

1998 FLORIDA ANNUAL CANCER REPORT: Incidence and Mortality



2001 Epidemiological Series 10-2001

October 2001

Jeb Bush
Governor



John O. Agwunobi, M.D., M.B.A.
Secretary

1998 FLORIDA ANNUAL CANCER REPORT: INCIDENCE AND MORTALITY

Josefa Schlottmann, Ph.D.
Jaclyn Button, M.S.
Lydia Voti, M.S.

BUREAU OF EPIDEMIOLOGY FLORIDA DEPARTMENT OF HEALTH AND FLORIDA CANCER DATA SYSTEM

Steven T. Wiersma, M.D., M.P.H, State Epidemiologist
Edward J. Trapido, Sc.D., Florida Cancer Data System

Chronic Disease Epidemiology Section, Bureau of Epidemiology/HSDE
Florida Department of Health
4052 Bald Cypress Way BIN A12
Tallahassee, FL 32399-1720

Telephone: (850) 254-4401 or Suncom: 205-4401
FAX: (850) 413-9113

Florida Department of Health web site: www.doh.state.fl.us
Florida Cancer Data System web site: fcds.med.miami.edu

This project was funded in part by the Centers for Disease Control and Prevention,
National Program of Cancer Registries

Acknowledgments

The design of the 1998 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 1998 Annual Cancer Report: the Florida Vital Statistics Annual Report series and the Florida Morbidity Statistics published by the Bureau of Epidemiology. Many thanks to Steve Scoppa of Information Management Services, Inc., College Park, MD, for his patient assistance with database preparation and installation of SEER*Stat; to Jill MacKinnon for editing innumerable drafts of the report; to Steven Peace for his detailed review; and to Ursula Bauer for her thoughtful corrections to the final draft.

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INTRODUCTION

Background and Data

The 1998 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 University of Miami School of Medicine, Sylvester Comprehensive Cancer Center.

The purpose of this report is to provide researchers, policy makers, health professionals and the public with an overview of the status of cancer in Florida. Detailed tables describe sex-, race-, and region-specific incidence and mortality rates for all cancers combined and for the most common cancers. Trends in cancer incidence and mortality are also presented, providing the reader with an historical perspective of cancer incidence and mortality in Florida.

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 and from freestanding ambulatory surgical centers, radiation therapy facilities and pathology laboratories that have been required to report new cancer cases to the FCDS as of July 1997. Cases collected from ambulatory surgical and radiation therapy centers were included in the calculation of cancer incidence rates for the first time in this report.

Various case-finding strategies have been undertaken by FCDS to ensure the completeness of the database. Additional case-finding mechanisms have been introduced as a result of changes in the health care industry, specifically, the treatment and diagnosis of cancer in outpatient settings. As case-finding has improved over the registry's 20-year history, the completeness of the data system has improved, as well. For example, all 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 "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. More recently, since 1995, the Agency for Health Care Administration has submitted hospital cancer discharge records to FCDS. Beginning in 1997, cancer encounters from ambulatory centers were reported, as well. These cases are matched against the incidence database, and a list of the unmatched cases is sent to each facility for follow-back. Any new cancer cases obtained through the follow-back process are now included in the FCDS database. Fluctuations in the number and rate of cancer cases in Florida may be due in part 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 while they were 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 and persons with multiple primary cancers contribute multiple records to the data system.

The cancer statistics presented in this report span a period of 18 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 on 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 treatments, 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 1998, as well as updated annual population estimates for 1981 to 1997, were provided by the Florida Consensus Estimating Conference (Spring, 1999). 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 1998. In contrast to the estimated population figures, the number of new cancers and the number of cancer deaths are actual counts reported to the FCDS and to the Office of Vital Statistics for each year included in this monograph.

For the first time, the 2000 US standard million population is used 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 used in previous reports), so the age-adjusted rates reported here cannot be meaningfully compared to those displayed in early cancer reports. For the analysis of trends, all rates in this report, including those from 1981 to 1997, 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 1998-1999 Florida Cancer Plan* (Florida Cancer Control and Research Advisory Council, 2000); *The Florida Cancer Data System Monograph of Cancer in Florida, 1998, Volume I*; the *Florida Vital Statistics Annual Report* series (Florida Department of Health, Office of Vital Statistics); the *1996-1997 Florida Annual Cancer Report* (Florida Department of Health); 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 *1996-1997 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 to be 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 the provision of better prevention for the population at risk for developing cancer and improved treatment for cancer patients. The Department of Health and 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 among previously unaffected individuals, the population “at risk” for the disease. The population considered “at risk” for cancer is the entire resident population of Florida in a given year, e.g., 1998. Specifying the time period, the geographic region, and other population characteristics, such as gender or race and ethnicity, further refines the population at risk of developing cancer. The incidence rate of cancer is the total number of new cancer cases diagnosed in Florida residents in a given time period, 1998, divided by the total population at risk (all Florida residents) in the same period. Rates are often expressed “per 100,000” population.

Because cancer is more common in older people, areas or populations with a higher proportion of older people generally will have higher cancer rates. The 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 comparisons of cancer incidence or mortality over time and across geographic regions and population subgroups, even when the age distributions are not comparable. As the U.S. and Florida populations become older, cancer incidence will increase. Age-adjusting cancer incidence rates allows interpretation of trends and helps identify other factors, beside age, that affect cancer incidence and mortality.

The **death-to-cases ratios** displayed in Table 1, Table 2.2 and Table 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, cancer incidence figures exclude *in situ* cancers *except for bladder cancer*. For all other cancer sites, only local, regional and distant cancers 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 *Ninth Revision of the International Classification of Diseases, 1975 Revision* (ICD-9) is used for the classification of cancer deaths through 1998. At the level of analysis used in this report, these two classification systems are consistent and yield equivalent data for incidence and mortality classification.

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 if a group of tumors should be coded as single or multiple.

Finally, incidence data for non-melanoma skin cancers (ICD-9 code 173) are not included in this report due to the fact that the vast majority of these cancers are not reportable, so information about them is not contained in the FCDS incidence database.

SUMMARY OF FINDINGS

Cancer Incidence and Mortality, 1998

(Table 1 and Figure 1)

In 1998, 94,766 new primary cancers were diagnosed among Florida residents and 37,435 cancer deaths were reported. This represents an increase of 18,773 new cases and 146 cancer deaths compared to 1997. Twenty-one new cancer cases with unknown sex, as well as 921 new cases and four cancer deaths without race information, are excluded from the relevant tables. The findings described below are displayed in Table 1 and Figure 1.

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 previous years, the five most common cancer sites for females were breast, lung and bronchus, colon and rectum, uterus, and ovaries. These five cancer sites accounted for 66% of all new cancers diagnosed in females in Florida.
- The top five cancer sites in males have not changed since 1995. These are prostate, lung and bronchus, colon and rectum, bladder, and non-Hodgkin's lymphoma. These five sites comprised 69% of all new cancers in males.
- 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 1998.
- Among females, cancers of the lung and bronchus, breast, colon and rectum, pancreas, and ovary accounted for about 64% of all cancer deaths, similar to the previous three years.
- Deaths from cancers of the lung and bronchus, prostate, colon and rectum, pancreas, and non-Hodgkin's lymphoma constituted 64% of all cancer deaths in males in 1998.

Death-to-Cases Ratios

As in previous years, pancreatic cancer had the highest deaths-to-cases ratio, followed by cancers of the esophagus, multiple myeloma, brain and nervous system, and lung and bronchus.

Figure 1
Percent Distribution of New Cancer Cases and Cancer Deaths for Selected Sites
by Sex, Florida, 1998

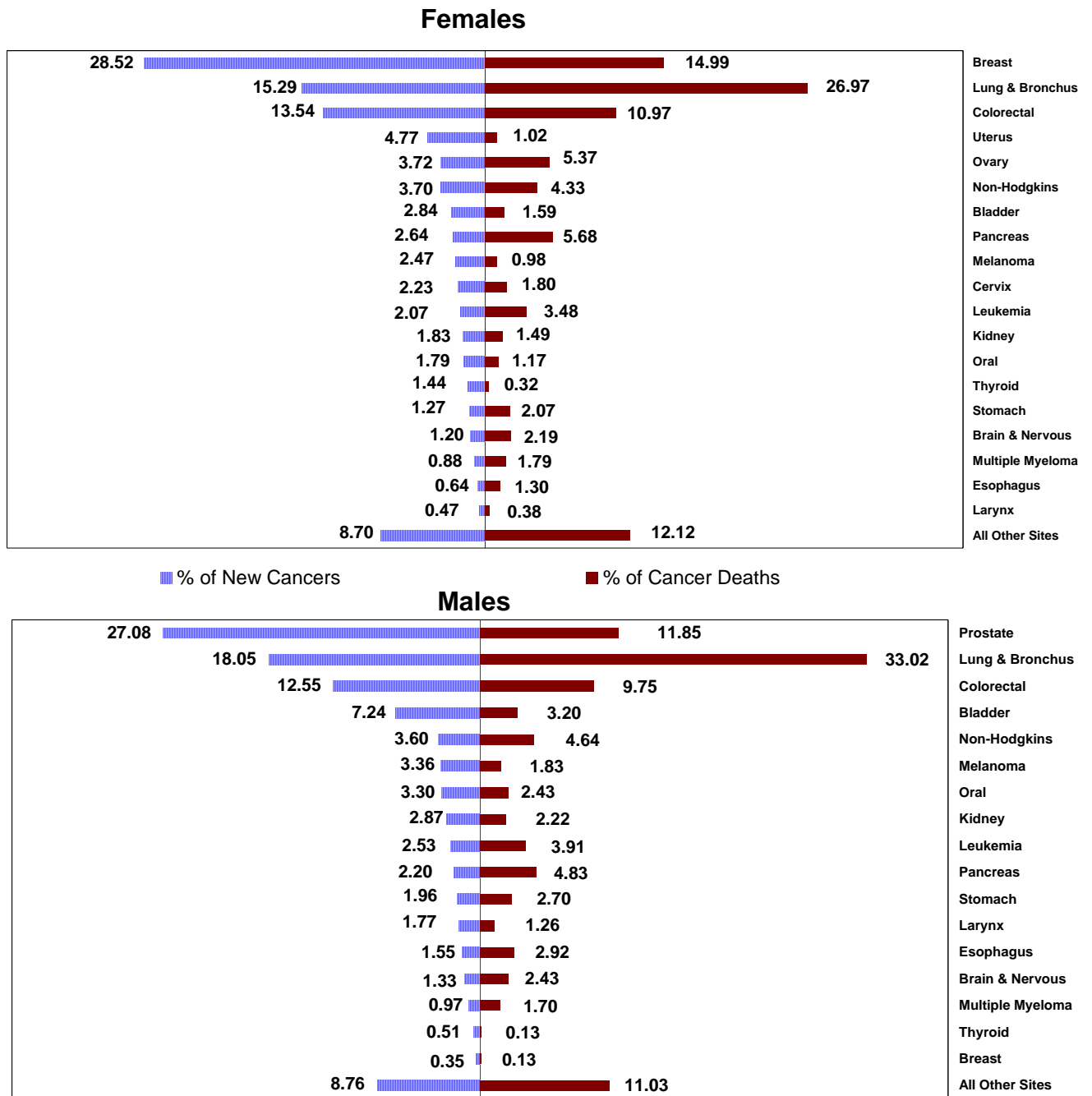


Table 1
New Cases, Deaths and Deaths:Cases Ratios for Selected Cancer Sites by Sex, Florida, 1998

Site	New Cases (1)			Deaths (2)			Deaths:Cases Ratio		
	Total	Females	Males	Total	Females	Males	Total	Females	Males
All Cancers (3)	94,745	44,743	50,002	37,435	17,409	20,026	0.40	0.39	0.40
Lung & Bronchus	15,887	6,850	9,037	11,306	4,694	6,612	0.71	0.69	0.73
Prostate	13,557	0	13,557	2,375	0	2,375	0.18	--	0.18
Breast	12,948	12,771	177	2,635	2,609	26	0.20	0.20	0.15
Colorectal	12,286	6,031	6,255	3,862	1,909	1,953	0.31	0.32	0.31
Bladder	4,895	1,272	3,623	918	277	641	0.19	0.22	0.18
Non-Hodgkins (4)	3,458	1,656	1,802	1,682	753	929	0.49	0.45	0.52
Melanoma	2,790	1,107	1,683	537	171	366	0.19	0.15	0.22
Oral	2,427	793	1,634	691	204	487	0.28	0.26	0.30
Kidney	2,258	820	1,438	704	259	445	0.31	0.32	0.31
Pancreas	2,283	1,181	1,102	1,956	988	968	0.86	0.84	0.88
Leukemia	2,191	926	1,265	1,387	605	782	0.63	0.65	0.62
Uterus	2,137	2,137	0	177	177	0	0.08	0.08	--
Ovary	1,668	1,668	0	939	939	0	0.56	0.56	--
Stomach	1,541	565	976	902	361	541	0.59	0.64	0.55
Brain & Nervous	1,204	538	666	868	381	487	0.72	0.71	0.73
Larynx	1,099	211	888	319	66	253	0.29	0.31	0.28
Esophagus	1,058	285	773	811	226	585	0.77	0.79	0.76
Cervix	997	997	0	313	313	0	0.31	0.31	--
Thyroid	902	647	255	83	56	27	0.09	0.09	0.11
Multiple Myeloma	879	393	486	652	312	340	0.74	0.79	0.70
All Other (3)	8,280	3,895	4,385	4,318	2,109	2,209	0.52	0.54	0.50

(1) Florida Cancer Data System; includes 921 cases with unknown race.

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

(3) Excludes non-melanoma skin cancer, ICD-9 173, and 21 cases with unknown sex.

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

Regional Patterns of Cancer Incidence and Mortality, 1998

(Table 2.1 - Table 6 and regional map)

Table 2.1 displays population size and number of new cancer cases and cancer deaths for Florida and for each of the seven geographic regions. Table 2.2 presents similar information as percents of each regional population. Tables 3 and 5 show, respectively, the number of cancer cases and the number of cancer deaths for the most common cancer sites for the state and its regions. Tables 4 and 6 present age-adjusted cancer incidence and mortality rates for 1998 for Florida as a whole and for each of the regions. These rates can be used to compare the burden of cancer incidence and mortality across regions. Age-adjusted rates take into account regional differences in the age structure of the populations, as well as the different population sizes of the seven regions. Thus, age-adjusted rates are ideal for making comparisons across geographic areas.

Incidence

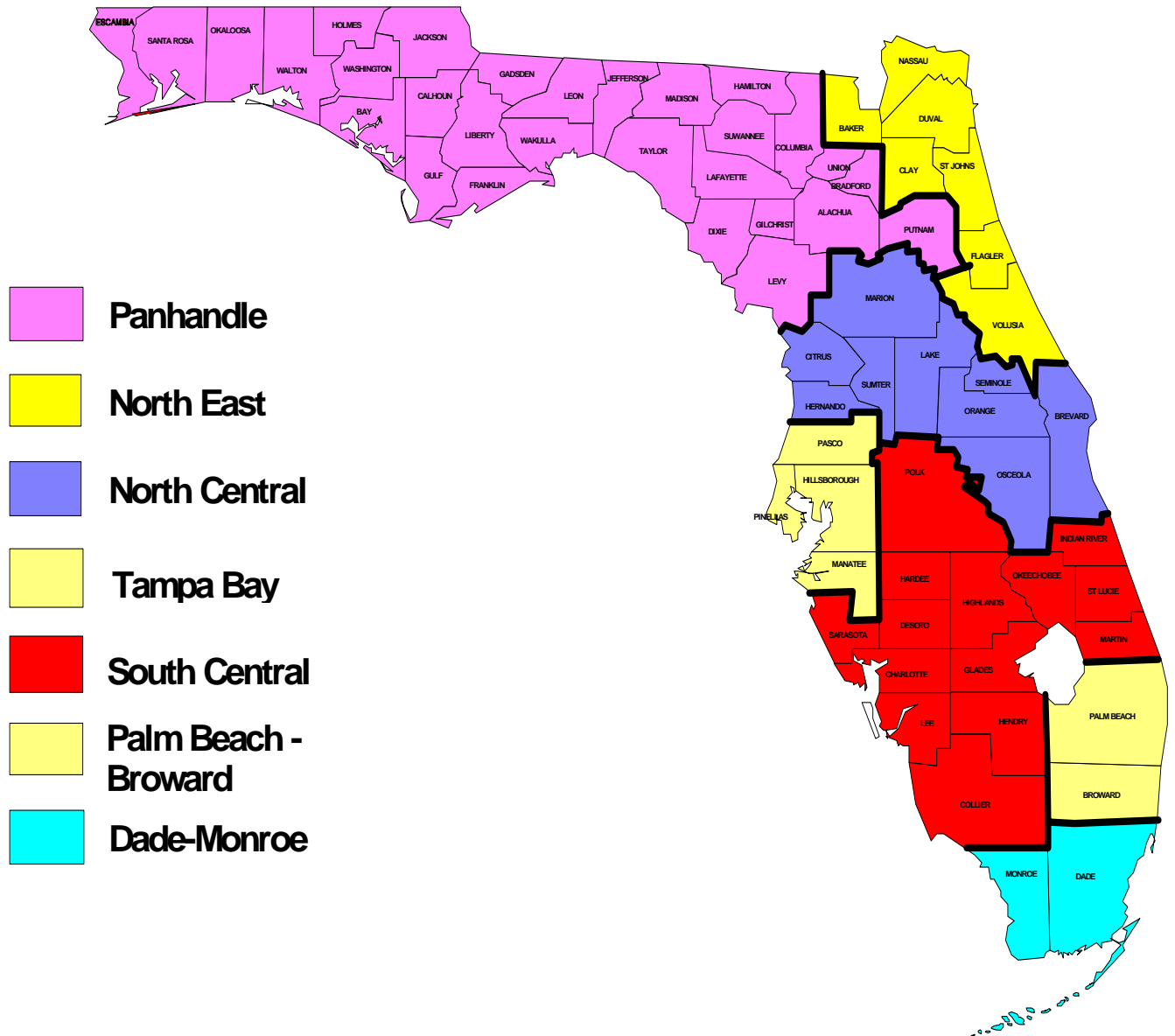
- Across all seven regions, the most common types of cancer were the same. Among females, breast cancer was by far the most commonly detected cancer, while among males, cancers of the prostate, lung and bronchus, colon and rectum, and bladder were most common.
- Overall, age-adjusted cancer rates were highest in the Northeast, North Central and Palm Beach/Broward regions of the state.
- The most common cancers in each of the seven regions also accounted for the largest variation in cancer incidence rates across regions.
 - Among females, breast cancer rates were highest in the Palm Beach-Broward region and lowest in the Miami-Dade-Monroe region. Rates of cancers of the lung and bronchus were highest in the Northeast region.
 - For males, age-adjusted prostate cancer incidence rates were highest in the North Central region and lowest in the South Central and Panhandle regions, while age-adjusted incidence rates of cancer of the lung and bronchus were highest in the Panhandle and lowest in Miami-Dade-Monroe.

Mortality

- For males and females, age-adjusted mortality rates due to cancer were highest in north Florida, in the Northeast region for females and the Panhandle region for males.
- In all regions, mortality rates were highest for cancers of the lung and bronchus, breast or prostate, and colon and rectum, for males and females
 - Lung and bronchus, breast, and colorectal cancers accounted for over 50% (51-56%) of all cancer deaths among females in all regions except Miami-Dade-Monroe, where these sites accounted for 47.5% of total deaths.
 - Lung and bronchus, prostate, and colorectal cancers accounted for between 54% and 60% of all cancer deaths among males in all regions except for Miami-Dade-Monroe (50%) and Palm Beach-Broward (51%).

- In every region except Miami-Dade-Monroe, female mortality rates from lung and bronchial cancer were substantially higher than those from breast cancer. Miami-Dade-Monroe was the only region where the death rates for cancers of the lung and bronchus and breast were about the same for females, due to a low rate of breast cancer mortality, not to a high rate of lung and bronchial cancer mortality.
- In all regions, for males, death rates for cancers of the lung and bronchus were substantially higher than those for prostate cancer, which had the second highest age-adjusted death rate for males in Florida.
- The mortality rate of lung and bronchial cancer was considerably higher for males in the Panhandle and the Northeast regions, compared to other regions. It is this high mortality rate of lung and bronchial cancer that contributes the most to the elevated cancer mortality rate in the Panhandle.

MAP OF FLORIDA REGIONS, 1998



Note: Regional populations are listed in Table 2

Table 2.1
Estimated Population, New Cases and Deaths for All Cancers (1) by Region and Sex, Florida, 1998

Region	Population (2)			New Cases (3)			Deaths (4)		
	Total	Females	Males	Total	Females	Males	Total	Females	Males
Florida	15,068,387	7,745,495	7,322,892	94,745	44,743	50,002	37,435	17,409	20,026
Panhandle	1,757,790	876,767	881,023	7,733	3,656	4,077	3,578	1,614	1,964
Northeast	1,545,484	790,654	754,830	8,869	4,287	4,582	3,686	1,722	1,964
North Central	2,522,115	1,287,916	1,234,199	15,725	7,074	8,651	6,204	2,730	3,474
Tampa Bay	2,409,427	1,254,705	1,154,722	16,693	7,896	8,797	6,718	3,134	3,584
South Central	2,158,625	1,115,186	1,043,439	16,948	7,625	9,323	6,423	2,890	3,533
Palm Beach-Broward	2,493,641	1,295,516	1,198,125	17,795	8,877	8,918	6,665	3,344	3,321
Miami-Dade-Monroe	2,181,305	1,124,751	1,056,554	10,982	5,328	5,654	4,161	1,975	2,186

(1) Excludes non-melanoma skin cancer, ICD-9 173.

(2) 1998 population projections provided by the Florida Consensus Estimating Conference, Spring 1999.

(3) Florida Cancer Data System.

(4) Office of Vital Statistics, Florida Department of Health

Table 2.2
Percent of Population for New Cases and Deaths and Death:Cases Ratios by Region and Sex, Florida, 1998

Region	New Cases Percent			Deaths Percent			Death:Cases Ratio		
	Total	Females	Males	Total	Females	Males	Total	Females	Males
Florida	0.63	0.58	0.68	0.25	0.22	0.27	0.40	0.39	0.40
Panhandle	0.44	0.42	0.46	0.20	0.18	0.22	0.46	0.44	0.48
Northeast	0.57	0.54	0.61	0.24	0.22	0.26	0.42	0.40	0.43
North Central	0.62	0.55	0.70	0.25	0.21	0.28	0.39	0.39	0.40
Tampa Bay	0.69	0.63	0.76	0.28	0.25	0.31	0.40	0.40	0.41
South Central	0.79	0.68	0.89	0.30	0.26	0.34	0.38	0.38	0.38
Palm Beach-Broward	0.71	0.69	0.74	0.27	0.26	0.28	0.37	0.38	0.37
Miami-Dade-Monroe	0.50	0.47	0.54	0.19	0.18	0.21	0.38	0.37	0.39

Table 3
New Cases for Selected Cancer Sites by Region and Sex, Florida, 1998

	Florida	Panhandle	Northeast	North Central	Tampa Bay	South Central	Palm Beach- Broward	Miami-Dade- Monroe
Females								
All Cancers (1)	44,743	3,656	4,287	7,074	7,896	7,625	8,877	5,328
Breast	12,771	1,109	1,261	2,133	2,229	2,095	2,462	1,482
Lung & Bronchus	6,850	573	741	1,093	1,240	1,301	1,344	558
Colorectal	6,031	452	512	946	1,138	999	1,175	809
Uterus	2,137	151	188	350	357	377	430	284
Ovary	1,668	117	162	253	317	316	312	191
Non-Hodgkins	1,656	126	152	256	279	269	369	205
Bladder	1,272	86	102	201	203	251	302	127
Pancreas	1,181	82	97	168	220	213	260	141
Melanoma	1,107	91	82	174	199	203	269	89
Cervix	997	95	106	157	163	128	169	179
Leukemia	926	87	88	129	148	158	173	143
Kidney	820	79	93	123	137	133	154	101
Oral	793	90	77	135	136	141	131	83
Thyroid	647	60	63	112	98	84	138	92
Stomach	565	41	48	80	96	64	141	95
Brain & Nervous	538	33	56	86	97	87	90	89
Multiple Myeloma	393	39	37	60	64	69	75	49
Esophagus	285	23	36	51	45	47	52	31
Larynx	211	17	26	23	46	38	35	26
Males								
All Cancers (1)	50,002	4,077	4,582	8,651	8,797	9,323	8,918	5,654
Prostate	13,557	1,021	1,169	2,632	2,441	2,382	2,337	1,575
Lung & Bronchus	9,037	945	908	1,617	1,590	1,745	1,405	827
Colorectal	6,255	414	601	998	1,141	1,210	1,121	770
Bladder	3,623	250	278	627	643	796	719	310
Non-Hodgkins	1,802	129	170	306	275	323	358	241
Melanoma	1,683	126	139	257	295	316	399	151
Oral	1,634	182	157	242	302	283	254	214
Kidney	1,438	108	136	262	241	261	253	177
Leukemia	1,265	110	123	208	218	270	201	135
Pancreas	1,102	86	87	160	186	222	212	149
Stomach	976	74	85	146	152	186	186	147
Larynx	888	74	89	140	152	158	148	127
Esophagus	773	63	72	123	138	148	145	84
Brain & Nervous	666	60	67	112	117	106	116	88
Multiple Myeloma	486	47	42	71	80	85	104	57
Thyroid	255	24	23	39	42	36	58	33
Breast	177	23	15	30	33	33	29	14

(1) Excludes non-melanoma skin cancer, ICD-9 173.

Table 4
Age-Adjusted Incidence Rates for Selected Cancer Sites by Region and Sex, Florida, 1998

Rates per 100,000

	Florida	Panhandle	Northeast	North Central	Tampa Bay	South Central	Palm Beach Broward	Miami-Dade Monroe
Females								
All Cancers (1)	431.8	399.3	458.0	428.0	428.7	421.5	467.7	415.8
Breast	129.9	123.0	139.4	134.4	129.5	122.4	140.9	119.1
Lung & Bronchus	62.1	61.4	75.7	62.0	62.5	65.4	65.7	42.4
Colorectal	53.1	48.9	51.6	53.6	53.4	48.3	54.9	60.3
Uterus	20.7	16.6	20.2	20.8	20.5	20.3	23.0	22.0
Ovary	16.8	12.7	18.0	15.7	18.3	18.1	17.4	15.5
Non-Hodgkins	15.7	13.8	16.2	15.1	14.2	14.6	19.3	15.9
Melanoma (2)	13.3	12.2	10.5	13.2	14.6	14.5	17.0	8.0
Cervix	12.1	10.8	12.9	11.5	12.1	11.1	12.5	15.2
Bladder	11.0	9.1	10.3	11.3	9.2	12.1	13.7	9.1
Pancreas	10.2	8.8	9.7	9.4	10.7	10.2	11.4	10.3
Leukemia	8.9	9.4	9.5	7.6	7.8	9.5	9.0	11.2
Thyroid	8.0	6.9	7.9	8.3	7.6	7.0	9.7	8.1
Kidney	7.7	8.5	9.8	7.3	7.3	7.1	7.4	7.7
Oral	7.6	9.7	8.1	8.0	7.6	7.9	6.9	6.3
Brain & Nervous	5.8	3.7	6.5	5.5	6.0	5.3	5.7	7.4
Stomach	5.0	4.4	4.9	4.5	4.5	3.1	6.3	7.1
Multiple Myeloma	3.6	4.2	3.7	3.5	3.1	3.4	3.9	3.8
Esophagus	2.5	2.4	3.6	2.8	2.0	2.3	2.4	2.2
Larynx	2.1	1.8	2.8	1.4	2.6	2.1	1.9	2.0
Males								
All Cancers (1)	586.4	539.4	611.5	615.8	586.9	576.7	586.1	569.4
Prostate	153.5	136.1	152.7	179.3	157.1	135.7	150.8	156.5
Lung & Bronchus	105.0	124.7	121.6	114.0	104.1	106.8	91.7	83.4
Colorectal	73.5	55.1	80.8	72.6	75.2	73.8	72.6	78.6
Bladder	41.9	34.9	37.2	45.1	41.3	47.4	44.9	32.2
Melanoma (2)	22.1	18.8	21.0	20.5	22.1	22.1	28.6	16.9
Non-Hodgkins	22.0	16.5	22.5	22.9	19.1	22.2	24.1	24.4
Oral	20.0	23.6	20.8	17.5	21.5	19.4	18.2	21.3
Kidney	17.1	14.3	18.3	19.3	16.8	16.5	16.4	17.5
Leukemia	15.2	14.4	16.7	15.2	15.1	17.2	13.5	13.4
Pancreas	13.0	11.7	12.2	11.5	12.2	14.0	13.8	15.8
Stomach	11.6	10.4	11.8	11.0	9.9	11.5	12.0	15.1
Larynx	10.6	9.6	11.6	10.3	10.6	10.5	10.0	12.5
Esophagus	9.0	8.3	9.5	8.5	9.0	8.9	9.9	8.3
Brain & Nervous	8.5	7.7	9.0	8.6	8.8	8.5	8.4	8.5
Multiple Myeloma	5.7	5.9	5.5	5.2	5.3	5.1	6.6	5.8
Thyroid	3.2	3.0	3.0	2.9	3.3	2.8	4.3	3.2
Breast	2.1	3.2	3.2	1.6	2.2	2.0	2.0	1.5

(1) Excludes non-melanoma skin cancer, ICD-9 173.

(2) Rates for melanoma include whites only.

Table 5
Deaths for Selected Cancer Sites by Region and Sex, Florida, 1998

	Florida	Panhandle	Northeast	North Central	Tampa Bay	South Central	Palm Beach Broward	Miami-Dade Monroe
Females								
All Cancers (1)	17,409	1,614	1,722	2,730	3,134	2,890	3,344	1,975
Lung & Bronchus	4,694	433	492	814	851	843	904	357
Breast	2,609	242	274	402	475	385	496	335
Colorectal	1,909	178	182	313	330	324	336	246
Pancreas	988	76	90	148	182	155	211	126
Ovary	939	96	64	138	184	156	196	105
Non-Hodgkin's	753	63	70	106	141	111	179	83
Leukemia	605	58	59	76	106	97	126	83
Brain & Nervous	381	30	40	64	75	62	62	48
Stomach	361	19	35	49	60	58	93	47
Cervix	313	38	30	59	48	46	45	47
Multiple Myeloma	312	29	35	31	59	59	62	37
Bladder	277	22	29	43	50	47	49	37
Kidney	259	24	33	43	45	52	40	22
Esophagus	226	26	21	39	46	37	29	28
Oral	204	13	27	33	39	40	34	18
Uterus	177	18	16	27	30	24	35	27
Melanoma	171	23	15	27	24	36	28	18
Larynx	66	5	6	9	12	13	12	9
Thyroid	56	9	3	6	12	6	12	8
Males								
All Cancers (1)	20,026	1,964	1,964	3,474	3,584	3,533	3,321	2,186
Lung & Bronchus	6,612	772	677	1,236	1,181	1,205	966	575
Prostate	2,375	240	213	425	386	393	425	293
Colorectal	1,953	172	179	348	386	325	314	229
Pancreas	968	84	83	157	166	181	176	121
Non-Hodgkin's	929	62	90	153	176	150	183	115
Leukemia	782	74	72	141	121	151	144	79
Bladder	641	54	57	96	133	102	126	73
Esophagus	585	49	62	103	104	116	101	50
Stomach	541	46	58	83	86	88	105	75
Brain & Nervous	487	35	50	93	86	91	76	56
Oral	487	62	49	76	92	80	70	58
Kidney	445	37	40	71	87	86	74	50
Melanoma	366	32	43	51	55	68	86	31
Multiple Myeloma	340	27	33	57	69	62	62	30
Larynx	253	17	35	30	56	40	38	37
Thyroid	27	2	3	3	4	6	6	3
Breast	26	2	2	4	7	4	5	2

(1) Excludes non-melanoma skin cancer, ICD-9 173.

Table 6
Age-Adjusted Mortality Rates for Selected Cancer Sites by Region and Sex, Florida, 1998

Rates per 100,000

	Florida	Panhandle	Northeast	North Central	Tampa Bay	South Central	Palm Beach Broward	Miami-Dade Monroe
Females								
All Cancers (1)	155.7	173.5	175.7	156.7	151.7	144.5	157.2	147.4
Lung & Bronchus	41.4	46.2	49.3	45.2	41.4	40.7	42.3	26.7
Breast	25.0	26.9	29.5	24.5	24.7	21.1	25.3	25.7
Colorectal	16.1	19.0	17.9	17.6	14.3	15.1	14.5	17.9
Ovary	8.5	10.3	6.7	7.8	8.8	7.7	10.1	7.8
Pancreas	8.4	8.1	8.9	8.2	8.4	7.1	9.0	9.1
Non-Hodgkin's	6.5	6.6	7.1	6.0	6.7	5.3	7.8	6.2
Leukemia	5.4	6.2	6.0	4.4	5.0	4.9	5.8	6.2
Brain & Nervous	3.8	3.3	4.2	3.9	4.0	3.7	3.6	3.9
Cervix	3.6	4.3	3.6	4.2	3.4	3.5	2.9	3.9
Stomach	3.1	2.0	3.7	2.8	2.8	2.6	4.2	3.5
Multiple Myeloma	2.7	3.1	3.4	1.8	2.9	2.6	2.8	2.8
Bladder	2.3	2.3	2.9	2.4	2.1	2.1	2.0	2.6
Kidney	2.3	2.5	3.4	2.5	2.1	2.7	1.7	1.7
Esophagus	2.0	2.7	2.1	2.2	2.1	1.8	1.3	2.0
Melanoma (2)	1.8	2.8	1.7	1.8	1.6	1.9	1.7	1.6
Oral	1.8	1.4	2.6	1.8	2.1	2.2	1.6	1.3
Uterus	1.6	1.9	1.7	1.5	1.5	1.0	1.7	2.0
Larynx	0.6	0.6	0.5	0.5	0.6	0.6	0.5	0.7
Thyroid	0.5	0.9	0.4	0.4	0.5	0.2	0.5	0.6
Males								
All Cancers (1)	237.8	274.0	271.6	255.5	237.4	221.4	214.2	228.5
Lung & Bronchus	76.7	104.6	91.0	87.5	77.2	72.8	62.0	58.6
Prostate	28.6	38.9	32.1	34.0	24.7	23.7	26.0	32.3
Colorectal	23.3	23.8	25.4	26.0	25.5	19.9	20.1	24.3
Pancreas	11.4	11.3	11.9	11.4	10.8	11.4	11.3	12.9
Non-Hodgkin's	11.2	8.4	12.2	11.3	11.8	9.9	11.7	12.1
Leukemia	9.3	9.8	9.9	10.3	8.1	9.4	9.4	8.4
Bladder	7.7	8.1	8.6	7.2	8.5	6.1	8.0	8.1
Esophagus	6.9	6.3	8.4	7.2	6.9	7.3	6.7	5.2
Stomach	6.5	6.5	7.8	6.1	5.7	5.5	6.9	7.8
Brain & Nervous	6.1	4.7	6.6	6.9	6.4	7.1	5.1	5.5
Oral	6.0	8.4	6.4	5.8	6.6	5.5	4.8	6.1
Kidney	5.3	5.1	5.5	5.2	6.0	5.7	4.6	5.2
Melanoma (2)	4.9	5.1	7.0	4.2	4.2	4.8	6.2	3.6
Multiple Myeloma	4.0	3.6	4.7	4.1	4.5	3.8	4.1	3.0
Larynx	3.0	2.1	4.8	2.1	3.8	2.7	2.7	3.8
Breast	0.3	0.3	0.2	0.3	0.5	0.3	0.3	0.2
Thyroid	0.3	0.2	0.4	0.2	0.3	0.4	0.4	0.3

(1) Excludes non-melanoma skin cancer, ICD-9 173.

(2) Rates for melanoma include whites only.

Trends in Cancer Incidence and Mortality, 1981-1998

(Tables 7.1 - 7.2 and Figures 2 - 5)

Trends in cancer incidence and mortality for all cancers combined are presented graphically in Figures 2 - 3, and for selected cancer sites in Figures 4 - 5. Tables 7.1 and 7.2 contain the cancer incidence and mortality data used for these figures.

Incidence

As Florida's population has grown and aged from 1981 to 1998, the number of new cancer cases diagnosed each year also has increased. However, the eighteen-year trend for age-adjusted incidence rates, which account for changes in population size and age, shows only slight increases in all cancers combined for both sexes. Nonetheless, for men or women separately, or for specific cancer sites, some changes have been observed.

- From 1981 to 1998, the age-adjusted incidence rates of cancers of the lung and bronchus increased for both sexes. The age-adjusted rate increased by 25 cases per 100,000 women, and by 3 cases per 100,000 men.
- Age-adjusted incidence rates of Non-Hodgkin's lymphoma in both females and males have increased steadily and fairly dramatically (65% and 70% cumulative increase respectively) over the 18-year period.
- The number and age-adjusted incidence rates of prostate cancer increased dramatically, beginning in 1987 and peaked in 1992. Since then rates have declined or remained stable. The increase may reflect changes in prostate cancer screening during the same period. (Schottenfeld and Fraumeni, 1996, p. 1183.)
- Breast cancer incidence rates among females also increased substantially in the middle 1980s and have fluctuated through 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).
- Age-adjusted incidence rates of colorectal and bladder cancers are essentially unchanged in 1998 compared to 1981 for both sexes.
- The incidence rates of oral cancer in males and cancers of the uterus and ovary in females have remained stable since 1981.

Mortality

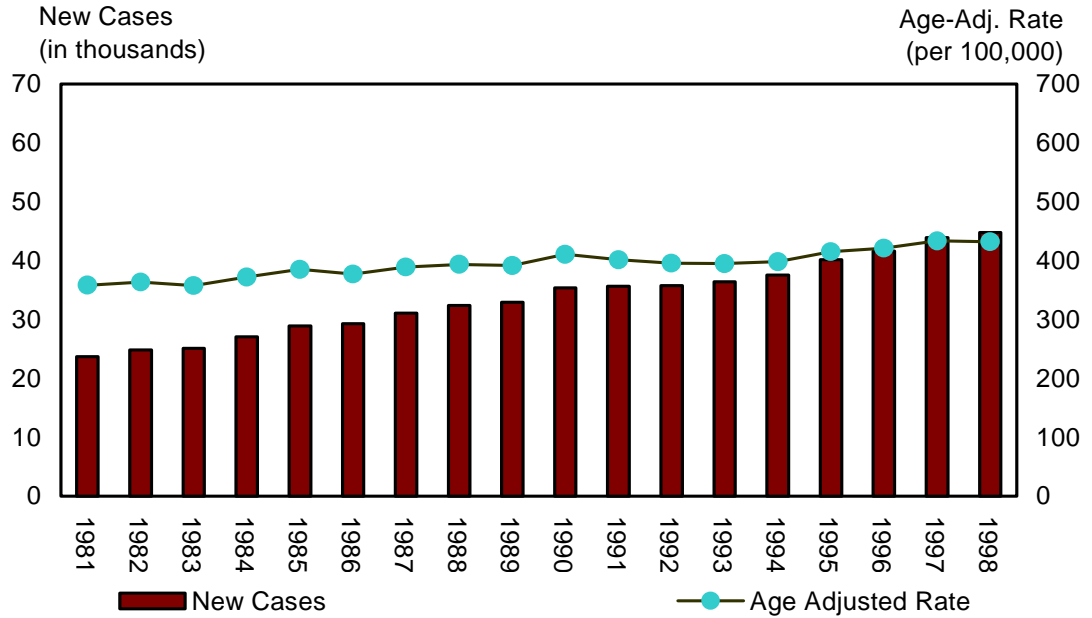
Trends in cancer mortality are presented graphically in Figure 3 for all cancers combined and in Figures 5.1 and 5.2 for seven of the most commonly occurring cancers. Tables 7.1 and 7.2 show age-adjusted cancer death rates for males and females.

- As with overall cancer incidence, the total number of cancer deaths increased steadily over the past 18 years for females and males, in tandem with the growth and aging of Florida's population. However, age-adjusted death rates from all cancers combined remained virtually unchanged for females and decreased by about 18 deaths per 100,000 males over the past 18 years.

- The mortality rate of lung and bronchial cancer among females increased dramatically from 1981 to 1998, similar to the increase in the incidence of lung and bronchial cancer. Cigarette smoking, the main cause of cancer of the lung and bronchus, began to increase in the 1940s and has continued over the past several decades among women (Schottenfeld and Fraumeni, 1996, p. 642). In Florida, the prevalence of cigarette smoking among women has remained unchanged since 1990.
- Since 1990, breast cancer mortality has decreased slightly – even as incidence has increased. This may be due to the more widespread breast cancer screening, which can detect breast cancer at earlier and consequently more treatable stages, as well as from more effective treatment once breast cancer is diagnosed (Schottenfeld and Fraumeni, 1996, p. 1023).
- Between 1981 and 1998, the declining mortality rate for all cancers combined in males paralleled considerable declines in the mortality rates of lung and bronchial cancer and colorectal cancer. There were slight decreases in death rates from bladder and oral cancers in males through 1998. The declines in lung, bladder and oral cancer mortality rates are likely attributable to declining rates of cigarette smoking among males over the past several decades (Schottenfeld and Fraumeni, 1996, p.642). In Florida, the prevalence of cigarette smoking among males declined by about 14% during the 1990s.

Figure 2
New Cases and Age-Adjusted Incidence Rates for All Cancers
by Sex, Florida, 1981-1998

Females



Males

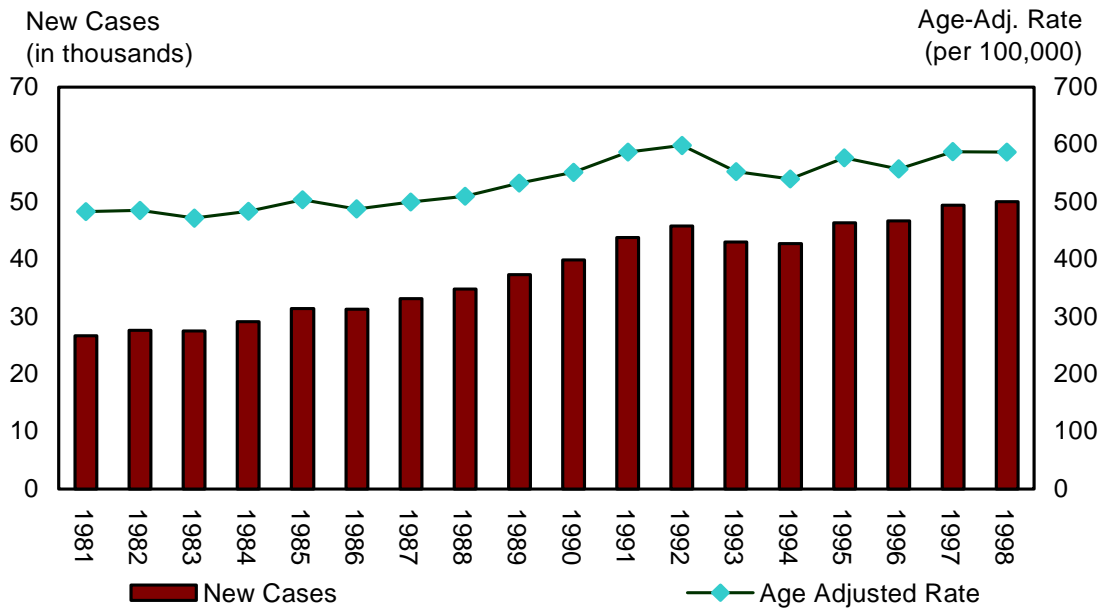
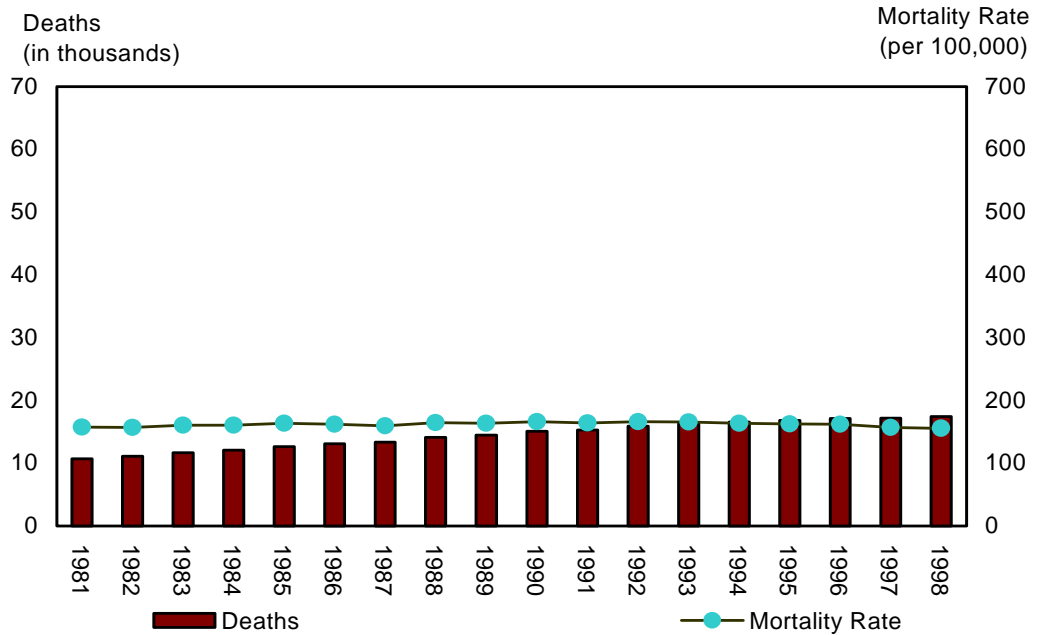


Figure 3
Deaths and Age-Adjusted Mortality Rates for All Cancers by Sex
Florida, 1981-1998

Females



Males

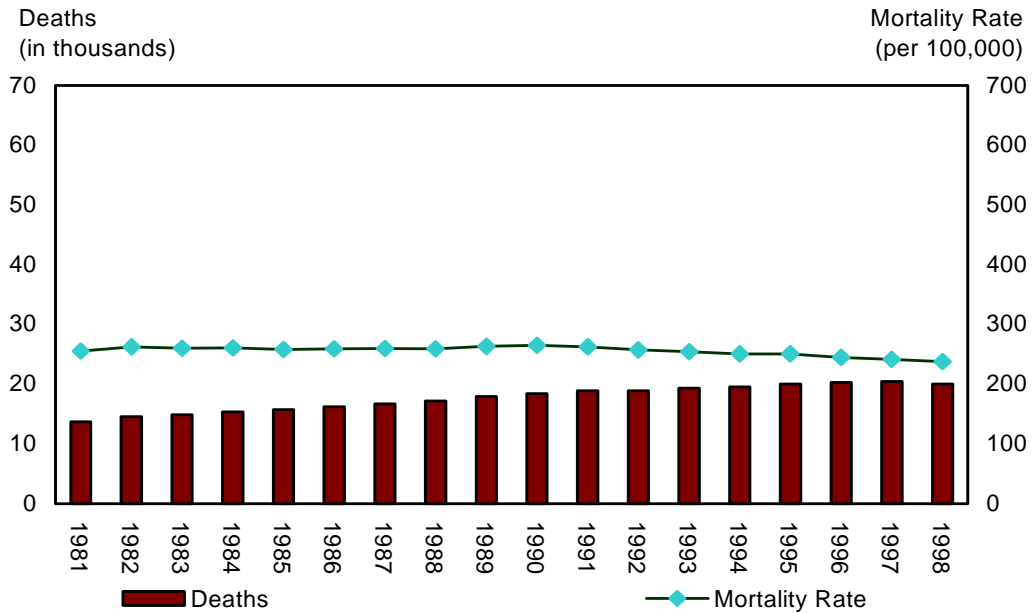


Figure 4
Age-Adjusted Incidence and Mortality Rates For Selected Cancer Sites, Florida, 1981-1998
Females

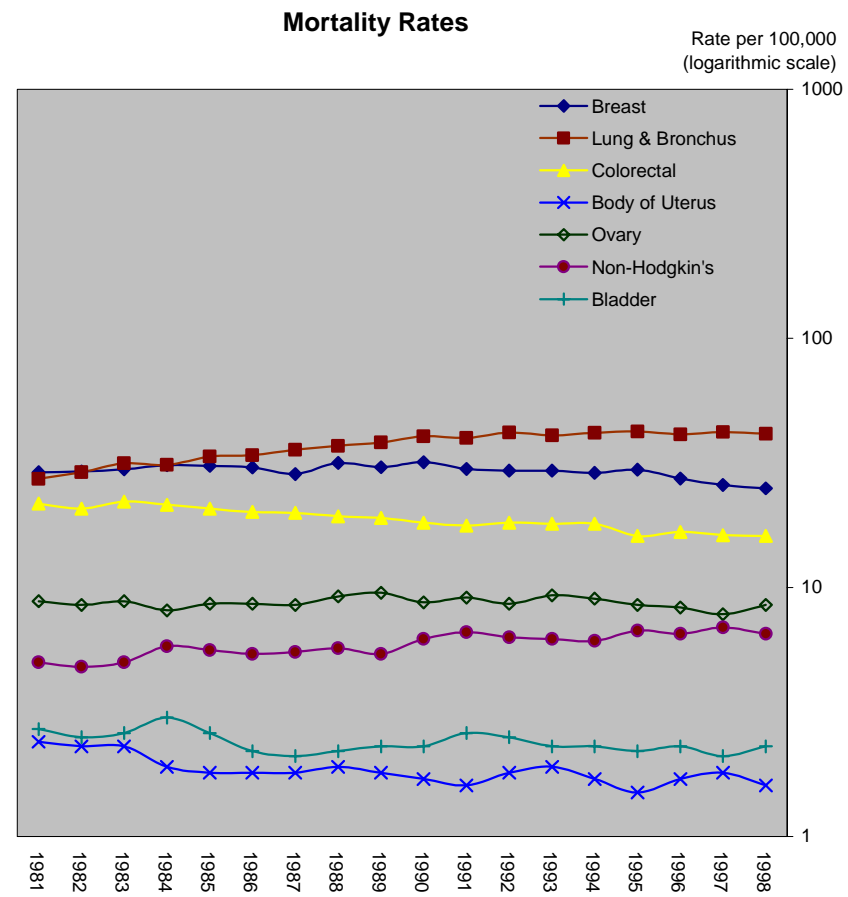
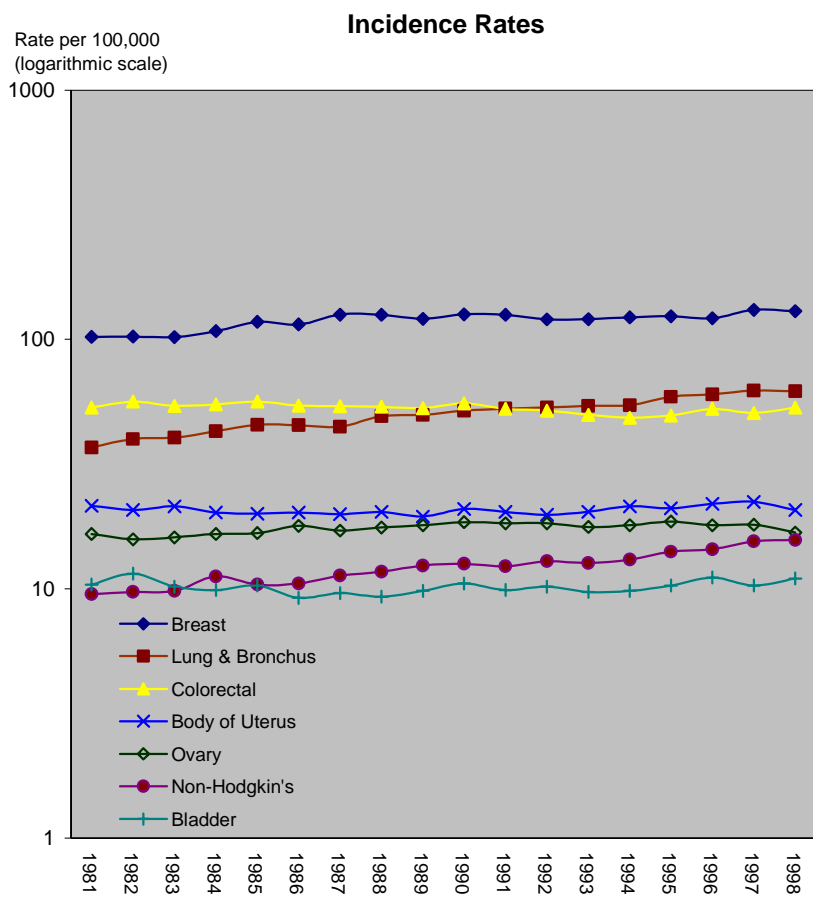


Figure 5
Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites, Florida, 1981-1998
Males

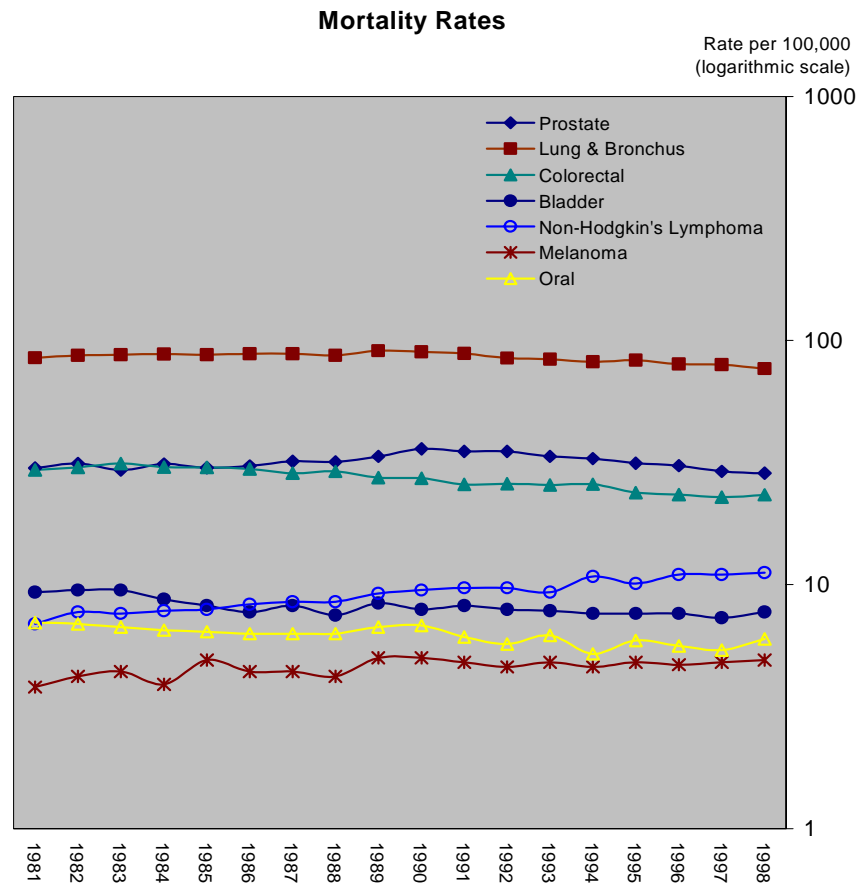
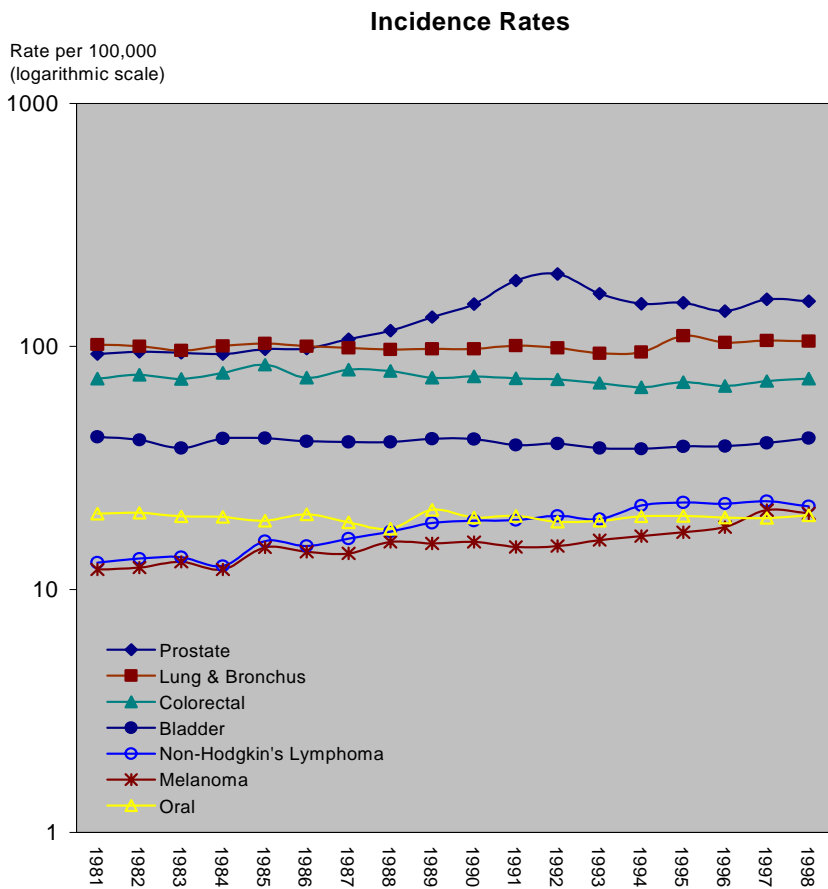


Table 7.1
Age-Adjusted (1) Incidence and Mortality Rates for Selected Cancer Sites in Females
Florida, 1981 - 1998

Rates per 100,000

Year	All Cancers (2)	Breast	Lung & Bronchus	Colorectal	Uterus	Ovary	Non- Hodgkins	Bladder
Incidence								
1981	358.4	102.5	36.9	53.3	21.5	16.6	9.5	10.4
1982	363.7	102.8	39.9	56.4	20.7	15.8	9.7	11.5
1983	358.1	102.1	40.4	54.2	21.4	16.1	9.8	10.2
1984	372.4	107.9	42.9	54.9	20.2	16.6	11.2	9.9
1985	385.0	117.5	45.5	56.4	20.0	16.7	10.4	10.3
1986	377.4	114.8	45.3	54.3	20.2	17.9	10.5	9.2
1987	389.0	125.7	44.7	54.0	19.9	17.1	11.3	9.6
1988	393.7	125.4	49.2	53.7	20.3	17.6	11.7	9.3
1989	392.1	120.9	49.9	53.1	19.5	18.0	12.4	9.8
1990	410.7	126.1	51.9	55.5	20.9	18.5	12.6	10.5
1991	401.6	125.6	52.8	52.7	20.3	18.3	12.3	9.9
1992	395.5	120.5	53.4	51.9	19.8	18.3	12.9	10.2
1993	395.1	120.8	54.2	49.9	20.4	17.7	12.7	9.7
1994	398.2	122.7	54.4	48.6	21.4	18.0	13.1	9.8
1995	415.6	123.9	58.9	49.6	21.0	18.6	14.1	10.3
1996	421.4	121.8	60.3	52.6	21.9	18.0	14.4	11.1
1997	433.9	131.5	62.3	50.8	22.3	18.1	15.5	10.3
1998	431.8	129.9	62.1	53.1	20.7	16.8	15.7	11.0
Mortality								
1981	157.3	29.0	27.3	21.7	2.4	8.8	5.0	2.7
1982	157.2	29.2	29.0	20.7	2.3	8.5	4.8	2.5
1983	160.7	29.8	31.5	22.1	2.3	8.8	5.0	2.6
1984	160.7	30.9	31.0	21.5	1.9	8.1	5.8	3.0
1985	163.7	30.8	33.5	20.7	1.8	8.6	5.6	2.6
1986	161.7	30.3	34.0	20.1	1.8	8.6	5.4	2.2
1987	159.7	28.5	35.7	19.9	1.8	8.5	5.5	2.1
1988	164.6	31.6	37.0	19.3	1.9	9.2	5.7	2.2
1989	163.5	30.4	38.2	19.0	1.8	9.5	5.4	2.3
1990	166.5	31.8	40.4	18.2	1.7	8.7	6.2	2.3
1991	164.5	29.9	39.8	17.7	1.6	9.1	6.6	2.6
1992	166.6	29.4	41.8	18.2	1.8	8.6	6.3	2.5
1993	165.8	29.4	40.8	18.0	1.9	9.3	6.2	2.3
1994	163.9	28.8	41.7	18.0	1.7	9.0	6.1	2.3
1995	162.3	29.7	42.3	16.1	1.5	8.5	6.7	2.2
1996	161.9	27.4	41.2	16.7	1.7	8.3	6.5	2.3
1997	157.0	25.8	42.1	16.2	1.8	7.8	6.9	2.1
1998	155.7	25.0	41.4	16.1	1.6	8.5	6.5	2.3

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

(2) Excludes non-melanoma skin cancer, ICD-9 173.

Table 7.2
Age-Adjusted (1) Incidence and Mortality Rates for Selected Cancer Sites in Males
Florida, 1981 - 1998

Rates per 100,000

Year	All Cancers (2)	Prostate	Lung & Bronchus	Colorectal	Bladder	Non- Hodgkins	Melanoma (3)	Oral
Incidence								
1981	482.8	93.2	101.8	73.9	42.5	12.9	13.3	20.5
1982	485.2	95.4	100.4	76.6	41.3	13.4	13.4	20.7
1983	471.9	94.3	96.2	73.7	38.2	13.6	14.1	20.0
1984	483.6	93.2	100.5	78.0	41.8	12.5	13.1	19.9
1985	503.5	97.6	103.1	84.2	41.9	15.8	16.2	19.2
1986	487.5	98.1	100.4	74.3	40.8	15.1	15.6	20.4
1987	499.5	107.2	98.7	80.4	40.5	16.2	15.4	18.9
1988	509.9	116.3	97.4	79.4	40.5	17.3	17.1	17.8
1989	532.7	132.2	97.8	74.3	41.7	18.8	16.9	21.3
1990	551.2	149.5	97.7	75.4	41.6	19.2	17.1	19.8
1991	586.9	187.1	100.9	74.0	39.3	19.3	16.3	20.1
1992	598.3	198.9	98.8	73.2	39.8	20.1	16.4	19.0
1993	552.6	165.0	93.8	70.9	38.2	19.5	17.2	19.2
1994	540.2	150.2	94.8	68.0	37.9	22.2	18.1	20.0
1995	576.8	151.2	110.7	71.3	38.8	22.8	18.7	20.1
1996	557.2	140.0	104.0	68.9	38.9	22.6	19.5	19.8
1997	587.4	156.6	105.9	72.1	40.1	23.1	22.7	19.7
1998	586.4	153.5	105.0	73.5	41.9	22.0	22.1	20.0
Mortality								
1981	255.8	30.0	84.9	29.5	9.3	6.9	3.8	7.0
1982	262.3	31.3	87.0	30.2	9.5	7.7	4.2	6.9
1983	260.4	29.5	87.3	31.3	9.5	7.6	4.4	6.7
1984	261.0	31.2	88.0	30.3	8.7	7.8	3.9	6.5
1985	257.7	30.1	87.3	30.2	8.2	7.9	4.9	6.4
1986	258.7	30.6	88.3	29.8	7.7	8.3	4.4	6.3
1987	259.5	32.0	88.2	28.6	8.2	8.5	4.4	6.3
1988	258.8	31.8	86.8	29.1	7.5	8.5	4.2	6.3
1989	263.3	33.5	90.7	27.4	8.4	9.2	5.0	6.7
1990	264.9	36.0	89.9	27.3	7.9	9.5	5.0	6.8
1991	262.7	35.1	88.5	25.7	8.2	9.7	4.8	6.1
1992	257.2	35.1	84.7	25.9	7.9	9.7	4.6	5.7
1993	254.4	33.5	83.8	25.6	7.8	9.3	4.8	6.2
1994	250.5	32.8	81.7	25.8	7.6	10.8	4.6	5.2
1995	250.8	31.4	83.0	23.8	7.6	10.1	4.8	5.9
1996	245.0	30.7	80.1	23.4	7.6	11.0	4.7	5.6
1997	241.4	29.1	79.7	22.8	7.3	11.0	4.8	5.4
1998	237.8	28.6	76.7	23.3	7.7	11.2	4.9	6.0

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

(2) Excludes non-melanoma skin cancer, ICD-9 173.

(3) Melanoma rates are for whites only.

Annual Percent Change in Cancer Incidence and Mortality Rates, 1989-1998

(Table 8 and Figures 6.1 - 6.2)

Table 8 displays the average annual percent change in age-adjusted incidence and mortality rates between 1989 and 1998 for 19 cancer sites in females and 17 sites in males. Figures 6.1 and 6.2 show the same information graphically. Overall, incidence rates of cancers for specific sites have increased while mortality rates have decreased annually since 1989, with some notable exceptions detailed below.

For many cancers, age-adjusted incidence and mortality rates have fluctuated over time, with dramatic increases or decreases from one year to the next, in some cases. The choice of baseline year (in this case, 1989) and most recently available data (1998) influence the overall magnitude and even direction of the trend. In general, those cancers with the greatest changes over time are those that are comparatively rare and affect a smaller number of people.

In the summary that follows, the letter in parenthesis indicates the sex for which the change occurred (**F** for females, **M** for males and **B** for both sexes).

- **Cancers for which incidence rates show statistically significant increase:** all cancers (F), brain and nervous system (B), breast (M), esophagus (B), kidney (B), leukemia (M), lung and bronchus (F), melanoma (B), non-Hodgkin's lymphoma (B), pancreas (B), thyroid (B), uterus (F).
- **Cancers for which mortality rates show statistically significant increase:** lung and bronchus (F), non-Hodgkin's lymphoma (B).
- **Cancers for which incidence rates show statistically significant decrease:** cervix (F), larynx (M).
- **Cancers for which mortality rates show statistically significant decrease:** all cancers (B), bladder (M), breast (F), colon and rectum (B), leukemia (F), lung and bronchus (M), oral (B), ovary (F), prostate (M), stomach (B).
- **Cancers for which either incidence or mortality rates showed no change:** bladder (F), larynx (F), multiple myeloma (B).
- Both incidence and mortality rates of non-Hodgkin's lymphoma increased significantly in females and males.
- **The greatest annual percent change in cancer rates** was observed for breast cancer incidence among males, which showed a 7.6% per year average increase ($p \leq 0.01$). The largest average annual decrease in rates was for stomach cancer mortality (-2.8% for females and -2.7% for males both significant at $p \leq 0.01$).

Figure 6.1
Average Annual Percent Change in
Age-Adjusted Incidence and Mortality Rates for
Selected Cancer Sites, Florida, 1989-1998

Females

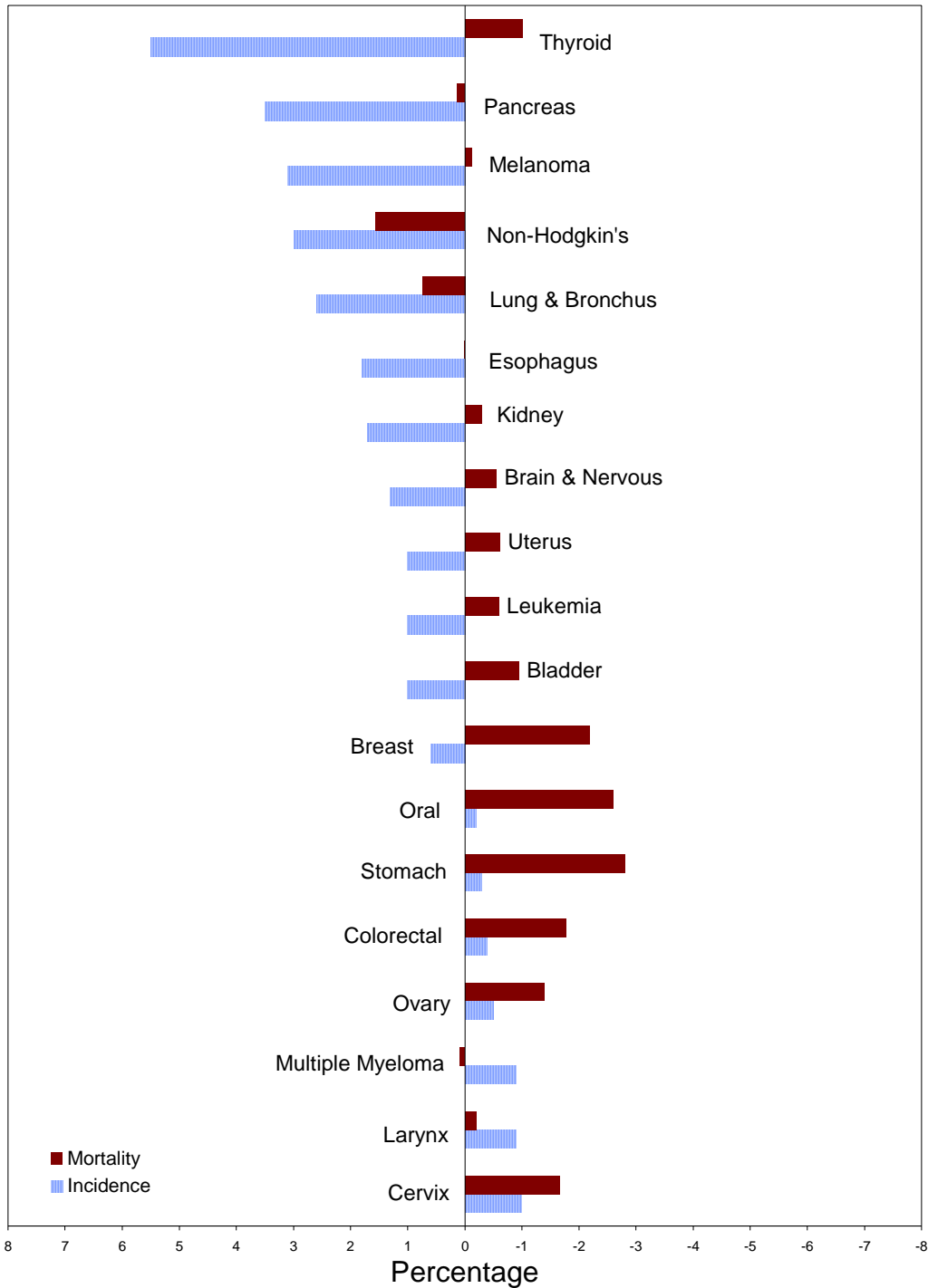


Figure 6.2
Average Annual Percent Change in
Age-Adjusted Incidence and Mortality Rates for
Selected Cancer Sites, Florida, 1989-1998

Males

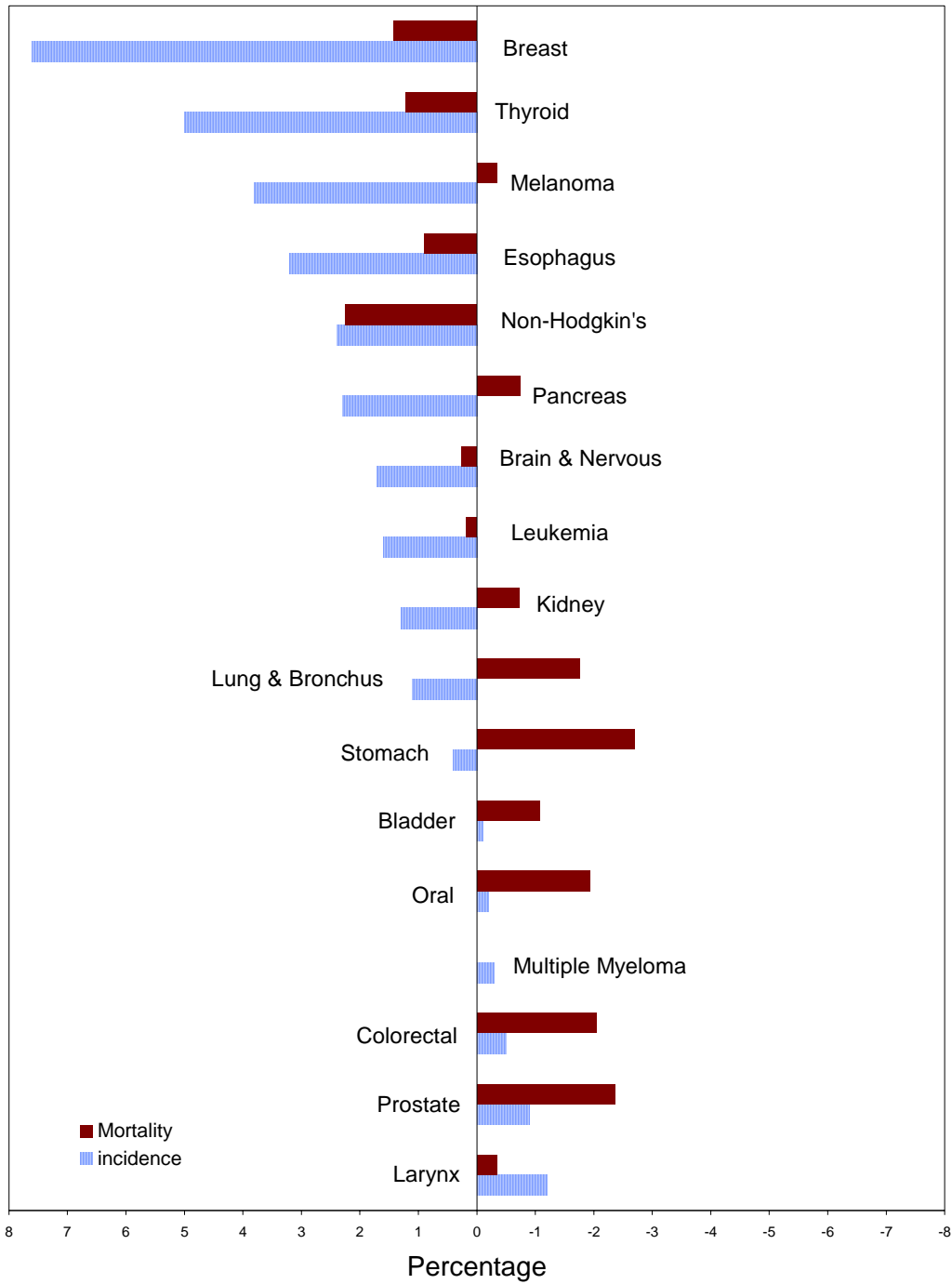


Table 8
Average Annual Percent Change (1) in Age-Adjusted Incidence and Mortality
Rates for Selected Cancer Sites by Sex, Florida, 1989 - 1998

	Incidence		Mortality	
	Females	Males	Females	Males
All Cancers (2)	1.0 **	0.5	-0.6 **	-1.2 **
Bladder	1.0	-0.1	-1.0	-1.1 **
Brain & Nervous	1.3 ·	1.7 ·	-0.6	0.3
Breast	0.6	7.6 **	-2.2 **	1.4
Cervix	-1.0 ·	--	-1.7	--
Colorectal	-0.4	-0.5	-1.8 **	-2.1 **
Esophagus	1.8 **	3.2 **	0.0	0.9
Kidney	1.7 **	1.3 ·	-0.3	-0.7
Larynx	-0.9	-1.2 ·	-0.2	-0.4
Leukemia	1.0	1.6 ·	-0.6 ·	0.2
Lung & Bronchus	2.6 **	1.1	0.8 ·	-1.8 **
Melanoma (3)	3.1 ·	3.8 **	-0.1	-0.3
Multiple Myeloma	-0.9	-0.3	0.1	0.0
Non-Hodgkins	3.0 **	2.4 **	1.6 ·	2.2 **
Oral	-0.2	-0.2	-2.6 ·	-1.9 **
Ovary	-0.5	--	-1.4 ·	--
Pancreas	3.5 **	2.3 **	0.1	-0.8
Prostate	--	-0.9	--	-2.4 **
Stomach	-0.3	0.4	-2.8 **	-2.7 **
Thyroid	5.5 **	5.0 **	-1.0	1.2
Uterus	1.0 ·	--	-0.6	--

* significant at p<0.05

** significant at p<0.01

(1) See Appendix I for details of methodology for average annual percent change.

(2) Excludes non-melanoma skin cancer, ICD-9 173.

(3) Melanoma rates computed for whites only.

Trends in the Distribution of Cancer by Age and Sex, 1981-1998

(Tables 9 - 10 and Figure 7)

New Cases and Deaths

Estimated population, new cases of cancer and number of cancer deaths for eight different age groups and for all ages combined, by sex, are presented in Table 9. Table 10 shows the number of new cancer cases and cancer deaths for the eight age groups, by sex, for the most common cancers. Figure 7 displays the age-specific incidence and mortality rates for males and females. All of these tables and the figure demonstrate that cancer is overwhelmingly a disease of older people. By ages 40 to 49 years the number and rate of cancer cases and deaths increases by an order of magnitude. Rates increase by an order of magnitude again beginning at ages 70 to 79 years.

- More than half of new cancer cases diagnosed, and nearly two-thirds of all cancer deaths, occurred to those aged 70 years and older. This age group makes up 13.6% 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 reflecting closely 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.
- Among males, the number of new cases of prostate cancer is about 50% higher than the number of lung and bronchial cancers and more than double the number of new colorectal cancers; about 99% of these cancers occurred in males over 40 years of age.

Table 9
Estimated Population, New Cases and Deaths from All Cancers by Age Group and Sex, Florida, 1998

Age Group	Population (1)			New Cases (2)			Deaths (3)		
	Total	Females	Males	Total	Females	Males	Total	Females	Males
0-19	3,777,300	1,848,180	1,929,120	623	301	322	113	48	65
20-29	1,855,308	897,982	957,326	766	414	352	116	51	65
30-39	2,182,948	1,082,096	1,100,852	2,565	1,614	951	547	300	247
40-49	2,150,769	1,089,237	1,061,532	6,488	3,961	2,527	1,716	889	827
50-59	1,639,397	848,654	790,743	12,522	6,316	6,206	3,949	1,793	2,156
60-69	1,412,698	762,079	650,619	22,681	9,410	13,271	7,681	3,323	4,358
70-79	1,330,529	760,586	569,943	31,077	13,276	17,801	12,568	5,540	7,028
80 +	719,438	456,681	262,757	18,023	9,451	8,572	10,745	5,465	5,280
All Ages	15,068,387	7,745,495	7,322,892	94,745	44,743	50,002	37,435	17,409	20,026

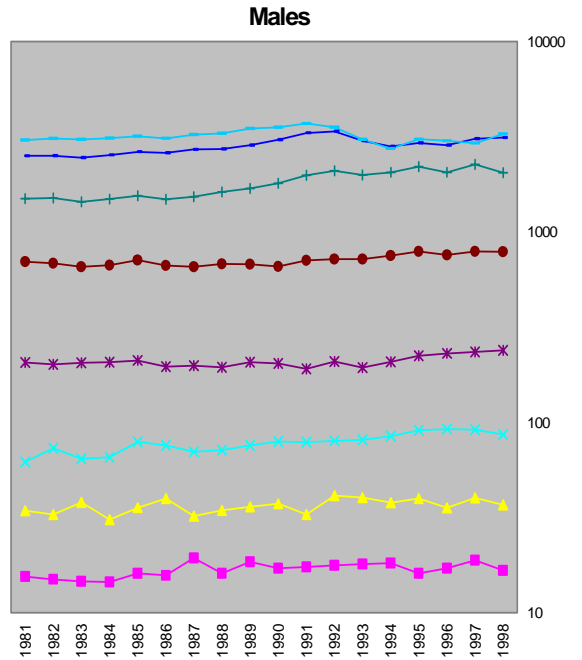
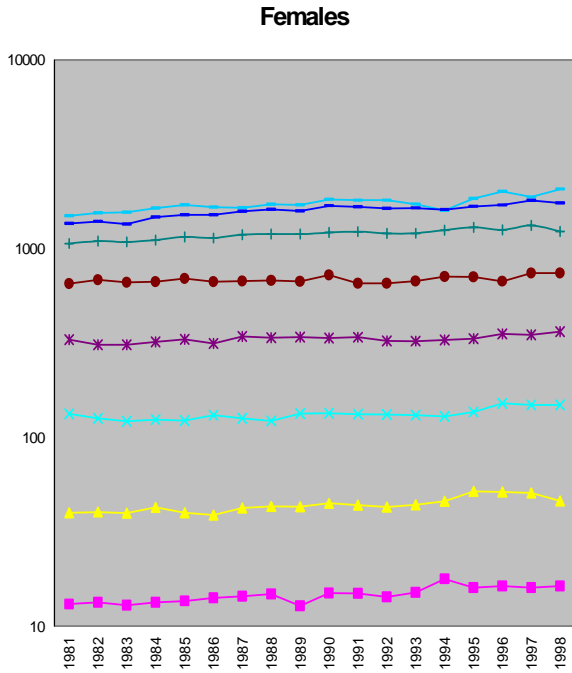
(1) 1998 population projections provided by the Florida Consensus Estimating Conference, Spring 1999.

(2) Florida Cancer Data System. Excludes non-melanoma skin cancer, ICD-9 173.

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

Figure 7
Age-Specific Incidence and Mortality Rates for All Cancers by Sex and Age Group
Florida, 1981-1998

Incidence



Mortality

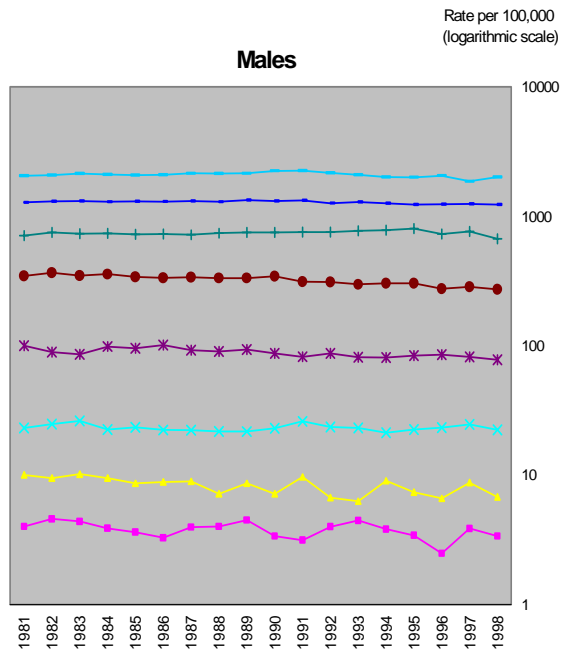
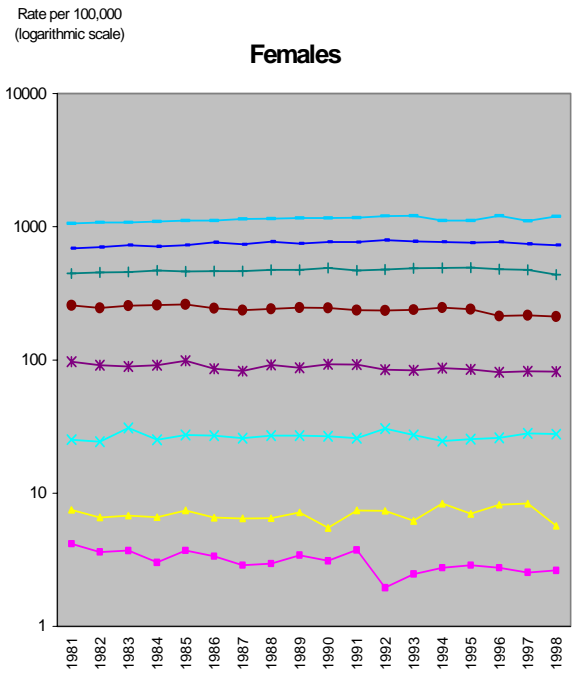


Table 10
New Cases and Deaths for Selected Cancer Sites by Age Group and Sex,
Florida, 1998

Age Group	Lung			Colorectal			Breast	Prostate
	Total	Females	Males	Total	Females	Males	Females	Males
New Cases								
0-19	3	1	2	5	4	1	0	0
20-29	13	5	8	36	14	22	45	0
30-39	114	72	42	145	76	69	527	4
40-49	658	274	384	574	276	298	1,705	202
50-59	2,091	857	1,234	1,280	600	680	2,374	1,467
60-69	4,355	1,813	2,542	2,571	1,055	1,516	2,829	4,629
70-79	5,878	2,519	3,359	4,275	2,041	2,234	3,352	5,495
80+	2,775	1,309	1,466	3,400	1,965	1,435	1,939	1,760
All Ages	15,887	6,850	9,037	12,286	6,031	6,255	12,771	13,557
Deaths								
0-19	0	0	0	0	0	0	1	0
20-29	1	0	1	6	3	3	8	0
30-39	63	36	27	42	16	26	79	0
40-49	391	150	241	137	63	74	254	6
50-59	1,254	479	775	326	144	182	402	52
60-69	2,848	1,142	1,706	659	260	399	484	307
70-79	4,306	1,741	2,565	1,205	538	667	703	855
80+	2,443	1,146	1,297	1,487	885	602	678	1,152
All Ages	11,306	4,694	6,612	3,862	1,909	1,953	2,609	2,372

Years of Potential Life Lost, 1998

(Figure 8 and Table 11)

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

- All causes of death yielded about 1.1 million years of potential life lost in 1998. Cancer was responsible for almost 259,000 years, or 24% of YPLL from all causes.
- Cancer was the leading cause of years of potential life lost, followed by heart disease, unintentional injury, suicide and HIV.
- 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 1998 have predominated since 1995: lung and bronchus, breast, colorectal, brain and nervous system, non-Hodgkin's lymphoma, leukemia and pancreas. About 62% of YPLL from cancer in Florida resulted from deaths due to these seven types of cancer.
- Of all cancer deaths, lung and bronchial cancers contributed the most to YPLL in 1998. Almost 74,000 YPLL or 28% 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 contributes 20% of cancer YPLL in females, while prostate cancer contributes less than 4% of cancer YPLL in males.

Figure 8
Years of Potential Life Lost (YPLL) to Age 75 by Cause
of Death, Florida, 1998

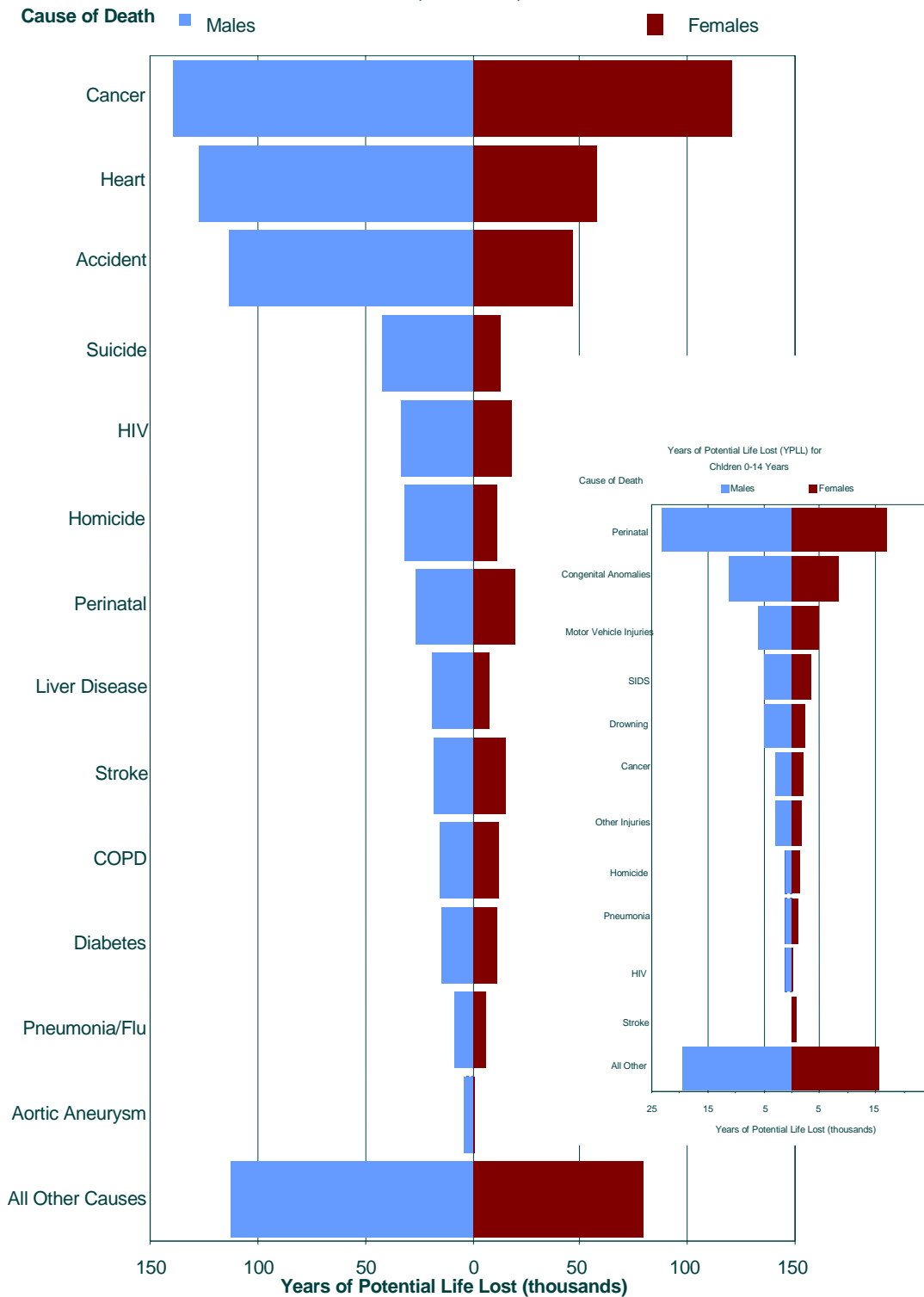


Table 11
Years of Potential Life Lost (1) Due to All Causes and Cancer, Florida, 1998

	Total		Females		Males	
	Years	Percent	Years	Percent	Years	Percent
All Causes	1,135,746	--	425,014	--	710,732	--
All Cancers (2)	258,964	100	120,763	100	138,201	100
Childhood Cancers (3)	5,047	1.9	2,092	1.7	2,955	2.1
Cancer Site						
Lung & Bronchus	73,542	28.4	29,183	24.2	44,359	32.1
Breast	25,422	9.8	25,204	20.9	218	0.2
Colorectal	20,699	8.0	8,804	7.3	11,895	8.6
Brain & Nervous	12,708	4.9	4,779	4.0	7,929	5.7
Non-Hodgkins	12,220	4.7	4,399	3.6	7,821	5.7
Leukemia	11,180	4.3	4,570	3.8	6,610	4.8
Pancreas	10,871	4.2	4,642	3.8	6,229	4.5
Ovary	6,980	2.7	6,980	5.8	--	--
Oral	6,656	2.6	1,305	1.1	5,351	3.9
Cervix	6,059	2.3	6,059	5.0	--	--
Esophagus	5,925	2.3	1,215	1.0	4,710	3.4
Melanoma	5,841	2.3	1,800	1.5	4,041	2.9
Liver	5,735	2.2	1,409	1.2	4,326	3.1
Stomach	5,629	2.2	2,086	1.7	3,543	2.6
Kidney	5,241	2.0	1,626	1.3	3,615	2.6
Prostate	5,075	2.0	--	--	5,075	3.7
Multiple Myeloma	3,659	1.4	1,580	1.3	2,079	1.5
Bladder	3,180	1.2	1,006	0.8	2,174	1.6
Larynx	2,740	1.1	399	0.3	2,341	1.7
Hodgkin's Lymphoma	1,428	0.6	475	0.4	953	0.7
Uterus	1,057	0.4	1,057	0.9	--	--
Thyroid	553	0.2	308	0.3	245	0.2
All Other Cancers (2)	26,564	10.3	11,877	9.8	14,687	10.6

(1) See Appendix I for methodology.

(2) Excludes non-melanoma skin cancer, ICD-9 173.

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

Childhood Cancer Incidence and Mortality: Age 0-14 Years, 1994-1998

(Table 12)

Table 12 provides detailed data on cancer incidence and death for 12 cancer sites for children living in Florida. The number of new cancers and cancer deaths are cumulative from 1994 to 1998 and 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.

- Between 1994 and 1998, 2,240 children were diagnosed with primary cancers in Florida, an average of 437 new cases per year. There were 386 cancer deaths or an average of 77 each year for all cancers combined.
- Leukemia was the most commonly diagnosed cancer among children, followed by brain and nervous system cancers and lymphomas.
 - New cases of leukemia accounted for 31.7% of all new cancers diagnosed in children for the 5-year period. The majority of these were acute lymphocytic malignancies. All other childhood leukemias combined comprised 6.1% of childhood cancers between 1994 and 1998.
 - There were 131 deaths from leukemia among children between 1994 and 1998, 33.9% of all deaths from childhood cancer in Florida during this period. The death-to-cases ratio for childhood leukemia was less than 0.2 compared to a death-to-cases ratio of 0.63 for leukemia among adults in Florida in 1998, indicating that leukemia is much more curable in children than in adults.
- About 21% of new cases of childhood cancers were brain and nervous system cancers, 483 cases over the 5-year period. The next most common pediatric cancer, lymphoma, accounted for about 10% of all childhood cancers, or 227 cases.
- Cancers of the brain and nervous system were responsible for 129 deaths among 0 - 14 year-olds during the 5-year period, and for 33.4% of all cancer deaths among children. The death-to-cases ratio for brain and nervous system cancers was 0.27, one of the highest among children.

Table 12
New Cases, Deaths and Age-Specific Incidence and Mortality Rates for Children
Age 0-14 for Selected Cancer Sites, Florida, 1994-1998 (1)

Site	New Cases			Deaths		
	Number	Percent	Rate (per million)	Number	Percent	Rate (per million)
All Cancers (2)	2,240	--	159.1	386	--	27.4
Leukemia	711	31.7	50.5	131	33.9	9.3
Acute Lymphocytic	574	25.6	40.8	57	14.8	4
Other Leukemias	137	6.1	9.7	74	19.2	5.3
Brain & Nervous	483	21.6	34.3	129	33.4	9.2
Lymphoma	227	10.1	16.1	20	5.2	1.4
Non-Hodgkins	162	7.2	11.5	18	4.7	1.3
Hodgkins	65	2.9	4.6	2	0.5	0.1
Kidney	143	6.4	10.2	13	3.4	0.9
Soft Tissue	132	5.9	9.4	16	4.1	1.1
Bones and Joints	128	5.7	9.1	17	4.4	1.2
Endocrine	111	5.0	7.9	38	9.8	2.7
Eyes	80	3.6	5.7	1	0.3	0.1
All Other Cancers (2)	225	10.0	16.0	21	5.4	1.5
Average per Year	448			77		

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

(2) Excludes non-melanoma skin cancer, ICD-9 173.

RACE DIFFERENCES IN CANCER INCIDENCE AND MORTALITY

Age-adjusted cancer incidence and mortality rates can be compared across racial groups to assess the relative burden of and racial disparities in cancer. The FCDS collects information on the racial and ethnic background of each person diagnosed with cancer in Florida. In this analysis, races were grouped together as “white” and “non-white” and ethnicity was not considered. Both broad racial categories include people of a variety of ethnicities. The non-white group also includes people of a variety of races, including black, Asian and Pacific Islander, and American Indian and Alaskan Native.

Sixteen percent of the Florida population was estimated to be non-white and 84% was white in 1998. While population size and age structure differ substantially for whites and non-whites in Florida, age-adjusted rates allow for meaningful comparison between the two population groups. Table 13 describes the number of new cases of cancer, cancer deaths and the death-to-cases ratio for selected sites for non-white and white Florida residents. The cancer sites listed in Table 13 are identical to those in Table 1, the twenty most common cancers diagnosed in Florida in 1998. Table 14 contains the rates corresponding to the sites in Table 13. Age-adjusted cancer incidence and mortality rates by race and sex for selected sites can be found in Table 15.

Cancer Incidence and Mortality, 1998

(Tables 13-15)

- Eight percent of new cancers diagnosed in Florida in 1998 occurred among non-whites and 92% 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 non-white population and cancer risk increases with age. Hence, a larger proportion of whites has cancer than non-whites but age-adjusted rates are slightly lower for whites than non-whites. Overall, age-adjusted cancer incidence rates in Florida for 1998 were 488.3 per 100,000 for whites and 517.5 per 100,000 for non-whites.

Incidence

- The five most commonly diagnosed types of cancer among non-whites were prostate, lung and bronchus, breast, colorectal, and non-Hodgkin’s lymphoma, accounting for 61% of all new primary cancers. The first four of these sites had the highest age-adjusted rates as well, with cancer of the uterus ranked fifth highest by age-adjusted incidence rate.
- The five most commonly diagnosed types of cancer among whites were lung and bronchus, breast, colorectal, prostate and bladder. Together, these five cancers comprised 63% of all cancers diagnosed in 1998 among whites.
- The difference in the incidence rates of prostate cancer between whites and non-whites is striking, with non-whites having much higher rates than whites. Non-whites also had higher incidence rates of stomach cancer and lower rates of bladder cancer. Stomach cancer, ranked seventh most common among non-whites and fourteenth among whites. Conversely, bladder cancer ranked fifth among whites and eleventh among non-whites.

- Among females, the rate of all cancers combined was higher for whites than non-whites, at 431.6 and 400.2 per 100,000, respectively. Cancers of the lung and bronchus and breast were largely responsible for the excess 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, colorectal, uterus. However, age-adjusted rates of breast, lung and bronchus, and uterine cancers were higher for white females than for non-white females. Colorectal cancer rates were higher among non-white females. The fifth most common site for cancer was the cervix for non-white females and the ovaries for whites females.
- In contrast to the cancer data for females, non-white males had a higher age-adjusted rate for all cancers combined than did white males, 698.3 and 571.1 respectively. Prostate cancer contributed most heavily to this difference.
- Prostate cancer rates were the highest for both race groups followed by cancer of the lung and bronchus and colorectal cancer. However, prostate cancer incidence was much higher in non-white males than in white males, 248.5 and 143.7 per 100,000, respectively. Non-white males also had higher rates of cancer of the lung and bronchus, at 125.8 for non-white and 102.5 per 100,000 for white males.
- Incidence rates for stomach and esophageal cancer were twice as high for non-white males as white males. In contrast, the rate for bladder cancer in white males was double that of non-white males.

Mortality

- Comparing age-adjusted mortality rates across race and sex groups reveals that non-white males are more likely than non-white females and whites of both sexes to die of cancer.
- Age-adjusted mortality rates for all cancers combined were 34% higher for non-whites than for whites, following the pattern of incidence rates. This is true for both sexes and for the majority of the sites listed in Table 15, except for non-Hodgkin's lymphoma, leukemia and melanoma. Factors that possibly contribute to the observed race differences in cancer mortality rates include later diagnosis and delayed or less efficacious cancer treatment for non-whites (Schottenfeld and Fraumeni, 1996, p. 171).
- Males of both races had higher age-adjusted cancer mortality rates than their female counterparts. However the sex gap is greater among non-whites; the male-to-female rate ratio for all cancer mortality for non-whites was 1.9 and for whites was 1.5.
- The five cancer sites with the highest mortality rates among females were the same for non-whites and whites: lung and bronchus, breast, colorectal, pancreas and stomach.
- Men of both race groups had high mortality rates from lung and bronchial, prostate and colorectal cancers. Mortality rates of stomach and pancreatic cancers were fourth and fifth highest, respectively, for non-white males, and pancreatic cancer and non-Hodgkin's lymphoma for white males.

- For all cancers combined, the deaths-to-cases ratio was 0.45 for non-whites and 0.39 for whites.
- The deaths-to-cases ratios are higher for non-whites than for whites for all sites except non-Hodgkin's lymphoma, leukemia and cancers of the kidney and thyroid.
- The death-to-cases ratio for prostate cancer is 0.23 for non-white males and 0.18 for white males. This suggests that non-white males are either being diagnosed at later stages of the disease, have more virulent forms of prostate cancer, or are not receiving timely or optimal intervention for this form of cancer compared to white males.
- The death-to-cases ratio for bladder cancer is 0.38 for non-whites and 0.18 for whites, the largest gap in deaths-to-cases ratios between the races.
- There is a larger race gap in age-adjusted cancer mortality rates for males than for females. The cancer mortality rate for non-white males for all cancers combined was much higher than that of white males. This difference was very pronounced for lung and bronchial, stomach, and prostate cancer mortality rates, and less for colorectal and esophageal cancer mortality rates. For females, the race gap in the mortality rates was site dependent. The mortality rate for all cancers combined was higher for non-white females than for white females. Contributing most to this difference were colorectal and breast cancer mortality rates. However, the mortality rate for cancers of the lung and bronchus was significantly higher for whites than for non-whites.

Table 13
New Cases, Deaths and Deaths:Cases Ratio for Selected Cancer Sites by Race, Florida, 1998

Site	New Cases (1,3)			Deaths (2,3)			Deaths:Cases Ratio		
	Total	Non-White	White	Total	Non-White	White	Total	Non-White	White
All Cancers (4)	93,845	7,959	85,886	37,431	3,589	33,842	0.40	0.45	0.39
Lung & Bronchus	15,799	1,185	14,614	11,304	862	10,442	0.72	0.73	0.71
Prostate	13,337	1,451	11,886	2,375	328	2,047	0.18	0.23	0.17
Breast (5)	12,814	1,043	11,771	2,635	289	2,346	0.21	0.28	0.20
Colorectal	12,170	973	11,197	3,861	373	3,488	0.32	0.38	0.31
Bladder	4,854	182	4,672	918	70	848	0.19	0.38	0.18
Non-Hodgkins	3,423	254	3,169	1,682	109	1,573	0.49	0.43	0.50
Melanoma	2,754	25	2,729	537	5	532	0.19	0.20	0.19
Oral	2,399	245	2,154	691	78	613	0.29	0.32	0.28
Kidney	2,245	197	2,048	704	48	656	0.31	0.24	0.32
Pancreas	2,269	192	2,077	1,956	172	1,784	0.86	0.90	0.86
Leukemia	2,183	167	2,016	1,387	93	1,294	0.64	0.56	0.64
Uterus	2,121	176	1,945	177	33	144	0.08	0.19	0.07
Ovary	1,660	124	1,536	939	77	862	0.57	0.62	0.56
Stomach	1,530	242	1,288	902	157	745	0.59	0.65	0.58
Brain & Nervous	1,200	97	1,103	868	73	795	0.72	0.75	0.72
Larynx	1,080	119	961	319	55	264	0.30	0.46	0.27
Esophagus	1,049	130	919	811	111	700	0.77	0.85	0.76
Cervix	989	191	798	313	81	232	0.32	0.42	0.29
Thyroid	889	59	830	83	5	78	0.09	0.08	0.09
Multiple Myeloma	873	128	745	652	98	554	0.75	0.77	0.74
All Other (4)	8,207	779	7,428	4,317	472	3,845	0.53	0.61	0.52

(1) Florida Cancer Data System; includes 21 cases with unknown sex.

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

(3) Excludes 921 new cases and 4 deaths which do not have race information.

(4) Excludes non-melanoma skin cancer, ICD-9 173.

(5) Includes 175 new cases and 26 deaths from breast cancer in males.

Table 14
Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites by Race, Florida, 1998

Site	New Cases (1)			Deaths (2)		
	Total	Non-White	White	Total	Non-White	White
All Cancers (3)	490.1	517.5	488.3	189.5	247.2	184.2
Prostate (4)	150.9	248.5	143.7	28.6	73.7	26.1
Breast (4)	128.4	108.4	130.5	25.0	31.1	24.1
Lung & Bronchus	80.1	79.1	80.0	56.5	59.5	56.1
Colorectal	61.3	66.5	60.6	19.2	26.4	18.5
Bladder	23.8	13.3	24.6	4.4	5.5	4.4
Uterus (4)	20.5	19.9	20.8	1.6	4.0	1.4
Non-Hodgkins	18.3	14.3	18.4	8.5	7.0	8.6
Melanoma (5)	17.0	--	17.0	3.1	--	3.1
Ovary (4)	16.7	13.6	17.2	8.5	8.9	8.5
Oral	13.2	15.0	12.9	3.7	5.0	3.6
Cervix (4)	12.0	19.0	11.4	3.6	8.3	3.1
Kidney	11.8	12.7	11.7	3.6	3.3	3.6
Leukemia	11.6	9.5	11.8	7.0	5.9	7.1
Pancreas	11.3	13.5	11.1	9.7	12.4	9.5
Stomach	7.8	16.7	7.0	4.6	11.2	4.0
Brain & Nervous	7.0	4.9	7.3	4.9	3.9	4.9
Thyroid	5.6	3.0	6.0	0.4	0.3	0.4
Larynx	5.8	7.6	5.6	1.7	3.6	1.5
Esophagus	5.3	8.8	5.0	4.1	7.2	3.8
Multiple Myeloma	4.5	8.7	4.1	3.2	7.3	2.9
All Other (3)	42.0	47.0	41.8	22.1	31.2	21.2

(1) Florida Cancer Data System.

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

(3) Excludes non-melanoma skin cancer, ICD-9 173.

(4) Sex specific rates; breast cancer rates calculated for females only.

(5) Melanoma rates calculated for whites only.

Table 15
Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites by Race
and Sex, Florida, 1998

Site	Non-White			White		
	Total	Females	Males	Total	Females	Males
Incidence						
All Cancers (1)	517.5	400.2	698.3	488.2	431.6	571.1
Prostate (2)	248.5	--	248.5	143.7	--	143.7
Breast (3)	108.4	108.4	--	130.5	130.5	--
Lung & Bronchus	79.0	47.3	125.8	79.9	62.9	102.5
Colorectal	66.5	58.4	78.2	60.6	51.8	72.1
Uterus (2)	19.9	19.9	--	20.8	20.8	--
Cervix (2)	19.0	19.0	--	11.4	11.4	--
Stomach	16.7	11.1	24.9	7.0	4.4	10.4
Oral	15.0	8.4	23.5	12.9	7.4	19.3
Non-Hodgkins	14.3	11.7	18.1	18.4	15.7	21.9
Ovary (2)	13.6	13.6	--	17.2	17.2	--
Pancreas	13.5	11.8	16.2	11.1	10.0	12.7
Bladder	13.3	6.8	23.8	24.6	11.2	42.9
Kidney	12.7	9.4	17.4	11.7	7.5	16.9
Leukemia	9.5	8.5	11.2	11.8	8.9	15.4
Esophagus	8.8	3.7	16.0	5.0	2.3	8.3
Larynx	7.6	2.7	14.6	5.6	2.0	10.1
Brain & Nervous	4.9	4.1	6.1	7.3	6.0	8.7
Thyroid	3.0	4.2	1.8	6.0	8.5	3.5
Melanoma	1.6	1.3	2.0	17.0	13.3	22.1
Mortality						
All Cancers (1)	247.2	185.0	348.2	184.2	152.3	229.6
Prostate (2)	73.7	--	73.7	26.1	--	26.1
Lung & Bronchus	59.5	31.2	102.2	56.1	42.3	74.7
Breast (3)	31.1	31.1	--	24.1	24.1	--
Colorectal	26.4	23.0	31.2	18.5	15.4	22.7
Pancreas	12.4	11.5	13.6	9.5	8.1	11.3
Stomach	11.2	6.8	17.5	4.0	2.9	5.7
Ovary (2)	8.9	8.9	--	8.5	8.5	--
Esophagus	7.2	4.1	11.5	3.8	1.7	6.4
Non-Hodgkin's	7.0	5.5	9.4	8.6	6.5	11.2
Leukemia	5.9	5.3	6.8	7.1	5.3	9.4
Bladder	5.5	4.3	7.5	4.4	2.1	7.7
Oral	5.0	2.3	8.7	3.6	1.8	5.7
Uterus (2)	4.0	4.0	--	1.4	1.4	--
Kidney	3.3	1.9	5.2	3.6	2.3	5.3
Melanoma	0.2	0.3	0.2	3.1	1.8	4.9

(1) Excludes non-melanoma skin cancer, ICD-9 173.

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

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

Trends in Incidence and Mortality of Most Common Cancers, 1981-1998

(Figures 9.1-9.2)

Figures 9.1 and 9.2 show the incidence rates for five cancers from 1981, when the registry began collecting data, until 1998, by race and sex. The five cancers presented are those with the highest age-adjusted incidence rates for non-whites and whites combined. They are shown for females and males and whites and non-whites, separately. The most striking finding from Figures 9.1 and 9.2 is their similarity. With some exceptions, the essential trends for the various cancer sites are the same for males and females and for whites and non-whites.

Females

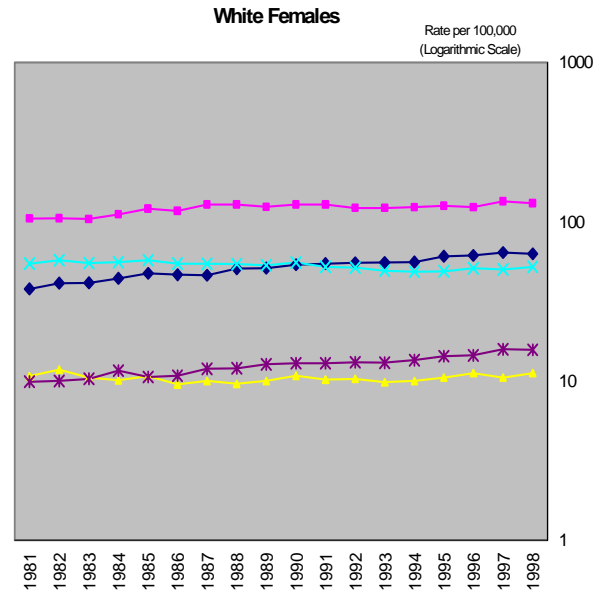
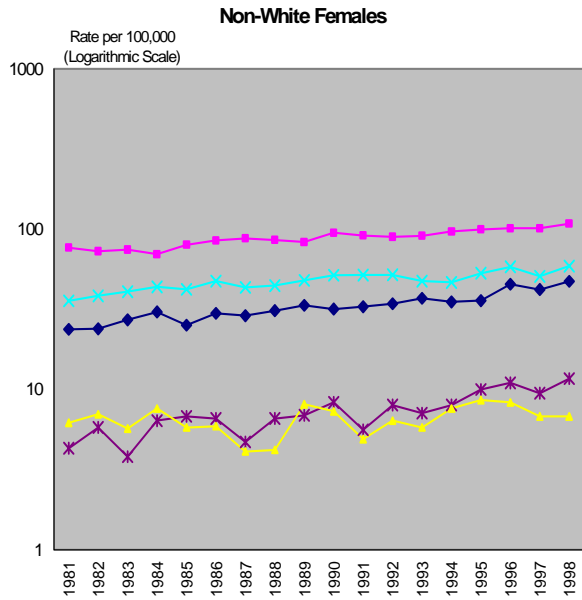
- Non-white females generally have lower cancer incidence rates than white females, with the exception of colorectal cancer. However, mortality rates of non-white females are higher than those of white females for breast and bladder cancers, in spite of low incidence, and show greater increases or smaller decreases over time than the rates for white females.
- Breast cancer incidence rates have been higher among white females than non-white females since 1981. The sharper increase in breast cancer incidence among non-whites may reflect better breast cancer screening efforts for this group in recent years.
- Mortality rates for breast cancer have been declining for whites but not for non-whites over the past 18 years. Further, breast cancer is diagnosed at earlier stages in white females than in non-white females in Florida, contributing to the difference in survival (data not shown).
- Lung and bronchial cancer rates have been rising for both white and non-white females. However, incidence rates have been consistently higher for white females, reflecting a higher rate of cigarette smoking in this group.
- Mortality rates for lung and bronchial cancer in all females are on the rise as well, but appear to be increasing somewhat faster for non-white females than for white females. The reasons for this are not clear.
- Incidence and mortality rates of colorectal cancer have been declining steadily among white females over the past two decades but have been rising for non-white females over the same period.
- Over the past 18 years, mortality rates for colorectal cancer have been higher among non-white females than among white females. The steady decline observed in mortality rates of colorectal cancer for white females is not observed in non-white females.
- Non-Hodgkin's lymphoma and bladder cancer incidence rates have remained higher among white females than non-white females.
- Mortality rates for non-Hodgkin's lymphoma have been rising for females of both race groups over the past decade and a half, with the rise being more pronounced for non-white females. In contrast, the mortality rate for bladder cancer has declined somewhat for white females but remained stable among non-whites.

Males

- There was a sharp increase in the incidence of prostate cancer in the early 1990s, with a peak in 1992 for both races. The increase is most likely due to more frequent use of the prostate specific antigen (PSA) test. The mortality rate has been decreasing slightly. Incidence remained higher among non-white males than among white males over this period.
- Lung and bronchial cancer incidence and mortality rates have been declining in males of both races over the past 18 years, suggesting a decrease in tobacco use.
- Colorectal cancer incidence and mortality rates have been rising among non-white males at the same time that they have been steadily declining in white males.
- Bladder cancer incidence rates have been much higher among white males than in non-white males. However, incidence rates of this cancer are declining gradually in white males while they show a slight increase for non-white males. The mortality rates show a decline for white males and are rather stable for non-white males.
- Incidence and mortality rates of non-Hodgkin's lymphoma have been rising over the past two decades in both non-white and white males. Though white males had slightly higher incidence rates of non-Hodgkin's lymphoma in the early 1980s, the gap has nearly closed in recent years.

Figure 9.1
Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites, Females by Race
Florida, 1981-1998

Incidence



Mortality

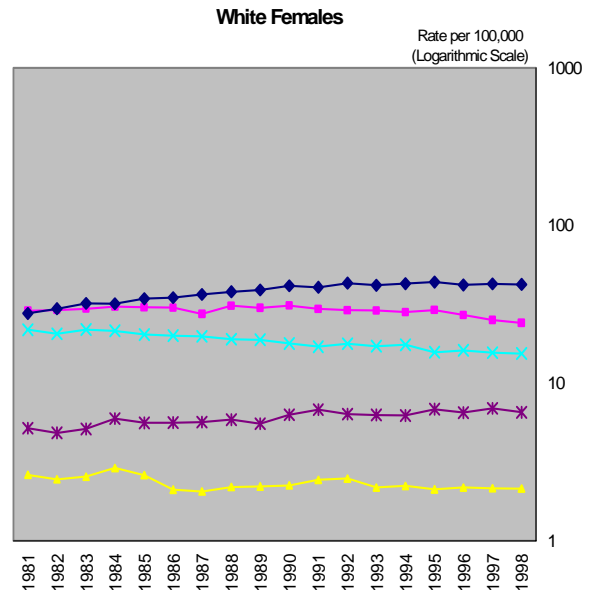
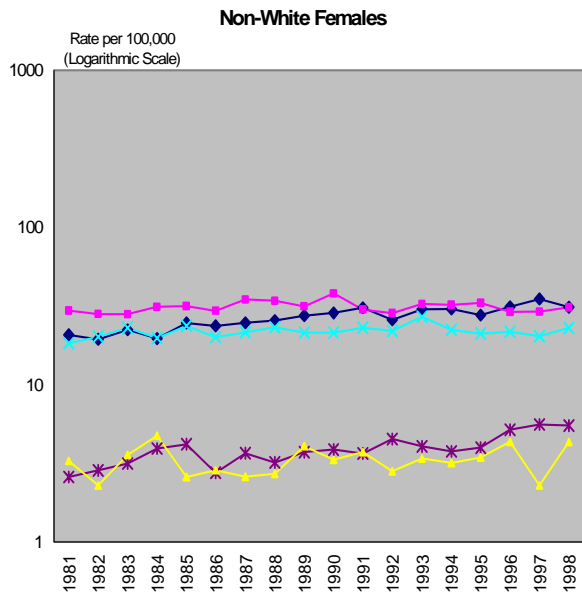
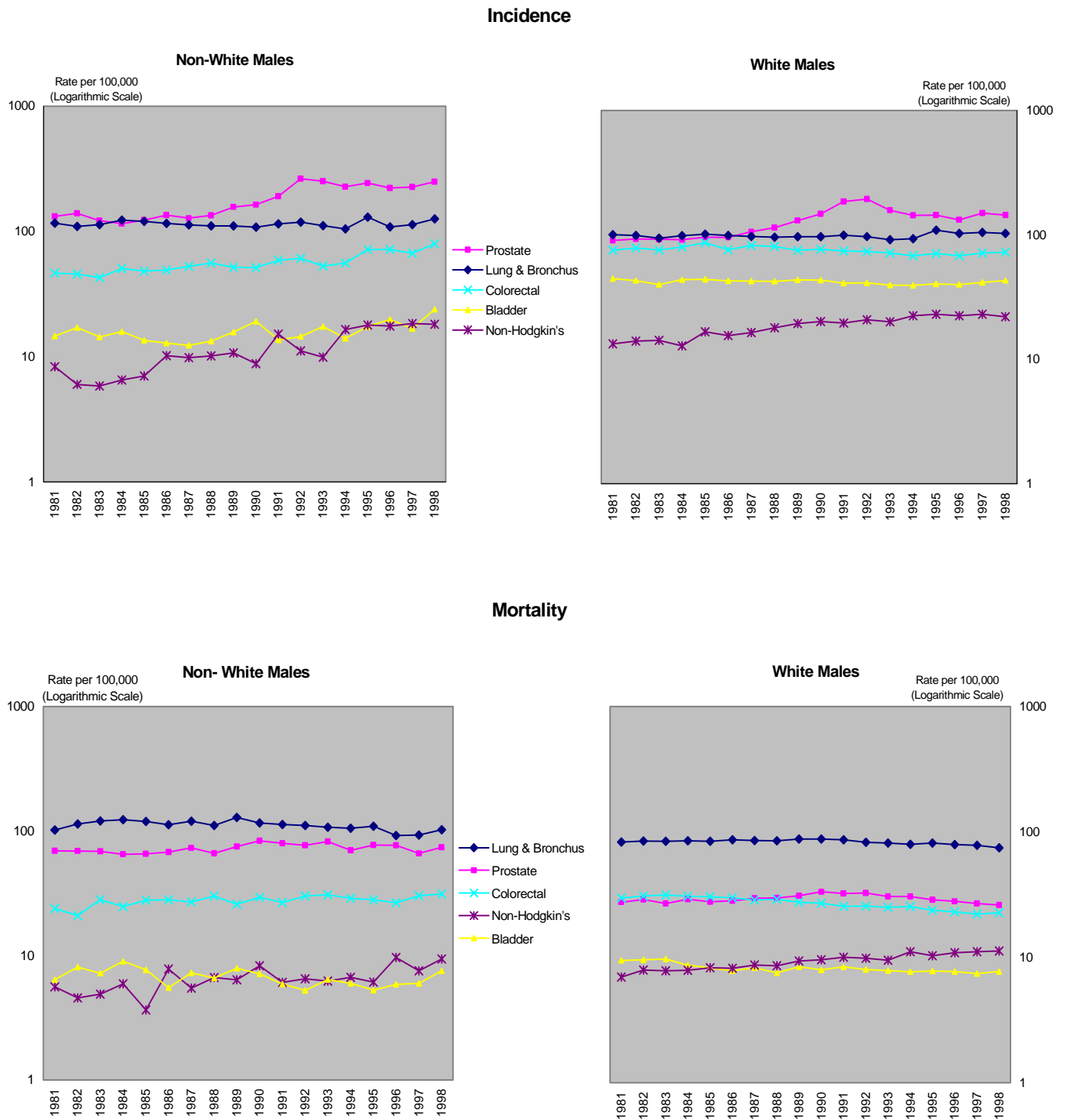


Figure 9.2
Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites, Males by Race
Florida, 1981-1998



Trends in Tobacco-Related Cancer Incidence and Mortality, 1981-1998
 (Figure 10)

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*). That means that if tobacco use were eliminated, an estimated 70% of deaths due to these cancers could be eliminated. In 1998, an estimated 16,705 deaths or 44.6% of all cancer deaths in Florida were attributable to tobacco.

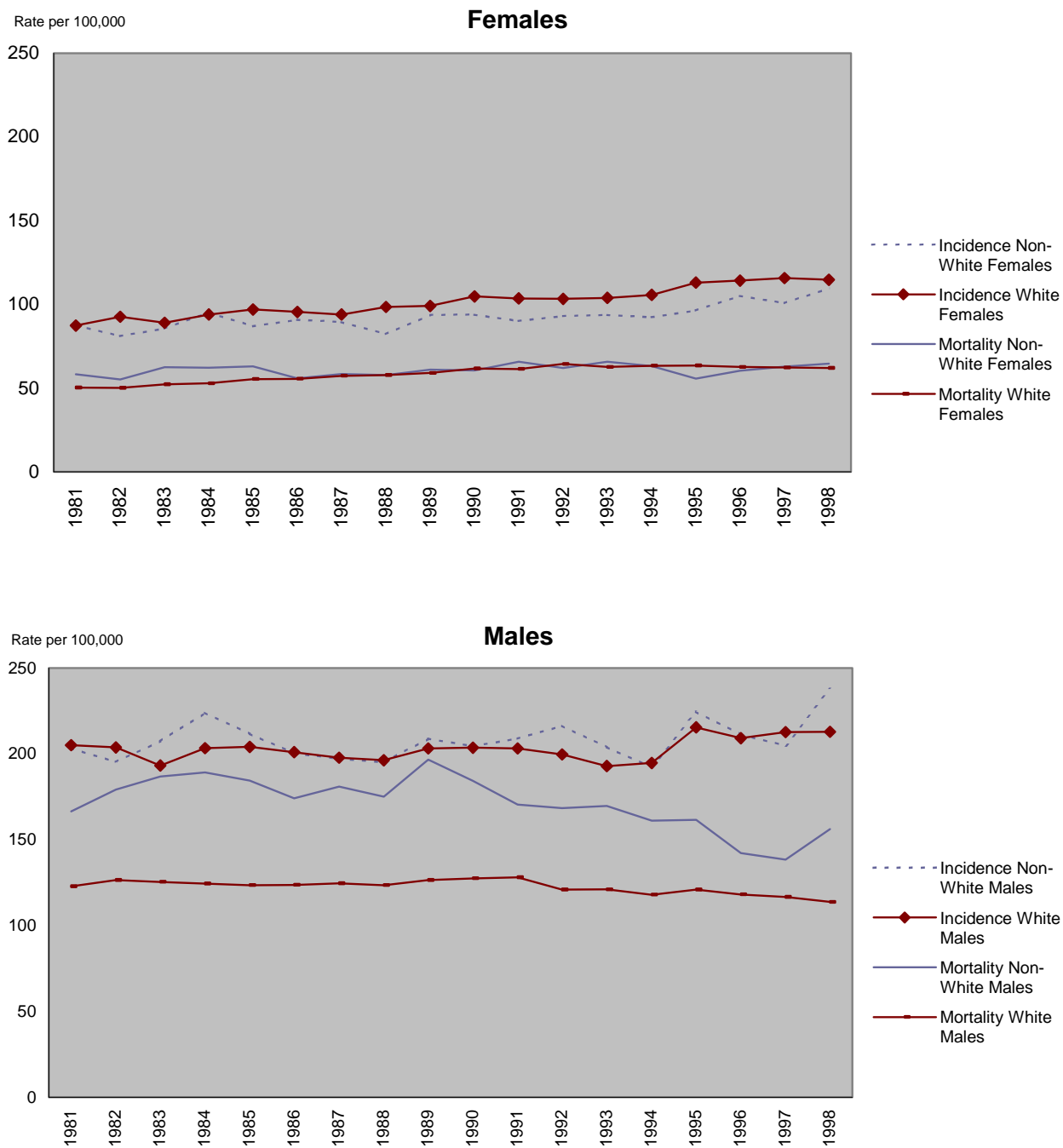
Trends in incidence and mortality rates for tobacco-related cancers have been largely similar for males and females and for whites and non-whites since 1981, as shown in Figure 10. However, tobacco-related incidence and mortality rates have been higher for males than for females and tobacco-related mortality rates, in particular, have been higher for non-white males than for white males.

- Tobacco-related cancer incidence rates have been declining since the middle 1990s for both males and females and for both non-whites and whites.
- White females have higher tobacco-related cancer incidence rates than non-white females, while white and non-white males have similar rates of tobacco related cancer incidence.
- Non-white and white females have had similar tobacco-related cancer mortality rates since 1986, while rates for non-white males have been substantially higher than for white males.
- Mortality rates of tobacco related cancer have declined dramatically in the 1990s for nonwhite 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 non-white 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 rates of tobacco-related cancers, while non-whites have generally had higher mortality rates despite their lower incidence rates. Thus, there appears to be at least some disadvantage in the stage at diagnosis or intervention for non-whites for tobacco-related cancers compared to whites.

Figure 10

Age-Adjusted Incidence and Mortality Rates for Tobacco-Related Cancers by Race and Sex, Florida 1981-1998



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

GLOSSARY

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

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

Incidence: The number of new cases of a particular type of cancer that are 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 were unduplicated to assure that incidence figures are not inflated by two or more entries for the same single 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-Adjusted Rate

The number of new cases of cancer or deaths from cancer per 100,000 population that would have occurred in the 2000 United States population if the age composition of the population were the same in the year for which data were presented as in the standard 2000 population. These rates are calculated using the direct method.

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.

Race:

White: all white residents of Florida

Non-white: Residents of Florida of all other races. About 89% of non-white residents in Florida are Black.

Both race classifications include Hispanics.

APPENDIX I : METHODOLOGY

Age-Specific Rates for Incidence and Mortality

For each age group (0 to 4, 5 to 9, 10 to 14,... 80 to 84, 85 and older), the *age specific incidence rate* is the number of new cases occurring in persons in the age range per 100,000 persons in that same age range in the population for that year. Similarly, the *age specific mortality rate* for each age group is the number of deaths among people in the age range per 100,000 persons in that same age range in the population for that year.

Age-Adjusted Rates for Incidence and Mortality

Age-Adjusted rates for cancer incidence and mortality have been standardized to the US 2000 standard million population. *Age-adjusted rates* for incidence and mortality are calculated by adding up the products of age-specific rates and the fraction of the 2000 U.S. population in that age range.

Average Annual Percent Change (AAPC) in Cancer Incidence and Mortality

The AAPC values were calculated for each site by using regression to fit a log linear model to age-adjusted rates for the period. The estimated AAPC is $100 \cdot (\exp b - 1)$ where b is the slope of the model $\ln(\text{rate}) = a + b \cdot (\text{year}) + e$, with a as a constant and e as the error term. The most recent 10 year data period, namely 1989-1998 was analyzed to give both a reliable and most current estimate for the AAPC. Confidence intervals at the 95% and 99% levels were calculated for the estimate and used to test for statistical significance.

Years of Potential Life Lost (YPLL)

For each death of Florida residents recorded in 1998, the age at death was subtracted from 75 for those who died at age 74 or less. These numbers were added up to give the total YPLL. Due to the increase in life expectancy, the Department of Health publications such as Vital Statistics and Data Analysis have changed the standard for YPLL calculations from 65 to 75 in the recent years. For consistency, the same standard was used in this publication.

Childhood Cancers

Cancer mortality data are classified using ICD-9 codes. Incidence, however is classified using a more refined code, the ICD-O version, 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-9 classification.

Cancer Sites Included in the “All Other” category

The “All Other” cancer site category includes the following types of cancer: small intestine, anus, liver, intrahepatic bile duct, gallbladder, other biliary, retroperitoneum, peritoneum, omentum, mesentery, other digestive organs, nasal cavity, middle ear, accessory sinuses, pleura, trachea, mediastinum and other respiratory organs, other non-epithelial skin, uterus NOS, vagina, vulva, other female genital organs, testis, eye/orbit, other endocrine including thymus, and ill-defined and unspecified sites.

Tobacco-related Cancers: includes 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
0-5	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, 1998

	Non-White	White
Female	1,221,116	6,524,379
Male	1,153,041	6,169,851
Total	2,374,157	12,694,230

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