2002 FLORIDA ANNUAL

CANCER REPORT:

Incidence and Mortality for 1999

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2002 FLORIDA ANNUAL CANCER REPORT: INCIDENCE AND MORTALITY FOR 1999

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The design of the 1999 Florida Annual Cancer Report is based on previous Florida Annual Cancer Reports, which, in turn, were modeled after the *Canadian Cancer Statistics* reports published by the National Cancer Institute of Canada, Statistics Canada. Two other publications also influenced the design of the 1999 Annual Cancer Report: the Florida Vital Statistics Annual Report series and the Florida Morbidity Statistics published by the Bureau of Epidemiology.

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EXECUTIVE SUMMARY

During 1999, 95,550 cancers were diagnosed among Floridians, an average of 262 per day. A total of 37,314 Floridians died from cancer this year, an average of 102 per day.

Over half of all new cancers diagnosed and nearly two-thirds of all cancer deaths occurred in persons aged 70 years and older. This age group accounted for less than 14% of Florida's 1999 population.

The age-adjusted incidence rate for all cancers combined in 1999 was 413.7 per 100,000 females in Florida, 2% lower than the national rate of 422.3. Male residents of Florida had an age-adjusted rate of 563.4 per 100,000 per year, 1% higher than the national average of 555.8.

Data from the North American Association of Central Cancer Registries *Cancer in North America 1995-1999, Volume 3*, which represents 55% of the total U.S. population, yields a crude incidence rate of 461.5 cases per 100,000 for the 5-year period. The crude rate in Florida for the same 5-year period for all cancers combined is 630.1 cases per 100,000 population, about 36% higher than the NAACCR registries.

Cancer of the lung and bronchus was the most frequently reported cancer, with 15,660 cases diagnosed in 1999. Prostate cancer ranked second with 13,922 cases, followed by breast cancer with 13,223 cases. The fourth and fifth most common cancers were cancer of the colon and rectum and bladder cancer with 12,184 and 4,892 cases respectively.

Age-adjusted incidence rates decreased this year for both sexes for all cancers combined and for the most common cancers. The only exception to this decline in rates was cancer of the uterus, which had a very slight increase, 0.1 cases per 100,000 females per year.

Black males had higher age-adjusted incidence rates for all cancers combined than white males, 685.6 and 549.9 per 100,000 per year respectively. Among females this relationship was reversed. White females had higher rates for all cancers combined than black females, 413.9 and 390.1 per 100,000 per year respectively.

Cancer was the second leading cause of death in Florida in 1999 with 37,314 deaths, after heart disease (51,124 deaths) and followed by stroke (10,512 deaths). However, cancer ranks first in terms of potential life lost, with 259,801 years lost, surpassing heart disease (184,779 years lost) and accident (162,667 years lost).

The age-adjusted mortality rate for all cancers was 225.9 per 100,000 males per year in Florida, 12% lower than the national rate of 252.6. Female residents of Florida had an age-adjusted mortality rate of 145.9 per 100,000 per year, 16% lower than the national average of 169.6.

Cancer of the lung and bronchus was the leading cause of death due to cancer with 11,271 deaths. In 1999, cancers of the colon and rectum were next, with 3,883 deaths, followed by breast, prostate and pancreas with 2,557, 2,196 and 1,973 deaths respectively.

Between 1998 and 1999, mortality rates for males decreased by 10 deaths per 100,000 per year. Mortality rates for females dropped 8.8 deaths per 100,000 per year.

Age-adjusted mortality rates show that black males are much more likely to die of cancer than either black females or whites of either sex. The difference in prostate mortality rates was most remarkable: blacks had a rate 3 times higher than white males, 73.1 compared to 22.6 per 100,000 per year respectively.

Please note that the age-adjusted incidence and mortality rates in this annual report have been adjusted to the U.S. 2000 standard population. Rates presented in this report are not comparable to rates shown in annual reports before 1998 or to rates calculated with a different population standard.

INTRODUCTION

Background and Data

The 1999 Annual Cancer Report is the latest in a series of publications that began in 1995, providing updates on cancer incidence and mortality in Florida. The series was developed by the Bureau of Epidemiology of the Florida Department of Health in collaboration with the Florida Cancer Data System (FCDS) at the Sylvester Comprehensive Cancer Center of the University of Miami School of Medicine.

The purpose of this report is to present an overview of the status of cancer in Florida for researchers, policy makers, health professionals and the public. Detailed tables describe sex-, race-, age-, and region-specific incidence and mortality rates for all cancers combined and for the most common cancers. Trends in cancer incidence and mortality are included, to provide a perspective from which to assess innovations in cancer prevention, diagnosis, and treatment.

The cancer incidence data used for this report are collected, verified and maintained by Florida's statewide cancer registry, the Florida Cancer Data System. The FCDS is administered by the Florida Department of Health and operated by the Sylvester Comprehensive Cancer Center at the University of Miami School of Medicine. FCDS collects cancer incidence data from all hospitals in Florida, which have been reporting since 1981, and from freestanding ambulatory surgical centers, radiation therapy facilities, pathology laboratories and dermatopathologists' offices, which have been required to report new cancer cases to the FCDS since July 1997.

Various case-finding strategies have been undertaken by FCDS to ensure the completeness of the database. New procedures have been introduced to adapt to changes in the health care industry, specifically, the diagnosis and treatment of cancer in outpatient settings. As case finding has improved over the registry's 20-year history, the completeness of the database has improved, as well. For example, cancer-related deaths for which there is no incidence record in the FCDS database are investigated in an effort to obtain an incidence record. This procedure is referred to as "mortality follow-back." Some of these inquiries result in the collection of missed reportable cases. For others, additional information is never obtained and an incidence record is created based on the death certificate information only (DCO). At present, DCO cases are included in the FCDS database for all years since 1991, but not for previous years. Since 1995, the Agency for Health Care Administration has submitted to FCDS all hospital discharge records that included a diagnosis of cancer. These records are also "followed-back" to the hospital cancer registry if no incidence record is present in the database.

Beginning in 1997, cancer-related patient encounters from ambulatory centers have been reported. Cases without a matching record in the incidence database are sent to the reporting facility for follow-back. New cancer cases obtained through the follow-back process are included in the FCDS database. Fluctuations in the number and rate of cancer cases in Florida may be due in part to a shift in cancer diagnosis and treatment away from hospitals to ambulatory centers, and to improvements in tracking cancer cases.

The incidence rates in this report are based on cancers diagnosed among those who were Florida residents at the time of diagnosis, and do not include cancers diagnosed before a person moved to Florida. Most cancers diagnosed among Florida residents living in other states are included in the FCDS database due to interstate agreements allowing the sharing of cancer incidence data among states (NAACCR Procedure Guidelines, Series I, Data Exchange, p.2). Cases are tallied according to the year of initial diagnosis. Persons with multiple primary cancers contribute multiple records to the database.

The cancer statistics presented in this report span a period of 19 years, beginning in 1981 when FCDS started collecting information on cancer cases. Changes in the number of cancer cases, and, in particular, changes in cancer incidence and mortality rates over time provide information about the burden of cancer in Florida. Factors that influence cancer rates include the size and demographic make-up of the population, especially its age structure, changes in health behaviors, and improvements in cancer diagnosis and reporting.

Improvements in cancer treatment, as well as changes in cancer incidence, affect cancer mortality rates. Information on cancer mortality is obtained from death certificates supplied by the Office of Vital Statistics of the Florida Department of Health. Cancer deaths among Florida residents are defined as those for which the underlying cause of death on the death certificate is some type of cancer.

Population estimates for 1999, as well as updated annual population estimates for 1981 to 1998, were provided by the Florida Consensus Estimating Conference (Spring, 2000). Estimated population figures are presented in Table 2.1 for the state as a whole and for each of the regions of the state for 1999. In contrast to the estimated population figures, the number of new cancers and cancer deaths are actual counts reported to the FCDS and to the Office of Vital Statistics for each year included in this monograph.

The 2000 U.S. standard million population was first used in the 1998 Annual Cancer Report to calculate age-adjusted incidence and mortality rates, following national reporting guidelines. Incidence and mortality rates standardized to the 2000 population cannot be compared to those standardized to another population (e.g., the 1970 standard population), so the age-adjusted rates reported here cannot be meaningfully compared to those displayed in Annual Cancer Reports prior to 1998. For the analysis of trends, all rates in this report have been age-adjusted to the 2000 standard. For more information about the differences in rates due to age-adjustment with these standard populations, see the National Association of Central Cancer Registries web site www.naaccr.org "Age-adjusting to the Year 2000 Standard" under Education and Training.

More detailed data on cancer incidence and mortality in the state of Florida can be obtained by visiting the FCDS web site at: fcds.med.miami.edu and from the following publications: *The 1999-2000 Florida Cancer Plan* (Florida Cancer Control and Research Advisory Council, 2001); *The Florida Cancer Data System Monograph of Cancer in Florida, 1999, Volume I*; the *Florida Vital Statistics Annual Report* series (Florida Department of Health, Office of Vital Statistics); and *Florida Cancer Facts and Figures, 2001-2002* (American Cancer Society). The American Cancer Society web site is www.cancer.org. Readers may view the *1999 Florida Annual Cancer Report* and other reports published by the Bureau of Epidemiology on the Florida Department of Health web site at: www9.myflorida.com/disease_ctrl/epi/cancer/cancerindex.htm or www.doh.state.fl.us/disease_ctrl/epi/cancer/CancerIndex.htm.

This publication is intended as a tool for health care planning and for the design of cancer prevention programs. The information it contains should stimulate cancer research and enhance the state's cancer control and surveillance activities, resulting in better prevention for the population at risk for developing cancer, and improved treatment for cancer patients. The Department of Health and the FCDS welcome suggestions for enhancing the utility of this report to its readers.

Definitions And Methods

The incidence of a disease, or group of diseases like cancer, is defined as the number of new occurrences of the disease diagnosed in the population "at risk" for the disease. The population considered "at risk" for cancer for this report is the entire resident population of Florida in a given year, e.g., 1999. Specifying other population characteristics, such as gender, race, or ethnicity further refines the population at risk of developing cancer. The crude incidence rate of cancer is the total number of new cancer cases diagnosed in Florida residents in a given time period divided by the total population at risk (all Florida residents) in the same period. Rates are expressed per 100,000 persons per year.

Because cancer is more common in the elderly, areas or populations with a higher proportion of older people generally will have higher crude cancer incidence rates. Most cancer incidence and mortality rates presented in this report are **age-adjusted** to a standard age distribution representative of the U.S. population (2000 U.S. standard). The use of age-adjusted rates allows comparison of cancer incidence or mortality over time and across geographic regions and population subgroups, even when age distributions are not comparable. As the U.S. and Florida populations become older, cancer incidence will increase. Age-adjustment of cancer incidence rates allows interpretation of trends and helps identify factors other than age that may affect cancer incidence and mortality.

The **deaths-to-cases ratios** displayed in Tables 1, 2.2 and 13 are calculated by dividing the number of deaths in a given year by the number of new cancers diagnosed in the same year. The deaths-to-cases ratio provides a crude indication of the prognosis for patients with different types of cancer. A ratio approaching 1.0, when the number of deaths nearly equals the number of cases for a particular type of cancer, indicates a poor prognosis. A lower ratio indicates fewer deaths relative to the number of cases, and suggests a better prognosis.

Classification Issues

Classification of *in situ* cancers (tumors that fulfill all the microscopic criteria for malignancy except invasion of the basement membrane) is not uniform across pathologists (Schottenfeld and Fraumeni, 1996, p. 159), yielding less reliable reporting of *in situ* cancers than of later-stage cancers. Therefore, the cancer incidence figures reported here exclude *in situ* cancers except for bladder cancer. For all other cancer sites, local, regional, distant, and cancers of unknown stage are included in the counts and the incidence rates. The cancer sites for which incidence data are presented are classified according to the *International Classification of Diseases for Oncology*, *Second Edition* (ICD-O-2). The *Tenth Revision of the International Classification of Diseases* (ICD-10) is used for the classification of cancer deaths for the first time in 1999. At the level of analysis used in this report, these two classification systems are consistent and yield comparable data for incidence and mortality for the individual and grouped cancer sites presented here.

Rules for coding multiple tumors in one individual as a single cancer or as multiple primary cancers are specified in the *Surveillance, Epidemiology and End Results (SEER) Program Code Manual* (National Institutes of Health, 1998). The site of origin, diagnosis dates, histology and laterality are the major factors employed to determine whether a group of tumors should be coded as single or multiple. Special rules are used to define multiple primaries of the lymphatic and hematopoetic systems.

Finally, data for non-melanoma skin cancers (ICD-9 code 173 or ICD-O-2 and ICD-10 codes C44._, C46.0 and C46.9) are not included in this report since the vast majority of these cancers are not reportable to FCDS and are not included in the FCDS incidence database.

SUMMARY OF FINDINGS

Cancer Incidence and Mortality, 1999

(Figure 1 and Table 1)

In 1999, 95,550 new primary cancers were diagnosed among Florida residents. This figure includes 30 cases submitted with unknown sex. Reported cancer deaths totaled 37,314. These numbers represent an increase of 784 new cases and a decrease of 121 cancer deaths compared to 1998. California is among the other states that have reported a decrease in cancer deaths in 1999 from the previous year.

Incidence

- Cancers of the lung and bronchus, prostate, breast, colon and rectum, and bladder were the five most common cancers diagnosed among Florida residents.

- As in 1998, the five most common cancer sites for females in 1999 were breast, lung and bronchus, colon and rectum, uterus, and ovary. These five cancer sites accounted for two-thirds (66%) of all new cancers diagnosed in females in Florida. In all years prior to 1998, cancer of the ovary held fifth place among females in terms of the number of new cases.

- The top five cancer sites in males have not changed since 1991. These are prostate, lung and bronchus, colon and rectum, bladder, and non-Hodgkins lymphoma. These five sites comprised 69% of all new cancers in males. In the years from 1981 to 1990, cancers of the oral cavity ranked fifth in number of new cases.

- More than half (53%) of all new cancers were diagnosed in males and 47% of new cancer cases were diagnosed in females.

Mortality

- Cancers of the lung and bronchus, colon and rectum, breast, prostate and pancreas were the five leading causes of cancer death among Florida residents in 1999.

- Among females, cancers of the lung and bronchus, breast, colon and rectum, pancreas, and ovary accounted for about 63% of all cancer deaths, similar to the previous four years.

- Deaths from the five top-ranked cancers in males in 1999 constituted 63% of all cancer deaths. Four of these sites are the same this year as in 1998: lung and bronchus, prostate, colon and rectum, pancreas. Leukemia ranked fifth in 1999, edging out Non-Hodgkins lymphoma which was fifth in 1998 by a small margin of 10 deaths.

Deaths-to-cases Ratios

In 1999, liver cancer had the highest deaths-to-cases ratio, for both sexes and for all Florida residents combined, followed by cancers of the pancreas, esophagus, lung and bronchus and multiple myeloma.

Figure 1

Percent Distribution of New Cancer Cases and Cancer Deaths for Selected Sites by Sex, Florida, 1999

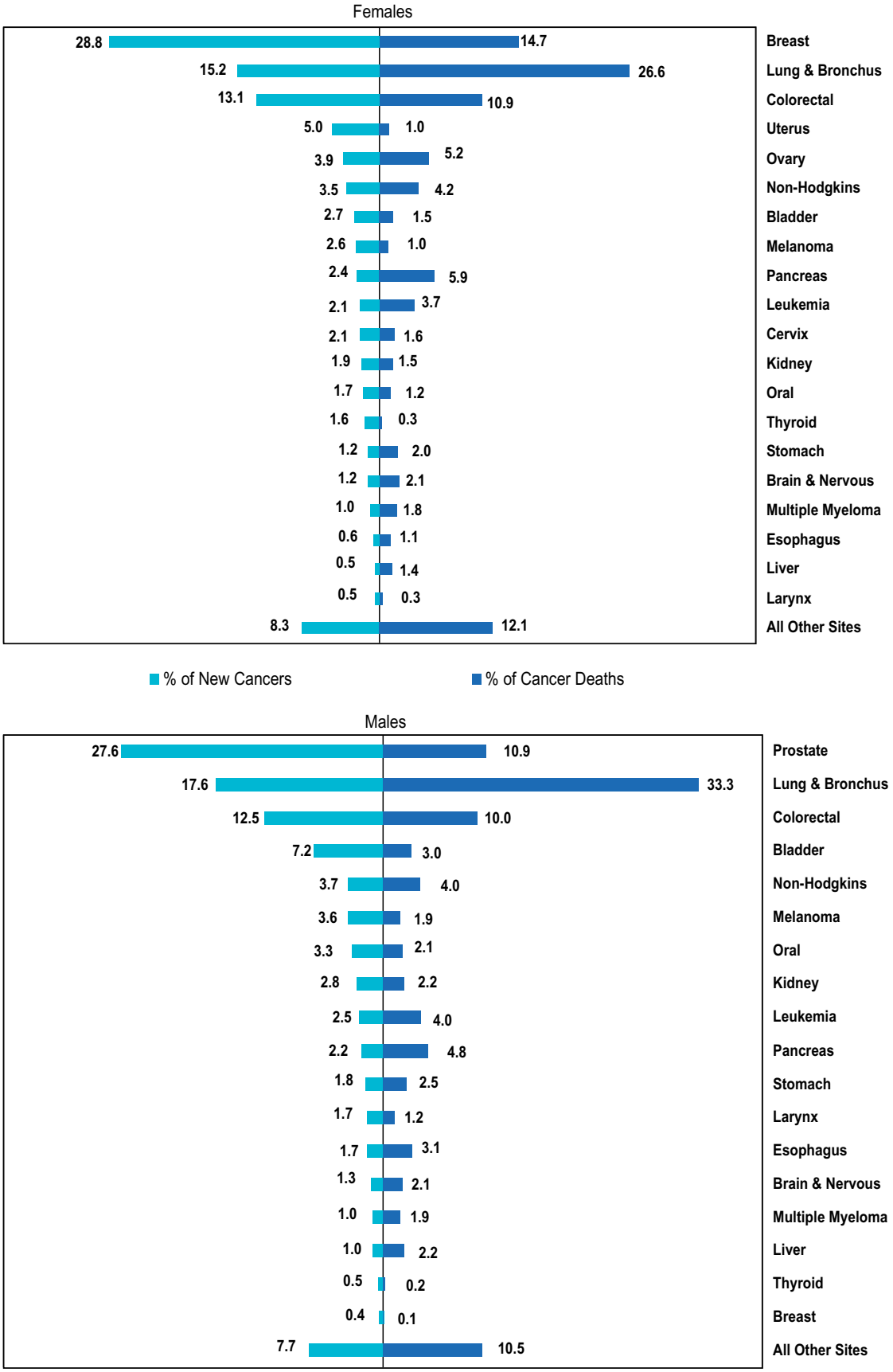


Table 1

New Cases, Deaths and Deaths:Cases Ratios for Selected Cancer Sites by Sex, Florida, 1999

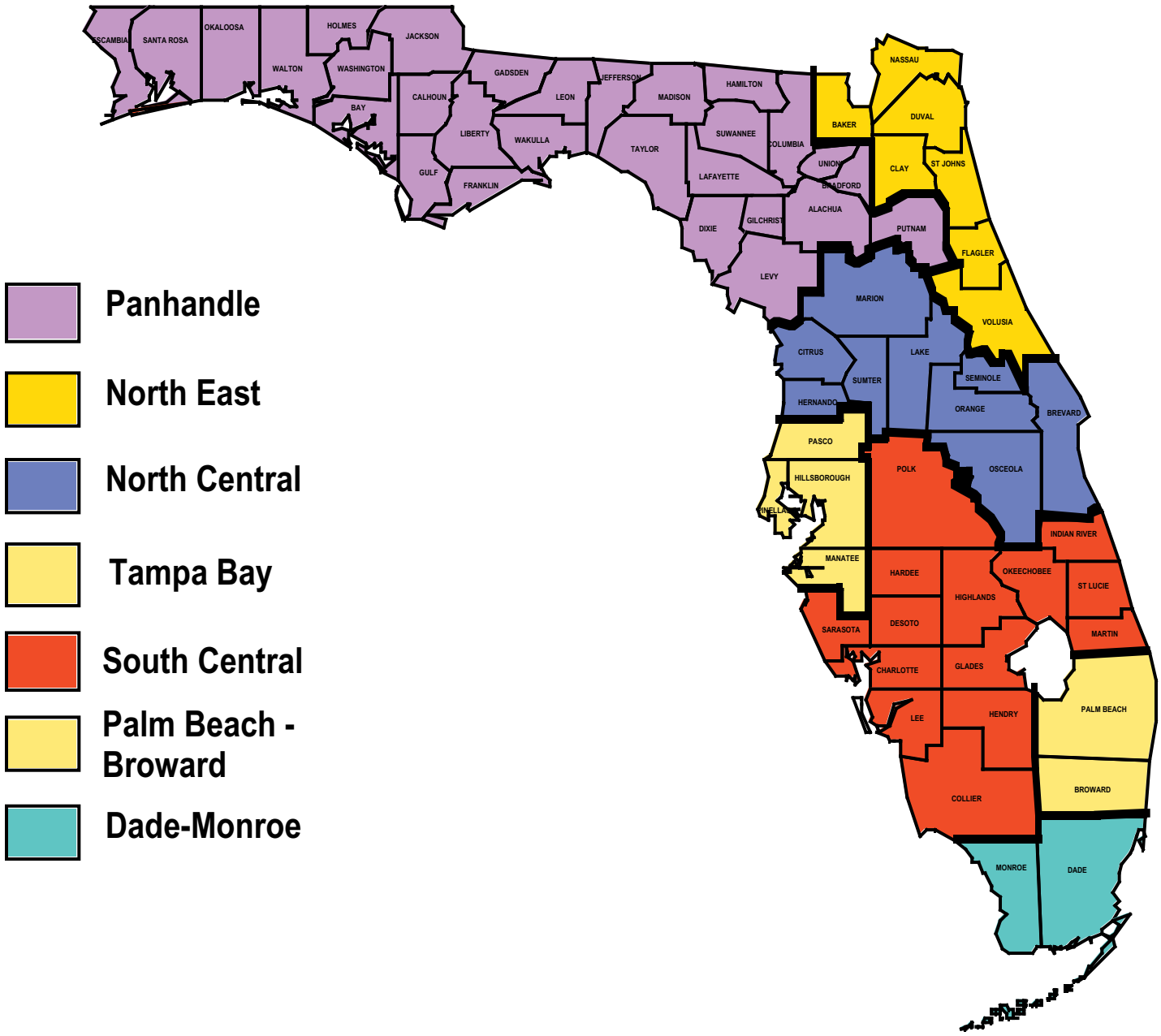
	New Cases (1)			Deaths (2)			Deaths:Cases Ratio		
Site	Total	Females	Males	Total	Females	Males	Total	Females	Males
All Cancers	95,520	45,000	50,520	37,314	17,168	20,146	0.39	0.38	0.40
Lung & Bronchus	15,660	6,784	8,876	11,271	4,560	6,711	0.72	0.67	0.76
Prostate	13,922	0	13,922	2,196	0	2,196	0.16	--	0.16
Breast	13,223	13,015	208	2,557	2,532	25	0.19	0.19	0.12
Colorectal	12,184	5,888	6,296	3,883	1,865	2,018	0.32	0.32	0.32
Bladder	4,892	1,240	3,652	853	252	601	0.17	0.20	0.16
Non-Hodgkins (3)	3,452	1,587	1,865	1,514	714	800	0.44	0.45	0.43
Melanoma	2,982	1,142	1,840	542	168	374	0.18	0.15	0.20
Oral	2,446	799	1,647	622	207	415	0.25	0.26	0.25
Pancreas	2,256	1,131	1,125	1,973	1,009	964	0.87	0.89	0.86
Uterus	2,249	2,249	0	176	176	0	0.08	0.08	--
Kidney	2,247	850	1,397	707	256	451	0.31	0.30	0.32
Leukemia	2,220	962	1,258	1,439	629	810	0.65	0.65	0.64
Ovary	1,736	1,736	0	897	897	0	0.52	0.52	--
Stomach	1,462	539	923	840	341	499	0.57	0.63	0.54
Brain & Nervous	1,171	537	634	770	356	414	0.66	0.66	0.65
Esophagus	1,119	280	839	812	196	616	0.73	0.70	0.73
Larynx	1,078	229	849	306	55	251	0.28	0.24	0.30
Thyroid	978	723	255	83	43	40	0.08	0.06	0.16
Multiple Myeloma	969	456	513	691	314	377	0.71	0.69	0.73
Cervix	952	952	0	268	268	0	0.28	0.28	--
Liver	748	236	512	681	232	449	0.91	0.98	0.88
All Other Sites	7,574	3,665	3,909	4,181	2,072	2,109	0.55	0.57	0.54

(1) Florida Cancer Data System; includes 869 cases with unknown race; excludes 30 new cases with unknown sex.

(2) Office of Vital Statistics, Florida Department of Health; includes 6 deaths with unknown race.

(3) Non-Hodgkins refers to Non-Hodgkin's Lymphoma throughout this report.

MAP OF FLORIDA REGIONS, 1999



Note: Regional Populations are listed in Table 2.1

Regional Patterns of Cancer Incidence and Mortality, 1999

(Regional Map and Table 2.1 - Table 6)

Incidence

- In all seven regions, the four most common types of cancer were the same. Among females, breast cancer was by far the most commonly reported cancer, followed by cancers of the lung and bronchus, colon and rectum, and uterus. Among males, cancers of the prostate, lung and bronchus, colon and rectum, and bladder were most common.

- For all cancers combined, age-adjusted incidence rates for females were highest in the Palm Beach-Broward, Northeast, and Tampa Bay regions of the state, while for males rates were highest in the Northeast, North Central, and Palm Beach-Broward regions.

- Among females, breast cancer rates were highest in the Palm Beach-Broward region and lowest in the North Central region. Rates of cancers of the lung and bronchus were highest in the Northeast region and lowest in Miami-Dade-Monroe.

- For males, age-adjusted prostate cancer rates were highest in the North Central region and lowest in the South Central region, while age-adjusted rates of cancer of the lung and bronchus were highest in the Panhandle and lowest in Miami-Dade-Monroe.

Mortality

- For all cancers combined for both males and females, age-adjusted mortality rates were highest in the Northeast region for both sexes; for females, it was lowest in the South Central region, and for males, in Palm Beach-Broward.

- The highest mortality rates in all regions were for cancers of the lung and bronchus, breast or prostate, and colon and rectum. These cancers accounted for more than 50% of cancer deaths in each region: for males, 51-58%; for females, 51-55%, except for females in Miami-Dade-Monroe (48%).

- In every region except Miami-Dade-Monroe, female mortality rates from cancer of the lung and bronchus were substantially higher than those from breast cancer. This is due to a lower mortality rate from cancer of the lung and bronchus in Miami-Dade-Monroe.

- For males in all regions, mortality rates for cancer of the lung and bronchus were substantially higher than those for prostate cancer, which ranked second highest.

- The mortality rate from cancer of the lung and bronchus was considerably higher for males in the Panhandle compared to other regions.

Age-adjusted rates take into account regional differences in the age structure of the populations, as well as different population sizes in each region, and allow meaningful comparison among geographic areas.

Table 2.1

Estimated Population, New Cases and Deaths for All Cancers by Region and Sex, Florida,1999

	Population (1)			New Cases (2)			Deaths (3)		
Region	Total	Females	Males	Total	Females	Males	Total	Females	Males
Florida	15,658,227	8,044,104	7,614,123	95,520	45,000	50,520	37,314	17,168	20,146
Panhandle	1,833,054	914,507	918,547	8,287	3,808	4,479	3,561	1,590	1,971
Northeast	1,600,893	818,707	782,186	8,918	4,239	4,679	3,730	1,713	2,017
North Central	2,653,161	1,355,236	1,297,925	15,741	7,119	8,622	6,150	2,768	3,382
Tampa Bay	2,484,282	1,291,719	1,192,563	16,827	8,087	8,740	6,613	3,072	3,541
South Central	2,251,688	1,163,463	1,088,225	17,036	7,811	9,225	6,570	2,894	3,676
Palm Beach-Broward	2,587,289	1,342,866	1,244,423	17,817	8,766	9,051	6,567	3,138	3,429
Miami-Dade-Monroe	2,247,860	1,157,606	1,090,254	10,894	5,170	5,724	4,123	1,993	2,130

(1) 1999 population projections provided by the Florida Concensus Estimating Conference, Spring 2000.
(2) Florida Cancer Data System.
(3) Office of Vital Statistics, Florida Department of Health.

Table 2.2

Crude Incidence and Mortality Rates and Death: Cases Ratios by Region and Sex, Florida 1999

	New Cases Percent			Deaths Percent			Death:Cases Ratio		
Region	Total	Females	Males	Total	Females	Males	Total	Females	Males
Florida	610.0	559.4	663.5	238.3	213.4	264.6	0.39	0.38	0.40
Panhandle	452.1	416.4	487.6	194.3	173.9	214.6	0.43	0.42	0.44
Northeast	557.1	517.8	598.2	233.0	209.2	257.9	0.42	0.40	0.43
North Central	593.3	525.3	664.3	231.8	204.2	260.6	0.39	0.39	0.39
Tampa Bay	677.3	626.1	732.9	266.2	237.8	296.9	0.39	0.38	0.41
South Central	756.6	671.4	847.7	291.8	248.7	337.8	0.39	0.37	0.40
Palm Beach-Broward	688.6	652.8	727.3	253.8	233.7	275.5	0.37	0.36	0.38
Miami-Dade-Monroe	484.6	446.6	525.0	183.4	172.2	195.4	0.38	0.39	0.37

Table 3

New Cases for Selected Cancer Sites by Region and Sex, Florida, 1999

	Florida	Panhandle	Northeast	North Central	Tampa Bay	South Central	Palm Beach-Broward	Miami-Dade-Monroe
Females								
All Cancers	45,000	3,808	4,239	7,119	8,087	7,811	8,766	5,170
Breast	13,015	1,119	1,270	1,971	2,284	2,261	2,594	1,516
Lung & Bronchus	6,784	586	671	1,089	1,261	1,317	1,308	552
Colorectal	5,888	438	522	934	1,100	1,005	1,103	786
Uterus	2,249	182	224	353	406	368	437	279
Ovary	1,736	155	160	294	329	286	319	193
Non-Hodgkins	1,587	115	143	256	274	273	353	173
Bladder	1,240	84	90	213	256	237	243	117
Melanoma	1,142	114	103	142	219	195	283	86
Pancreas	1,131	89	94	165	204	199	249	131
Leukemia	962	88	103	161	155	176	167	112
Cervix	952	93	89	172	135	137	159	167
Kidney	850	91	84	144	162	133	158	78
Oral	799	86	87	119	145	137	136	89
Thyroid	723	83	68	125	94	109	141	103
Stomach	539	34	39	97	98	79	95	97
Brain & Nervous	537	54	49	98	100	85	86	65
Multiple Myeloma	456	45	44	89	79	62	76	61
Esophagus	280	27	27	38	48	59	56	25
Liver	236	18	25	32	29	30	48	54
Larynx	229	28	22	31	54	38	35	21
Males								
All Cancers	50,520	4,479	4,679	8,622	8,740	9,225	9,051	5,724
Prostate	13,922	1,181	1,297	2,601	2,470	2,437	2,327	1,609
Lung & Bronchus	8,876	973	823	1,530	1,572	1,758	1,388	832
Colorectal	6,296	474	618	1,092	1,050	1,155	1,151	756
Bladder	3,652	239	302	611	659	735	753	353
Non-Hodgkins	1,865	164	160	287	323	309	384	238
Melanoma	1,840	168	162	263	280	366	430	171
Oral	1,647	172	186	266	269	264	278	212
Kidney	1,397	148	116	218	233	236	280	166
Leukemia	1,258	116	112	199	215	240	237	139
Pancreas	1,125	107	82	164	209	228	211	124
Stomach	923	57	84	144	152	166	190	130
Larynx	849	90	76	138	145	135	142	123
Esophagus	839	78	73	145	153	171	137	82
Brain & Nervous	634	51	60	105	107	119	99	93
Multiple Myeloma	513	57	42	85	79	90	96	64
Liver	512	53	45	91	86	72	87	78
Thyroid	255	28	20	46	40	33	58	30
Breast	208	20	20	34	28	42	35	29

Table 4

Age-Adjusted Incidence Rates for Selected Cancer Sites by Region and Sex, Florida, 1999

Rates per 100,000

	Florida	Panhandle	Northeast	North Central	Tampa Bay	South Central	Palm Beach Broward	Miami-Dade Monroe
Females								
All Cancers	413.7	392.1	429.9	400.2	421.6	410.5	446.7	391.7
Breast	125.2	116.8	132.6	114.8	125.8	126.0	140.5	117.8
Lung & Bronchus	58.7	59.2	65.3	58.1	61.4	62.0	62.4	40.5
Colorectal	49.2	44.0	50.4	48.7	49.9	45.9	49.2	57.1
Uterus	20.9	18.7	22.6	19.8	22.0	19.4	22.5	21.5
Ovary	16.6	16.1	16.5	16.7	18.0	16.4	17.4	15.1
Non-Hodgkins	14.3	11.7	14.3	14.3	13.9	12.8	17.6	13.3
Melanoma (1)	12.7	13.5	12.0	9.5	14.7	13.7	17.3	6.9
Cervix	11.1	10.3	10.5	11.9	9.8	11.0	10.8	13.8
Bladder	10.2	8.4	8.7	10.8	12.0	10.7	10.7	8.2
Pancreas	9.4	8.9	8.9	8.5	9.2	9.2	11.1	9.3
Leukemia	8.9	8.9	10.4	9.3	7.9	9.5	8.6	8.4
Thyroid	8.6	9.2	8.2	8.9	6.9	8.9	9.7	8.9
Kidney	7.6	9.3	8.4	8.0	7.9	6.8	7.3	6.0
Oral	7.4	8.9	9.0	6.6	7.8	7.3	7.1	6.8
Brain & Nervous	5.6	5.6	5.5	6.2	5.9	5.1	5.1	5.1
Stomach	4.5	3.3	3.6	5.2	4.3	3.8	4.5	7.0
Multiple Myeloma	3.9	4.5	4.2	4.6	3.7	3.0	3.5	4.6
Esophagus	2.3	2.7	2.7	2.0	2.3	2.5	2.4	1.8
Larynx	2.2	2.9	2.3	1.8	2.9	2.1	2.0	1.6
Liver	2.1	1.9	2.6	1.7	1.4	1.7	2.3	4.0
Males								
All Cancers	563.4	556.6	587.8	573.2	559.8	545.5	571.1	552.3
Prostate	150.6	146.9	160.7	166.3	152.9	134.7	144.6	153.6
Lung & Bronchus	97.7	121.3	102.7	101.1	98.6	102.0	86.1	80.3
Colorectal	70.3	60.2	78.6	73.7	66.7	66.9	71.6	74.1
Bladder	40.2	31.5	38.4	41.1	40.7	41.8	45.3	35.0
Melanoma (1)	22.2	21.7	21.9	18.8	20.3	25.0	27.7	17.1
Non-Hodgkins	21.7	19.9	20.4	19.8	21.7	19.4	25.3	23.0
Oral	19.0	20.5	23.2	17.9	18.6	17.2	18.6	20.2
Kidney	15.7	18.1	14.5	14.5	15.3	14.3	17.8	15.8
Leukemia	14.5	15.2	14.4	13.9	14.1	15.1	15.4	13.5
Pancreas	12.6	13.7	10.3	10.8	13.3	13.7	13.2	12.0
Stomach	10.4	7.0	10.7	9.7	9.8	9.8	11.9	13.1
Larynx	9.6	10.8	9.4	9.1	9.4	8.4	9.2	11.8
Esophagus	9.4	9.6	9.2	9.8	9.9	10.4	8.8	7.7
Brain & Nervous	7.6	6.0	7.5	7.4	7.6	9.0	6.8	8.6
Liver	5.8	6.9	5.5	6.3	5.6	4.3	5.8	7.4
Multiple Myeloma	5.7	7.1	5.3	5.8	4.9	5.1	6.0	6.2
Thyroid	3.1	3.2	2.4	3.1	3.1	2.3	4.1	2.8
Breast	2.3	2.5	2.5	2.4	1.9	2.4	2.1	2.9

(1) Rates for melanoma include whites only.

Table 5

Deaths for Selected Cancer Sites by Region and Sex, Florida, 1999

	Florida	Panhandle	Northeast	North Central	Tampa Bay	South Central	Palm Beach Broward	Miami-Dade Monroe
Females								
All Cancers	17,168	1,590	1,713	2,768	3,072	2,894	3,138	1,993
Lung & Bronchus	4,560	402	490	795	833	855	808	377
Breast	2,532	244	279	405	414	384	488	318
Colorectal	1,865	159	175	316	351	292	310	262
Pancreas	1,009	84	74	136	208	180	224	103
Ovary	897	88	77	153	180	143	161	95
Non-Hodgkins	714	59	75	100	122	127	146	85
Leukemia	629	55	66	106	113	88	108	93
Brain & Nervous	356	32	31	59	79	60	53	42
Stomach	341	31	20	47	58	47	66	72
Multiple Myeloma	314	39	24	50	42	56	60	43
Cervix	268	31	35	37	39	37	42	47
Kidney	256	35	31	38	41	44	44	23
Bladder	252	27	26	40	41	50	50	18
Liver	232	23	16	31	31	34	48	49
Oral	207	28	21	36	39	24	42	17
Esophagus	196	14	23	38	30	34	37	20
Uterus	176	14	16	22	21	40	31	32
Melanoma	168	15	22	21	42	28	25	15
Larynx	55	6	5	10	11	8	9	6
Thyroid	43	5	3	7	3	6	10	9
Males								
All Cancers	20,146	1,971	2,017	3,382	3,541	3,676	3,429	2,130
Lung & Bronchus	6,711	756	668	1,228	1,166	1,271	992	630
Prostate	2,196	207	240	342	367	378	404	258
Colorectal	2,018	174	200	331	348	365	367	233
Pancreas	964	88	79	155	175	183	188	96
Leukemia	810	77	90	121	146	145	138	93
Non-Hodgkins	800	73	74	120	131	155	166	81
Esophagus	616	53	64	115	116	122	84	62
Bladder	601	42	45	92	116	119	124	63
Stomach	499	42	52	79	74	93	83	76
Kidney	451	39	49	70	95	77	77	44
Liver	449	49	51	80	73	73	63	60
Oral	415	44	41	66	88	59	74	43
Brain & Nervous	414	38	36	78	70	79	68	45
Multiple Myeloma	377	33	33	62	52	75	70	52
Melanoma	374	31	40	67	73	60	68	35
Larynx	251	27	28	31	54	38	37	36
Thyroid	40	3	3	4	5	8	9	8
Breast	25	3	2	6	5	4	4	1

Table 6

Age-Adjusted Mortality Rates for Selected Cancer Sites by Region and Sex, Florida, 1999

Rates per 100,000

	Florida	Panhandle	Northeast	North Central	Tampa Bay	South Central	Palm Beach Broward	Miami-Dade Monroe
Females								
All Cancers	145.9	159.8	166.3	147.8	143.8	136.8	141.9	143.4
Lung & Bronchus	38.4	40.3	47.2	41.8	39.0	39.1	36.3	27.0
Breast	23.1	25.2	28.6	22.8	20.4	20.8	24.6	23.5
Colorectal	15.1	15.8	16.3	16.5	15.6	12.8	13.3	18.3
Pancreas	8.2	8.4	7.0	6.8	9.3	7.7	9.5	7.3
Ovary	7.8	8.9	7.4	8.2	8.5	6.9	7.8	7.1
Non-Hodgkins	5.7	5.8	7.0	5.1	5.5	5.5	5.8	6.2
Leukemia	5.3	5.6	6.3	5.7	4.9	4.3	4.6	6.8
Brain & Nervous	3.5	3.3	3.4	3.6	4.4	3.2	2.9	3.2
Cervix	2.9	3.3	3.9	2.3	2.6	2.6	2.7	3.8
Stomach	2.8	3.0	1.9	2.6	2.5	2.4	2.8	5.1
Multiple Myeloma	2.5	3.8	2.1	2.6	1.8	2.3	2.5	3.1
Kidney	2.1	3.5	3.0	2.1	1.8	1.9	1.9	1.6
Bladder	1.9	2.6	2.4	2.1	1.6	1.9	2.1	1.2
Liver	1.9	2.3	1.5	1.6	1.3	1.7	2.0	3.5
Oral	1.8	2.7	2.1	1.9	2.0	1.2	2.1	1.2
Esophagus	1.6	1.4	2.2	2.0	1.4	1.5	1.5	1.3
Melanoma (1)	1.5	1.5	2.2	1.2	2.2	1.5	1.2	1.1
Uterus	1.5	1.4	1.5	1.1	1.0	1.9	1.4	2.3
Larynx	0.5	0.6	0.5	0.5	0.6	0.3	0.4	0.4
Thyroid	0.4	0.5	0.3	0.4	0.2	0.3	0.4	0.7
Males								
All Cancers	225.9	257.0	260.2	231.3	222.2	214.7	211.9	212.7
Lung & Bronchus	74.0	95.3	84.1	81.3	72.7	73.1	61.6	61.5
Prostate	25.0	31.6	33.5	25.2	22.2	21.5	23.7	28.1
Colorectal	22.7	23.3	26.3	22.8	21.8	20.6	22.6	23.6
Pancreas	10.7	11.1	10.3	10.3	10.8	10.9	11.6	9.4
Leukemia	9.2	10.5	11.8	8.3	9.3	8.7	8.5	9.3
Non-Hodgkins	9.0	9.2	9.6	8.1	8.3	9.3	10.3	8.0
Esophagus	6.9	6.7	8.1	7.9	7.2	7.0	5.5	6.0
Bladder	6.8	6.3	5.9	6.5	7.1	6.9	7.4	6.7
Stomach	5.7	5.3	6.6	5.6	4.8	5.7	5.0	7.7
Kidney	5.0	5.1	6.3	4.8	6.0	4.3	4.8	4.2
Liver	5.0	6.3	6.3	5.4	4.7	4.2	4.0	5.7
Oral	4.7	5.5	5.1	4.6	5.8	3.6	4.8	4.1
Brain & Nervous	4.7	4.7	4.6	5.4	4.7	5.1	4.3	4.4
Melanoma (1)	4.4	4.0	5.0	4.7	5.0	4.3	4.3	3.5
Multiple Myeloma	4.2	4.1	4.3	4.2	3.2	4.2	4.2	5.0
Larynx	2.8	3.1	3.4	2.0	3.6	2.1	2.4	3.5
Thyroid	0.4	0.3	0.4	0.3	0.3	0.4	0.6	0.8
Breast	0.3	0.4	0.2	0.4	0.3	0.3	0.3	0.1

(1) Rates for melanoma include whites only.

Trends in Cancer Incidence and Mortality, 1981-1999

(Figures 2.1 - 3.2 and Tables 7.1 - 7.2)

Incidence

Florida's population has grown and aged from 1981 to 1999; the number of new cancer cases diagnosed each year also has increased. However, the eighteen-year trend of age-adjusted incidence rates for all cancers combined for both sexes, which take into account changes in population size and age, shows only a slight increase. Nonetheless, for males or females separately, or for specific cancer sites, some changes have been observed.

- Notable in 1999 is the decrease since 1998 in incidence rates for all cancers combined and for the most common cancers in both sexes. The sole exception is cancer of the uterus, which increased only slightly, 0.1 cases per 100,000 females this year. Decreases ranged from 24 and 34 cases per 100,000 per year for all cancers in females and males respectively, to smaller decreases (8 cases per 100,000 per year or less) for each of the seven cancers with the highest age-adjusted rates.

- This general decrease marks the first time in the history of cancer surveillance in Florida that the rates for all cancers and for the most common cancers have decreased in the same year.

- The number and age-adjusted incidence rates of prostate cancer increased dramatically, between 1987 and 1992. These increases are thought to be a result of development and use of the prostate specific antigen (PSA) test during the late 1980s (Schottenfeld and Fraumeni, 1996, p. 1183). After the peak in 1992, rates declined for four years until reaching levels comparable to 1990. Since then prostate cancer rates have remained fairly stable.

- Breast cancer incidence rates among females also increased substantially in the middle 1980s and have fluctuated at increasingly higher levels throughout the 1990s. Some of the increase may be due to improved diagnostic sensitivity of mammography and to higher screening rates (Schottenfeld and Fraumeni, 1996, p. 1023).

- The incidence rates of oral cancer in males and cancers of the uterus and ovary in females have remained fairly stable since 1981, showing only small variations in either direction over the years.

Mortality

- The total number of cancer deaths increased steadily from 1981 until 1997 for both females and males, in tandem with the growth and aging of Florida's population. In 1998, cancer deaths in males dropped 1.3% from 1997 levels; from 1998 to 1999, cancer deaths in females decreased 0.7%. However, age-adjusted mortality rates for all cancers combined have decreased, for females since 1993, and for males, since 1991. The decreases are most dramatic in the current year: mortality rates for males fell 10 deaths per 100,000 per year; female rates dropped nearly 9 per 100,000 per year.

- The mortality rate for cancer of the lung and bronchus has remained stable in males and has increased dramatically in females from 1981 to 1999, similar to the changes in incidence rates of cancer of the lung and bronchus.

- Since 1990, breast cancer mortality has decreased slightly even as incidence has increased. This may be due to more widespread breast cancer screening, which detects breast cancer at earlier and consequently more treatable stages, as well as to more effective treatment following diagnosis. (Schottenfeld and Fraumeni, 1996, p. 1023).

- Beginning in 1990, the steadily declining mortality rate for all cancers combined in males paralleled declines in the mortality rates of cancers of the lung and bronchus and of the colon and rectum. There were slight decreases in death rates from bladder and oral cancers in males through 1999. The declines in lung, bladder and oral cancer mortality rates are likely attributable to declining rates of cigarette smoking among males over the past three decades (Schottenfeld and Fraumeni, 1996, p.642). In Florida, the prevalence of cigarette smoking among males declined by about 18% during the 1990s. (Florida BRFSS, http://apps.nccd.cdc.gov/brfss/Trends/TrendData.asp)

Figure 2.1

New Cases and Age-Adjusted Incidence Rates for All Cancers by Sex, Florida, 1981-1999

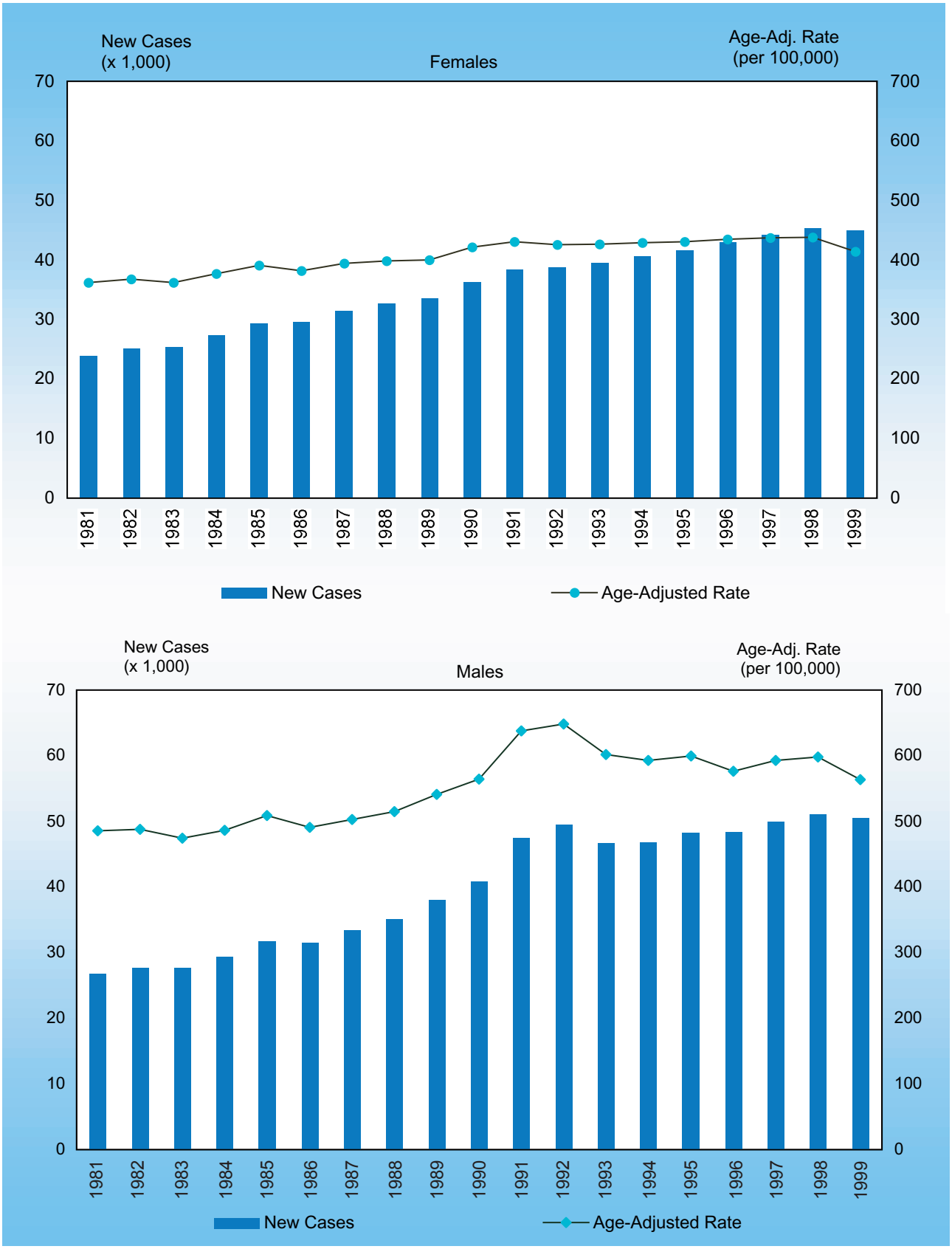


Figure 2.2

Deaths and Age-Adjusted Mortality Rates for All Cancers by Sex
Florida, 1981-1999

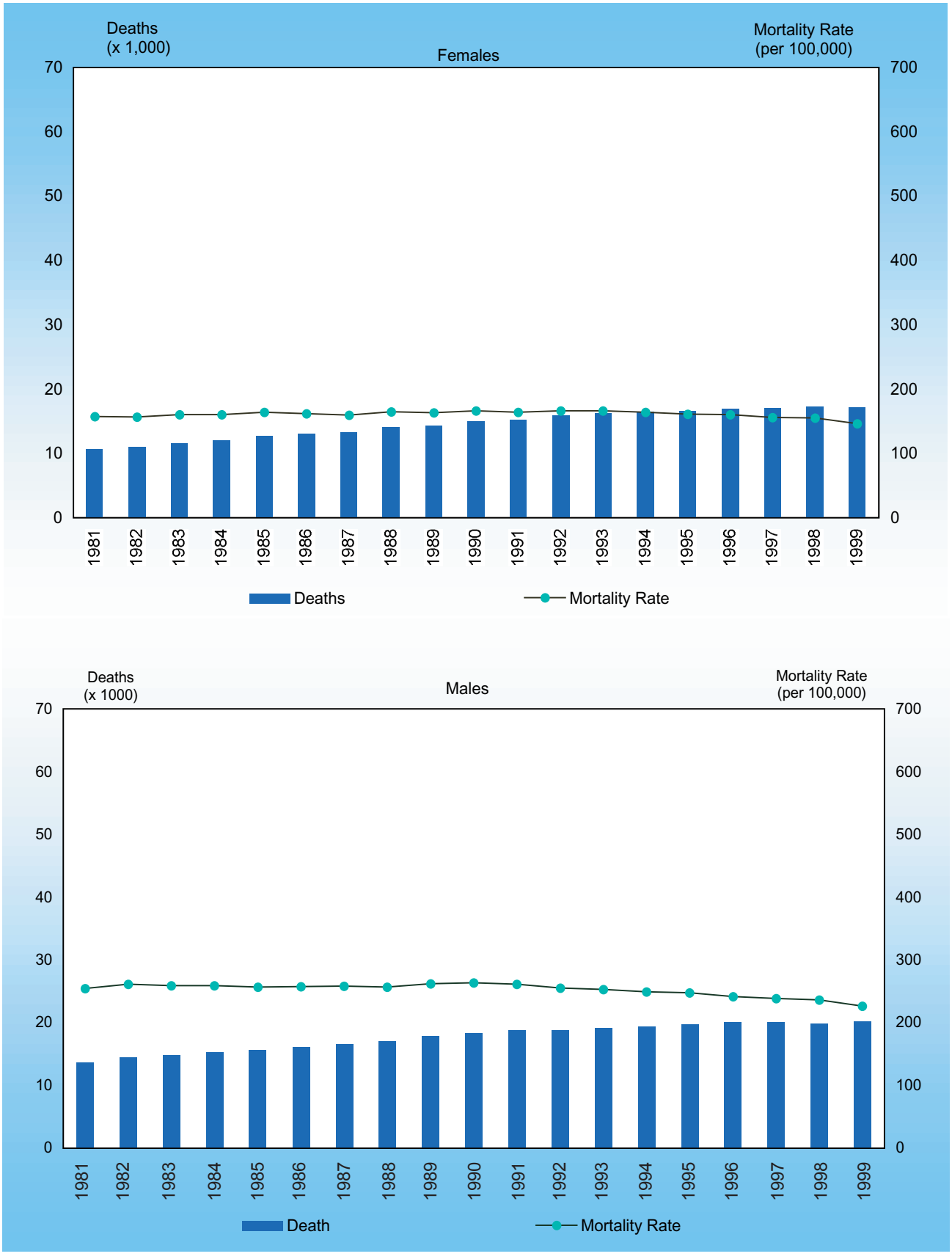


Figure 3.1

Age-Adjusted Incidence and Mortality Rates For Selected Cancer Sites, Florida, 1981-1999

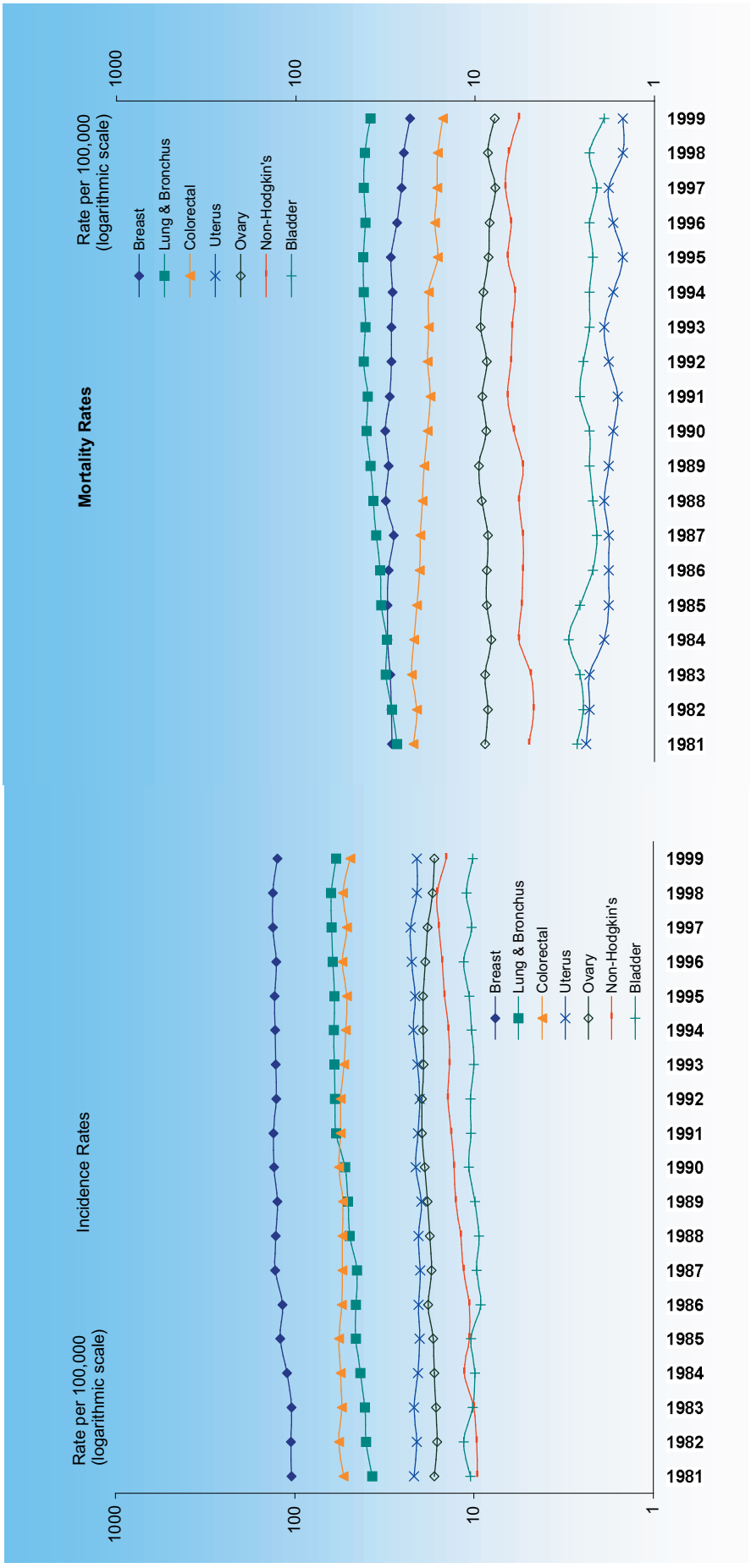


Figure 3.2
Age-Adjusted Incidence and Mortality Rates For Selected Cancer Sites, Florida, 1981-1999

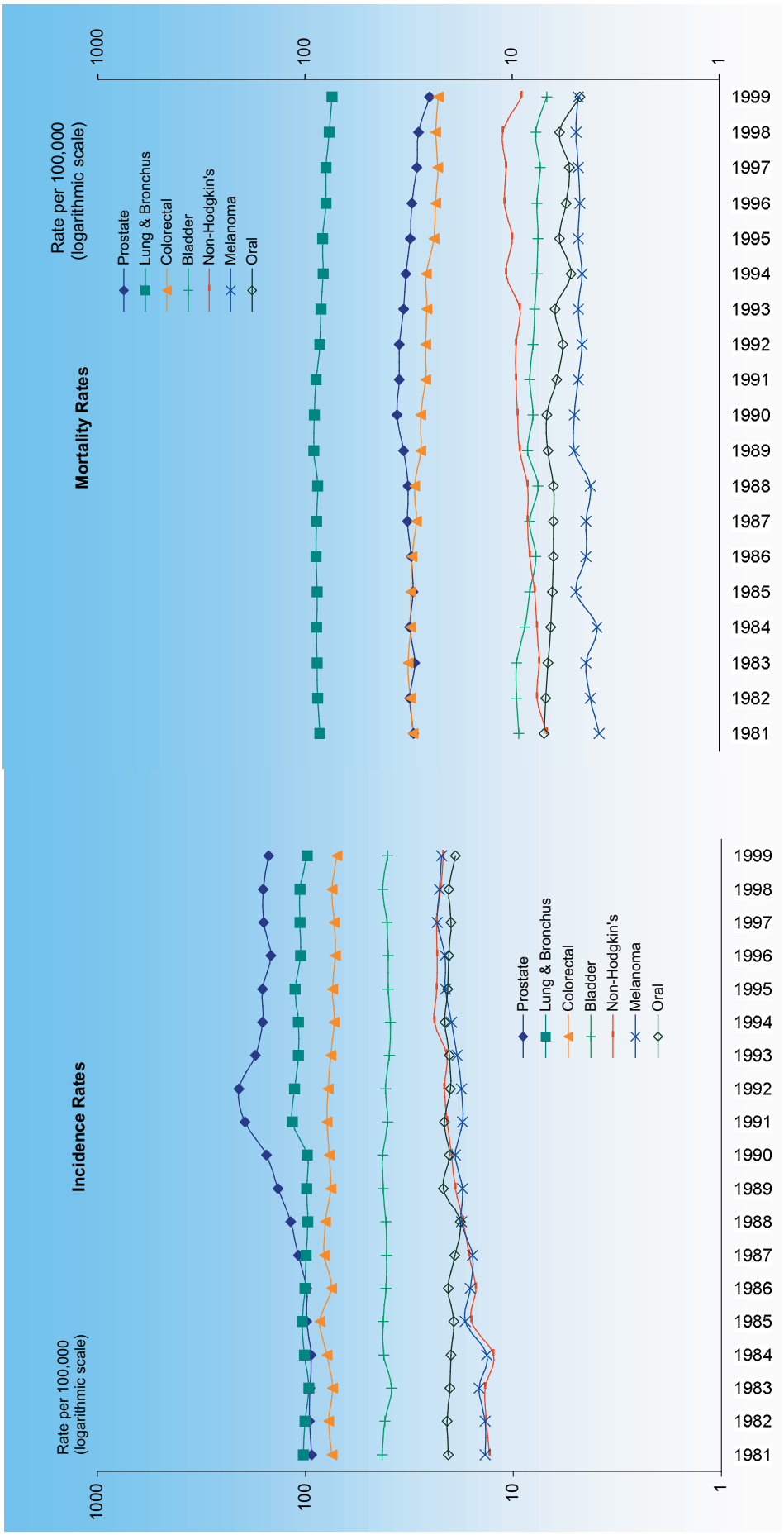


Table 7.1

Age-Adjusted (1) Incidence and Mortality Rates for Selected Cancer Sites in Females Florida, 1981 - 1999

Rates per 100,000

Year	All Cancers	Breast	Lung & Bronchus	Colorectal	Uterus	Ovary	Non-Hodgkins	Bladder
Incidence								
1981	361.6	104.1	37.0	53.6	21.6	16.7	9.6	10.5
1982	367.4	104.7	40.1	56.8	20.8	16.0	9.7	11.4
1983	361.8	104.0	40.5	54.5	21.6	16.3	10.0	10.2
1984	376.5	110.1	43.0	55.3	20.5	16.7	11.3	9.9
1985	390.5	120.4	45.7	56.8	20.1	16.9	10.6	10.4
1986	381.6	117.0	45.5	54.7	20.4	18.0	10.6	9.2
1987	393.8	128.3	44.9	54.3	20.0	17.3	11.4	9.7
1988	398.2	127.8	49.4	54.1	20.4	17.7	11.8	9.4
1989	399.4	124.5	50.5	53.9	19.6	18.2	12.6	9.9
1990	421.0	130.5	52.4	56.5	21.2	18.8	12.9	10.7
1991	430.4	131.7	58.6	55.5	20.6	19.5	13.4	10.4
1992	425.5	126.8	59.8	55.3	20.1	19.5	14.0	10.5
1993	426.4	127.7	60.1	53.0	20.7	19.1	13.7	10.0
1994	428.4	129.0	60.4	51.8	21.8	19.3	13.9	10.3
1995	430.3	129.8	60.0	51.2	21.3	19.2	14.6	10.6
1996	434.8	126.6	61.4	54.1	22.3	18.7	15.0	11.4
1997	436.8	132.5	62.5	51.2	22.5	18.2	15.7	10.3
1998	437.8	132.7	62.6	53.8	20.8	17.0	16.0	11.0
1999	413.7	125.2	58.7	49.2	20.9	16.6	14.3	10.2
Mortality								
1981	156.7	29.0	27.3	22.1	2.4	8.8	5.0	2.7
1982	156.5	29.2	29.0	21.2	2.3	8.5	4.7	2.5
1983	160.1	29.8	31.5	22.6	2.3	8.8	4.9	2.6
1984	160.1	30.9	31.0	21.9	1.9	8.1	5.7	3.0
1985	163.3	30.8	33.5	21.2	1.8	8.6	5.5	2.6
1986	161.3	30.3	34.0	20.4	1.8	8.6	5.4	2.2
1987	159.1	28.5	35.7	20.3	1.8	8.5	5.4	2.1
1988	164.1	31.6	37.0	19.7	1.9	9.2	5.7	2.2
1989	163.0	30.4	38.2	19.3	1.8	9.5	5.4	2.3
1990	166.0	31.8	40.4	18.4	1.7	8.7	6.1	2.3
1991	163.9	29.9	39.8	17.8	1.6	9.1	6.6	2.6
1992	166.1	29.4	41.8	18.4	1.8	8.6	6.3	2.5
1993	165.4	29.4	40.8	18.2	1.9	9.3	6.2	2.3
1994	163.4	28.8	41.7	18.1	1.7	9.0	6.0	2.3
1995	160.3	29.5	42.0	16.2	1.5	8.4	6.6	2.2
1996	160.1	27.2	40.9	16.8	1.7	8.3	6.3	2.3
1997	155.7	25.7	41.9	16.3	1.8	7.7	6.8	2.1
1998	154.7	25.0	41.2	16.2	1.5	8.5	6.5	2.3
1999	145.9	23.1	38.4	15.1	1.5	7.8	5.7	1.9

(1) All rates are adjusted to the U.S. 2000 Standard Population.

Table 7.2

Age-Adjusted (1) Incidence and Mortality Rates for Selected Cancer Sites in Males Florida, 1981 - 1999

Rates per 100,000

Year	All Cancers	Prostate	Lung & Bronchus	Colorectal	Bladder	Melanoma (2)	Non-Hodgkins	Oral
Incidence								
1981	485.2	93.5	102.0	74.3	42.8	13.7	13.0	20.6
1982	487.7	95.8	100.6	77.3	41.4	13.7	13.5	20.8
1983	474.5	94.8	96.4	74.1	38.5	14.6	13.7	20.2
1984	486.4	93.8	100.9	78.6	42.0	13.4	12.5	20.0
1985	508.4	98.6	103.3	85.2	42.2	17.0	15.9	19.4
1986	491.0	98.8	100.7	75.1	41.1	16.1	15.2	20.6
1987	503.0	108.1	99.1	81.0	40.8	15.7	16.3	19.1
1988	514.4	117.5	97.6	80.0	40.9	17.8	17.4	18.0
1989	541.2	135.0	98.5	75.4	42.3	17.6	19.0	21.7
1990	564.2	154.2	98.2	76.9	42.4	19.0	19.8	20.3
1991	638.1	195.7	115.6	78.8	40.3	17.6	20.8	21.5
1992	648.4	208.7	112.6	77.5	41.3	17.8	21.5	20.1
1993	601.7	173.9	107.8	75.2	39.4	18.7	21.0	20.3
1994	592.5	161.0	108.3	72.8	39.1	19.8	23.9	21.3
1995	599.8	160.3	111.9	74.1	40.1	21.2	23.4	20.7
1996	576.5	146.1	105.7	71.8	40.0	21.4	23.3	20.4
1997	592.4	158.5	106.3	72.7	40.4	23.2	23.4	19.9
1998	598.0	159.3	106.0	74.5	42.6	22.7	22.4	20.4
1999	563.4	150.6	97.7	70.3	40.2	22.2	21.7	19.0
Mortality								
1981	254.1	30.0	84.9	30.2	9.3	3.8	6.8	7.0
1982	260.7	31.3	87.0	31.0	9.5	4.2	7.6	6.9
1983	258.5	29.5	87.3	31.9	9.5	4.4	7.4	6.7
1984	258.9	31.2	88.0	30.9	8.7	3.9	7.6	6.5
1985	256.1	30.1	87.3	30.8	8.2	4.9	7.8	6.4
1986	256.9	30.6	88.4	30.4	7.7	4.4	8.2	6.3
1987	257.6	32.0	88.2	29.1	8.2	4.4	8.4	6.3
1988	256.7	31.8	86.8	29.6	7.5	4.2	8.4	6.3
1989	261.3	33.5	90.7	27.7	8.4	5.0	9.2	6.7
1990	262.9	36.0	89.9	27.7	7.9	5.0	9.4	6.8
1991	261.1	35.1	88.5	26.1	8.2	4.8	9.6	6.1
1992	255.2	35.1	84.7	26.2	7.9	4.6	9.6	5.7
1993	252.3	33.5	83.8	25.8	7.8	4.8	9.2	6.2
1994	248.9	32.7	81.6	26.0	7.6	4.6	10.7	5.2
1995	247.0	31.1	82.4	23.9	7.5	4.8	10.0	5.9
1996	241.1	30.4	79.4	23.4	7.6	4.7	10.9	5.5
1997	238.1	28.9	79.3	22.9	7.3	4.8	10.7	5.3
1998	236.0	28.3	76.3	23.4	7.7	4.9	11.1	5.9
1999	225.9	25.0	74.0	22.7	6.8	4.8	9.0	4.7

(1) All rates are adjusted to the U.S. 2000 Standard Population.

(2) Melanoma rates are for whites only.

Estimated Annual Percent Change in Cancer Incidence and Mortality, 1990-1999

(Figures 4.1 - 4.2 and Table 8)

For many cancers, age-adjusted incidence and mortality rates fluctuate over time, with increases or decreases from one year to the next. The choice of baseline year and the number of years included in the calculation both influence the magnitude and direction of the Estimated Annual Percent Change. Since this statistic measures percent change, those cancers with the largest EAPC are those that are comparatively rare and which have the largest percent change in rates, e.g., thyroid and liver cancers in both sexes, and breast cancer in men. The EAPC calculation uses a linear model, which assumes that rates change in a constant manner with small variations. If this assumption is violated, EAPC may not be an appropriate measure of change. Therefore, caution should be exercised in interpreting the EAPC. A detailed description of this calculation appears in Appendix I, Methodology.

- For incidence, the percent changes of the major cancer sites are fairly evenly distributed between increases and decreases over the 10-year period. For males, the EAPC is up in nine sites and down in nine; for females, nine sites increased, and eleven decreased.

- Sites that show significant increases for either incidence or mortality in males or females are denoted in Table 8 to the right of the applicable column with a single asterisk (*) or double asterisk (**) following the EAPC, for $p < 0.05$ and $p < 0.01$ respectively. Significant decreases are indicated in the same manner, with the addition of a minus sign preceding the EAPC.

- The incidence rate for all cancers combined has increased slightly for females and decreased for males over the past 10 years, while the mortality rates for both sexes have decreased.

- Overall, changes in mortality rates show downward trends. For females, only liver cancer increased; 19 sites have decreased. For males, EAPC increased for five sites and decreased for 13.

Figure 4.1

Estimated Annual Percent Change in Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites, Florida, 1990-1999

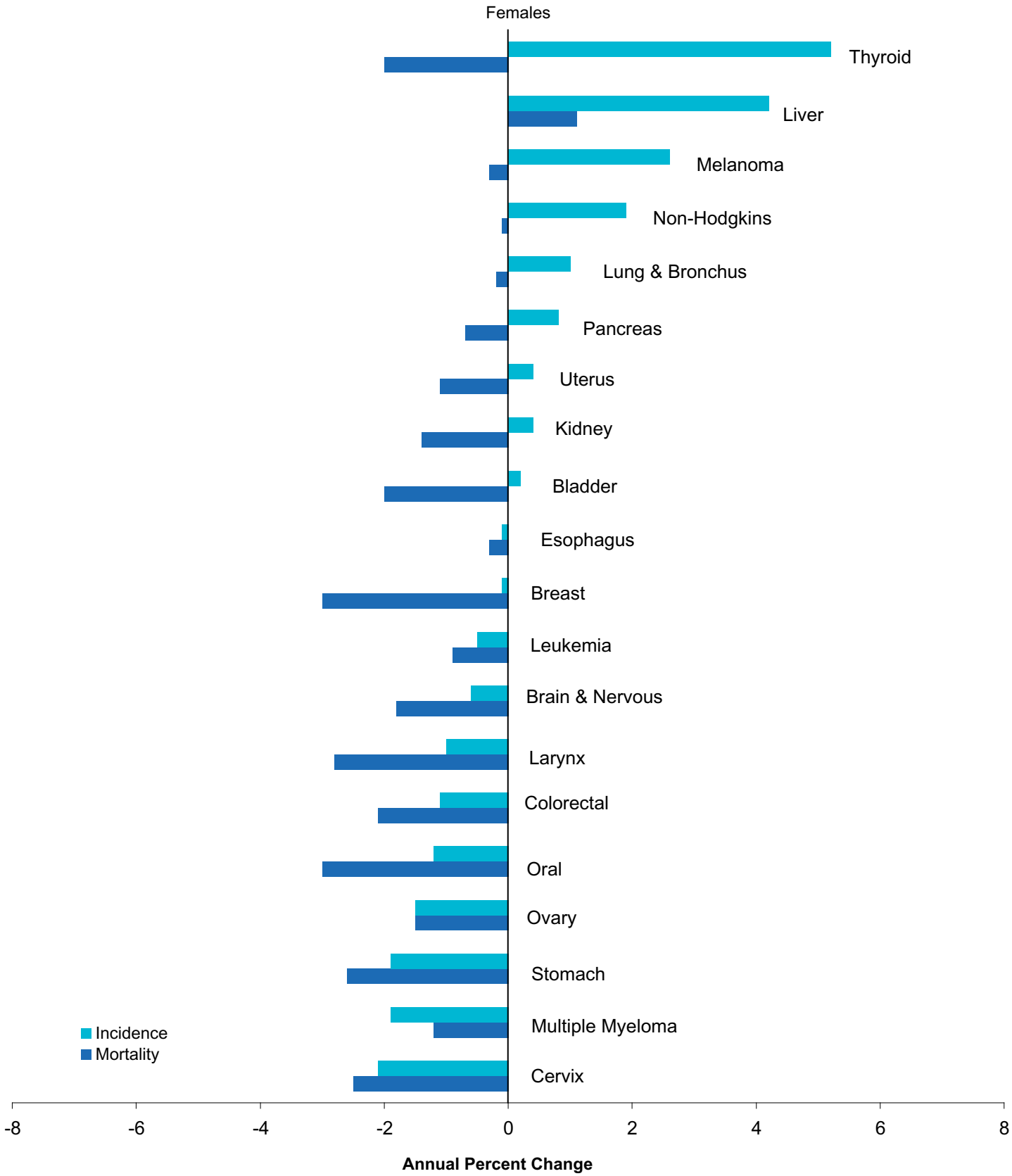


Figure 4.2

Estimated Annual Percent Change in Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites, Florida, 1990-1999

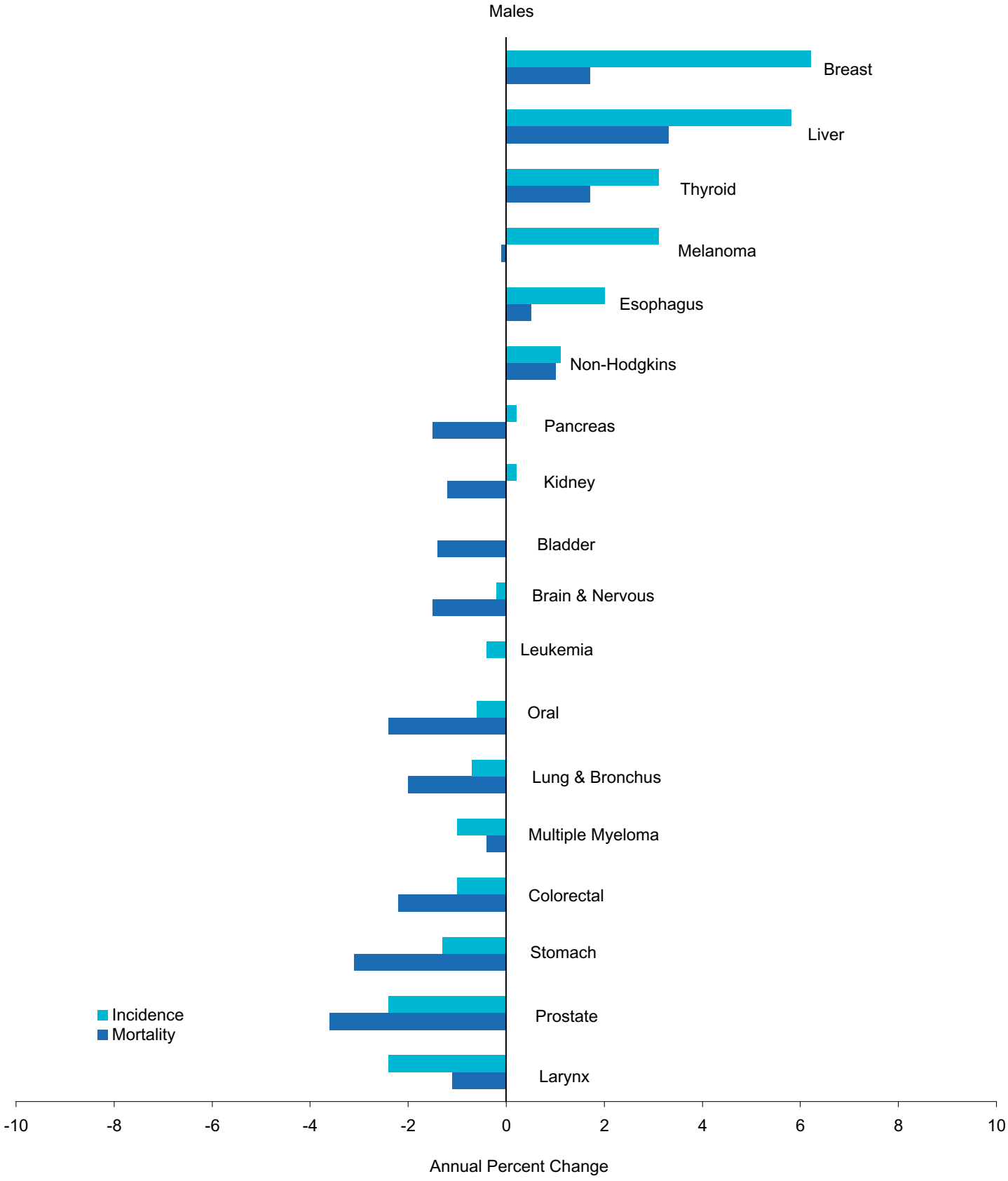


Table 8

Estimated Annual Percent Change (1) in Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites by Sex, Florida, 1990 - 1999

	Incidence		Mortality	
	Females	Males	Females	Males
All Sites	0.1	-0.7	-1.2 **	-1.5 **
Bladder	0.2	0.0	-2.0 *	-1.4 **
Brain & Nervous	-0.6	-0.2	-1.8 **	-1.5
Breast	-0.1	6.2 **	-3.0 **	1.7
Cervix	-2.1 **	--	-2.5 *	--
Colorectal	-1.1 *	-1.0 **	-2.1 **	-2.2 **
Esophagus	-0.1	2.0 **	-0.3	0.5
Kidney	0.4	0.2	-1.4	-1.2
Larynx	-1.0	-2.4 **	-2.8	-1.1 *
Leukemia	-0.5	-0.4	-0.9 *	0.0
Liver	4.2 **	5.8 **	1.1	3.3 **
Lung & Bronchus	1.0	-0.7	-0.2	-2.0 **
Melanoma (2)	2.6 *	3.1 **	-0.3	-0.1
Multiple Myeloma	-1.9 *	-1.0	-1.2	-0.4
Non-Hodgkins	1.9 **	1.1	-0.1	1.0
Oral	-1.2 *	-0.6	-3.0 **	-2.4 *
Ovary	-1.5 **	--	-1.5 *	--
Pancreas	0.8	0.2	-0.7 *	-1.5 **
Prostate	--	-2.4	--	-3.6 **
Stomach	-1.9 *	-1.3	-2.6 **	-3.1 **
Thyroid	5.2 **	3.1 *	-2.0	1.7
Uterus	0.4	--	-1.1	--

* significant at p<0.05
** significant at p<0.01

(1) See Appendix I for details of methodology for Estimated Annual Percent Change.
(2) Melanoma rates for EAPC computed for whites only.

Trends in the Distribution of Cancer by Age and Sex, 1981-1999
(Figure 5 and Tables 9 - 10.2)

The distribution of cancer by age group demonstrates that cancer is overwhelmingly a disease of older people. At age forty and again at age seventy, the number and rate of cancer cases and deaths increase by an order of magnitude.

- More than half of new cancer cases diagnosed, and nearly two-thirds of all cancer deaths, occurred in people aged 70 years and older. This age group makes up 13.7% of Florida's population.

- Age-specific incidence and mortality rates have been fairly stable since 1981 with the growing number of cancers and cancer deaths closely reflecting the growth and aging of the population of Florida.

- For all age groups, the highest cancer burden for females was breast cancer, while for males; cancer of the lung and bronchus had the highest incidence among those less than 50 years old with prostate cancer highest among males 50 years and older.

- Approximately 64% of all new cases of breast cancer were diagnosed among females 60 years of age or older.

- Age-specific incidence rates for breast cancer and cancer of the lung and bronchus in females and for prostate cancer in males were higher in the 70-79 age group than in the 80 and older group. In contrast, the 80 and older age group had the highest rates for cancer of the colon and rectum in both males and females.

- For males, the number of new cases of prostate cancer is about 50% higher than the number of cancers of the lung and bronchus and more than double the number of new cancers of the colon and rectum; about 99% of these cancers occurred in males over 40 years of age.

- Females between 20 and 50 years of age have higher incidence rates than males of comparable ages. This difference increases markedly in the 30-49 age range. However, the difference is reversed among older age groups. Males 50 and older have higher cancer incidence rates than females, increasingly higher as age increases.

- Mortality rates for males and females in the age groups below 60 are similar. In the 60-69 age group, males begin to have slightly higher overall mortality rates, and after age 70, they have much higher rates than females.

- Females less than 50 years old have higher mortality rates from breast cancer than from cancers of the lung and bronchus or colon and rectum. The highest age-specific mortality rate in females 50 and older is for cancer of lung and bronchus. Among males of all age groups, the highest age-specific mortality rate is also for cancer of the lung and bronchus.

Figure 5
Age-Specific Incidence and Mortality Rates for All Cancers by Sex and Age Group
Florida, 1981-1999

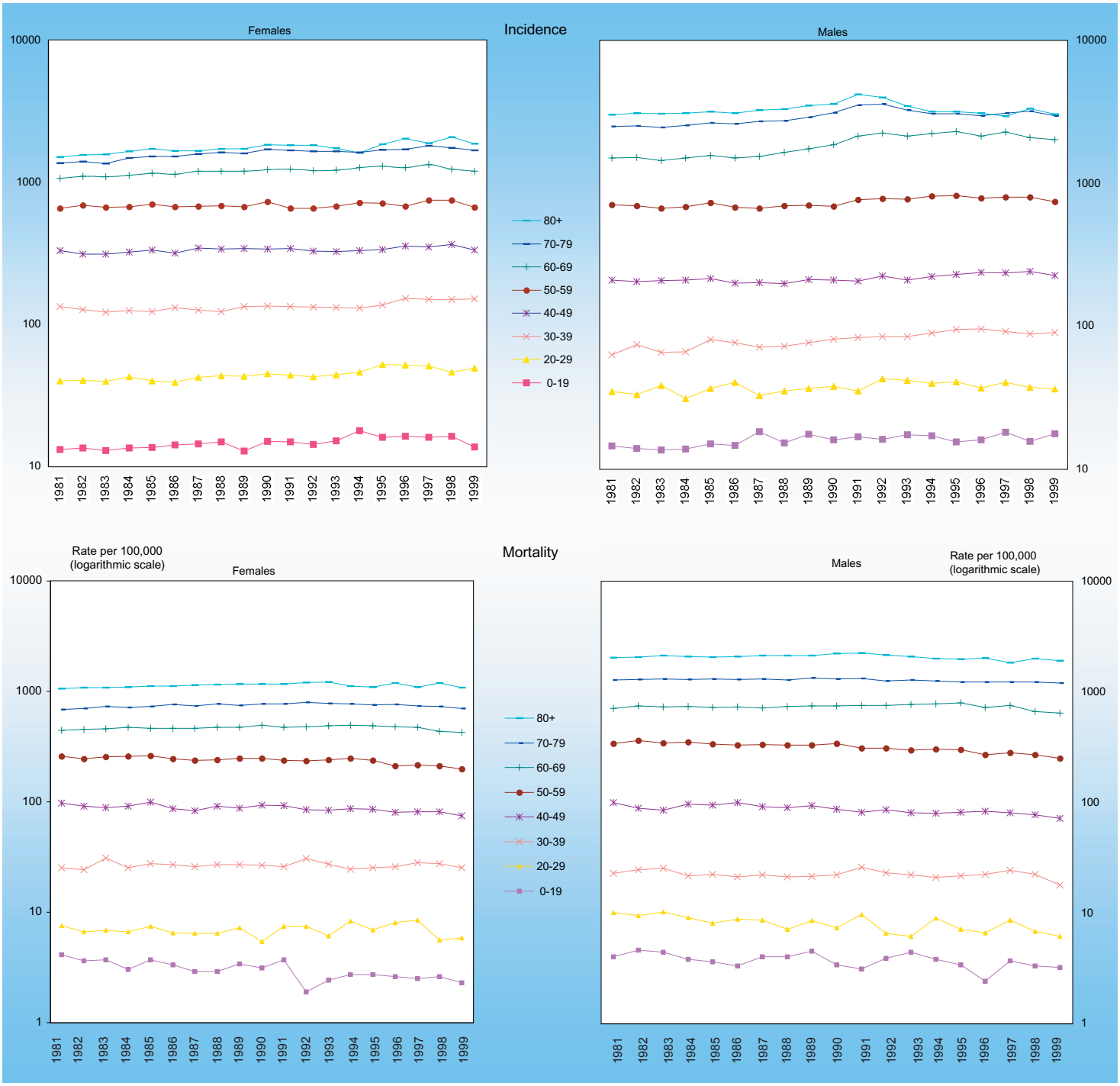


Table 9

Estimated Population, New Cases and Deaths from All Cancers by Age Group and Sex, Florida, 1999

	Population (1)			New Cases (2)			Deaths (3)		
Age Group	Total	Females	Males	Total	Females	Males	Total	Females	Males
0-19	3,909,257	1,913,665	1,995,592	616	265	351	108	44	64
20-29	1,883,334	910,332	973,002	815	462	353	112	53	59
30-39	2,162,708	1,070,538	1,092,170	2,620	1,636	984	466	270	196
40-49	2,294,258	1,161,015	1,133,243	6,534	3,974	2,560	1,670	861	809
50-59	1,810,356	934,691	875,665	12,863	6,385	6,478	4,037	1,841	2,196
60-69	1,445,978	774,852	671,126	23,036	9,456	13,580	7,600	3,289	4,311
70-79	1,373,302	784,819	588,483	30,982	13,436	17,546	12,548	5,489	7,059
80 +	779,034	494,192	284,842	18,054	9,386	8,668	10,773	5,321	5,452
All Ages	15,658,227	8,044,104	7,614,123	95,520	45,000	50,520	37,314	17,168	20,146

(1) 1999 population projections provided by the Florida Consensus Estimating Conference, Spring 2000.
(2) Florida Cancer Data System.
(3) Office of Vital Statistics, Florida Department of Health.

Table 10.1

New Cases and Age-Specific Incidence Rates for Selected Cancer Sites by Age Group and Sex, Florida, 1999

	Lung and Bronchus						Colorectal						Breast		Prostate	
	Total		Females		Males		Total		Females		Males		Females		Males	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Age Group																
0-19	2	0.1	1	0.1	1	0.1	2	0.1	0	0.0	2	0.1	1	0.1	1	0.1
20-29	10	0.5	7	0.8	3	0.3	32	1.7	16	1.8	16	1.6	43	4.7	0	0.0
30-39	102	4.7	54	5.0	48	4.4	151	7.0	76	7.1	75	6.9	498	46.5	1	0.1
40-49	695	30.3	301	25.9	394	34.8	561	24.5	244	21.0	317	28.0	1,739	149.8	212	18.7
50-59	1,982	109.5	849	90.8	1,133	129.4	1,312	72.5	596	63.8	716	81.8	2,391	255.8	1,666	190.3
60-69	4,182	289.2	1,726	222.8	2,456	366.0	2,666	184.4	1,126	145.3	1,540	229.5	2,812	362.9	4,832	720.0
70-79	5,740	418.0	2,479	315.9	3,261	554.1	4,136	301.2	1,963	250.1	2,173	369.3	3,513	447.6	5,514	937.0
80+	2,947	378.3	1,367	276.6	1,580	554.7	3,324	426.7	1,867	377.8	1,457	511.5	2,018	408.3	1,696	595.4
All Ages	15,660	100.0	6,784	84.3	8,876	116.6	12,184	77.8	5,888	73.2	6,296	82.7	13,015	161.8	13,922	182.8

Table 10.2

Deaths and Age-Specific Mortality Rates for Selected Cancer Sites by Age Group and Sex, Florida, 1999

	Lung and Bronchus						Colorectal						Breast		Prostate	
	Total		Females		Males		Total		Females		Males		Females		Males	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Age Group																
0-19	2	0.1	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20-29	2	0.1	2	0.2	0	0.0	5	0.3	0	0.0	5	0.5	6	0.7	0	0.0
30-39	47	2.2	30	2.8	17	1.6	28	1.3	16	1.5	12	1.1	76	7.1	0	0.0
40-49	395	17.2	152	13.1	243	21.4	137	6.0	71	6.1	66	5.8	245	21.1	3	0.3
50-59	1,341	74.1	504	53.9	837	95.6	330	18.2	149	15.9	181	20.7	414	44.3	60	6.9
60-69	2,735	189.1	1,020	131.6	1,715	255.5	711	49.2	283	36.5	428	63.8	497	64.1	248	37.0
70-79	4,237	308.5	1,694	215.8	2,543	432.1	1,298	94.5	584	74.4	714	121.3	636	81.0	753	128.0
80+	2,512	322.5	1,157	234.1	1,355	475.7	1,374	176.4	762	154.2	612	214.9	658	133.1	1,132	397.4
All Ages	11,271	72.0	4,560	56.7	6,711	88.1	3,883	24.8	1,865	23.2	2,018	26.5	2,532	31.5	2,196	28.8

Years of Potential Life Lost, 1999

(Figure 6 and Table 11)

Years of Potential Life Lost (YPLL) quantifies the burden of premature death and emphasizes those causes of premature death that affect many people, particularly at younger ages. YPLL is calculated by subtracting each individual's age at death from 75, the approximate average life expectancy, and summing the years of life lost for each specific cause of death. Data used to calculate YPLL are derived from death certificate information provided by the Florida Department of Health, Office of Vital Statistics.

- All causes of death yielded about 1.1 million years of potential life lost in 1999. Cancer was responsible for almost 260,000 years, or 23% of YPLL from all causes.

- Cancer was the leading cause of years of potential life lost in Florida, followed by heart disease, accident, suicide and HIV. In children less than 15 years old, cancer is the sixth leading cause of years of potential life lost.

- Consistent with higher death rates among males at most ages, deaths among males contribute more to total YPLL than female deaths for all causes as well as for each specific cause.

- The seven cancers that contributed most to YPLL in 1999 have predominated since 1995: lung and bronchus, breast, colon and rectum, pancreas, non-Hodgkins lymphoma, leukemia and brain and nervous system. About 63% of YPLL from cancer in Florida resulted from deaths due to these seven types of cancer.

- Of all cancer deaths, cancer of the lung and bronchus contributed the most to YPLL in 1999. Over 74,500 YPLL or 28.7% of the total years of life lost to cancer were due to deaths from cancer of the lung and bronchus.

- The YPLL for breast cancer is almost five times higher than for prostate cancer because females die at younger ages from breast cancer than males who die as a result of prostate cancer. Breast cancer comprises almost 21% of cancer YPLL in females, while prostate cancer contributes less than 4% to cancer YPLL in males.

Figure 6

Years of Potential Life Lost (YPLL) to Age 75 by Cause of Death, Florida, 1999

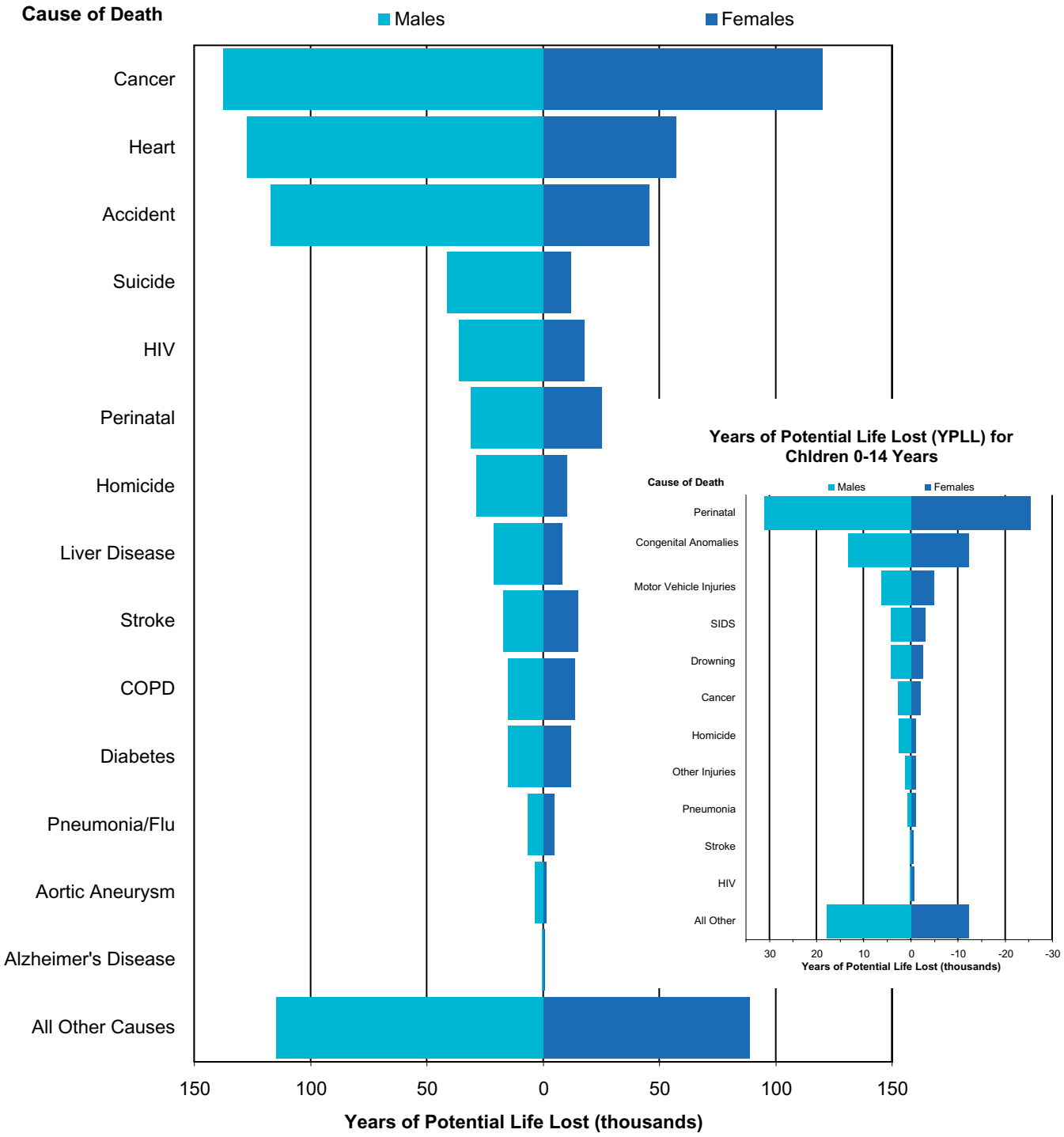


Table 11

Years of Potential Life Lost (1) Due to All Causes and Cancer, Florida, 1999

	Total		Females		Males	
	Years	Percent	Years	Percent	Years	Percent
All Causes	1,146,624	--	432,011	--	714,614	--
All Cancers	259,801	100	120,417	100	139,384	100
Childhood Cancers (2)	4,881	1.9	2,063	1.7	2,818	2.0
Cancer Site						
Lung & Bronchus	74,552	28.7	28,664	23.8	45,888	32.9
Breast	25,322	9.7	25,190	20.9	132	0.1
Colorectal	20,801	8.0	9,287	7.7	11,514	8.3
Pancreas	11,453	4.4	4,929	4.1	6,524	4.7
Non-Hodgkins	11,245	4.3	3,880	3.2	7,365	5.3
Leukemia	11,171	4.3	4,547	3.8	6,624	4.8
Brain & Nervous	10,345	4.0	5,125	4.3	5,220	3.7
Ovary	6,821	2.6	6,821	5.7	0	--
Stomach	6,069	2.3	2,223	1.8	3,846	2.8
Esophagus	6,047	2.3	943	0.8	5,104	3.7
Melanoma	5,890	2.3	1,654	1.4	4,236	3.0
Liver	5,699	2.2	1,406	1.2	4,293	3.1
Oral	5,542	2.1	1,463	1.2	4,079	2.9
Cervix	5,109	2.0	5,109	4.2	0	--
Kidney	4,904	1.9	1,554	1.3	3,350	2.4
Prostate	4,437	1.7	0	--	4,437	3.2
Multiple Myeloma	3,897	1.5	1,416	1.2	2,481	1.8
Bladder	2,980	1.1	753	0.6	2,227	1.6
Larynx	2,726	1.0	345	0.3	2,381	1.7
Hodgkins Lymphoma	1,980	0.8	700	0.6	1,280	0.9
Uterus	970	0.4	970	0.8	0	--
Thyroid	527	0.2	252	0.2	275	0.2
All Other	31,001	11.9	13,221	11.0	17,780	12.8

(1) See Appendix I for methodolgy.

(2) Years lost from childhood cancers are also included in totals for specific cancer sites.

Childhood Cancer Incidence and Mortality: Age 0-14 Years, 1995-1999

(Table 12)

The number of new cancers and cancer deaths for children are cumulative from 1995 to 1999; a single age-specific rate is calculated for incidence and mortality to summarize the five-year period. Note that this rate is expressed as cases per million population at risk for the five-year period, because of the relatively small number of new cases of cancer and cancer deaths in children compared to Floridians of all ages.

- Between 1995 and 1999, 2,118 children were diagnosed with primary cancers in Florida, an average of 424 new cases per year. There were 361 cancer deaths or an average of 72 each year for all cancers combined.
- Leukemia was the most commonly diagnosed cancer among children, followed by brain and nervous system cancers and lymphoma.
- New cases of leukemia accounted for 30.9% of all new cancers diagnosed in children for the 5-year period. Seventy-five percent of these were acute lymphocytic leukemia. All other childhood leukemias combined comprised 6.1% of childhood cancers between 1995 and 1999, and collectively had a death-to cases ratio of 0.48, the highest of all cancers for this age group.
- There were 116 deaths from leukemia among children between 1995 and 1999, 32.1% of all deaths from childhood cancer in Florida during this period. The deaths-to-cases ratio for childhood leukemia was 0.18 for the most recent five-year period compared to 0.65 for leukemia in Florida adults in 1999, indicating that leukemia has a better prognosis among children compared to adults.
- More than 22% of new cases of childhood cancers were brain and nervous system cancers, 474 cases over the 5-year period. The next most common pediatric cancer, lymphoma, accounted for about 10% of all childhood cancers, or 218 cases.
- Cancers of the brain and nervous system were responsible for 115 deaths among children during the 5-year period, and for 31.9% of all cancer deaths among children. The deaths-to-cases ratio for brain and nervous system cancers was 0.24, one of the highest among children.
- Endocrine cancers, including thyroid cancer, account for five percent of new cases and ten percent of childhood deaths, and have the second highest deaths-to-cases ratio, 0.31.

Table 12

New Cases, Deaths and Age-Specific Incidence and Mortality Rates for Children Age 0-14 for Selected Cancer Sites, Florida, 1995-1999 (1)

Site	New Cases			Deaths		
	Number (2)	Percent	Rate (per million)	Number	Percent	Rate (per million)
All Cancers	2,118	--	148.1	361	--	25.2
Leukemia	654	30.9	45.7	116	32.1	8.1
Acute Lymphocytic	525	24.8	36.7	54	15.0	3.8
Other Leukemia	129	6.1	9	62	17.2	4.3
Brain & Nervous	474	22.4	33.1	115	31.9	8.0
Lymphoma	218	10.3	15.2	17	4.7	1.2
Non-Hodgkins	154	7.3	10.8	14	3.9	1.0
Hodgkins	64	3.0	4.5	3	0.8	0.2
Kidney	126	5.9	8.8	14	3.9	1.0
Soft Tissue	118	5.6	8.3	14	3.9	1.0
Bones and Joints	112	5.3	7.8	23	6.4	1.6
Endocrine	115	5.4	8	36	10.0	2.5
Eye	84	4.0	5.9	1	0.3	0.1
All Other	217	10.2	15.2	25	6.9	1.7
Average per Year	424			72		

(1) Data are shown for the most recent five-year period.

(2) When compared to Table 12 in the 1998 Annual Report, the present table shows a decreased incidence of 122 total cases, or 24 cases per year. Although the current table covers a different five-year period, this decrease is primarily due to a reclassification of duplicated pediatric cases performed in October 2001, and not to a large decrease in the number of pediatric cases reported in 1999 compared to 1994.

RACE DIFFERENCES IN CANCER INCIDENCE AND MORTALITY

The Florida Cancer Data System collects information on the racial and ethnic background of each person diagnosed with cancer in Florida. For this analysis, comparisons are made between the two largest race groups, "white" and "black." Both categories include people of a variety of ethnicities.

In 1999, 14% of the Florida population was estimated to be black, 84% was white. While population size and age structure differ substantially for blacks and whites in Florida, age-adjusted rates allow for meaningful comparison between the two population groups to assess relative burden and racial disparities in cancer. Table 13 shows the number of new cases of cancer, cancer deaths and the deaths-to-cases ratio for selected sites for black, white and all Florida residents.

Cancer Incidence and Mortality, 1999
(Tables 13-15)

- In 1999, 7.7% of new cancers diagnosed in Florida occurred in blacks and 90.6% occurred in whites. The discrepancy between the proportion of new cancers in each race group and the population distribution is accounted for primarily by the difference in the age composition of the two groups. The white population is older than the black population and cancer risk increases with age, therefore a larger proportion of whites has cancer, but age-adjusted rates are slightly lower for whites than for blacks. Overall, age-adjusted cancer incidence rates in Florida for 1999 were 470.0 per 100,000 per year for whites and 506.4 per 100,000 per year for blacks.

Incidence

- The five most commonly diagnosed types of cancer among blacks were prostate, lung and bronchus, breast, colon and rectum, and non-Hodgkins lymphoma, accounting for 62.6% of all new primary cancers. The first four of these sites also had the highest age-adjusted rates; cancer of the uterus had the fifth highest age-adjusted incidence rate.

- The five most commonly diagnosed types of cancer among whites were lung and bronchus, breast, colon and rectum, prostate and bladder. Together, these five cancers comprised 63% of all cancers diagnosed in 1999 among whites.

    - The difference in the age-adjusted incidence rates of prostate cancer between whites and blacks is striking, with blacks having much higher rates than whites. Blacks also had higher incidence rates of stomach and cervical cancer and multiple myeloma, but lower rates of bladder cancer. Stomach cancer ranked eighth most common among blacks and fourteenth among whites. Conversely, bladder cancer ranked fifth among whites and thirteenth among blacks.

- Among females, the age-adjusted incidence rate of all cancers combined was higher for whites than for blacks, at 413.9 and 390.1 per 100,000 per year, respectively. Cancers of the lung and bronchus and breast were largely responsible for the higher rates among whites.

- The four cancers with the highest age-adjusted incidence rates were the same for females of both race groups: breast, lung and bronchus, colon and rectum, uterus. Only the rate of cancers of the colon and rectum was higher among black females. The site with the fifth highest age-adjusted incidence rate was cervix for black females and ovary for whites females.

- In contrast to the cancer rates in females, black males had a higher age-adjusted rate for all cancers combined than white males, 685.6 and 549.9 per 100,000 per year respectively. Higher prostate cancer rates in blacks contributed most heavily to this difference.

- Prostate cancer rates were the highest for males of both race groups followed by cancers of the lung and bronchus and of the colon and rectum. However, the prostate cancer incidence rate was much higher in black males than in white males, 254.8 and 141.9 per 100,000 per year, respectively. Black males also had higher rates of cancer of the lung and bronchus, 121.3 per 100,000 per year compared with 95.9 per 100,000 per year for white males.

- Incidence rates for stomach cancer and multiple myeloma were twice as high for black males than for whites. In contrast, the incidence rate for bladder cancer in white males was more than double that in black males.

Mortality

- Comparison of age-adjusted mortality rates across race and sex groups reveals that black males are much more likely to die of cancer than either black females or whites of either sex.

- Age-adjusted mortality rates for all cancers combined were 42% higher for blacks than for whites. Rates were also higher in blacks overall and for both sexes for the majority of the sites listed in Table 15. The exceptions were non-Hodgkins lymphoma, brain and nervous system cancers and melanoma for both sexes; lung and bronchus, esophagus and ovary in females; and bladder cancer in males. Factors that may contribute to the observed race differences in cancer mortality rates include later diagnosis and delayed or less efficacious cancer treatment for blacks (Schottenfeld and Fraumeni, 1996, p. 171).

- Males of both races had higher age-adjusted cancer mortality rates than their female counterparts; however this sex difference is greater among blacks. The male-to-female ratio of mortality rates for all cancers for blacks was 2.0 and for whites was 1.5.

- The four cancer sites with the highest mortality rates among females were the same for blacks and whites: lung and bronchus, breast, colon and rectum, and pancreas. Stomach cancer ranked fifth for black females, ovarian cancer for whites.

- Males of both race groups had high mortality rates from cancers of the lung and bronchus, prostate, colon and rectum, and pancreas. The mortality rate of stomach cancer was fifth highest for black males, while non-Hodgkins lymphoma was fifth for white males.

- For all cancers combined, the deaths-to-cases ratio was 0.46 for blacks and 0.39 for whites.

- The deaths-to-cases ratios are higher for blacks than for whites for all sites except non-Hodgkins lymphoma, melanoma, leukemia, ovary and brain and nervous system.

- The deaths-to-cases ratio for prostate cancer is 0.22 for black males and 0.15 for white males. This suggests that black males either have more aggressive forms of prostate cancer, or that they may have less access to health care, leading to later diagnosis and intervention or less optimal treatment than white males.

- The deaths-to-cases ratio for bladder cancer is 0.37 for blacks and 0.17 for whites, the largest gap in deaths-to-cases ratios between the races.

- There are greater differences in mortality rates between the races for males than for females. The age-adjusted mortality rate for black males for all cancers combined was much higher than that of white males. This disparity was very pronounced, greater than 10 cases per 100,000 population per year, for lung and bronchus, prostate, colon and rectum, and stomach cancer. The only sites where black males had lower age-adjusted mortality rates than whites were non-Hodgkins lymphoma, brain and nervous system, bladder and melanoma.

- For females, the race gap in mortality rates was site dependent. Mortality rates showed the greatest differences for all cancers combined, and for cancers of the colon and rectum and breast, where rates for black females were higher than for whites; and cancers of the lung and bronchus, where white rates were higher.

In Tables 13 and 14, the “All Races” columns represent new cases and cancer deaths for all race categories, including cases with race specifications other than black or white, and cases for which race is unknown.

Table 13

New Cases, Deaths and Death:Cases Ratio for Selected Cancer Sites by Race, Florida, 1999

	New Cases (1)			Deaths (2)			Deaths:Cases Ratio		
Site	All Races (3)	Black	White	All Races (3)	Black	White	All Races (3)	Black	White
All Cancers	95,550	7,373	86,606	37,314	3,394	33,759	0.39	0.46	0.39
Lung & Bronchus	15,666	1,029	14,499	11,271	837	10,395	0.72	0.81	0.72
Prostate	13,922	1,429	12,261	2,196	308	1,883	0.16	0.22	0.15
Breast	13,231	953	12,070	2,557	291	2,257	0.19	0.31	0.19
Colorectal	12,187	971	11,033	3,883	395	3,470	0.32	0.41	0.31
Bladder	4,892	134	4,692	853	50	800	0.17	0.37	0.17
Non-Hodgkins	3,454	233	3,161	1,514	69	1,442	0.44	0.30	0.46
Melanoma	2,983	25	2,822	542	4	537	0.18	0.16	0.19
Oral	2,447	201	2,183	622	59	562	0.25	0.29	0.26
Pancreas	2,259	205	2,031	1,973	174	1,788	0.87	0.85	0.88
Uterus	2,249	189	2,026	176	24	152	0.08	0.13	0.08
Kidney	2,247	151	2,063	707	60	645	0.31	0.40	0.31
Leukemia	2,220	164	2,015	1,439	106	1,322	0.65	0.65	0.66
Ovary	1,736	107	1,612	897	50	840	0.52	0.47	0.52
Stomach	1,462	199	1,219	840	150	682	0.57	0.75	0.56
Brain & Nervous	1,171	81	1,065	770	50	717	0.66	0.62	0.67
Esophagus	1,119	119	982	812	97	712	0.73	0.82	0.73
Larynx	1,079	92	963	306	42	262	0.28	0.46	0.27
Thyroid	978	78	874	83	8	75	0.08	0.10	0.09
Multiple Myeloma	969	124	835	691	99	590	0.71	0.80	0.71
Cervix	952	176	755	268	65	202	0.28	0.37	0.27
Liver	748	83	643	681	68	603	0.91	0.82	0.94
All Other Cancers	7,579	630	6,802	4,181	382	3,777	0.55	0.61	0.56

(1) Florida Cancer Data System; includes 30 cases with unknown sex.
(2) Office of Vital Statistics, Florida Department of Health.
(3) “All Races” columns include 702 new cases and 155 deaths of other races,and 724 new cases and 6 deaths with unknown race.

Table 14

Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites by Race, Florida, 1999

	Incidence (1)			Mortality (2)		
Site	All Races (3)	Black	White	All Races (3)	Black	White
All Cancers	475.7	506.4	470.0	178.7	246.3	174.0
Prostate (4)	150.6	254.8	141.9	25.0	73.1	22.6
Lung & Bronchus	75.5	72.9	75.5	53.7	60.4	53.3
Breast (4)	125.2	105.3	126.4	23.1	32.5	22.1
Colorectal	58.3	69.6	56.8	18.2	29.7	17.4
Bladder	22.9	10.1	23.7	3.9	3.9	3.9
Uterus (4)	20.9	22.9	20.9	1.5	3.1	1.4
Non-Hodgkins	17.6	13.6	17.6	7.2	4.9	7.4
Ovary (4)	16.6	12.2	17.2	7.8	6.0	7.9
Melanoma	15.9	1.8	16.8	2.8	0.3	3.0
Oral	12.8	12.9	12.5	3.1	4.0	3.0
Kidney	11.3	10.1	11.3	3.4	4.3	3.3
Cervix (4)	11.1	18.8	10.3	2.9	7.4	2.6
Pancreas	10.8	15.1	10.5	9.3	13.1	9.1
Leukemia	11.2	10.7	11.2	6.9	7.3	6.9
Brain & Nervous	6.5	4.4	6.7	4.0	3.1	4.1
Thyroid	5.9	4.4	6.1	0.4	0.6	0.4
Stomach	7.1	14.9	6.4	4.1	11.4	3.6
Esophagus	5.5	8.3	5.2	3.9	6.9	3.7
Larynx	5.5	6.3	5.3	1.5	3.0	1.4
Multiple Myeloma	4.7	9.1	4.3	3.2	7.3	2.9
Liver	3.8	5.1	3.5	3.3	4.3	3.1
All Other Cancers	39.1	41.7	38.7	20.1	27.0	19.6

(1) Florida Cancer Data System.

(2) Office of Vital Statistics, Florida Department of Health.

(3) “All Races” columns include race categories “Other” and “Unknown”.

(4) Total rates for sex-specific cancers are based on single sex population figures.

Table 15

Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites by Race and Sex, Florida, 1999

	Black			White		
Site	Total	Females	Males	Total	Females	Males
Incidence						
All Cancers	506.4	390.1	685.6	470.0	413.9	549.9
Prostate (1)	254.8	--	254.8	141.9	--	141.9
Breast (2)	105.3	105.3	--	126.4	126.4	--
Lung & Bronchus	72.9	40.8	121.3	75.5	60.1	95.9
Colorectal	69.6	59.3	84.7	56.8	47.7	68.5
Uterus (1)	22.9	22.9	--	20.9	20.9	--
Cervix (1)	18.8	18.8	--	10.3	10.3	--
Pancreas	15.1	12.9	17.9	10.5	9.1	12.2
Stomach	14.9	10.7	21.0	6.4	4.0	9.5
Non-Hodgkins	13.6	10.3	17.8	17.6	14.3	21.5
Oral	12.9	6.5	21.7	12.5	7.4	18.4
Ovary (1)	12.2	12.2	--	17.2	17.2	--
Leukemia	10.7	10.3	11.0	11.2	8.8	14.6
Bladder	10.1	7.9	13.6	23.7	10.5	41.5
Kidney	10.1	6.9	14.4	11.3	7.6	15.7
Multiple Myeloma	9.1	6.3	13.0	4.3	3.7	5.2
Esophagus	8.3	3.9	14.5	5.2	2.2	8.9
Larynx	6.3	2.0	12.8	5.3	2.2	9.2
Liver	5.1	2.4	8.9	3.5	1.9	5.3
Brain & Nervous	4.4	3.9	5.0	6.7	5.6	7.9
Thyroid	4.4	6.5	2.1	6.1	9.0	3.2
Melanoma	1.8	1.8	1.7	16.8	12.7	22.2
Mortality						
All Cancers	246.3	178.4	357.1	174.0	143.2	218.0
Prostate (1)	73.1	--	73.1	22.6	--	22.6
Lung & Bronchus	60.4	30.6	105.0	53.3	39.1	72.1
Colorectal	29.7	25.7	35.6	17.4	14.3	21.8
Breast (2)	32.5	32.5	--	22.1	22.1	--
Pancreas	13.1	9.6	18.5	9.1	8.1	10.3
Stomach	11.4	7.9	16.7	3.6	2.5	5.0
Cervix (1)	7.4	7.4	--	2.6	2.6	--
Leukemia	7.3	5.8	9.4	6.9	5.3	9.1
Multiple Myeloma	7.3	5.7	9.8	2.9	2.3	3.8
Esophagus	6.9	1.5	14.8	3.7	1.6	6.4
Ovary (1)	6.0	6.0	--	7.9	7.9	--
Non-Hodgkins	4.9	3.3	7.1	7.4	5.9	9.2
Kidney	4.3	2.6	6.7	3.3	2.1	4.9
Liver	4.3	2.5	7.0	3.1	1.8	4.8
Oral	4.0	1.9	6.8	3.0	1.8	4.6
Bladder	3.9	2.7	5.7	3.9	1.9	6.8
Brain & Nervous	3.1	3.1	3.1	4.1	3.6	4.9
Uterus (1)	3.1	3.1	--	1.4	1.4	--
Larynx	3.0	0.9	6.0	1.4	0.4	2.6
Thyroid	0.6	0.6	0.5	0.4	0.3	0.4
Melanoma	0.3	0.3	0.2	3.0	1.7	4.8

(1) Total rates for sex-specific cancers are based on single sex population figures.

(2) Breast cancer rates exclude 175 new cases and 26 deaths in males.

Trends in Incidence and Mortality of the Most Common Cancers, 1981-1999

(Figures 7.1-7.2)

The five cancers presented are those with the highest age-adjusted incidence rates for blacks and whites combined, though the figures show trends for all race-sex groups separately. The most striking finding from Figures 7.1 and 7.2 is their similarity. With some exceptions, the essential trends for the various cancer sites are the same for all groups.

Females

- Initially, in 1981, black females had lower cancer incidence rates than white females. However, the Figure 7.1 shows that over the past 19 years, rates have increased for black females becoming very close to the rates for whites.

- Breast cancer incidence rates have been higher in white females than black females since 1981. While the rate for whites has remained stable, the rate for blacks has increased slightly. This increase may reflect improved access to breast cancer screening for black females in recent years.

- Mortality rates for breast cancer have declined steadily for whites since the late 1980s, while the rate for blacks has remained fairly stable over this time period.

- Incidence rates for cancer of the lung and bronchus have been rising for both black and white females. However, rates have been consistently higher for white females, reflecting a higher rate of cigarette smoking in this group.

- The mortality rate for cancer of the lung and bronchus in females rose until 1997, but since that time has declined for both race groups. This may be due to the gradual decline in the percent of female smokers over a 25-year period, from 34% in 1965 to 23% in 1990 (Mortality and Morbidity Weekly Review, 49:39). A decline in smoking takes several years to affect mortality rates.

- Incidence and mortality rates for cancers of the colon and rectum have been declining steadily among white females over the past two decades but have been rising for black females over the same period.

- Non-Hodgkins lymphoma and bladder cancer incidence rates have remained higher among white females than black females, although the differences are diminishing in these two sites.

- Mortality rates for non-Hodgkins lymphoma have been rising for females of both race groups over the past decade and a half, with the increase more pronounced in black females. In contrast, the mortality rate for bladder cancer has declined somewhat for white females but remained stable among blacks.

Males

- A sharp increase in the incidence of prostate cancer occurred in the early 1990s, with a peak in 1992 for both races. This was most likely due to more frequent use of the prostate specific antigen (PSA) test. After the peak, the rate among white males dropped to the 1990 level, whereas the rate among black males has declined in very small increments.

- The mortality rates for prostate cancer in both races exhibit downward trends, since 1993 for blacks, and since 1990 for whites. Black males have much higher mortality rates from prostate cancer than whites.

- Incidence rates for cancer of the lung and bronchus have been declining in males of both races since the early 1990s. Mortality rates for both races have been dropping since 1989, suggesting a decrease in tobacco use, as well as earlier diagnosis and intervention.

- Colorectal cancer incidence and mortality rates have been rising among black males while steadily declining in white males.

- Bladder cancer incidence rates among white males have been more than double the rates for black males every year since 1981. Mortality rates for bladder cancer are comparable for the races for the 19-year period, declining slightly in white males but remaining stable in black males.

- Incidence and mortality rates of non-Hodgkins lymphoma have been rising over the past two decades in both race groups. Though white males had slightly higher incidence rates of non-Hodgkins lymphoma in the early 1980s, the gap has narrowed during the 1990s. White males continue to have higher mortality rates from non-Hodgkins lymphoma than black males.

Figure 7.1

Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites, Females by Race
Florida, 1981-1999

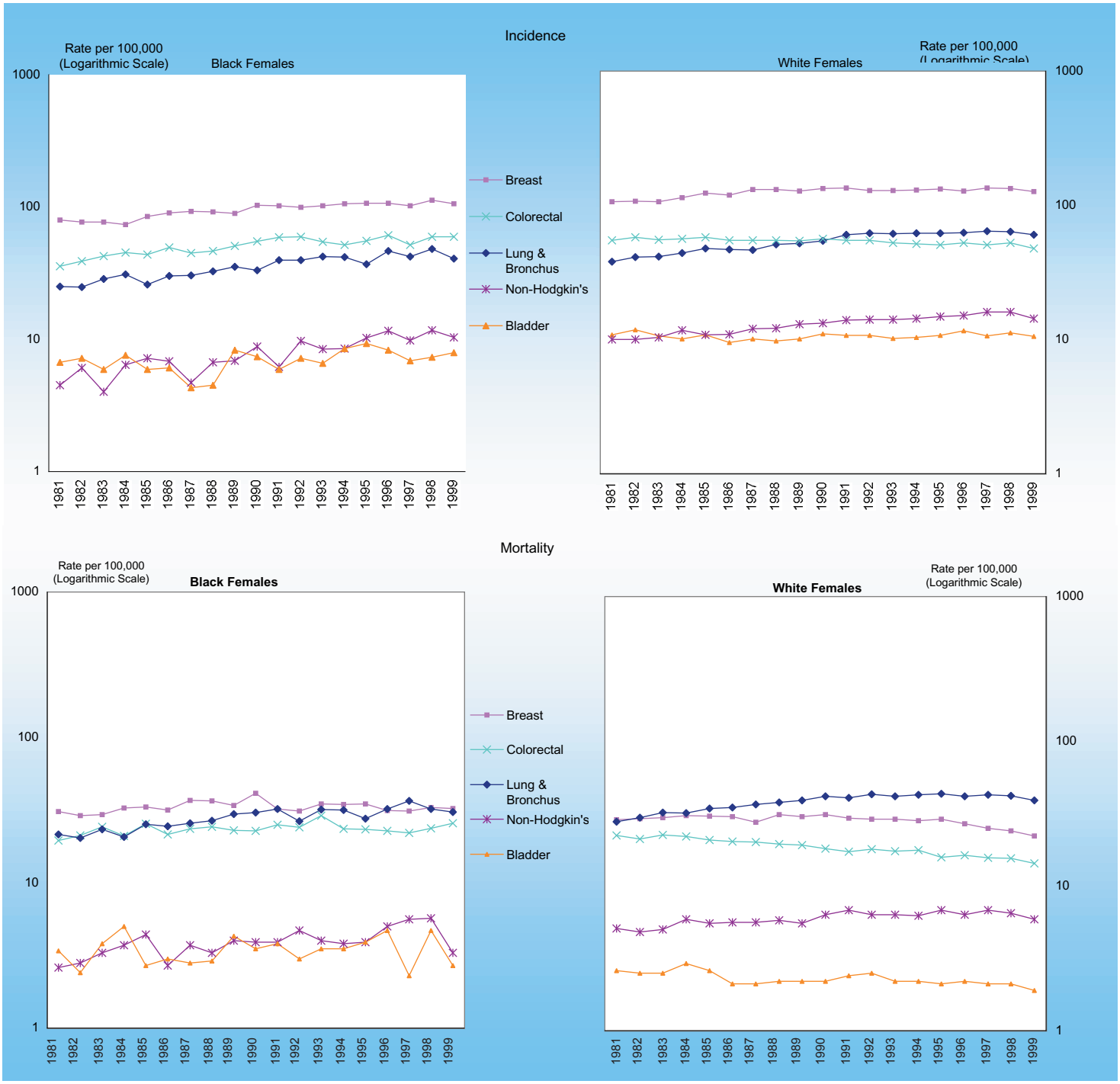
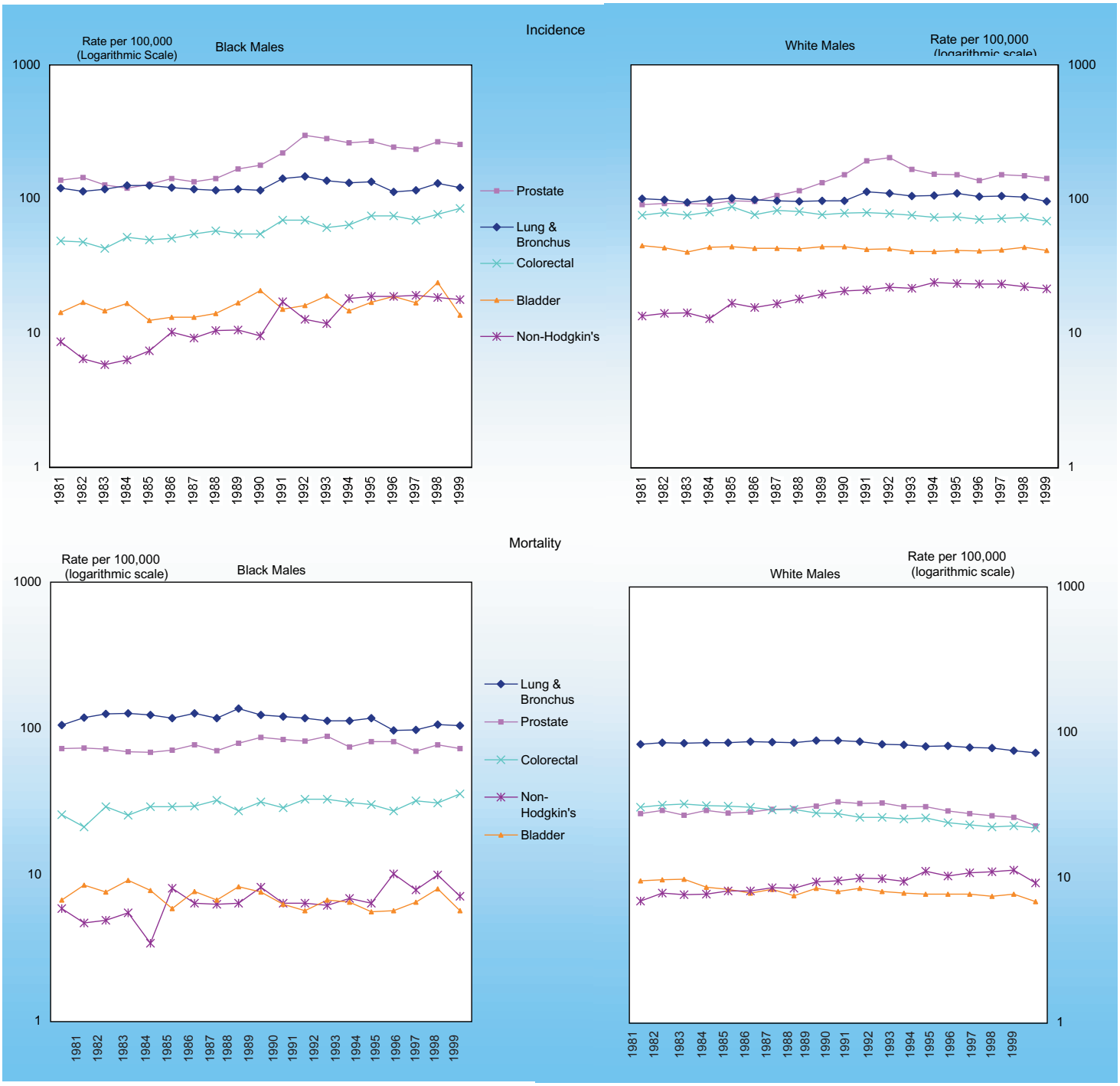


Figure 7.2
Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites, Males by Race
Florida, 1981-1999



Trends in Tobacco-Related Cancer Incidence and Mortality, 1981-1999

(Figure 8)

Tobacco-related cancer sites include lung and bronchus, esophagus, pancreas, larynx, cervix, bladder, kidney and oral cavity. Approximately 70% of deaths due to these cancers are attributable to tobacco use. (*1997 & 1998 Smoking Attributable Mortality Report*) If tobacco use were eliminated, about 70% of deaths due to these cancers would be eliminated. In 1999, an estimated 11,768 deaths or 31.5% of all cancer deaths in Florida were attributable to tobacco.

Incidence and mortality rates for tobacco-related cancers since 1981 continue to follow similar trends for males and females and for whites and blacks. However, these rates have been higher for males than for females. Tobacco-related mortality rates have been higher for black males than for white males.

- Tobacco-related cancer incidence rates have been declining since the middle 1990s for males and females in both race groups.

- White females have higher tobacco-related cancer incidence rates than black females, while white and black males have similar rates of tobacco related cancer incidence.

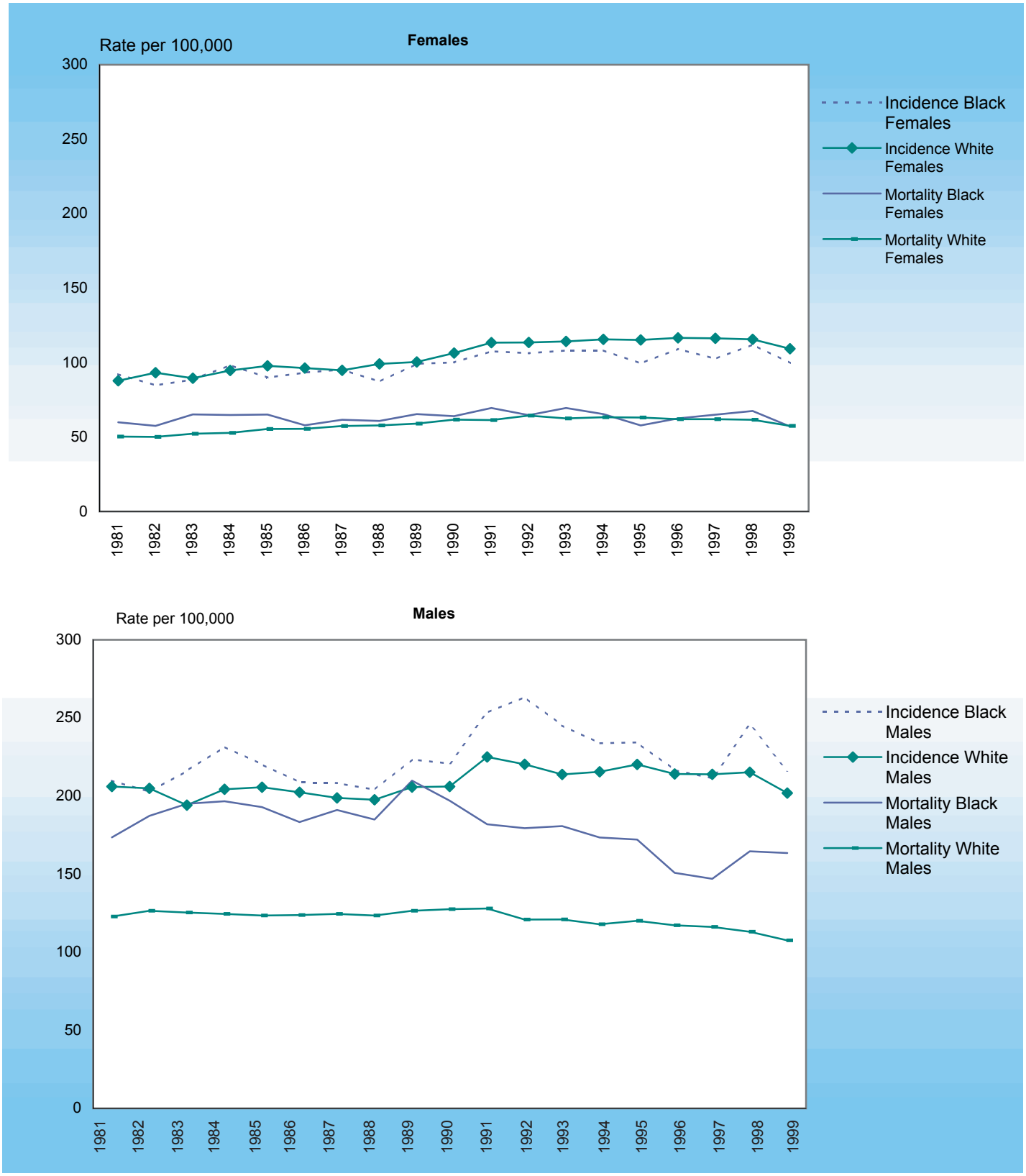
- Black and white females show similar tobacco-related cancer mortality rates since 1986, while rates for black males are been substantially higher than for white males.

- Mortality rates for tobacco-related cancers continue to be markedly higher in black males compared to white males, although rates have declined dramatically in the 1990s in black males.

Race differences in incidence rates of tobacco-related cancers clearly reflect differences in tobacco use patterns. The information in Figure 10 is consistent with data from the *Florida Behavioral Risk Factor Surveillance System*, which indicates that white females are more likely to smoke cigarettes than black females and that cigarette use has declined substantially among males. Mortality rates for tobacco-related cancers are influenced by incidence rates, and therefore by health behaviors, but also by stage at diagnosis and the timing and quality of medical intervention and treatment. Over the past decade and a half, whites have had lower mortality than would be expected, given their higher incidence of tobacco-related cancers. Blacks have had higher mortality rates despite lower incidence rates, so blacks appear to be at a disadvantage in terms of stage at diagnosis and intervention for tobacco-related cancers compared to whites.

Figure 8

Age-Adjusted Incidence and Mortality Rates for Tobacco-Related Cancers by Race and Sex, Florida 1981-1999



(1) The figures for females include cervical cancer in addition to cancers of the lung and bronchus, pancreas, esophagus, larynx, bladder, kidney and oral cavity.

GLOSSARY

ICD-9: *The Ninth Revision of the International Classification of Diseases*. World Health Organization, 1975.

ICD-10: *The Tenth Revision of the International Classification of Diseases.* World Health Organization, 1998.

ICD-O-2: *The Revision of the International Classification of Diseases for Oncology, Second Edition (ICD-O-2)*. World Health Organization, 1990. ICD-O-2 has been adopted worldwide to make uniform cancer diagnoses, and does not include diseases other than cancer.

Incidence: The number of new cases of a particular type of cancer diagnosed each year. All new cancers are reported regardless of whether or not those cancers occur in an individual who has been diagnosed previously with other forms of cancer. Cases that were entered twice in FCDS are unduplicated to assure that incidence figures are not inflated by two or more entries for the same cancer in one individual.

Mortality: The number of deaths resulting from cancer in a given site of the body each year.

Incidence and Mortality Rates:

Age-Specific Rate

The number of new cases of cancer or deaths from cancer during a particular time period per 100,000 persons in a given age group.

Childhood Rates

Incidence and mortality rates for children age 14 and under are computed per 1,000,000 population.

Crude Rate

The number of new cases of cancer or deaths from cancer during a particular time period per 100,000 population. This rate is the same as the age-specific rate calculated for the total population.

Race:

White: All white residents of Florida.
Black: All black residents of Florida.
Other: Includes American Indian, Hawaiian, Chinese, Japanese, Korean, Asian Indian, Pakistani, Thai, Vietnamese, other Asian and Pacific Islanders, and others.

Hispanics are distributed among all race classifications.

APPENDIX I: METHODOLOGY

Age-Specific Rates for Incidence and Mortality

For each five-year age group (0 to 4, 5 to 9, etc.), the *age-specific incidence rate* is the number of new cases occurring in persons in the age range divided by the population in that age range for a given time period multiplied by 100,000. Similarly, the *age-specific mortality rate* for each age group is the number of deaths among people in the age range divided by the population in that age range for that year times 100,000.

Age-Adjusted Rates for Incidence and Mortality

Age-adjusted rates for cancer incidence and mortality have been standardized to the U.S. 2000 standard million population. *Age-adjusted rates* for incidence and mortality are calculated by summing the products of the age-specific rate multiplied by the fraction of the 2000 U.S. population in each age range.

Crude Rates for Incidence and Mortality

The *crude incidence rate* is the total number of new cases occurring in the total population for a given time period multiplied by 100,000. The *crude mortality rate* is the total number of cancer deaths in the population during a given time period. The calculation for crude rate is the same as age-specific rate, but applied to the total population.

Estimated Annual Percent Change (EAPC) in Cancer Incidence and Mortality

The EAPC values were calculated for each site by using regression to fit a linear weighted least squares model to the log of age-adjusted rates for the period. The estimated EAPC is 100*(exp b-1) where b is the slope of the model ln(rate)= a+b*(year)+e, where **a** is a constant and **e** is the error term. The most recent 10-year period, 1990-1999, was analyzed to give a reliable and current estimate for the EAPC. Confidence intervals at the 95% level were used to test for statistical significance.

Years of Potential Life Lost (YPLL)

For each death of a Florida resident recorded in 1999, the age at death was subtracted from 75 for those who died at age 74 or less. Deaths at age 75 and older do not contribute to YPLL. These numbers were summed to give the total YPLL. Due to an increase in life expectancy, Department of Health publications such as Vital Statistics and Data Analysis have changed the standard for YPLL calculations from 65 to 75 in recent years. For consistency, the same standard was used in this publication.

Childhood Cancers

Cancer mortality data are classified using ICD-10 codes. Incidence, however is classified using a system designed specifically for cancer, ICD-O-2, with subdivisions based on morphology. Wilms tumors, for example, which are most of the kidney cancers that occur in children could be identified as far as incidence but not as for mortality. This report includes only the broader categories permitted by the ICD-10 classification.

Cancer Sites Included in the "All Other" category

The "All Other" cancer site category includes the following types of cancer: small intestine, anus, intrahepatic bile duct, gallbladder, other biliary, retroperitoneum, peritoneum, omentum, mesentery, other digestive organs, pleura, trachea, mediastinum, bones and joints, soft tissue and heart, nasal cavity, middle ear, accessory sinuses, pleura, trachea, mediastinum and other respiratory organs, uterus NOS, vagina, vulva, other female genital organs, testis, penis and other male genital organs, ureter and other urinary organs, eye and orbit, thymus and other endocrine glands, Hodgkin's lymphoma and ill-defined and unspecified sites.

Tobacco-related Cancers

Cancers found to be related to tobacco use include cancers of the lung and bronchus, esophagus, pancreas, larynx, pharynx, cervix, bladder, kidney and oral cancers. Although not all cancers at these sites are attributable to tobacco use, about 70% of them are according to the Smoking-Attributable Mortality Report.

APPENDIX II: FLORIDA REGIONAL AND U.S. POPULATION DATA

Table A

2000 U.S. Standard Million Population by Age Group

Age Group	Population	Age Group	Population
0-4	69,135	5-9	73,533
10-14	73,032	15-19	72,169
20-24	66,478	25-29	64,529
30-34	71,044	35-39	80,762
40-44	81,851	45-59	72,118
50-54	62,716	55-59	48,454
60-64	38,793	65-69	34,264
70-74	31,773	75-79	26,999
80-84	17,842	85 and older	15,508

Table B

Florida Population by Race and Sex, 1999

	Black	White	Other
Female	1,124,682	6,768,724	150,698
Male	1,063,811	6,408,302	142,010
Total	2,187,493	13,177,026	292,708

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