	2,590	3,180	17,790	4,920	4,640	12,380	5,490
Georgia	465.5	39,080	5,370	340	3,750	930	1,080	6,150	2,040	1,560	5,210	1,400
Hawaii	426.8	6,400	870	50	710	200	160	740	320	260	860	220
Idaho	462.2	6,800	810	‡	630	170	250	820	380	330	1,170	340
Illinois	487.4	60,960	7,610	480	6,430	1,960	1,940	9,180	2,010	2,900	7,590	3,100
Indiana	469.5	31,320	3,710	220	3,260	970	930	5,360	1,170	1,420	3,250	1,550
Iowa	481.0	16,740	2,080	90	1,800	500	590	2,620	910	750	2,330	870
Kansas	§	13,080	1,790	90	1,290	400	380	2,110	610	600	1,970	620
Kentucky	512.8	24,060	2,840	180	2,620	590	690	4,650	1,260	980	2,910	1,070
Louisiana	497.7	22,170	2,700	190	2,330	430	660	3,650	630	960	3,160	910
Maine	527.2	9,000	1,080	50	870	270	270	1,390	480	360	1,130	500
Maryland	§	26,650	3,660	190	2,620	840	640	4,060	1,310	1,120	3,580	1,110
Massachusetts	514.9	36,080	4,800	200	3,380	1,140	1,000	5,120	2,030	1,610	4,200	2,010
Michigan	509.1	53,550	6,480	320	5,020	1,700	1,690	8,190	2,240	2,470	7,010	2,810
Minnesota	481.0	23,670	3,280	140	2,520	810	890	3,310	890	1,130	4,910	1,200
Mississippi	§	14,150	1,820	130	1,480	270	360	2,340	380	540	1,990	540
Missouri	467.7	30,090	3,880	220	3,100	870	880	5,600	1,260	1,250	3,620	1,450
Montana	477.6	5,340	640	‡	520	140	170	730	220	240	810	270
Nebraska	474.4	8,810	1,200	60	950	270	290	1,230	420	400	1,410	450
Nevada	471.7	12,020	1,350	110	1,240	270	380	1,910	480	480	1,660	630
New Hampshire	507.0	7,630	1,010	‡	730	240	210	1,100	460	310	910	420
New Jersey	515.7	47,920	6,440	410	4,590	1,620	1,380	6,250	2,530	2,160	6,060	2,640
New Mexico	421.0	8,830	1,090	80	810	210	310	970	460	360	1,400	350
New York	489.1	101,550	13,530	870	9,970	3,510	3,140	13,550	3,710	4,540	12,520	5,360
North Carolina	§	42,270	5,470	340	4,230	1,030	1,150	6,670	2,190	1,730	6,130	1,790
North Dakota	458.7	3,200	410	‡	350	90	110	420	110	140	560	180
Ohio	§	62,420	7,340	390	6,060	1,930	1,950	10,690	2,080	2,800	6,510	2,990
Oklahoma	466.4	18,110	2,340	140	1,860	400	580	3,220	690	820	2,190	770
Oregon	472.8	19,210	2,680	110	1,780	570	490	2,610	1,220	910	2,510	1,020
Pennsylvania	503.6	74,170	9,380	500	7,590	2,550	2,200	10,480	3,440	3,330	8,130	4,160
Rhode Island	514.5	6,250	810	‡	590	190	180	900	340	260	650	370
South Carolina	475.2	22,100	2,820	170	2,150	520	590	3,680	1,090	870	2,910	880
South Dakota	474.5	4,120	530	‡	440	120	140	590	180	180	740	230
Tennessee	§	32,570	3,970	240	3,490	720	1,000	5,370	1,410	1,370	4,790	1,380
Texas	454.9	98,200	13,090	980	9,800	2,220	3,470	14,150	3,820	4,530	13,130	3,720
Utah	411.8	8,880	1,080	60	770	250	330	620	600	440	1,570	360
Vermont	§	3,550	480	‡	330	120	100	500	200	140	540	190
Virginia	440.3	34,150	4,850	240	3,380	1,020	840	5,330	1,790	1,450	4,830	1,430
Washington	499.0	32,290	4,520	190	2,890	960	990	4,130	1,970	1,540	4,680	1,660
West Virginia	490.5	10,230	1,180	70	1,070	330	290	2,030	450	420	1,210	510
Wisconsin	§	27,560	3,480	160	2,770	1,000	980	3,960	1,040	1,310	2,770	1,530
Wyoming	447.9	2,500	300	‡	240	70	70	320	130	110	390	130
United States	**476.6**	**1,479,350**	**192,370**	**11,270**	**146,970**	**42,160**	**44,790**	**219,440**	**68,720**	**65,980**	**192,280**	**70,980**

*Rounded to the nearest 10; excludes basal and squamous cell skin cancers and in situ carcinomas except urinary bladder.

†Rates are per 100,000 and age adjusted to the 2000 US standard population.

‡Estimate is fewer than 50 cases.

§Combined incidence rate is not available.

Note: These model-based estimates are calculated by using incidence rates from 41 states and the District of Columbia as reported by NAACCR. They are offered as a rough guide and should be interpreted with caution. State estimates may not add to the US total because of rounding and exclusion of states with fewer than 50 cases.

Source: North American Association of Central Cancer Registries (NAACCR), based on data collected by cancer registries participating in NCI's SEER Program and CDC's National Program of Cancer Registries. Rates for Alabama, Louisiana, Mississippi, and Texas are for cases diagnosed through June 2005.

Estimated New Cases*

Males				Females		
Prostate	192,280	25%		Breast	192,370	27%
Lung & bronchus	116,090	15%		Lung & bronchus	103,350	14%
Colon & rectum	75,590	10%		Colon & rectum	71,380	10%
Urinary bladder	52,810	7%		Uterine corpus	42,160	6%
Melanoma of the skin	39,080	5%		Non-Hodgkin lymphoma	29,990	4%
Non-Hodgkin lymphoma	35,990	5%		Melanoma of the skin	29,640	4%
Kidney & renal pelvis	35,430	5%		Thyroid	27,200	4%
Leukemia	25,630	3%		Kidney & renal pelvis	22,330	3%
Oral cavity & pharynx	25,240	3%		Ovary	21,550	3%
Pancreas	21,050	3%		Pancreas	21,420	3%
All Sites	**766,130**	**100%**		**All Sites**	**713,220**	**100%**

Estimated Deaths

Males				Females		
Lung & bronchus	88,900	30%		Lung & bronchus	70,490	26%
Prostate	27,360	9%		Breast	40,170	15%
Colon & rectum	25,240	9%		Colon & rectum	24,680	9%
Pancreas	18,030	6%		Pancreas	17,210	6%
Leukemia	12,590	4%		Ovary	14,600	5%
Liver & intrahepatic bile duct	12,090	4%		Non-Hodgkin lymphoma	9,670	4%
Esophagus	11,490	4%		Leukemia	9,280	3%
Urinary bladder	10,180	3%		Uterine Corpus	7,780	3%
Non-Hodgkin lymphoma	9,830	3%		Liver & intrahepatic bile duct	6,070	2%
Kidney & renal pelvis	8,160	3%		Brain & other nervous system	5,590	2%
All Sites	**292,540**	**100%**		**All Sites**	**269,800**	**100%**

FIGURE 1. Ten Leading Cancer Types for Estimated New Cancer Cases and Deaths, by Sex, United States, 2009.
*Excludes basal and squamous cell skin cancers and in situ carcinoma except urinary bladder. Estimates are rounded to the nearest 10.

(SEER) program of the National Cancer Institute, covering about 26% of the US population.[2,3,4,5] Incidence data (1995-2005) for projecting new cancer cases were obtained from cancer registries that participate in the SEER program or the Center for Disease Control (CDC)'s National Program of Cancer Registries (NPCR), through the North American Association of Central Cancer Registries (NAACCR). State-specific incidence rates were obtained from NAACCR based on data collected by cancer registries participating in the SEER program and NPCR. Population data were obtained from the US Census Bureau.[7] Causes of death were coded and classified according to the *International Classification of Diseases* (ICD-8, ICD-9, and ICD-10).[8,9,10] Cancer cases were classified according to the *International Classification of Diseases for Oncology*.[11]

Estimated New Cancer Cases

The precise number of cancer cases diagnosed each year in the nation and in every state is unknown because cancer registration is incomplete in some states. Furthermore, the most recent year for which incidence and mortality data are available lags 3-4 years behind the current year because of the time required for data collection and compilation. Estimated new cancer cases in the current year (2009) were projected by using a spatiotemporal model[12] on the basis of incidence data from

TABLE 3. Age-standardized Death Rates for All Cancers Combined, 2001-2005, and Estimated Deaths* for Selected Cancers by State, United States, 2009

STATE	DEATH RATE†	ALL SITES	BRAIN & OTHER NERVOUS SYSTEM	FEMALE BREAST	COLON & RECTUM	LEUKEMIA	LIVER	LUNG & BRONCHUS	NON-HODGKIN LYMPHOMA	OVARY	PANCREAS	PROSTATE
Alabama	206.2	9,900	200	700	940	340	280	3,140	290	270	550	510
Alaska	186.5	830	‡	60	70	‡	‡	220	‡	‡	50	‡
Arizona	167.5	10,260	280	740	970	410	360	2,820	350	290	630	580
Arkansas	207.3	6,230	130	410	580	250	190	2,160	200	130	400	340
California	173.1	54,600	1,460	4,030	4,830	2,200	2,450	12,750	1,900	1,580	3,740	2,780
Colorado	166.4	6,740	200	520	670	300	210	1,670	230	210	430	350
Connecticut	184.3	6,990	150	480	550	270	210	1,810	220	180	540	390
Delaware	204.3	1,860	50	110	150	70	50	590	50	‡	110	90
Dist. of Columbia	209.5	970	‡	70	100	50	‡	240	‡	‡	60	60
Florida	180.1	41,270	810	2,730	3,460	1,650	1,300	12,210	1,560	970	2,470	2,280
Georgia	194.2	14,970	320	1,130	1,370	550	400	4,660	460	400	870	800
Hawaii	152.2	2,270	‡	140	210	80	120	570	80	50	170	100
Idaho	173.4	2,450	90	160	200	120	80	630	80	50	200	160
Illinois	197.6	23,220	470	1,770	2,260	950	700	6,460	770	600	1,560	1,150
Indiana	205.1	12,820	290	860	1,130	520	350	4,000	420	340	770	520
Iowa	185.9	6,360	160	400	600	300	150	1,760	280	170	380	330
Kansas	187.0	5,290	150	370	510	200	140	1,620	180	150	330	210
Kentucky	222.7	9,410	150	590	840	320	240	3,430	300	210	500	390
Louisiana	221.0	8,810	210	690	910	310	330	2,700	310	210	530	450
Maine	206.8	3,190	80	180	260	110	80	980	90	70	200	160
Maryland	196.6	10,320	200	810	940	390	320	2,880	300	260	690	550
Massachusetts	193.4	13,140	270	870	1,070	490	420	3,610	430	350	880	540
Michigan	195.3	20,450	490	1,350	1,720	820	610	5,840	710	520	1,250	820
Minnesota	178.8	9,020	230	600	760	370	260	2,380	320	240	580	410
Mississippi	211.9	6,090	160	430	600	220	190	2,030	180	140	350	300
Missouri	201.9	12,620	270	890	1,100	530	360	4,100	430	290	750	660
Montana	186.6	1,980	50	120	170	90	50	550	70	50	120	120
Nebraska	179.6	3,360	80	210	350	150	80	890	130	90	190	200
Nevada	197.1	4,600	120	330	500	140	160	1,340	130	120	280	230
New Hampshire	193.0	2,620	70	170	220	100	70	750	60	60	170	130
New Jersey	193.4	16,480	320	1,470	1,580	610	540	4,190	610	450	1,080	660
New Mexico	167.3	3,300	80	240	320	120	150	710	110	90	220	210
New York	179.9	34,190	790	2,550	3,110	1,380	1,210	8,780	1,430	970	2,360	1,470
North Carolina	196.1	18,550	330	1,310	1,410	640	470	5,630	530	430	1,090	860
North Dakota	176.3	1,300	‡	80	120	50	‡	370	‡	‡	90	100
Ohio	204.1	24,350	550	1,790	2,210	890	640	7,300	740	580	1,430	1,200
Oklahoma	200.1	7,420	170	520	600	290	200	2,390	240	170	380	280
Oregon	192.0	7,380	210	500	610	290	210	2,140	330	220	470	390
Pennsylvania	198.5	28,690	550	2,070	2,550	1,080	790	8,090	1,090	760	1,920	1,440
Rhode Island	194.7	2,220	50	130	160	90	70	560	70	60	120	100
South Carolina	200.7	9,100	190	640	780	330	250	2,880	310	210	530	420
South Dakota	182.8	1,640	‡	100	150	60	‡	450	70	50	100	100
Tennessee	211.2	13,340	350	910	1,140	480	350	4,520	440	310	730	570
Texas	184.9	36,030	850	2,570	3,140	1,430	1,650	9,780	1,300	890	2,120	1,700
Utah	140.9	2,760	100	260	240	130	70	480	130	90	190	170
Vermont	183.6	1,150	‡	80	120	60	‡	350	‡	‡	70	60
Virginia	194.7	13,920	290	1,140	1,270	500	390	4,250	410	380	880	620
Washington	187.1	11,210	380	790	940	450	410	3,090	410	340	710	680
West Virginia	213.4	4,530	90	280	430	140	110	1,500	180	120	210	140
Wisconsin	186.7	11,170	260	750	900	500	320	2,910	400	300	710	500
Wyoming	180.0	990	‡	60	100	‡	‡	260	‡	‡	60	‡
United States	**189.8**	**562,340**	**12,920**	**40,170**	**49,920**	**21,870**	**18,160**	**159,390**	**19,500**	**14,600**	**35,240**	**27,360**

* Rounded to the nearest 10.

†Rates are per 100,000 and age adjusted to the 2000 US standard population.

‡Estimate is fewer than 50 deaths.

Note: State estimates may not add to US total due to rounding and exclusion of states with fewer than 50 deaths.

Source: US Mortality Data, 1969 to 2006, National Center for Health Statistics, Centers for Disease Control and Prevention, 2009.

TABLE 4. Cancer Incidence Rates* by Site and State, United States, 2001-2005

	ALL SITES		BREAST	COLON AND RECTUM		LUNG AND BRONCHUS		NON-HODGKIN LYMPHOMA		PROSTATE	URINARY BLADDER	
STATE	MALE	FEMALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	MALE	FEMALE
Alabama†	555.6	377.6	114.2	62.2	41.9	109.5	52.5	20.5	14.0	150.7	31.1	7.7
Alaska†	533.2	410.6	127.9	61.3	46.0	82.4	62.8	23.5	16.1	151.3	39.4	7.2
Arizona	461.7	363.0	109.8	49.4	36.3	69.8	48.8	18.6	13.2	116.6	35.0	8.7
Arkansas†	558.2	381.5	114.0	59.2	43.6	113.4	59.0	21.9	15.1	158.1	33.1	8.9
California†	518.2	396.4	124.7	53.8	39.8	67.0	47.5	22.6	15.5	152.6	34.4	8.3
Colorado†	512.7	401.7	125.9	51.5	41.0	63.0	46.0	21.4	16.3	159.4	35.0	9.1
Connecticut†	589.5	454.3	137.4	65.2	47.9	82.5	58.8	25.5	17.8	166.6	44.6	12.5
Delaware†	601.7	438.6	126.4	62.6	46.4	97.8	66.2	22.5	16.7	175.5	42.4	11.0
Dist. of Columbia‡	—	—	—	—	—	—	—	—	—	—	—	—
Florida†	549.3	410.1	116.7	57.7	43.4	91.4	60.8	21.9	15.5	143.1	38.7	10.0
Georgia†	571.3	395.2	120.6	60.1	42.6	104.1	53.4	20.6	14.2	163.6	33.0	8.1
Hawaii†	484.9	385.9	126.0	62.4	42.5	67.8	38.9	18.9	12.7	129.3	25.1	6.2
Idaho†	543.5	399.0	118.2	52.0	38.5	69.6	46.7	21.5	17.2	168.8	38.4	8.5
Illinois†	580.1	426.8	124.1	68.0	48.5	93.1	57.8	23.8	16.3	159.5	40.8	10.4
Indiana†	552.3	414.9	117.7	64.6	47.3	105.3	62.2	22.6	16.0	136.9	37.2	9.3
Iowa†	560.9	428.3	125.4	67.2	50.5	89.3	52.4	23.5	17.0	147.3	40.6	9.8
Kansas‡	—	—	—	—	—	—	—	—	—	—	—	—
Kentucky†	612.5	447.1	120.5	70.3	51.4	136.2	76.2	22.4	16.9	144.4	38.1	9.8
Louisiana†	624.9	409.5	120.9	70.1	48.3	111.3	58.2	22.9	16.2	180.2	35.6	8.7
Maine†	621.6	460.6	130.6	67.7	49.1	99.8	65.7	24.5	18.6	166.8	48.7	12.9
Maryland‡	—	—	—	—	—	—	—	—	—	—	—	—
Massachusetts†	604.0	455.9	133.8	67.6	48.4	86.0	63.0	24.1	17.1	170.2	46.5	12.9
Michigan†	608.0	440.2	127.0	61.0	45.7	94.3	61.3	25.0	18.5	186.4	42.5	10.7
Minnesota†	568.8	418.6	129.3	57.9	43.1	71.4	49.2	26.4	18.1	185.9	40.0	10.5
Mississippi (2002-2005)	555.6	365.5	105.8	62.9	45.2	110.1	50.9	19.9	13.0	161.9	28.3	7.4
Missouri†	545.3	414.6	123.0	64.7	46.1	105.4	61.8	21.8	15.9	131.5	36.2	9.2
Montana†	561.2	412.3	122.6	55.4	41.5	78.2	57.9	23.2	15.0	182.4	41.9	9.3
Nebraska†	557.0	417.9	127.8	68.5	48.0	84.5	48.8	24.0	16.9	157.3	37.8	10.0
Nevada†	539.9	415.8	116.0	56.9	43.1	84.3	69.5	21.9	15.0	148.7	43.0	11.2
New Hampshire†	586.7	451.9	132.3	61.7	46.9	82.3	61.5	24.4	18.1	162.7	47.9	13.5
New Jersey†	612.5	451.5	129.8	68.3	50.0	80.9	56.0	25.9	17.7	183.9	46.0	12.2
New Mexico†	490.7	367.7	111.7	50.8	35.4	59.1	38.5	18.4	14.0	149.3	28.0	7.0
New York†	575.7	432.7	124.6	63.4	47.2	80.5	53.7	24.3	16.9	165.9	42.1	11.2
North Carolina‡	—	—	—	—	—	—	—	—	—	—	—	—
North Dakota†	543.8	396.7	122.5	68.3	44.1	74.9	47.1	22.6	15.3	170.8	36.7	9.9
Ohio	543.8	413.6	121.9	62.7	45.8	97.2	58.9	22.8	16.2	145.6	38.7	9.7
Oklahoma†	551.3	409.2	126.4	61.2	43.9	107.4	63.8	22.3	16.2	147.0	33.8	8.1
Oregon†	533.4	430.0	134.7	54.4	41.7	79.9	60.4	24.1	17.5	151.4	40.3	10.4
Pennsylvania†	593.9	444.0	125.7	68.4	49.6	91.6	55.7	24.8	17.3	161.4	44.6	11.3
Rhode Island†	616.7	446.9	127.5	67.8	46.8	94.5	59.5	25.0	16.7	161.6	51.6	12.9
South Carolina†	589.6	395.2	119.2	63.5	44.9	103.8	52.3	20.6	14.5	172.3	32.6	7.7
South Dakota†	568.5	406.0	125.5	63.8	46.7	80.3	45.0	22.4	17.4	183.0	39.7	8.3
Tennessee§	496.9	377.4	115.3	57.7	42.2	105.0	56.4	19.4	14.2	120.3	31.5	7.8
Texas†	546.5	390.9	116.3	59.5	40.5	90.4	51.2	22.2	16.1	146.6	30.2	7.4
Utah†	493.1	348.2	112.9	46.3	34.1	39.6	22.4	22.9	15.8	185.0	29.1	6.4
Vermont‡	—	—	—	—	—	—	—	—	—	—	—	—
Virginia	515.6	376.4	119.5	56.7	42.3	86.1	51.9	19.6	13.1	154.1	32.1	8.3
Washington†	571.2	447.7	138.9	54.6	41.4	80.5	60.0	26.9	18.4	167.7	41.6	10.4
West Virginia†	576.0	433.6	115.3	70.6	51.7	117.0	69.4	22.3	16.0	139.4	40.0	11.4
Wisconsin‡	—	—	—	—	—	—	—	—	—	—	—	—
Wyoming†	515.5	394.8	117.9	49.4	43.6	62.6	47.2	20.6	16.3	171.2	41.5	9.5
United States	**562.3**	**417.3**	**123.6**	**61.2**	**44.8**	**87.3**	**55.4**	**23.2**	**16.3**	**158.2**	**38.4**	**9.8**

*Per 100,000, age adjusted to the 2000 US standard population.

†This state's registry has submitted 5 years of data and passed rigorous criteria for each single year's data, including completeness of reporting, nonduplication of records, percentage unknown in critical data fields, percentage of cases registered with information from death certificates only, and internal consistency among data items.

‡This state's registry did not submit incidence data to the North American Association of Central Cancer Registries for 2001-2005.

§Case ascertainment for this state's registry is incomplete for the years 2001-2005.

Source: North American Association of Central Cancer Registries, based on data collected by cancer registries participating in the National Cancer Institute's Surveillence, Epidemiology, and End Results program and Centers for Disease Control's National Program of Cancer Registries.

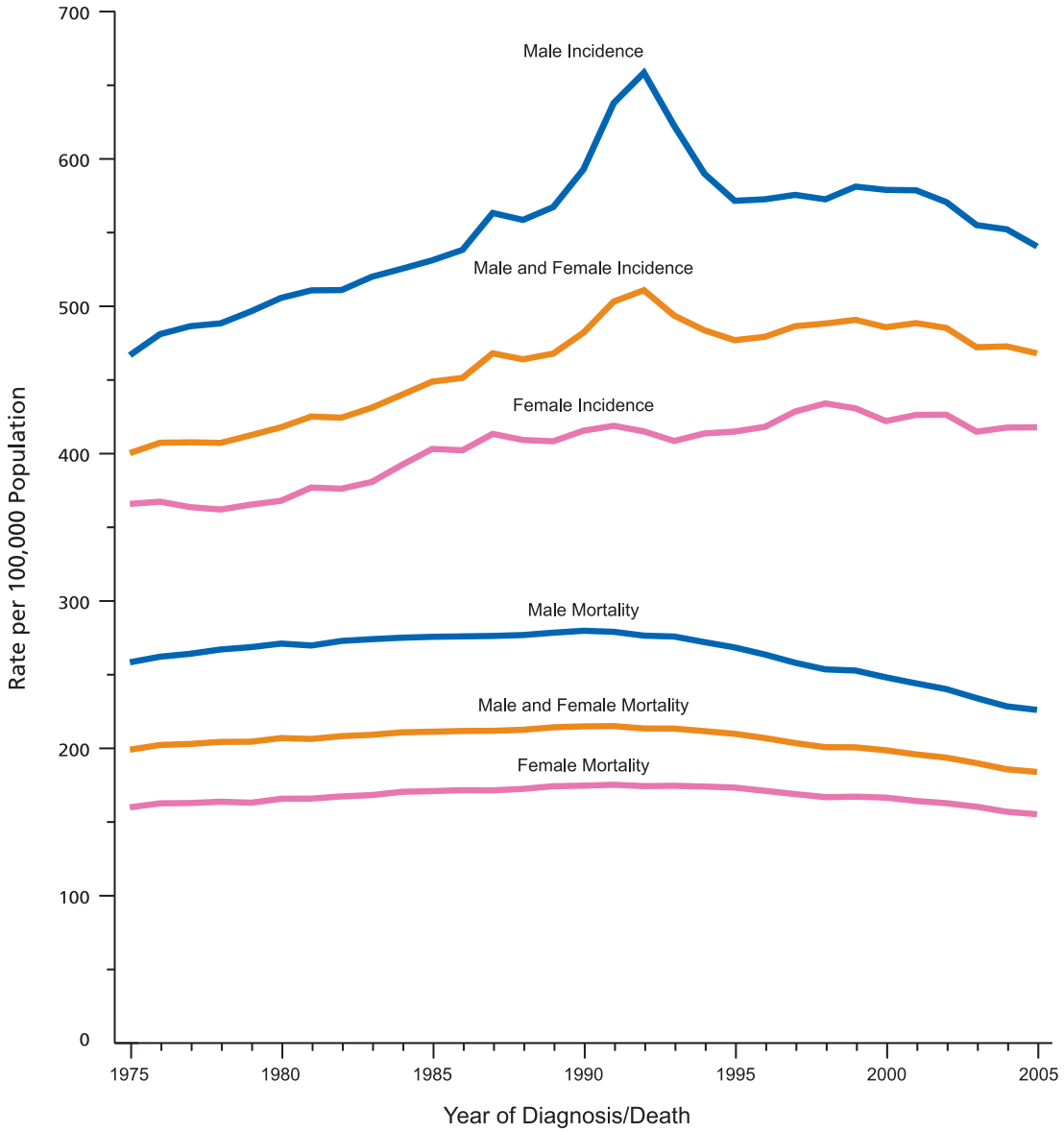

FIGURE 2. Annual Age-adjusted Cancer Incidence and Death Rates for All Sites by Sex, United States, 1975-2005.
Rates are age adjusted to the 2000 US standard population. Incidence rates are adjusted for delays in reporting. Source: Incidence, Surveillance, Epidemiology, and End Results (SEER) program (www.seer.cancer.gov). Delay-adjusted incidence database, SEER incidence delay-adjusted rates from nine registries, 1975 to 2005. National Cancer Institute, DCCPS, Surveillance Research Program, Statistical Research and Applications Branch, released in April 2008, based on the November 2007 SEER data submission. Mortality, US mortality data, 1960 to 2005, National Center for Health Statistics, Centers for Disease Control and Prevention, 2008.

1995 through 2005 from 41 states and the District of Columbia that met NAACCR's high-quality data standard for incidence, covering about 85% of the US population. The method also considers geographic variations in sociodemographic and lifestyle factors, medical settings, and cancer-screening behaviors as predictors of incidence, and accounts for expected delays in case reporting.

Estimated Cancer Deaths

We used the state-space prediction method[13] to estimate the number of cancer deaths expected to occur in the United States and in each state in the year 2009. Projections are based on underlying cause-of-death from death certificates as reported to the NCHS.[1] This model projects the number of cancer deaths expected to occur in 2009 on the basis of the number that occurred each year from 1969 to 2006 in the United States and in each state separately.

Other Statistics

We provide mortality statistics for the leading causes of death as well as deaths from cancer in the year 2006. Causes of death for 2006 were coded and

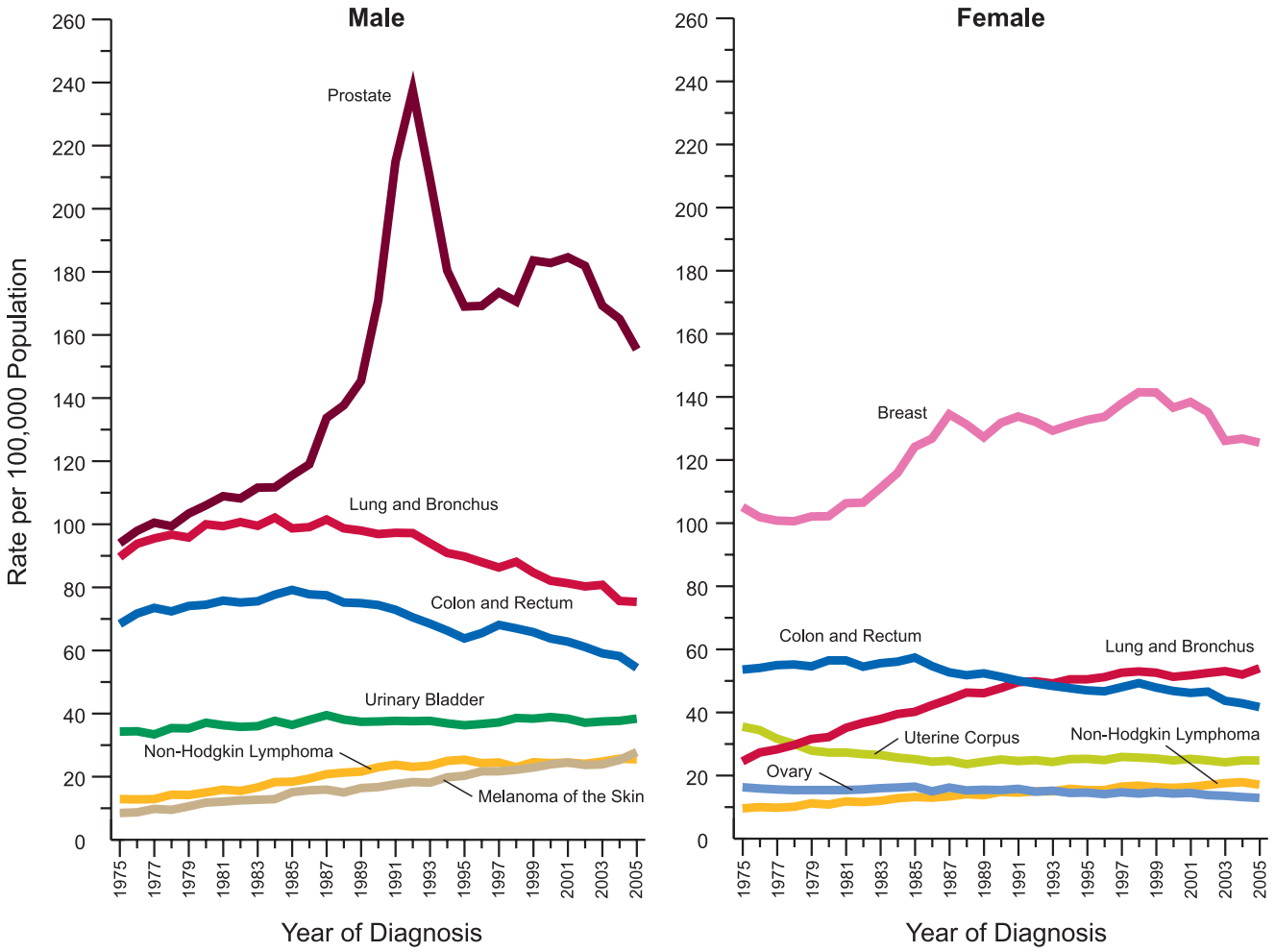

FIGURE 3. Annual Age-adjusted Cancer Incidence Rates among Males and Females for Selected Cancers, United States, 1975-2005.

Rates are age adjusted to the 2000 US standard population and adjusted for delays in reporting. Source: Surveillance, Epidemiology, and End Results (SEER) program (www.seer.cancer.gov). Delay-adjusted incidence database, SEER Incidence Delay-Adjusted Rates, from nine registries, 1975 to 2005. National Cancer Institute, DCCPS, Surveillance Research Program, Statistical Research and Applications Branch, released April 2008, based on the November 2007 SEER data submission.

classified according to ICD-10.[8] This report also provides updated statistics on trends in cancer incidence and mortality rates, the probability of developing cancer, and 5-year relative-survival rates for selected cancer sites based on data from 1975 through 2005.[3] All age-adjusted incidence and death rates are standardized to the 2000 US standard population and expressed per 100,000 population.

The long-term incidence rates and trends (1975 to 2005) are adjusted for delays in reporting where possible. Delayed reporting primarily affects the most recent 1-3 years of incidence data (in this case, 2003-2005), especially for cancers such as melanoma, leukemia, and prostate that are frequently diagnosed in outpatient settings. The NCI has developed a method to account for expected reporting delays in SEER registries for all cancer sites combined and many specific cancer sites.[14] Delay-adjusted rates provide a more accurate assessment of trends in the most recent years for which data are available. Long-term incidence and mortality trends (1975-2005) for selected cancer sites were previously published in the *2008 Annual Report to the Nation on the Status of Cancer*.[15]

We also provide the contribution of individual cancer sites to the total decrease in overall cancer death rates since 1990 in men and since 1991 in women and estimates of the total number of cancer deaths avoided because of the reduction in overall age-standardized cancer death rates over these time intervals. The total number of cancer deaths avoided was calculated by applying the age-specific cancer death rates in the peak year for the age-standardized cancer death rates (1990 for males and 1991 for females) to the corresponding age-specific popula-

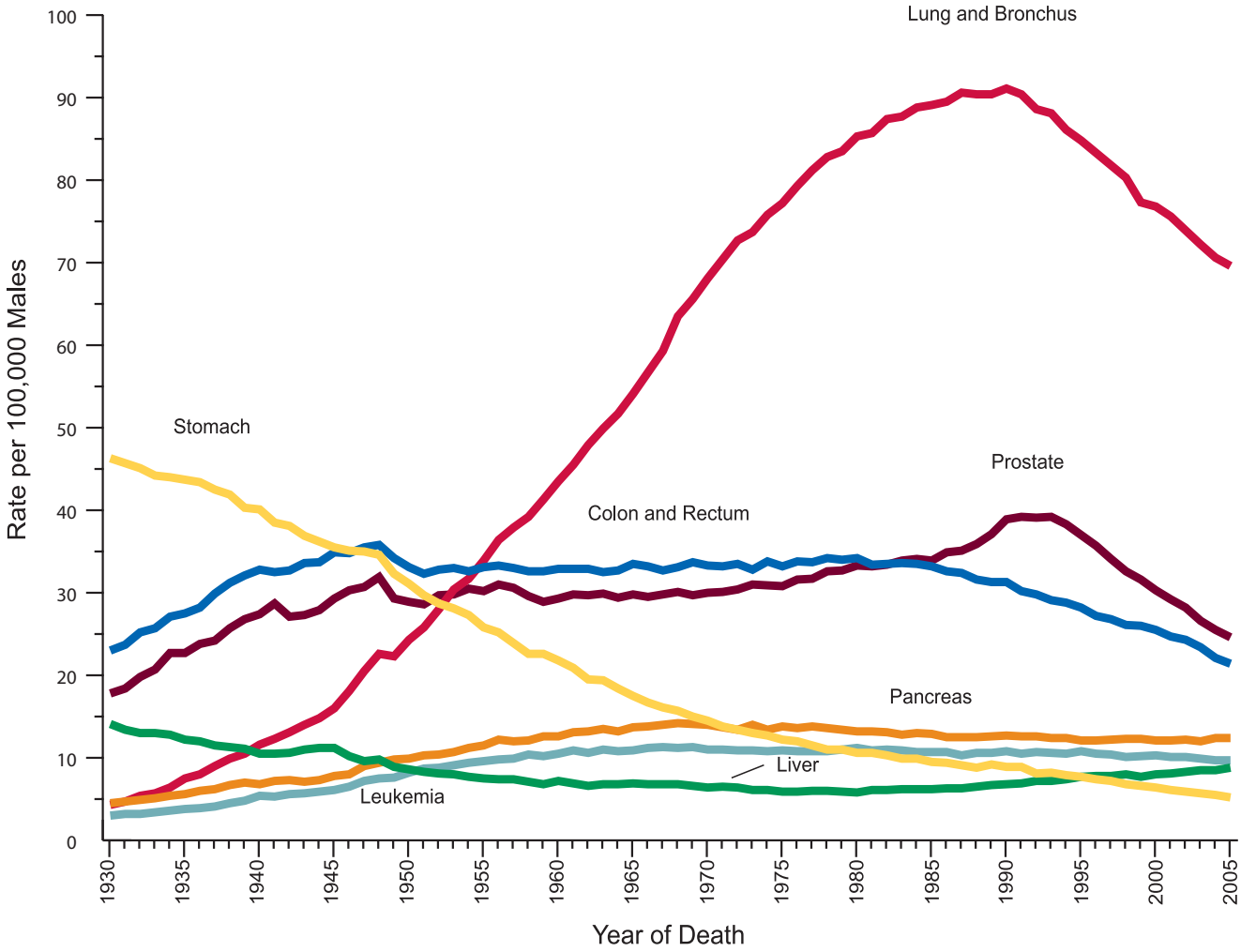

FIGURE 4. Annual Age-adjusted Cancer Death Rates among Males for Selected Cancers, United States, 1930-2005.
Rates are age adjusted to the 2000 US population. Due to changes in ICD coding, numerator information has changed over time. Rates for cancers of the lung and bronchus, colon and rectum, and liver are affected by these changes.
Source: US mortality data, 1960 to 2005, US Mortality Vol. 1930-1959, National Cancer Institute, Centers for Disease Control and Prevention, 2008.

tions in the subsequent years through 2005 to obtain the number of expected deaths in each calendar year had the death rates not decreased. We then summed the difference between the number of expected and observed deaths in each age group and calendar year for men and women separately to obtain the total number of cancer deaths avoided over the 14-year (women) or 15-year (men) interval.

Selected Findings

Expected Numbers of New Cancer Cases

Table 1 presents estimates of the number of new cases of invasive cancer expected among men and women in the United States in 2009. The overall estimate of about 1.5 million new cases does not include carcinoma in situ of any site except urinary bladder, nor does it include basal-cell and squamous-cell cancers of the skin. More than 1 million additional cases of basal-cell and squamous-cell skin cancers, about 62,280 cases of breast carcinoma in situ, and 53,120 cases of melanoma in situ are expected to be newly diagnosed in 2009. The estimated numbers of new cancer cases for each state and selected cancer sites are shown in Table 2.

Figure 1 indicates the most common cancers expected to occur in men and women in 2009. Among men, cancers of the prostate, lung and bronchus, and colon and rectum account for about 50% of all newly diagnosed cancers. Prostate cancer alone accounts for 25% (192,280) of incident cases in men. On the basis of cases diagnosed

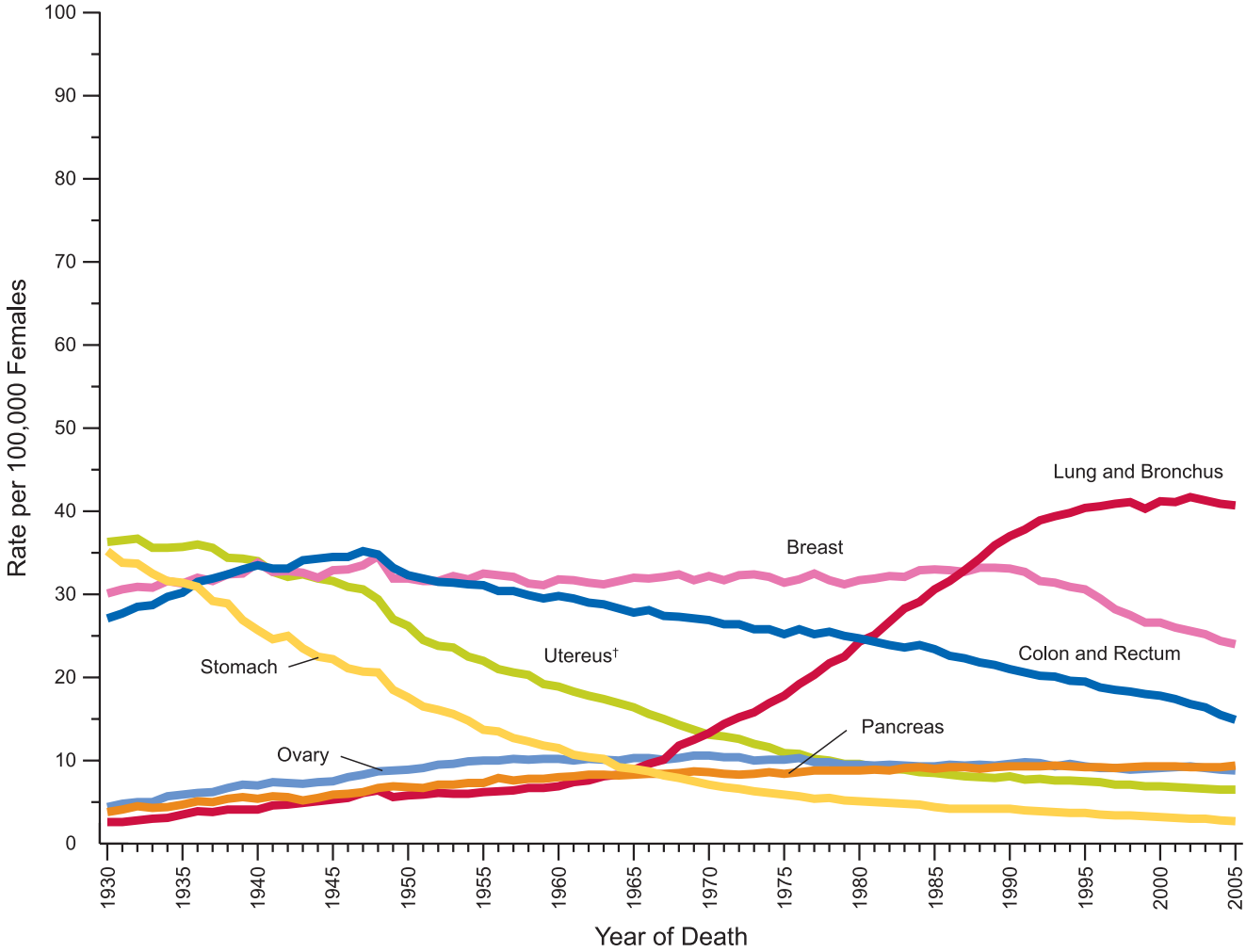

FIGURE 5. Annual Age-adjusted Cancer Death Rates* among Females for Selected Cancers, United States, 1930-2005.
*Rates are age adjusted to the 2000 US standard population.
†Uterus includes uterine cervix and uterine corpus. Due to changes in ICD coding, numerator information has changed over time. Rates for cancers of the uterus, ovary, lung and bronchus, and colon and rectum are affected by these changes. Source: US mortality data, 1960 to 2005, US Mortality Vol. 1930 to 1959, National Center for Health Statistics, Centers for Disease Control and Prevention, 2008.

between 1996 and 2004, an estimated 91% of these new cases of prostate cancer are expected to be diagnosed at local or regional stages, for which 5-year relative survival approaches 100%.

The three most commonly diagnosed types of cancer among women in 2009 will be cancers of the breast, lung and bronchus, and colon and rectum, accounting for 51% of estimated cancer cases in women. Breast cancer alone is expected to account for 27% (192,370) of all new cancer cases among women.

Expected Number of Cancer Deaths

Table 1 also shows the expected number of deaths from cancer projected for 2009 for men, women, and both sexes combined. It is estimated that about 562,340 Americans will die from cancer, corresponding to more than 1,500 deaths per day. Cancers of the lung and bronchus, prostate, and colorectum in men, and cancers of the lung and bronchus, breast, and colorectum in women continue to be the most common fatal cancers. These four cancers account for almost half of the total cancer deaths among men and women (Fig. 1). Lung cancer surpassed breast cancer as the leading cause of cancer death in women in 1987. Lung cancer is expected to account for 26% of all female cancer deaths in 2009. Table 3 provides the estimated number of cancer deaths in 2009 by state for selected cancer sites.

Regional Variations in Cancer Rates

Table 4 depicts cancer incidence rates for selected cancer sites by state. By far, the largest variation in incidence among the cancer sites listed in Table 4 is seen for lung cancer, where rates (cases per

TABLE 5. Trends in Cancer Incidence and Death Rates for Selected Cancers by Sex, United States, 1975-2005

	TREND 1		TREND 2		TREND 3		TREND 4		TREND 5	
	YEARS	APC*	YEARS	APC*	YEARS	APC*	YEARS	APC*	YEARS	APC*
All sites										
Incidence										
Male and female	1975-1989	1.2†	1989-1992	2.8†	1992-1995	-2.4	1995-1999	0.9	1999-2005	-0.8†
Male	1975-1989	1.3†	1989-1992	5.2†	1992-1995	-4.8†	1995-2001	0.3	2001-2005	-1.8†
Female	1975-1979	-0.3	1979-1987	1.6†	1987-1995	0.1	1995-1998	1.4	1998-2005	-0.6†
Death										
Male and female	1975-1990	0.5†	1990-1993	-0.3	1993-2002	-1.1†	2002-2005	-1.8†		
Male	1975-1979	1.0†	1979-1990	0.3†	1990-1993	-0.5	1993-2001	-1.5†	2001-2005	-2.0†
Female	1975-1990	0.6†	1990-1994	-0.2	1994-2002	-0.8†	2002-2005	-1.6†		
Lung and bronchus										
Incidence										
Male	1975-1982	1.5†	1982-1991	-0.5	1991-2005	-1.8†				
Female	1975-1982	5.6†	1982-1991	3.4†	1991-2005	0.5†				
Death										
Male	1975-1978	2.5†	1978-1984	1.2†	1984-1990	0.4†	1990-1993	-1.1	1993-2005	-1.9†
Female	1975-1982	6.0†	1982-1990	4.2†	1990-1995	1.7†	1995-2003	0.3†	2003-2005	-0.9
Colon and rectum										
Incidence										
Male	1975-1985	1.1†	1985-1991	1.2†	1991-1995	-3.1†	1995-1998	1.9	1998-2005	-2.8†
Female	1975-1985	0.3	1985-1995	-1.9†	1995-1998	1.9	1998-2005	-2.2†		
Death										
Male	1975-1978	0.8	1978-1984	-0.4	1984-1990	-1.3†	1990-2002	-2.0†	2002-2005	-4.3†
Female	1975-1984	-1.0†	1984-2002	-1.8†	2002-2005	-4.3†				
Female breast										
Incidence	1975-1980	-0.6	1980-1987	4.0†	1987-1994	-0.2	1994-1999	1.7†	1999-2005	-2.2†
Death	1975-1990	0.4†	1990-1995	-1.8†	1995-1998	-3.3†	1998-2005	-1.8†		
Prostate										
Incidence	1975-1988	2.6†	1988-1992	16.5†	1992-1995	-11.5†	1995-2001	2.1†	2001-2005	-4.4†
Death	1975-1987	0.9†	1987-1991	3.0†	1991-1994	-0.6	1994-2005	-4.1†		

Trends were analyzed by Joinpoint Regression Program, version 3.2.0, with a maximum of four joinpoints (ie, five line segments).

*Annual percentage change (APC) based on incidence (delay adjusted) and mortality rates age adjusted to the 2000 US standard population.

†The APC is significantly different from zero.

Source: Jemal, et al.[15]

100,000 population) range from 39.6 in men and 22.4 in women in Utah to 136.2 in men and 76.2 in women in Kentucky. This variation reflects the large and continuing differences in smoking prevalence among states. Utah ranks lowest in adult-smoking prevalence and Kentucky highest. In contrast, state variation in the incidence rates of other cancer sites shown in Table 4 was smaller in both absolute and proportionate terms. For prostate and female breast cancers in particular, variation in incidence reflects differences in the use of screening tests in addition to differences in disease occurrence.

Trends in Cancer Incidence and Mortality

Figures 2 to 5 depict long-term trends in cancer incidence and death rates for all cancers combined and for selected cancer sites by sex. Table 5 shows incidence and mortality patterns for all cancer sites and for the four most common cancer sites based on join point analysis. Trends in incidence were adjusted for delayed reporting. Delay-adjusted cancer incidence rates decreased by 1.8% per year from 2001-2005 in males and by 0.6% per year from 1998-2005 in females. Death rates for all cancer sites combined decreased by 2.0% per year from 2001-2005 in males and by 1.6% per year in females from 2002-2005, compared with declines of 1.5% per year in males from 1993-2001 and 0.8% per year in females from 1994-2002.

Mortality rates have continued to decrease across all four major cancer sites in both men and women, except for female lung cancer, for which rates stabilized from 2003 to 2005 after increasing for many decades (Table 5). Similarly, incidence trends decreased for all four major cancer sites

TABLE 6. Contribution of Indvidual Cancer Sites to Decreases in Cancer Death Rates, 1990-2005 for Males and 1991-2005 for Females

	DEATH RATES PER 100,000		CHANGE		
MALES	**1990***	**2005**	**ABSOLUTE**	**PERCENT**	**CONTRIBUTION (%)†**
All malignant cancers	279.82	226.11	-53.71	-19.19	
Decreasing					
Lung and bronchus	90.56	69.39	-21.17	-23.38	37.0
Prostate	38.56	24.65	-13.91	-36.07	24.3
Colon and rectum	30.77	20.98	-9.79	-31.82	17.1
Pancreas	12.59	12.36	-0.23	-1.83	0.4
Leukemia	10.71	9.70	-1.01	-9.43	1.8
Non-Hodgkin lymphoma	9.97	8.77	-1.20	-12.04	2.1
Urinary bladder	7.97	7.56	-0.41	-5.14	0.7
Kidney and renal pelvis	6.16	5.92	-0.24	-3.90	0.4
Brain and other nervous system	5.97	5.31	-0.66	-11.06	1.2
Stomach	8.86	5.24	-3.62	-40.86	6.3
Myeloma	4.83	4.48	-0.35	-7.25	0.6
Oral cavity and pharynx	5.61	3.84	-1.77	-31.55	3.1
Larynx	2.97	2.24	-0.73	-24.58	1.3
Soft tissue including heart	1.52	1.43	-0.09	-5.92	0.2
Hodgkin lymphoma	0.85	0.50	-0.35	-41.18	0.6
Gallbladder	0.60	0.46	-0.14	-23.33	0.2
Small intestine	0.50	0.44	-0.06	-12.00	0.1
Other	24.58	23.13	-1.45	-5.90	2.5
Total			**-57.18**		100.0
Increasing					
Esophagus	7.16	7.94	0.78	10.89	22.5
Liver and intrahepatic bile duct	5.27	7.76	2.49	47.25	71.8
Melanoma of the skin	3.80	4.00	0.20	5.26	5.8
Total			**3.47**		100.0

	DEATH RATE PER 100,000		CHANGE		
FEMALES	**1991***	**2005**	**ABSOLUTE**	**PERCENT**	**CONTRIBUTION (%)†**
All malignant cancers	175.30	155.34	-19.96	-11.39	
Decreasing					
Breast	32.69	24.00	-8.69	-26.58	36.5
Colon and rectum	20.30	14.62	-5.68	-27.98	23.9
Ovary	9.51	8.62	-0.89	-9.36	3.7
Non-Hodgkin lymphoma	6.74	5.49	-1.25	-18.55	5.3
Leukemia	6.32	5.40	-0.92	-14.56	3.9
Corpus and uterus, NOS	4.18	4.10	-0.08	-1.91	0.3
Brain and other nervous system	4.11	3.52	-0.59	-14.36	2.5
Myeloma	3.26	2.89	-0.37	-11.35	1.6
Kidney and renal pelvis	2.95	2.72	-0.23	-7.80	1.0
Stomach	4.01	2.71	-1.30	-32.42	5.5
Cervix Uteri	3.49	2.42	-1.07	-30.66	4.5
Urinary bladder	2.34	2.21	-0.13	-5.56	0.5
Melanoma of the skin	1.82	1.80	-0.02	-1.10	0.1
Esophagus	1.81	1.66	-0.15	-8.29	0.6
Oral cavity and pharynx	2.03	1.43	-0.60	-29.56	2.5
Soft tissue including heart	1.28	1.15	-0.13	-10.16	0.5
Gallbladder	1.09	0.80	-0.29	-26.61	1.2
Other	17.97	16.57	-1.40	-7.79	5.9
Total			**-23.79**		100.0
Increasing					
Lung and bronchus	37.61	40.59	2.98	7.92	77.8
Pancreas	9.28	9.45	0.17	1.83	4.4
Liver and intrahepatic bile duct	2.51	3.19	0.68	27.09	17.8
Total			**3.83**		100.0

*Death rates from cancer peaked in 1990 for men and in 1991 for women.

†This calculation is based on each cancer site's contribution to the increasing or decreasing portion of the total cancer death rate, depending on the individual site's trend; it does not represent the contribution to the net decrease in cancer death rates.

TABLE 7. Fifteen Leading Causes of Death, United States, 2006

RANK	CAUSE OF DEATH	NO. OF DEATHS	PERCENTAGE (%) OF TOTAL DEATHS	DEATH RATE*
	All Causes	**2,426,264**	**100.0**	**776.5**
1	Heart diseases	631,636	26.0	200.2
2	Cancer	559,888	23.1	180.7
3	Cerebrovascular diseases	137,119	5.7	43.6
4	Chronic lower respiratory diseases	124,583	5.1	40.5
5	Accidents (unintentional injuries)	121,599	5.0	39.8
6	Diabetes mellitus	72,449	3.0	23.3
7	Alzheimer disease	72,432	3.0	22.6
8	Influenza & pneumonia	56,326	2.3	17.8
9	Nephritis, nephrotic syndrome, & nephrosis	45,344	1.9	14.5
10	Septicemia	34,234	1.4	11.0
11	Intentional self-harm (suicide)	33,300	1.4	10.9
12	Chronic liver disease & cirrhosis	27,555	1.1	8.8
13	Essential hypertension & hypertensive renal disease†	23,855	1.0	7.5
14	Parkinson disease	19,566	0.8	6.3
15	Assault (homicide)	18,573	0.8	6.2
	All other & ill-defined causes	447,805	18.5	—

*Rates are per 100,000 population and age adjusted to the 2000 US standard population.

†Includes primary and secondary hypertension.

Note: Percentages may not total 100 because of rounding. In accordance with the National Center for Health Statistics' cause-of-death ranking, "Symptoms, signs, and abnormal clinical or laboratory findings" and categories that begin with "Other" and "All other" were not ranked.

Source: US Mortality Data, 2006, National Center for Health Statistics, Centers for Disease Control and Prevention, 2009.

TABLE 8. Trends in the Recorded Number of Deaths from Selected Cancers by Sex, United States, 1990-2006

	ALL SITES		LUNG AND BRONCHUS		COLORECTUM		PROSTATE	BREAST
YEAR	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
1990	268,283	237,039	91,014	50,136	28,484	28,674	32,378	43,391
1991	272,380	242,277	91,603	52,022	28,026	28,753	33,564	43,583
1992	274,838	245,740	91,322	54,485	28,280	28,714	34,240	43,068
1993	279,375	250,529	92,493	56,234	28,199	29,206	34,865	43,555
1994	280,465	253,845	91,825	57,535	28,471	28,936	34,902	43,644
1995	281,611	256,844	91,800	59,304	28,409	29,237	34,475	43,844
1996	281,898	257,635	91,559	60,351	27,989	28,766	34,123	43,091
1997	281,110	258,467	91,278	61,922	28,075	28,621	32,891	41,943
1998	282,065	259,467	91,399	63,075	28,024	28,950	32,203	41,737
1999	285,832	264,006	89,401	62,662	28,313	28,909	31,729	41,144
2000	286,082	267,009	90,415	65,016	28,484	28,950	31,078	41,872
2001	287,075	266,693	90,367	65,606	28,229	28,579	30,719	41,394
2002	288,768	268,503	90,121	67,509	28,472	28,132	30,446	41,514
2003	287,990	268,912	89,908	68,084	27,991	27,793	29,554	41,620
2004	286,830	267,058	89,575	68,431	26,881	26,699	29,002	40,954
2005	290,422	268,890	90,141	69,079	26,783	26,224	28,905	41,116
2006	290,069	269,819	89,243	69,357	26,803	26,396	28,372	40,821

Note: Effective with the mortality data for 1999, causes of death are classified by ICD-10, replacing ICD-9 used for 1990 to 1998 data.

Source: US Mortality Data, 1990 to 2006, National Center for Health Statistics, Centers for Disease Control and Prevention, 2009.

except for lung cancer in women, in whom rates are still increasing although at a much slower rate than in the previous years. The lag in the temporal trend of lung cancer rates in women compared with men reflects historical differences in cigarette smoking between men and women; cigarette smoking in women peaked about 20 years later than in men. The accelerated decrease in colorectal cancer incidence rates from 1998 to 2005 largely reflects increases in screening that can detect and remove precancerous polyps. The decrease in the breast cancer incidence rate since 1999 likely reflects a combination of two factors: the decrease in use of menopausal hormone therapy among postmenopausal women and delayed diagnosis because of decreased mammography utilization.[16-17] The sharp

TABLE 9. Ten Leading Causes of Death by Age and Sex, United States, 2006

	ALL AGES		AGES 1 TO 19 Y		AGES 20 TO 39 Y		AGES 40 TO 59 Y		AGES 60 TO 79 Y		AGES ≥80 Y	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
	All Causes 1,201,942	**All Causes 1,224,322**	**All Causes 16,084**	**All Causes 8,435**	**All Causes 66,471**	**All Causes 29,128**	**All Causes 228,564**	**All Causes 141,064**	**All Causes 460,006**	**All Causes 376,145**	**All Causes 414,666**	**All Causes 656,954**
1	Heart diseases 315,706	Heart diseases 315,930	Accidents (unintentional injuries) 7,009	Accidents (unintentional injuries) 3,518	Accidents (unintentional injuries) 24,620	Accidents (unintentional injuries) 7,712	Heart diseases 54,918	Cancer 51,449	Cancer 150,835	Cancer 126,619	Heart diseases 131,920	Heart diseases 209,723
2	Cancer 290,069	Cancer 269,819	Assault (homicide) 2,444	Cancer 829	Intentional self-harm (suicide) 8,738	Cancer 4,835	Cancer 54,461	Heart diseases 22,130	Heart diseases 122,655	Heart diseases 81,157	Cancer 79,411	Cancer 86,047
3	Accidents (unintentional injuries) 78,941	Cerebro-vascular disease 82,595	Intentional self-harm (suicide) 1,415	Assault (homicide) 603	Assault (homicide) 8,202	Heart diseases 2,442	Accidents (unintentional injuries) 25,333	Accidents (unintentional injuries) 10,833	Chronic lower respiratory diseases 29,478	Chronic lower respiratory diseases 29,204	Cerebro-vascular disease 25,952	Cerebro-vascular disease 55,096
4	Chronic lower respiratory diseases 59,260	Chronic lower respiratory diseases 65,323	Cancer 1,130	Congenital anomalies 522	Heart diseases 5,531	Intentional self-harm (suicide) 1,996	Intentional self-harm (suicide) 10,337	Cerebro-vascular disease 5,648	Cerebro-vascular disease 20,600	Cerebro-vascular disease 21,069	Chronic lower respiratory diseases 24,641	Alzheimer disease 44,265
5	Cerebro-vascular disease 54,524	Alzheimer disease 51,281	Congenital anomalies 565	Intentional self-harm (suicide) 359	Cancer 4,188	Assault (homicide) 1,551	Chronic liver disease & cirrhosis 9,707	Diabetes mellitus 4,891	Diabetes mellitus 17,190	Diabetes mellitus 14,963	Alzheimer disease 16,111	Chronic lower respiratory diseases 31,198
6	Diabetes mellitus 36,006	Accidents (unintentional injuries) 42,658	Heart diseases 465	Heart diseases 309	HIV disease 1,906	HIV disease 1,033	Diabetes mellitus 7,420	Chronic lower respiratory diseases 4,566	Accidents (unintentional injuries) 11,726	Nephritis, nephrotic syndrome & nephrosis 7,724	Influenza & pneumonia 14,843	Influenza & pneumonia 22,077
7	Intentional self-harm (suicide) 26,308	Diabetes mellitus 36,443	Chronic lower respiratory diseases 146	Influenza & pneumonia 132	Diabetes mellitus 871	Diabetes mellitus 633	Cerebro-vascular disease 7,008	Chronic liver disease & cirrhosis 4,001	Nephritis, nephrotic syndrome & nephrosis 8,529	Accidents (unintentional injuries) 7,379	Diabetes mellitus 10,480	Diabetes mellitus 15,917
8	Influenza & pneumonia 25,650	Influenza & pneumonia 30,676	Influenza & pneumonia 134	Cerebro-vascular disease 104	Cerebro-vascular disease 763	Cerebro-vascular disease 618	HIV disease 5,927	Intentional self-harm (suicide) 3,357	Influenza & pneumonia 7,790	Alzheimer disease 6,841	Nephritis, nephrotic syndrome & nephrosis 10,334	Nephritis, nephrotic syndrome & nephrosis 13,213
9	Nephritis, nephrotic syndrome & nephrosis 22,094	Nephritis, nephrotic syndrome & nephrosis 23,250	Septicemia 119	Septicemia 103	Chronic liver disease & cirrhosis 687	Pregnancy, childbirth & puerperium 610	Chronic lower respiratory diseases 4,676	Septicemia 2,098	Septicemia 6,477	Septicemia 6,621	Accidents (unintentional injuries) 9,538	Accidents (unintentional injuries) 12,727
10	Alzheimer disease 21,151	Septicemia 18,712	Cerebro-vascular disease 118	In situ & benign neoplasms 100	Congenital anomalies 537	Chronic liver disease & cirrhosis 362	Viral hepatitis 3,442	HIV disease 2,045	Chronic liver disease & cirrhosis 6,272	Influenza & pneumonia 6,399	Parkinson disease 7,085	Hypertension & hypertensive renal disease* 9,718

*Includes primary and secondary hypertension.

Note: Deaths within each age group do not sum to all ages combined because of the inclusion of unknown ages. In accordance with the National Center for Health Statistics' cause-of-death ranking, "Symptoms, signs, and abnormal clinical or laboratory findings" and categories that begin with "Other" and "All other" were not ranked.

Source: US Mortality Data, 2006, National Center for Health Statistics, Centers for Disease Control and Prevention, 2009.

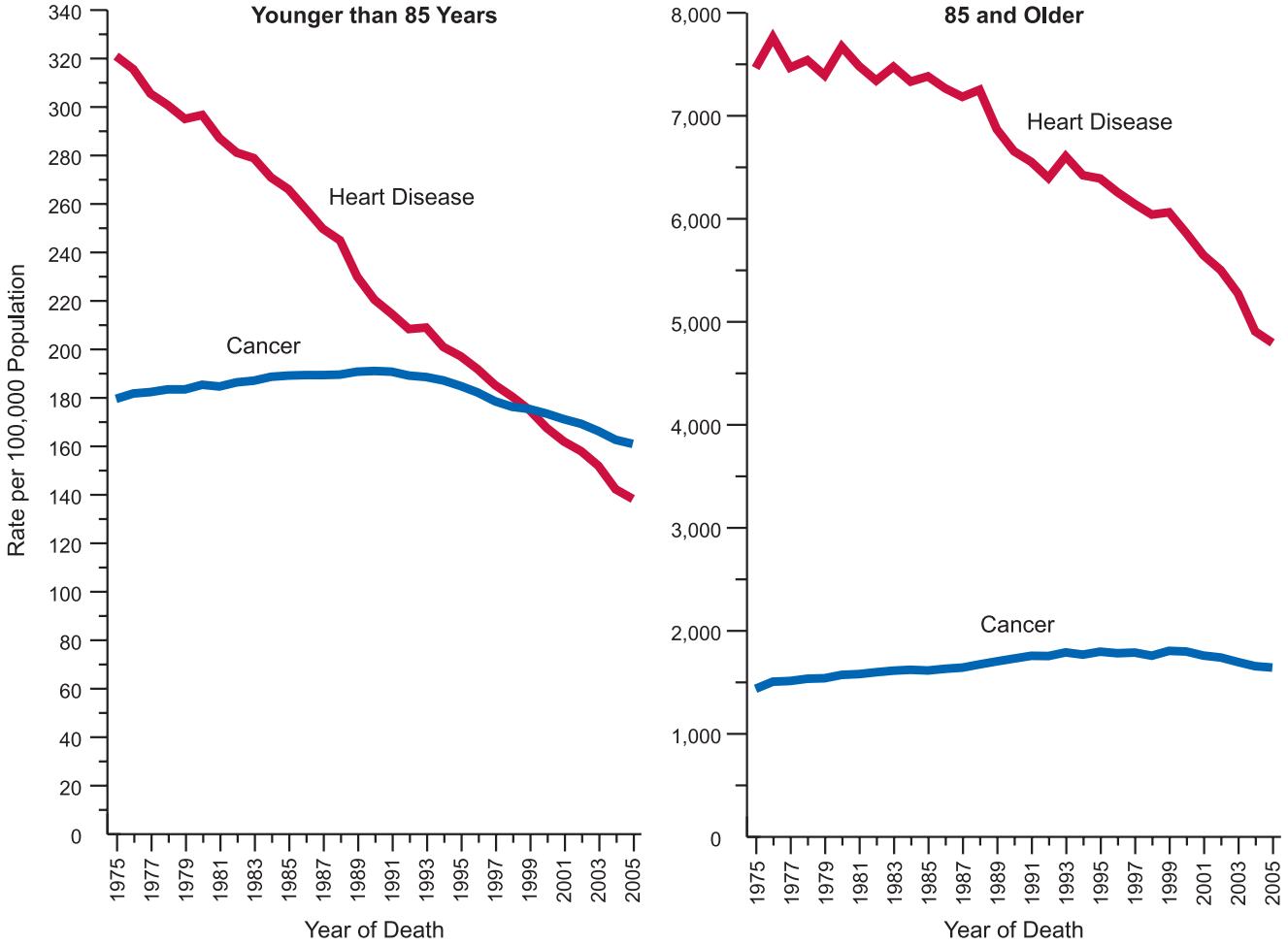

FIGURE 6. Death Rates for Cancer and Heart Disease for Ages Younger than 85 Years and 85 Years and Older, 1975-2005.
Rates are age adjusted to the 2000 US standard population. Source: US Mortality Data, 1960 to 2005, National Center for Health Statistics, Centers for Disease Control and Prevention, 2008.

decrease in prostate cancer incidence rates (by 4.4% per year from 2001-2005) may reflect recent stabilization of prostate-specific antigen (PSA) testing, which has resulted in decreased detection, or reduced number of undiagnosed cases.[18-20]

Table 6 shows the contribution of individual cancer sites to the total decrease in overall cancer death rates. Death rates from all cancers combined peaked in 1990 for men and in 1991 for women. Between 1990-1991 and 2005, death rates from cancer decreased by 19.2% among men and by 11.4% among women. Among men, reduction in death rates from lung, prostate, and colorectal cancers accounted for nearly 80% of the total decrease in cancer death rates, whereas reduction in death rates from breast and colorectal cancers accounted for 60% of the decrease among women. Lung cancer in men and breast cancer in women alone account for nearly 40% of sex-specific decreases in cancer death rates. The decrease in lung cancer death rates among men is due to reduction in tobacco use during the past 50 years, while the decrease in death rates for female breast, colorectal, and prostate cancer largely reflects improvements in early detection and/or treatment. Between 1990-1991 and 2005, death rates increased for liver cancer in both men and women, for esophageal cancer and melanoma in men, and for lung and pancreatic cancer in women.

Recorded Number of Deaths from Cancer in 2006

A total of 559,888 cancer deaths were recorded in the United States in 2006, the most recent year for which actual data are available, accounting for about 23% of all deaths (Table 7). Despite a decrease in age-standardized death rates, there were 568 more cancer deaths reported in 2006 than in 2005 due to the growth and aging of the population (Table 8). This

TABLE 10. Reported Deaths for the Five Leading Cancer Sites by Age and Sex, United States, 2006

ALL AGES	<20 Y	20 TO 39 Y	40 TO 59 Y	60 TO 79 Y	≥80 Y
MALE					
ALL SITES 290,069	**ALL SITES 1,169**	**ALL SITES 4,188**	**ALL SITES 54,461**	**ALL SITES 150,835**	**ALL SITES 79,411**
Lung & bronchus 89,243	Leukemia 359	Leukemia 609	Lung & bronchus 15,814	Lung & bronchus 53,536	Lung & bronchus 19,579
Prostate 28,372	Brain & ONS* 287	Brain & ONS* 479	Colorectum 5,146	Colorectum 13,340	Prostate 15,120
Colorectum 26,803	Other endocrine system 102	Colorectum 395	Liver & bile duct 3,713	Prostate 11,967	Colorectum 7,913
Pancreas 16,559	Bones & joints 99	Lung & bronchus 307	Pancreas 3,582	Pancreas 8,983	Urinary bladder 4,091
Leukemia 12,426	Soft tissue 84	Non-Hodgkin lymphoma 297	Esophagus 2,769	Esophagus 5,918	Pancreas 3,881
FEMALE					
ALL SITES 269,819	**ALL SITES 866**	**ALL SITES 4,835**	**ALL SITES 51,449**	**ALL SITES 126,619**	**ALL SITES 86,047**
Lung & bronchus 69,357	Leukemia 259	Breast 1,170	Breast 12,082	Lung & bronchus 39,614	Lung & bronchus 17,986
Breast 40,821	Brain & ONS* 237	Uterine cervix 437	Lung & bronchus 11,458	Breast 16,803	Colorectum 11,366
Colorectum 26,396	Other endocrine system 83	Leukemia 416	Colorectum 4,063	Colorectum 10,595	Breast 10,763
Pancreas 16,895	Bones & joints 75	Colorectum 369	Ovary 3,346	Pancreas 8,172	Pancreas 6,330
Ovary 14,857	Soft tissue 56	Brain & ONS* 337	Pancreas 2,326	Ovary 7,318	Non-Hodgkin lymphoma 4,153

*ONS indicates other nervous system.

Note: Deaths within each age group do not sum to all ages combined because of the inclusion of unknown ages. "Other and unspecified malignant neoplasm" is excluded from cause-of-death ranking order.

Source: US Mortality Data, 2006, National Center for Health Statistics, Centers for Disease Control and Prevention, 2009.

is because the decrease in the age-standardized death rates did not offset the influence of the aging and growth of the population on the total number of cancer deaths. When causes of death are ranked within age groups separated into 20-year intervals, cancer is one of the five leading causes of death in all age groups among both males and females (Table 9). Cancer is the leading cause of death among women ages 40 to 79 years and among men ages 60 to 79 years. It is also the leading cause of death among men and women younger than age 85 years (Fig. 6). A total of 474,808 persons younger than age 85 years died from cancer in the United States in 2006, compared with 394,257 deaths from heart disease.

Table 10 presents the number of deaths from all cancers combined and the five most common cancer sites for males and females at various ages. Among males younger than age 40 years, leukemia is the most common fatal cancer, whereas cancer of the lung and bronchus predominates in men aged 40 years and older. Colorectal cancer is the second most common cause of cancer death among men aged 40 to 79 years, and prostate cancer among those aged 80 years and older. Among females, leukemia is the leading cause of cancer death before the age of 20 years, breast cancer ranks first at ages 20 to 59 years, and lung cancer ranks first at ages 60 years and older.

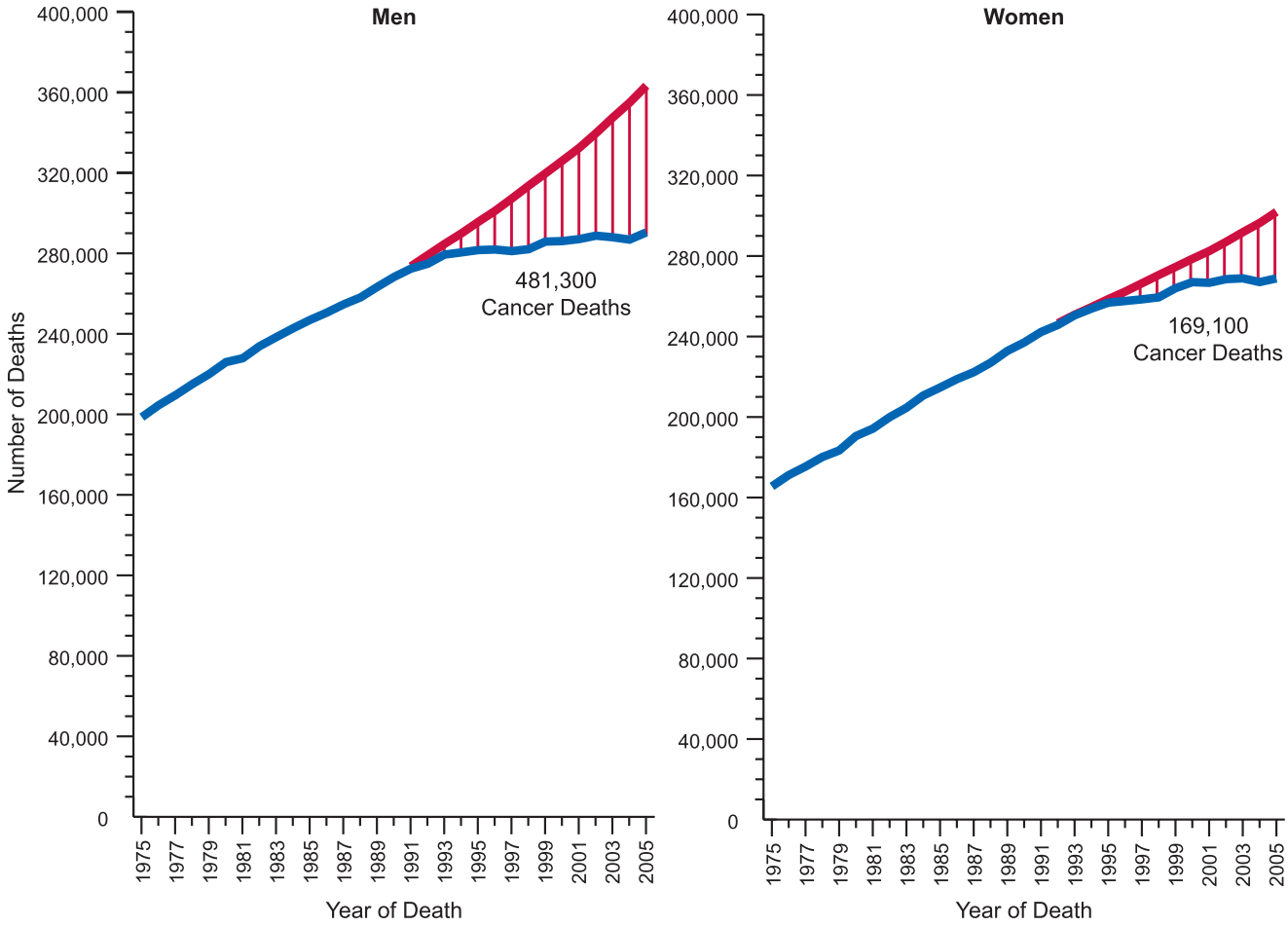

FIGURE 7. Total Number of Cancer Deaths Avoided from 1991–2005 in Men and from 1992-2005 in Women.
The blue line represents the actual number of cancer deaths recorded in each year, and the bold red line represents the expected number of cancer deaths if cancer mortality rates had remained the same since 1990 and 1991.

Figure 7 shows the total number of cancer deaths avoided since death rates began to decrease in 1991 in men and in 1992 in women. About 650,000 cancer deaths (481,300 in men and 169,100 in women) were averted during the 1991–1992 through 2005 time interval.

Cancer Occurrence by Race/Ethnicity

Cancer incidence and death rates vary considerably among racial and ethnic groups (Table 11). For all cancer sites combined, African American men have an 18% higher incidence rate and a 36% higher death rate than white men, whereas African American women have a 6% lower incidence rate but a 17% higher death rate than white women. For the specific cancer sites listed in Table 11, incidence and death rates are consistently higher in African Americans than in whites except for cancers of the breast (incidence) and lung (incidence and mortality) among women, and kidney (mortality) among both men and women. Factors known to contribute to racial disparities in mortality vary by cancer site and include differences in exposure to underlying risk factors (eg, historical smoking prevalence for lung cancer among men), access to high-quality regular screening (breast, cervical, and colorectal cancers), and timely diagnosis and treatment (for many cancers). The higher breast cancer incidence rates among white women is thought to reflect a combination of factors that affect both diagnosis (more frequent mammography in white women) and underlying disease occurrence (such as later age at first birth and greater use of menopausal hormone therapy among white than black women).[21]

Cancer incidence and death rates are lower in other racial and ethnic groups than in whites and African Americans for all cancer sites combined and for the four most common cancer sites.

TABLE 11. Incidence and Mortality Rates* by Site, Race, and Ethnicity, United States, 2001-2005

	WHITE	AFRICAN AMERICAN	ASIAN AMERICAN AND PACIFIC ISLANDER	AMERICAN INDIAN AND ALASKA NATIVE†	HISPANIC/LATINO‡§
Incidence					
All sites					
Male	551.4	651.5	354.0	336.6	419.4
Female	423.6	398.9	287.8	296.4	317.8
Breast, female	130.6	117.5	89.6	75.0	90.1
Colon and rectum					
Male	58.9	71.2	48.0	46.0	47.3
Female	43.2	54.5	35.4	41.2	32.8
Kidney and renal pelvis					
Male	18.8	21.3	9.1	19.5	17.4
Female	9.5	10.1	4.6	12.7	9.6
Liver and bile duct					
Male	8.2	13.2	21.7	14.4	15.0
Female	2.9	4.0	8.3	6.3	5.8
Lung and bronchus					
Male	79.3	107.6	53.9	54.3	44.2
Female	54.9	54.6	28.0	39.7	25.4
Prostate	156.7	248.5	93.8	73.3	138.0
Stomach					
Male	10.0	17.4	18.6	16.8	15.5
Female	4.7	8.9	10.5	7.7	9.5
Uterine cervix	8.2	10.8	8.0	6.9	13.2
Mortality					
All sites					
Male	230.7	313.0	138.8	190.0	159.0
Female	159.2	186.7	95.9	142.0	105.2
Breast, female	24.4	33.5	12.6	17.1	15.8
Colon and rectum					
Male	22.1	31.8	14.4	20.5	16.5
Female	15.3	22.4	10.2	14.2	10.8
Kidney and renal pelvis					
Male	6.2	6.1	2.4	9.3	5.3
Female	2.8	2.7	1.2	4.3	2.4
Liver and bile duct					
Male	6.7	10.3	15.2	10.6	11.1
Female	2.9	3.9	6.6	6.6	5.1
Lung and bronchus					
Male	71.3	93.1	37.5	50.2	35.1
Female	42.0	39.9	18.5	33.8	14.6
Prostate	24.6	59.4	11.0	21.1	20.6
Stomach					
Male	5.0	11.5	10.1	9.9	8.7
Female	2.5	5.5	5.9	5.2	4.9
Uterine cervix	2.3	4.7	2.2	3.7	3.2

*Per 100,000 population, age adjusted to the 2000 US standard population.

†Data based on Contract Health Service Delivery Areas, 624 counties comprising 54% of the US American Indian/Alaska Native population; for more information please see: Espey DK, Wu XC, Swan J, et al.[19]

‡Persons of Hispanic/Latino origin may be of any race.

§Data unavailable from the Alaska Native Registry and Kentucky.

¶Data unavailable from Minnesota, New Hampshire, and North Dakota.

Source: Ries LAG, Melbert D, Krapcho M, et al.[3]

However, incidence and death rates are generally higher in minority populations than in whites for cancers of the uterine cervix, stomach, and liver. Stomach and liver cancer incidence and death rates are twice as high in Asian American/Pacific Islanders as they are in whites, reflecting increased prevalence of chronic infection with *H pylori* and hepatitis B and C viruses.[22] Kidney cancer incidence and death rates are highest among American Indians/Alaskan Natives, although obesity is the only factor known to contribute to this disparity.

TABLE 12. Trends in Cancer Death Rates* by Education, Race, and Sex, United States, 1993-2001

		WHITE NON-HISPANIC			BLACK NON-HISPANIC		
	EDUCATION	1993	2001	APC†	1993	2001	APC†
Lung and bronchus							
	All‡	48.8	36.4	-3.5§	88.5	60.2	-4.4§
	<12 y	88.1	87.3	-0.1	98.3	90.4	-0.2
	12 y	59.5	53.2	-1.5§	98.6	73.7	-3.2§
	13-15 y	32.7	24.2	-3.5§	45.6	32.2	-4.7§
	≥16 y	20.7	13.7	-4.9§	38.3	21.0	-6.8§
	RR¶ (95% CI)	4.2 (4.1-4.4)	6.4 (6.2-6.6)	—	2.6 (2.5-2.8)	4.3 (3.9-4.8)	—
				Female			
	All‡	28.4	25.1	-1.6§	30.5	26.9	-1.5§
	<12 y	45.5	55.4	2.4§	32.7	30.4	0.8
	12 y	32.1	33.1	0.1	37.3	35.7	-0.7
	13-15 y	19.8	16.6	-1.7§	20.1	19.3	-1.3
	≥16 y	13.9	11.6	-2.9§	14.8	16.7	-2.2
	RR¶ (95% CI)	3.3 (3.1-3.5)	4.8 (4.5-5.0)	—	2.2 (1.8-2.7)	1.8 (1.6-2.1)	—
Colon and rectum				**Male**			
	All‡	12.0	10.7	-1.6§	19.7	18.3	-0.7
	<12 y	14.1	16.0	0.9	17.4	20.9	2.7§
	12 y	14.6	13.9	-0.9	21.9	23.9	1.0
	13-15 y	9.2	8.1	-1.1§	15.4	11.7	-2.7
	≥16 y	9.3	7.9	-2.4§	16.3	11.5	-4.8§
	RR¶ (95% CI)	1.5 (1.4-1.6)	2.0 (1.9-2.2)	—	1.1 (0.9-1.3)	1.8 (1.5-2.2)	—
				Female			
	All‡	8.5	7.3	-1.8§	13.7	13.3	-0.7
	<12 y	9.5	10.4	1.4	11.0	10.3	-0.3
	12 y	9.7	9.2	-1.0§	16.1	17.8	-0.3
	13-15 y	6.4	5.5	-1.6§	9.4	10.0	0.7
	≥16 y	6.8	5.4	-3.0§	15.6	12.2	-2.6§
	RR¶ (95% CI)	1.4 (1.3-1.6)	1.9 (1.7-2.1)	—	0.7 (0.6-0.9)	0.8 (0.7-1.0)	—
Breast				**Female**			
	All‡	28.2	21.7	-3.5§	40.1	35.5	-1.5§
	<12 y	27.4	24.1	-1.4§	30.0	28.7	0.1
	12 y	30.6	25.4	-2.9§	45.3	43.4	-1.5
	13-15 y	23.2	17.3	-3.6§	35.3	30.0	-0.9
	≥16 y	27.4	20.1	-4.3§	45.7	35.8	-3.8§
	RR¶ (95% CI)	1.0 (1.0-1.1)	1.2 (1.1-1.3)	—	0.7 (0.6-0.7)	0.8 (0.7-0.9)	—
Prostate				**Male**			
	All‡	4.0	2.8	-4.7§	12.7	9.1	-3.6§
	<12 y	4.0	3.4	-1.6	10.4	9.6	-1.6
	12 y	4.3	3.3	-3.5§	16.2	12.7	-1.6
	13-15 y	3.4	2.3	-5.5§	10.3	5.3	-7.4§
	≥16 y	3.8	2.3	-6.3§	7.6	4.8	-5.9
	RR¶ (95% CI)	1.1 (0.9-1.2)	1.5 (1.3-1.7)	—	1.4 (1.0-1.8)	2.0 (1.5-2.7)	—

*Rates are for individuals aged 25-64 years at death, per 100,000 population, and age adjusted to the 2000 US standard population.

†Annual percentage change.

‡Includes persons with missing data for educational attainment.

§The APC is significantly different from zero.

¶Rate ratio comparing rate for less than 12 years of education to less than 16 or more years of education for the indicated year.

Source: Adapted from Kinsey T, Jemal A, Liff J, et al.[23]

Trends in cancer incidence can be adjusted for delayed reporting only in whites and African Americans because long-term incidence data required for delay adjustment are not available for other racial and ethnic subgroups. From 1996 to 2005, incidence (unadjusted for delayed reporting) and death rates for all cancer sites combined decreased among whites, African Americans, Asian Americans/Pacific Islanders, and Hispanics in both men and women.[15] Among American Indians/Alaska Natives residing in Indian Health Service (IHS) Contract Health Service Delivery Areas, mortality rates during this time period remained stable; trends in incidence rates could not be examined because the linkage of incident cancer cases with IHS was not complete at the time of this report.[15]

TABLE 13. Probability of Developing Invasive Cancers Within Selected Age Intervals by Sex, United States, 2003-2005*

		BIRTH TO 39 Y	40 TO 59 Y	60 TO 69 Y	70 Y AND OLDER	BIRTH TO DEATH
		PERCENTAGE	PERCENTAGE	PERCENTAGE	PERCENTAGE	PERCENTAGE
All sites†	Male	1.42 (1 in 70)	8.44 (1 in 12)	15.71 (1 in 6)	37.74 (1 in 3)	43.89 (1 in 2)
	Female	2.07 (1 in 48)	8.97 (1 in 11)	10.23 (1 in 10)	26.17 (1 in 4)	37.35 (1 in 3)
Urinary bladder‡	Male	0.02 (1 in 4448)	0.41 (1 in 246)	0.96 (1 in 104)	3.57 (1 in 28)	3.74 (1 in 27)
	Female	0.01 (1 in 10,185)	0.12 (1 in 810)	0.26 (1 in 378)	1.01 (1 in 99)	1.18 (1 in 84)
Breast	Female	0.48 (1 in 208)	3.79 (1 in 26)	3.41 (1 in 29)	6.44 (1 in 16)	12.03 (1 in 8)
Colon & rectum	Male	0.08 (1 in 1296)	0.92 (1 in 109)	1.55 (1 in 65)	4.63 (1 in 22)	5.51 (1 in 18)
	Female	0.07 (1 in 1343)	0.72 (1 in 138)	1.10 (1 in 91)	4.16 (1 in 24)	5.10 (1 in 20)
Leukemia	Male	0.16 (1 in 611)	0.22 (1 in 463)	0.35 (1 in 289)	1.17 (1 in 85)	1.50 (1 in 67)
	Female	0.12 (1 in 835)	0.14 (1 in 693)	0.20 (1 in 496)	0.77 (1 in 130)	1.07 (1 in 94)
Lung & bronchus	Male	0.03 (1 in 3398)	0.99 (1 in 101)	2.43 (1 in 41)	6.70 (1 in 18)	7.78 (1 in 13)
	Female	0.03 (1 in 2997)	0.81 (1 in 124)	1.78 (1 in 56)	4.70 (1 in 21)	6.22 (1 in 16)
Melanoma of the skin§	Male	0.16 (1 in 645)	0.64 (1 in 157)	0.70 (1 in 143)	1.67 (1 in 60)	2.56 (1 in 39)
	Female	0.27 (1 in 370)	0.53 (1 in 189)	0.35 (1 in 282)	0.76 (1 in 131)	1.73 (1 in 58)
Non-Hodgkin lymphoma	Male	0.13 (1 in 763)	0.45 (1 in 225)	0.58 (1 in 171)	1.66 (1 in 60)	2.23 (1 in 45)
	Female	0.08 (1 in 1191)	0.32 (1 in 316)	0.45 (1 in 223)	1.36 (1 in 73)	1.90 (1 in 53)
Prostate	Male	0.01 (1 in 10,002)	2.43 (1 in 41)	6.42 (1 in 16)	12.49 (1 in 8)	15.78 (1 in 6)
Uterine cervix	Female	0.15 (1 in 651)	0.27 (1 in 368)	0.13 (1 in 761)	0.19 (1 in 530)	0.69 (1 in 145)
Uterine corpus	Female	0.07 (1 in 1499)	0.72 (1 in 140)	0.81 (1 in 123)	1.22 (1 in 82)	2.48 (1 in 40)

*For people free of cancer at beginning of age interval.

†All sites excludes basal and squamous cell skin cancers and in situ cancers except urinary bladder.

‡Includes invasive and in situ cancer cases.

§Statistics for whites only.

Source: DevCan: Probability of Developing or Dying of Cancer Software, Version 6.3.0. Statistical Research and Applications Branch, National Cancer Institute, 2008. www.srab.cancer.gov/devcan

Death Rates by Educational Attainment, Race, and Sex

Table 12 shows trends in death rates from 1993 to 2001 for the four major cancers by educational attainment among white and African American men and women aged 25 to 64 years.[23] In general, death rates decreased significantly from 1993 through 2001 for those with 13 or more years of education but increased or remained constant in those with 12 or fewer years of education. For example, lung cancer death rates in white women decreased for those with 13 or more years of education, leveled in those with 12 years of education, and increased in those with fewer than 12 years of education. Similarly, colorectal cancer death rates among black men decreased for those with 16 or more years of education, leveled in those with 12-15 years of education, and increased in those with fewer than 12 years of education. Notably, the rate of decreases in death rates for each race-, sex-, and cancer-specific category followed an educational gradient in that each group of increasing educational level experienced a progressively steeper decrease. As a result, educational disparity in cancer mortality increased from 1993 to 2001 for lung and colorectal cancers (except among black women) and prostate cancer. Factors that may have contributed to this disparity include higher prevalence of risk factors, such as smoking and obesity, and limited access to medical services among less educated individuals. If everyone ages 25 to 64 years experienced the same cancer death rates as the most educated, 17,650 cancer deaths in women and 30,940 cancer deaths in men could have been averted or postponed in 2001, accounting for over 30% of the total number of cancer deaths in this age group.

Lifetime Probability of Developing Cancer

The lifetime probability of being diagnosed with an invasive cancer is higher for men (44%) than for women (37%) (Table 13). However, because of the earlier median age of diagnosis for breast cancer compared with other major cancers, women have a slightly higher probability of developing cancer before age 60 years. It is noteworthy that these estimates are based on the average experience of the general population and may overestimate or underestimate individual risk because of differences in exposure and/or genetic susceptibility.

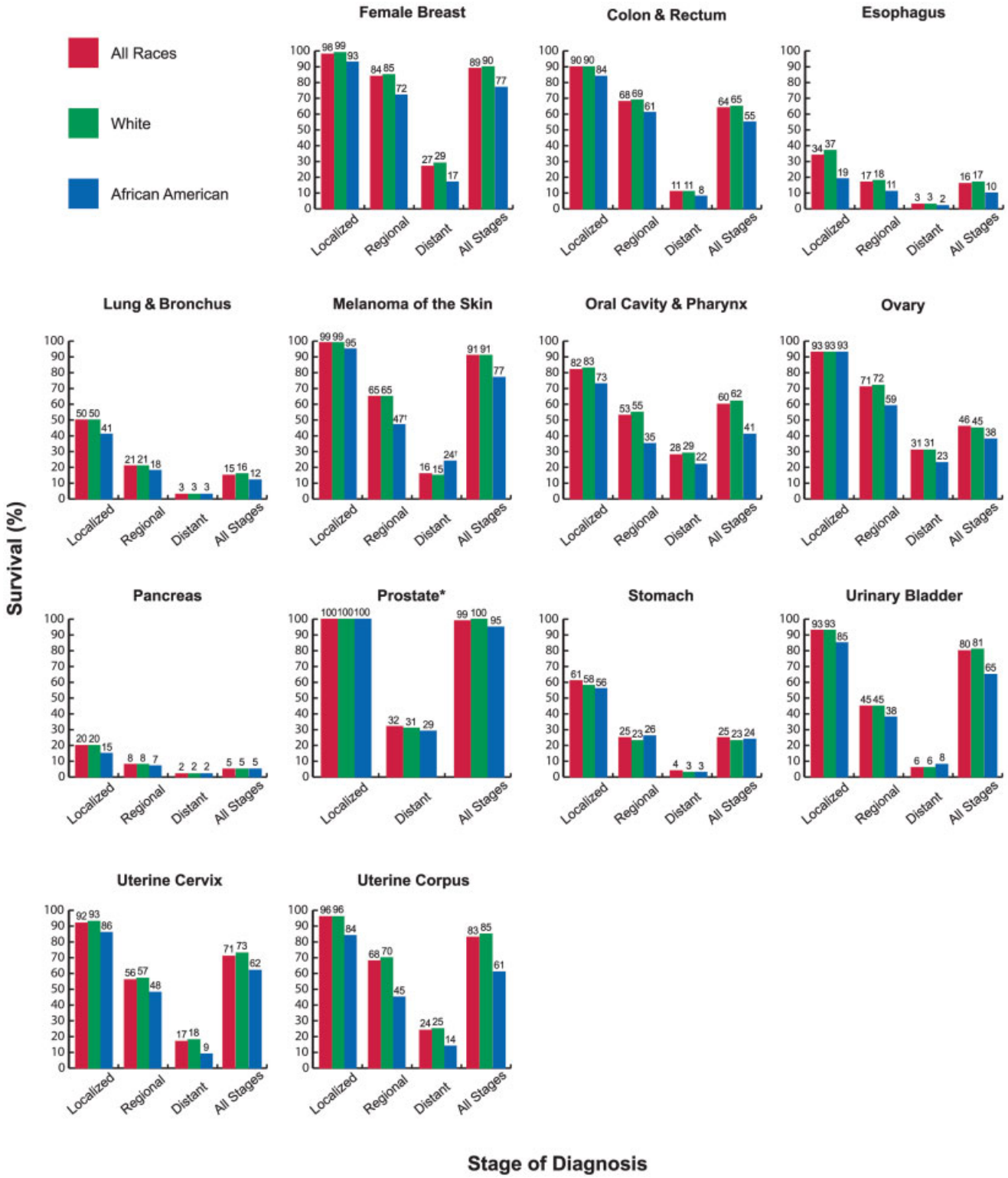

FIGURE 8. Five-year Relative Survival Rates Among Patients Diagnosed with Selected Cancers by Race and Stage at Diagnosis, United States, 1996-2004.

*The rate for localized stage represents localized and regional stages combined. †The standard error of the mean for the survival rate is between 5 and 10 percentage points. Staging is according to Surveillance, Epidemiology, and End Results historic stage categories rather than according to the American Joint Committee on Cancer staging system. Source: Ries LAG, Melbert D, and Krapcho M, et al.[3]

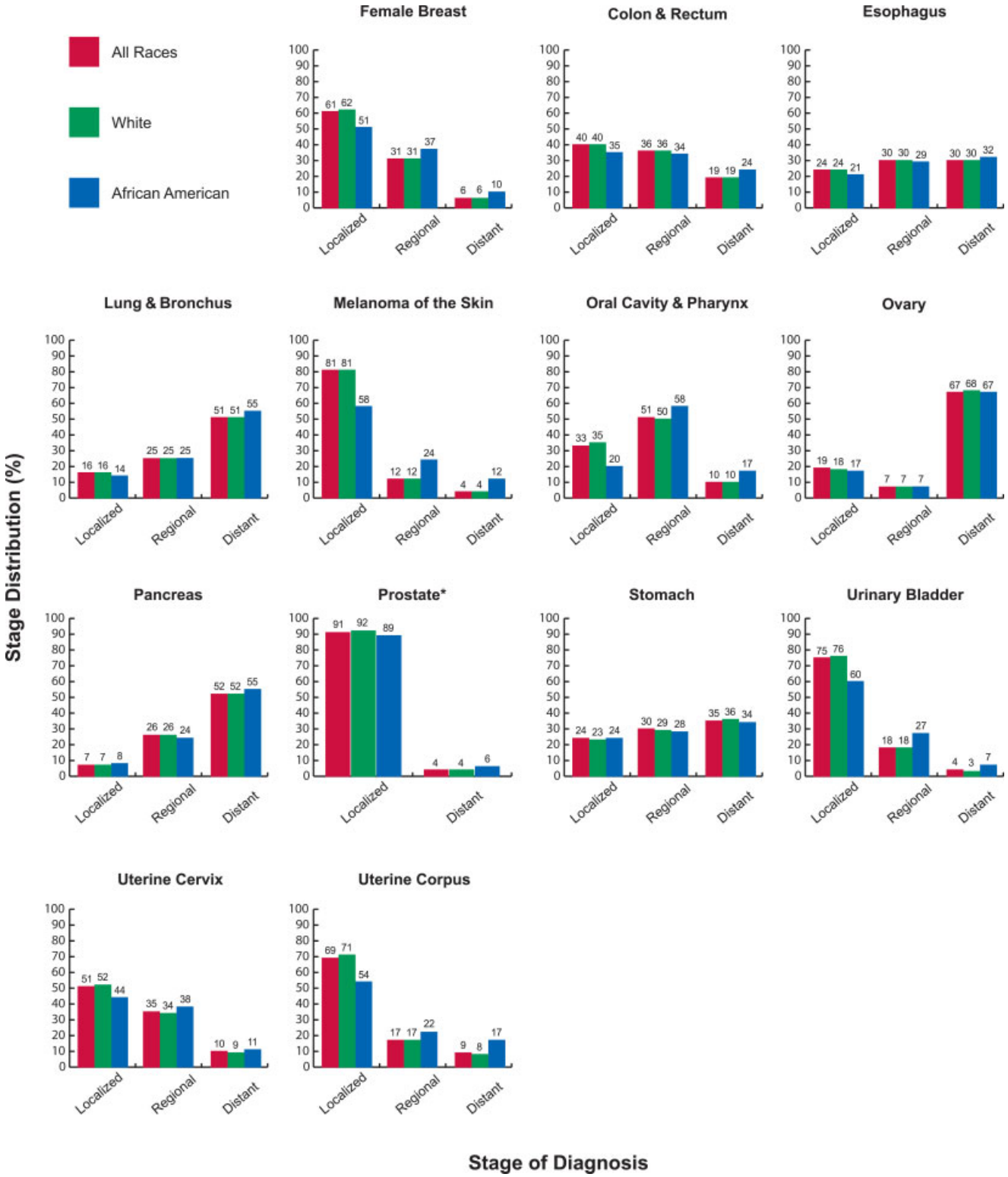

FIGURE 9. Distribution of Selected Cancers by Race and Stage at Diagnosis, United States, 1996-2004.

*The rate for localized stage represents localized and regional stages combined. †Staging was performed according to the Surveillance, Epidemiology, and End Results historic stage categories rather than according to the American Joint Committee on Cancer staging system. For each cancer type, stage categories do not total 100% because sufficient information was not available to assign a stage to all cancer cases. Source: Ries LAG, Melbert D, Krapcho M, et al.[3]

TABLE 14. Trends in 5-Year Relative Survival Rates* (%) by Race and Year of Diagnosis, United States, 1975-2004

	ALL RACES			WHITE			AFRICAN AMERICAN		
	1975-1977	1984-1986	1996-2004	1975-1977	1984-1986	1996-2004	1975-1977	1984-1986	1996-2004
All sites	50	54	66†	51	55	68†	40	41	58†
Brain	24	29	35†	23	28	34†	27	33	39†
Breast, female	75	79	89†	76	80	91†	62	65	78†
Colon	52	59	65†	52	60	66†	46	50	55†
Esophagus	5	10	17†	6	11	18†	3	8	11†
Hodgkin lymphoma	74	79	86†	74	80	87†	71	75	80†
Kidney	51	56	67†	51	56	67†	50	54	66†
Larynx	67	66	64†	67	68	66	59	53	50
Leukemia	35	42	51†	36	43	52†	34	34	42
Liver#	4	6	11†	4	6	10†	2	5	8†
Lung and bronchus	13	13	16†	13	14	16†	11	11	13†
Melanoma of the skin	82	87	92†	82	87	92†	60‡	70§	78
Myeloma	26	29	35†	25	27	35†	31	32	33
Non-Hodgkin lymphoma	48	53	65†	48	54	66†	49	48	58
Oral cavity	53	55	60†	55	57	62†	36	36	42†
Ovary	37	40	46†	37	39	45†	43	41	38
Pancreas	3	3	5†	3	3	5†	2	5	5†
Prostate	69	76	99†	70	77	99†	61	66	96†
Rectum	49	57	67†	49	58	67†	45	46	59†
Stomach	16	18	25†	15	18	23†	16	20	25†
Testis	83	93	96†	83	93	96†	82‡	87‡	87
Thyroid	93	94	97†	93	94	97†	91	90	95
Urinary bladder	74	78	81†	75	79	82†	51	61	66†
Uterine cervix	70	68	73†	71	70	74†	65	58	65
Uterine corpus	88	84	84†	89	85	86†	61	58	61

*Survival rates are adjusted for normal life expectancy and are based on cases diagnosed in the Surveillence, Epidemiology, and End Results 9 areas from 1975-77, 1984-86, and 1996 to 2004 and followed through 2005.

†The difference in rates between 1975-1977 and 1996-2004 is statistically significant ($P<.05$).

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

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

#Includes intrahepatic bile duct.

Source: Ries LAG, Melbert D, Krapcho M, et al.[3]

TABLE 15. Ten Leading Causes of Death Among Children Aged 1 to 14 Years, United States, 2006

	CAUSE OF DEATH	NO. OF DEATHS	% OF TOTAL DEATHS	DEATH RATE*
RANK	ALL CAUSES	10,780	100.0	19.0
1	Accidents (unintentional injuries)	3,868	35.9	6.8
2	Cancer	1,284	11.9	2.3
3	Congenital anomalies	859	8.0	1.5
4	Assault (homicide)	756	7.0	1.3
5	Heart diseases	414	3.8	0.7
6	Intentional self-harm (suicide)	219	2.0	0.4
7	Influenza & pneumonia	193	1.8	0.3
8	Septicemia	172	1.6	0.3
9	Chronic lower respiratory diseases	158	1.5	0.3
10	Cerebrovascular disease	149	1.4	0.3
	All other causes	2,708	25.1	—

*Rates are per 100,000 population and age adjusted to the 2000 US standard population.

Note: "Symptoms, signs, and abnormal clinical or laboratory findings" and "Other respiratory diseases" were excluded from ranking order.

Source: US Mortality Data, 2006, National Center for Health Statistics, Centers for Disease Control and Prevention, 2009.

TABLE 16. Trends in 5-Year Relative Survival Rates* (%) for Children Younger than Age 15 Years, US, 1975-2004

	YEAR OF DIAGNOSIS							
SITE	1975 TO 1977	1978 TO 1980	1981 TO 1983	1984 TO 1986	1987 TO 1989	1990 TO 1992	1993 TO 1995	1996 TO 2004
All sites	58	63	67	68	71	76	77	80†
Acute lymphocytic leukemia	58	66	71	73	78	83	84	88†
Acute myeloid leukemia	19	26	27‡	31‡	37‡	41	42‡	55†
Bone and joint	51‡	49	57‡	58‡	67‡	67	74	71†
Brain and other nervous system	57	58	56	62	64	64	70	74†
Hodgkin lymphoma	81	88	88	91	87	97	95	96†
Neuroblastoma	52	57	55	52	62	76	67	70†
Non-Hodgkin lymphoma	43	53	67	70	71	76	81	86†
Soft tissue	61	75	69	73	65	80	77	74†
Wilms tumor	73	79	87	91	92	92	92	92†

Excludes basal and squamous cell skin cancers and in situ carcinomas except urinary bladder.

*Survival rates are adjusted for normal life expectancy and are based on follow up of patients through 2005.

†Difference in rates between 1975 to 1977 and 1996 to 2004 is statistically significant ($P<.05$).

Source: Ries LAG, Melbert D, Krapcho M, et al.[3]

Cancer Survival by Race

Compared with whites, African American men and women have poorer survival once cancer is diagnosed. Five-year relative survival is lower in African Americans than in whites within every stratum of stage of diagnosis for nearly every cancer site (Fig. 8). These disparities may result from inequalities in access to and receipt of quality health care and/or from differences in comorbidities. As shown in Figure 9, African Americans areless likely than whites to be diagnosed with cancer at a localized stage, when the disease may be more easily and successfully treated, and are more likely to be diagnosed with cancer at a regional or distant stage of disease. The extent to which factors other than stage at diagnosis contribute to the overall differential survival is unclear.[24] However, some studies suggest that African Americans who receive cancer treatment and medical care similar to that of whites experience similar outcomes.[25]

There have been notable improvements since 1975 in relative 5-year survival rates for many cancer sites and for all cancers combined (Table 14). This is true for both whites and African Americans. Cancers for which survival has not improved substantially during the past 30 years include lung and pancreas. The improvement in survival reflects a combination of earlier diagnoses and improved treatments.

Relative survival rates cannot be calculated for racial and ethnic populations other than for whites and African Americans because accurate life expectancies (the average number of years of life remaining for persons who have attained a given age) are not available. However, based on cause-specific survival rates of cancer patients diagnosed from 1992 to 2000 in SEER areas of the United States, compared to non-Hispanic whites, all minority populations except Asian American/Pacific Islander women have a greater probability of dying from cancer within five years of diagnosis after accounting for differences in stage at diagnosis.[20,26] For the four major cancer sites (prostate, female breast, lung and bronchus, and colon and rectum), minority populations are more likely than non-Hispanic whites to be diagnosed at a distant stage.[26]

Cancer in Children

In the United States, cancer is the second most common cause of death among children between the ages of 1 and 14 years, surpassed only by accidents (Table 15). Leukemia (particularly acute lymphocytic leukemia) is the most common cancer in children (aged 0-14 years), followed by cancer of the brain and other nervous system, soft tissue sarcomas, renal (Wilms) tumors, and non-Hodgkin lymphoma.[3] During the past 25 years, there have been significant improvements in the 5-year relative survival rate for all of the major childhood cancers (Table 16). The 5-year relative survival rate among children for all

cancer sites combined improved from 58% for patients diagnosed in 1975-1977 to 80% for those diagnosed in 1996-2004.[3]

Limitations

Estimates of the expected numbers of new cancer cases and cancer deaths should be interpreted cautiously. These estimates may vary considerably from year to year, particularly for less common cancers and in states with smaller populations. Estimates are also affected by changes in method. The introduction of a new method for projecting incident cancer cases beginning with the 2007 estimates substantially affected the estimates for several cancers, particularly leukemia and female breast. (See Pickle et al for more detailed discussion.) Not all changes in cancer trendsare captured by modeling techniques. For these reasons, we discourage the use of these estimates to track year-to-year changes in cancer occurrence and death. The preferred data sources for tracking cancer trends are the age-standardized or age-specific cancer death rates from the National Center for Health Statistics and cancer incidence rates from SEER or NPCR, although these data are 3 and 4 years old, respectively, by the time that they become available. Nevertheless, the American Cancer Society estimates of the number of new cancer cases and deaths in the current year provide reasonably accurate estimates of the burden of new cancer cases and deaths in the United States. ■

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