1995 FLORIDA ANNUAL CANCER REPORT

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1995 FLORIDA ANNUAL CANCER REPORT

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INTRODUCTION AND ACKNOWLEDGMENTS

Design and Purpose

This report is the first Annual Cancer Report published by the State of Florida and provides extensive data on cancer incidence and mortality in Florida. The report is produced by the Bureau of Epidemiology in the Florida Department of Health and the Florida Cancer Data System (FCDS) at the Sylvester Comprehensive Cancer Center, University of Miami. The report provides detailed descriptive data on a number of different types of cancers for women, men and children who are residents of Florida. In addition, the data identify trends in cancer incidence and mortality over time and across regions of the state.

The purpose of this publication is to assist policymakers and health researchers in planning and conducting prevention programs and organizing care for people with cancer. This report also provides a summary of current cancer statistics in the state to individuals and groups interested in cancer, including the citizens of Florida, health care providers, the media and educators.

In future years, the report will be expanded to address topics and categories of analysis that reflect changes in cancer technologies, modes of care delivery, health behaviors and shifts in state and regional demographics. The Department of Health welcomes suggestions for further improvement or changes in the report that would make it more useful to its readers.

Data Sources

The cancer incidence data in this report are collected by the Florida Cancer Data System (FCDS). FCDS is a cancer registry administered by the Florida Department of Health (DOH) and is operated and maintained by the Sylvester Comprehensive Cancer Center at the University of Miami School of Medicine. FCDS has been in operation since January 1981 and collects cancer incidence from all hospitals in Florida. Free-standing ambulatory surgical centers, radiation therapy centers and pathology laboratories are required to report new cancer cases to FCDS as of July of 1997. These cases will be included in cancer incidence figures starting in 1998.

The mortality data are obtained from death certificates for residents of Florida, which are maintained by the Florida Department of Health's Office of Vital Statistics. Deaths from cancer are those for which cancer is determined to be the underlying cause of death based on information supplied on the death certificate. The 1995 population estimates were provided by the Florida Consensus Estimating Conference (Spring, 1996). Numbers of new cancers and deaths are actual, not estimates, for every year included in the monograph.

Additional data on cancer incidence and mortality in the state of Florida can be obtained by contacting FCDS website at: *http://fcds.med.miami.edu/welcome.htm* and can be found in the following publications: *The 1998-1999 Florida Cancer Plan* (Florida Cancer Control and Research Advisory Council, 1997), *The Florida Cancer Data System Monograph of Cancer in Florida, 1995* (Florida Department of Health and FCDS 1997) and the *Florida Vital Statistics Annual Report* series (Florida Department of Health, Office of Vital Statistics). In addition, data on cancer and cancer risk factors are distributed periodically by the Bureau of Epidemiology in its publication series.

Definitions and Excluded Sites

Classification of in situ cancers is not uniform across pathologists (Schottenfeld and Fraumeni 1996, p. 159), yielding less reliable reporting of in situ cancers than later-stage cancers. Therefore, cancer incidence figures exclude in situ cancers (only stage 1-9 cancers are included). The cancer sites for which incidence data are presented are classified according to the 10th *International Classification of Diseases for Oncology*, *Second Edition* (ICD-0-2). The *Ninth Revision of the International Classification of Diseases, 1975 Revision* (ICD-9) is used to classify cancer deaths. At the level of analysis used by FCDS and in this report, these two classification systems are consistent with one another and yield equivalent data for incidence and death categorization. Incidence data on non-melanoma skin cancer are not collected in Florida and are not included in this report. The "All Other Cancers" site category includes forms of cancer that occur infrequently such as small intestine, gallbladder, liver, Hodgkin's disease and testis.

Rules for coding multiple tumors in one individual as a single cancer or multiple primary cancers are specified in the *Surveillance, Epidemiology and End Results Program (SEER) Program Code Manual* (National Institutes of Health 1998). The site of origin, the diagnosis dates, histology, whether the neoplasm is in situ versus malignant and laterality are the major factors employed to determine how a group of tumors should be coded (single or multiple). For example, for cancers originating in some sites, a single lesion containing multiple histological types is considered as a single primary cancer. In contrast, multiple lesions of different histologies within a single site are coded as separated primary cancers even if they are identified simultaneously.

Cancer *incidence and mortality rates* are the number of new cases and deaths of cancer, respectively, that occur each year per 100,000 women or men. The a*ge-adjusted* incidence and mortality rates presented in this report are standardized to a uniform age distribution of the population (1970 U.S.). Using age-adjusted data allows one to compare cancer rates across years even if the age distribution changes over time.
A high age-adjusted incidence or death rate may reflect the occupational, environmental, dietary, tobacco or other exposures and behaviors that are more common in that population or genetic characteristics of the population that affect cancer risk.

The *deaths to cases* ratio in Table 1 is calculated by dividing the number of deaths in 1995 by the number of new cases of cancer diagnosed in 1995. As with all ratios, the numerator and denominators are not derived from the same pool of cases; the deaths:cases ratio does not account for the actual number of new cases of cancer that resulted in death (i.e., some years later). The deaths:cases ratio provides a broad indication of the prognosis or curablility for different types of cancer. A ratio approaching 1.0 for a particular type of cancer indicates a poor prognosis since all cases acquired lead to death from that cancer.

One section of the report presents cancer statistics for seven regions of the state. These seven regions include the Panhandle, Northeast, North Central, Tampa Bay, South Central, Palm Beach-Broward and Dade-Monroe. A map of Florida regions is on page 12. Table 2 and Appendix II present population figures for each of these regions.

Cancers included in FCDS incidence rates are those cancers diagnosed among Florida residents. Cancer incidence rates do not include cancers diagnosed before a person moves to Florida. FCDS incidence figures include most cancers diagnosed in Florida residents at facilities in other states because of interstate agreements to share cancer incidence information. Cases are tallied according to the year of initial diagnosis and persons with multiple primary cancers contribute multiple records to the data. Analyses indicate that the number of multiple primary cancers recorded varies across cancer sites, although the percentage of multiple primary cancers recorded is not more than 8 for any site**.**

Acknowledgments

The design of the 1995 Florida Annual Cancer Report was based on the *Canadian Cancer Statistics* reports published by the National Cancer Institute of Canada, Statistics Canada. Many of the tables and graphs in this publication are adaptations of those in the Canadian report. We wish to acknowledge two other publications that also influenced the design of the 1995 Annual Cancer Report: the Florida Vital Statistics Annual Report series and the Florida Morbidity Statistics publication. We thank Chris Waters and Marek Wysocki at the National Institute of Canada and Eric J. Feuer at the National Cancer Institute (Surveillance Epidemiology and End Results Program) who provided information about the statistical methods used in their reports. Several persons at the Florida Department of Health, Bureau of Epidemiology were also instrumental in producing this publication. Chuck Leech provided essential computer expertise and Davis Janowski gave us helpful formatting and layout ideas. Dr. Richard Hopkins and Dan Thompson edited several drafts of the report and provided managerial support and guidance. In addition, we acknowledge the helpful comments of Jill MacKinnon, Nancy Stein, Dr. Ed Trapido, and Lydia Voti, who reviewed the final draft of the report.

SUMMARY OF KEY FINDINGS

1995 Incidence and Mortality

- In 1995, 72,660 new cases of cancer and 36,669 deaths from cancer were reported in Florida. Forty-seven percent of new cancers were among women and 53% of cancers were in men. Forty-six percent of all cancer deaths occurred in women and 54% of deaths were among men.

- The most common diagnosis for women was breast cancer (29.6% of all cases of cancer among women) and for men was prostate cancer in (28.2% of all cases of cancer among men) in 1995. Cancer of the lung and bronchus was the second most common diagnosis among both women and men in 1995.

- Breast, lung and bronchial, and colorectal cancer combined accounted for nearly 58% of all new cancers in women in 1995. Prostate, lung and bronchial, and colorectal cancers together accounted for just over 60% of all new cancers in men.

- Cancer of the lung and bronchus were the leading causes of death from cancer for both women and men. Lung and bronchial cancer constituted 14.6 % of all new cases and 26.4% of all cancer deaths among women and 19.2% of all new cases and 33.6 % of cancer deaths among men in 1995.

- In 1995, the five cancer sites with high deaths:cases ratios were pancreas, myeloma, brain and nervous system, adult leukemia and lung and bronchus.

Regional Patterns of Cancer Incidence and Mortality

- The Palm Beach-Broward, Tampa Bay and South Central regions of the state had higher actual numbers of new cancers than the other regions of the state. In contrast, the Panhandle and Northeast regions had lower numbers than the state average.

- Age-adjusted incidence rates for women were higher than the state average in Palm Beach-Broward and in the Northeast, mostly because of high rates of breast cancer in these areas.
- Age-Adjusted incidence rates for women were lower than the state average in Dade-Monroe, where rates of lung and bronchial cancer were also much lower than in the state as a whole.

- For men, the age-adjusted incidence rates were highest in the North Central and Northeast regions. Prostate cancer was high in the North Central area, whereas cancer of the lung and bronchus was high in the Northeast, increasing overall incidence rates in these areas. The Panhandle and South Central regions had the lowest overall age-adjusted incidence rates in the state for men. In these regions rates of cancer for most sites were lower than in Florida as a whole.

- Women's age-adjusted mortality rates were highest in the Northeast where lung and bronchial cancer rates were substantially higher than the state average.

- Age-adjusted mortality rates were lowest for women in Dade-Monroe reflecting low mortality rates from cancer of the lung and bronchus relative to the other six regions.

- Age-adjusted mortality rates for men were highest in the Panhandle and in the Northeast, where the rates of lung cancer were substantially higher than in other regions.

Trends in Cancer Incidence and Mortality from 1981-1995

- The number of new cancers has risen over the past fifteen years for both men and women as the population has increased and aged, while age-adjusted incidence rates have remained steady for most causes.

- Trends in the total number of cancer deaths and age-adjusted death rates were similar to those found for incidence for men and women. The number of deaths has risen over time for both men and women while the age-adjusted death rates remained constant for most causes.

- For breast and lung cancers, trends in the mortality rates present a different picture than do trends in incidence rates. In 1981, the age-adjusted death rates for breast and lung cancers were similar and exceeded the rates for all other sites. Since that time, death rates from lung cancer have increased by a large margin among women, while death rates for breast cancer have not changed.

- Between 1981 and 1988, men's age-adjusted incidence rates of lung and bronchus cancer exceeded those of prostate cancer, the second most common site of cancer in men. However, in 1989, the incidence of prostate cancer surpassed that of lung cancer and increased dramatically for several years, peaking in 1992 and then falling again. This steep rise in the incidence of prostate cancer appears to be a result of increased use of the Prostate Specific Antigen test (PSA), a relatively new and more sensitive method of screening for prostate cancer.

- Lung cancer has remained the top cause of cancer deaths among men over the past 15 years, followed by prostate cancer. Although the age-adjusted incidence of lung cancer has declined since 1981, the age-adjusted rate of death has decreased only slightly over the past fifteen years reflecting the continued lack of effective treatment for this disease.

The Distribution of Cancer by Age and Sex

- Trends in the distribution of cancer by age and sex between 1981-1995 remained fairly stable.
- The burden of cancer incidence was greater for men than for women. Between the ages of 20-49 years however, the number of new cancers in women exceeded that in men, largely because of the number of breast cancers in women in this age group.
- Men develop more lung and bronchus and colorectal cancers than women, which appear to account for some of the male excess in the number of new cancers. A high rate of prostate cancer in men also contributes to the male excess in cancer incidence.
- There were more differences in cancer incidence between women and men across all age groups than in cancer mortality between 1981 and 1995.
- Between ages 0-19 there were minimal sex differences in cancer incidence and mortality, although the burden of cancer for boys was slightly higher than for girls.

Years of Potential Life Lost Before Age 75 Resulting from Cancer

- For people of all ages, cancer was the leading cause of years of potential life lost, followed by heart disease, HIV/AIDS and unintentional injuries.
- Men accounted for the majority of years of potential life lost for all causes of death and for deaths from cancer.
- The three causes of death that contributed most to years of potential life were heart disease, cancer, and HIV/AIDS for men and cancer, heart disease and unintentional injuries for women.
- Women lost 120,631 years of potential life due to cancer (28.2% of YPLL from all causes for females) and men lost 138,505 years (17.5% of YPLL from all cancers).
- For children aged 0-14 years, cancer ranked eighth as a contributor to YPLL. Cancer followed perinatal causes, congenital anomalies, heart disease, drowning and other injuries and homicide among causes of death affecting YPLL for this age group.

Childhood Cancers: 0-14 Years of Age, 1991-1995

- There were 1,919 new cases of childhood cancer in Florida between 1991 and 1995 (an average of 384 per year) and 389 deaths (an average of 78 per year).
- Leukemia was the most prominent type of cancer in children with 615 cases constituting 29% of all childhood cancers during the 5-year period.
- The majority of cancer deaths were due to leukemia with 135 deaths (33% of all cancer deaths in children)

CANCER INCIDENCE AND MORTALITY IN FLORIDA, 1995

Cancer is the second leading cause of death in Florida. The age-adjusted incidence rate for all cancers was 353 new cases per 100,000 population in 1995. Table 1 summarizes new cases of cancer and cancer deaths for different types of cancer. These data provide an indication of the burden of care and cost for the population and health care system related to different cancer sites. Measures reported in Table 1 include numbers of cases and deaths, and the deaths-to-cases-ratio. *Incidence* is the number of new cases of a particular type of cancer that occur each year. *Mortality* is the number of deaths resulting from cancer in a given site each year. Numbers of new cancers and deaths in this section are not rates and are not age-standardized.

During 1995, 72,660 new cases of cancer and 36,669 deaths from cancer were reported in Florida. More new cancers and cancer deaths occurred in men than in women. Of all new cancers in Florida, 47% (34,423) were among women and 53% (38,237) were of men. Forty-six percent of all cancer deaths (N=16,760) occurred in women and 54% of deaths (N=19,909) were among men (see Table 1 and Figure 1).

Breast cancer was the most common diagnosis among women (29.6% of all cases of cancer for women). In men, prostate cancer had the largest number of cases (28.2% of all cases among men). Cancer of the lung and bronchus was the second most common diagnosis for women (14.6% of new cancer cases) and for men (19.2% of new cancer cases) followed by colorectal cancer. Breast, lung and bronchial, and colorectal cancers accounted for nearly 58% of all new cancers in women. Prostate, lung and bronchial, and colorectal cancers accounted for just over 60% of all new cancers in men.

Cancer of the lung and bronchus were the leading causes of death from cancer for both women and men. In 1995, 26.4% of all cancer deaths among women and 33.6 % of cancer deaths among men were due to lung and bronchial cancer. Breast cancer accounted for 17% of cancer deaths in women and 12.7% of all cancer deaths in men were due to prostate cancer. Colorectal cancer was responsible for roughly 10% of all cancer deaths in women and men.

The deaths:cases ratios listed in Table 1 provide an indication of the prognosis or curability for different types of cancer. The deaths:cases ratio was 0.50 for all cancer sites for women and men, combined. The six cancer sites with the highest deaths:cases ratios (exceeding 0.85) were pancreas, myeloma, brain and nervous system, leukemia, lung and bronchus and esophagus for both sexes, combined (see Table 1). Cancers with deaths:cases ratios of 0.30 or less included cancers of the uterus, thyroid, prostate, breast, melanoma, cervix and bladder. Ratios of more than 1.0, for cancers of the pancreas and for myeloma, may represent missed cases by FCDS, differential in-migration of persons with these cancers, or detection of cases at the time of death.

Of cancers that occur in both men and women, men have higher rates of cancers overall than women; it appears that lung and colorectal cancers contribute most to the sex difference in cancer incidence. Of cancers found in both men and women the deaths:cases ratios were similar across sites except for esophageal cancer (deaths:cases ratio for women = 0.75 and for men = 0.95) and thyroid cancer (deaths:cases ratio for women = 0.09 and for men = 0.20).

Table 1.
New Cases and Deaths for Selected Cancer Sites by Sex, Florida, 1995

	New Cases			Deaths			Deaths:Cases Ratio		
Site	*Total*	Women	Men	*Total*	Women	Men	*Total*	Women	Men
All Cancers[1]	72,660	34,423	38,237	36,669	16,760	19,909	0.50	0.49	0.52
Lung & Bronchus	12,389	5,034	7,355	11,116	4,423	6,693	0.90	0.88	0.91
Prostate	10,769	-	10,769	2,535	-	2,535	0.24	-	0.24
Breast	10,322	10,193	129	2,853	2,832	21	0.28	0.28	0.16
Colorectal	9,654	4,657	4,997	3,703	1,795	1,908	0.38	0.39	0.38
Bladder	2,889	780	2,109	870	257	613	0.30	0.33	0.29
Non-Hodgkin's[2]	2,666	1,200	1,466	1,527	724	803	0.57	0.60	0.55
Oral	1,953	644	1,309	653	203	450	0.33	0.32	0.34
Body Of Uterus	1,881	1,881	-	165	165	-	0.09	0.09	-
Melanoma[3]	1,668	662	1,006	474	141	333	0.28	0.21	0.33
Pancreas	1,625	810	815	1,921	959	962	**1.18**	**1.18**	**1.18**
Kidney	1,625	637	988	688	241	447	0.42	0.38	0.45
Ovary	1,428	1,428	-	872	872	-	0.61	0.61	-
Leukemia	1,416	622	794	1,319	553	766	0.93	0.89	0.96
Stomach	1,366	497	869	913	345	568	0.67	0.69	0.65
Brain & Nervous	926	397	529	861	369	492	0.93	0.93	0.93
Larynx	929	171	758	306	61	245	0.33	0.36	0.32
Cervix	892	892	-	259	259	-	0.29	0.29	-
Esophagus	813	245	568	721	184	537	0.89	0.75	0.95
Myeloma	660	287	373	665	300	365	**1.01**	**1.05**	0.98
Thyroid	643	465	178	76	41	35	0.12	0.09	0.20
All Other[1]	6,146	2,921	3,225	4,172	2,036	2,136	0.68	0.70	0.66

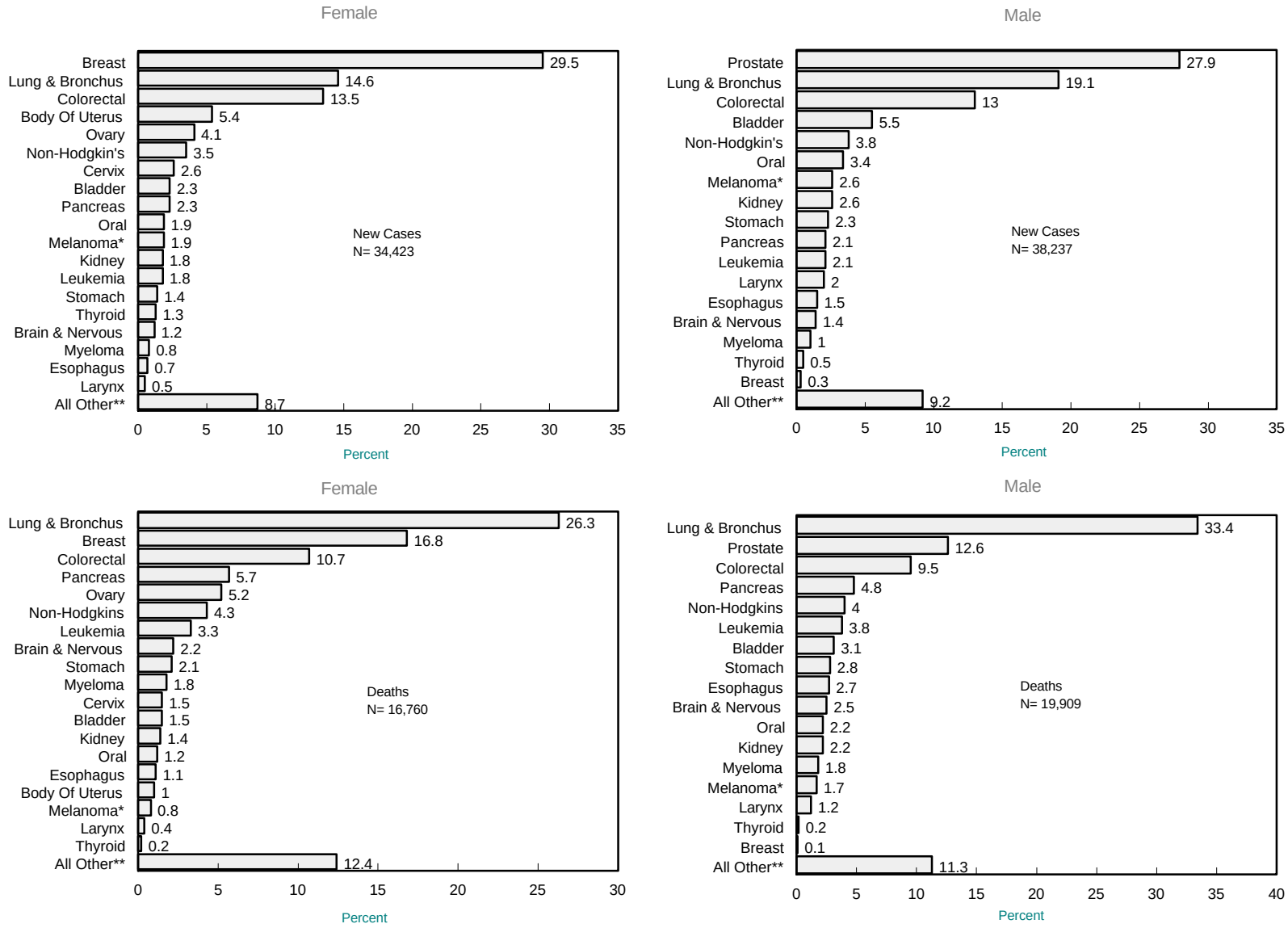
[1]Excludes non-melanoma skin cancer (ICD-9 173).

[2]"Non-Hodgkin's" refers throughout the report to Non-Hodgkin's Lymphoma.

[3]Melanoma in Whites only.

Figures in Bold Face: These ratios exceed 1.0 for cancers of the pancreas and myeloma because of incomplete incidence registration of cancer in these sites prior to death.

Figure 1.
Percent Distribution of New Cases and Deaths for Selected Cancer Sites: Florida, 1995



*Melanoma in whites only.
**Excludes non-melanoma skin cancer (ICD-9 173).

REGIONAL PATTERNS OF CANCER INCIDENCE AND MORTALITY

Table 2 presents the numbers of new cancers and cancer deaths in 1995 by sex for the state as a whole and for each of the seven state regions. Table 3 presents the number of new cases in 1995 for each major cancer site within the seven state regions. Table 5 presents regional data on the number of deaths for each cancer site by sex. Thus, these tables provide a sense of the burden of different types of cancer within each region in comparison to the state as a whole. Tables 4 and 6 list age-adjusted incidence and death rates by cancer site and region for women and men separately. Rates reported in Tables 4 and 6 are standardized to a uniform (1970, U.S.) age distribution of the population per 100,000 population, which allows broad comparison across regions of the state.

The number of new cases of cancer denoted in Table 2 are not age-adjusted. However, the table provides a measure of the cancer burden in different regions of the state. Cancer sites are listed by sex in order from highest to lowest number of new cases. The number of incident cases of cancer for women and men combined was highest in the Palm Beach-Broward (13,303), Tampa Bay (13,258) and South Central (12,550) regions of the state. The Florida Panhandle and Northeast regions, the two least populous regions, had the lowest number of cancer cases for women and men (6,005 and 6,940 new cases, respectively). Consistent with regional patterns in the burden of cancer incidence, the number of deaths from cancer for both sexes was highest in Tampa Bay (6,764), Palm Beach-Broward (6,621) and South Central (6,347). The number of deaths due to cancer was lowest in the Panhandle (3,354) and in the Northeast (3,475).

The data in Tables 3 - 6 indicate the degree to which specific cancer sites contribute to the burden of cancer within each region relative to the state as a whole. The rank of number of new cases for each cancer site (Table 3), was fairly consistent across regions but there were a few exceptions. Only cancer sites that ranked 3 places higher or lower than the state rank are noted in the text below.

For women, in the Northeast region leukemia was the 9th most common site of new cancers but it was 13th in the state, overall. In contrast, the number of cases of melanoma and stomach cancer was much lower in the Northeast than in any of the other regions. The rank of thyroid cancer for women was higher in the Palm Beach-Broward and Dade-Monroe regions than in the rest of the state (ranked 3 and 6 places higher than the overall state ranking, respectively). In addition, in the Dade-Monroe region, melanoma was ranked 6 places below the state as a whole.

Among men, incidence of melanoma was ranked 10th in Dade-Monroe in contrast to a rank of 7th in the state overall. Laryngeal cancer was the 7th most common cancer in the Panhandle and was 9th most common in the Dade-Monroe region but was ranked 12th in the state. In the Northeast, leukemia ranked 4 places higher than in the state as a whole.

Among women, the number of deaths from uterine cancer was ranked 10th in the Panhandle and was ranked 16th in the state. However, stomach cancer was ranked 12th in the Panhandle and was 9th in the state. Myeloma was ranked 14th in the Panhandle but was ranked 10th in the state. Kidney cancer deaths were ranked 10th in the South Central region versus 13th in the state as a whole. However, the burden of stomach and cervical cancer deaths were lower in this region than in Florida, overall. The burden of death from uterine cancer exceeded the state ranking in the Dade-Monroe region (ranked 12th in the region and 16th in the state), similar to the pattern found in the Panhandle for this type of cancer.

The burden of cancer deaths from bladder cancer for men was lower in the Panhandle (ranked 12th), the North Central and Dade-Monroe regions (10th) than in the state as a whole (ranked 7th most common). Deaths from oral cancer were ranked 8th in Dade-Monroe, but were ranked 11th in Florida, overall. The top 5 most commonly occurring types of cancer were virtually invariant in their ranking across all regions of the state for both sexes.

Table 4 indicates that, among women, age-adjusted cancer incidence rates for all types combined exceeded the overall state rate in the Palm Beach-Broward and Northeast regions (324 and 333 per 100,000 women respectively). Cancer rates in the North Central, Tampa Bay and South Central regions approximated the overall state rate. The Panhandle and Dade-Monroe regions had lower cancer rates in women than in all other regions and than in the state as a whole (277 and 290 per 100,000 women, respectively). Although rates for many cancer sites in the two high-incidence regions (Palm Beach-Broward and Northeast) only slightly exceeded the overall state rate, rates of breast cancer in these two regions were substantially higher than in other regions. The high rates of breast cancer in the Palm Beach-Broward and Northeast regions partly accounted for the overall excess of cancer in these regions.

The Dade-Monroe region's rate of cancer of the lung and bronchus (27 cases per 100,000 population in 1995) was much lower than the state value (43/100,000) or than the next lowest region, the Panhandle (41/100,000). The low incidence of lung and bronchus cancer in Dade-Monroe corresponds to the low smoking prevalence in Dade-Monroe relative to the rest of the state. Smoking prevalence was 17.7% in Dade-Monroe; the state average was 21.9% and prevalence ranged from 21.0 - 25.6 in other regions of the state according to the Behavioral Risk Factor Surveillance System (BRFSS) data for 1991-1995.

Note that the relatively low incidence of lung and bronchial cancer in both women and men in the Panhandle region is inconsistent with high smoking prevalence there (25.6% in 1991-1995). In several counties in the Panhandle, recorded deaths consistently exceeded incident cases in FCDS, suggesting that source incidence cases treated in Alabama were being missed by FCDS. Mortality rates for these cancers in the Panhandle region were above average for women and the highest in the state for men.

The picture of age-adjusted incidence rates for all cancers across regions was quite different for men than for women. Specifically, rates in the North Central and Northeast regions were higher than the overall state rate (430 and 427 per 100,000 men, respectively). Cancer rates in Tampa Bay (407/100,000), Palm Beach-Broward (403/100,000) and Dade-Monroe (399/100,000) were similar to those of the state overall (405/100,000). The two regions with the lowest age-adjusted incidence rates in the state were the Panhandle (392/100,000) and South Central Florida (386/100,000). For men, cancer of the lung and bronchus appears to account for much of the relatively high incidence rate for all cancer types combined in the North Central and Northeast regions. The incidence of lung and bronchus cancer in the Dade-Monroe and Palm Beach-Broward regions was much lower (66) than the state as a whole (78). Note that the incidence of prostate cancer in the Northeast region was lower than that in all other regions except in the South Central part of the state.

In summary, the data in Table 4 indicate that of cancers that occur in both men and women, men had higher incidence rates of cancers for most sites than women: in 1995 the age-adjusted annual incidence rate for all cancers in men exceeded that of the rate for women by about 100 per 100,000 individuals. Men had much higher incidence rates than women for lung and colorectal cancers, which appear to contribute most to the sex difference in cancer incidence. Lung and colorectal cancer deaths contribute substantially to cancer mortality rates overall and are preventable through reduction of tobacco use, dietary change, screening and prompt treatment for early colorectal cancer.

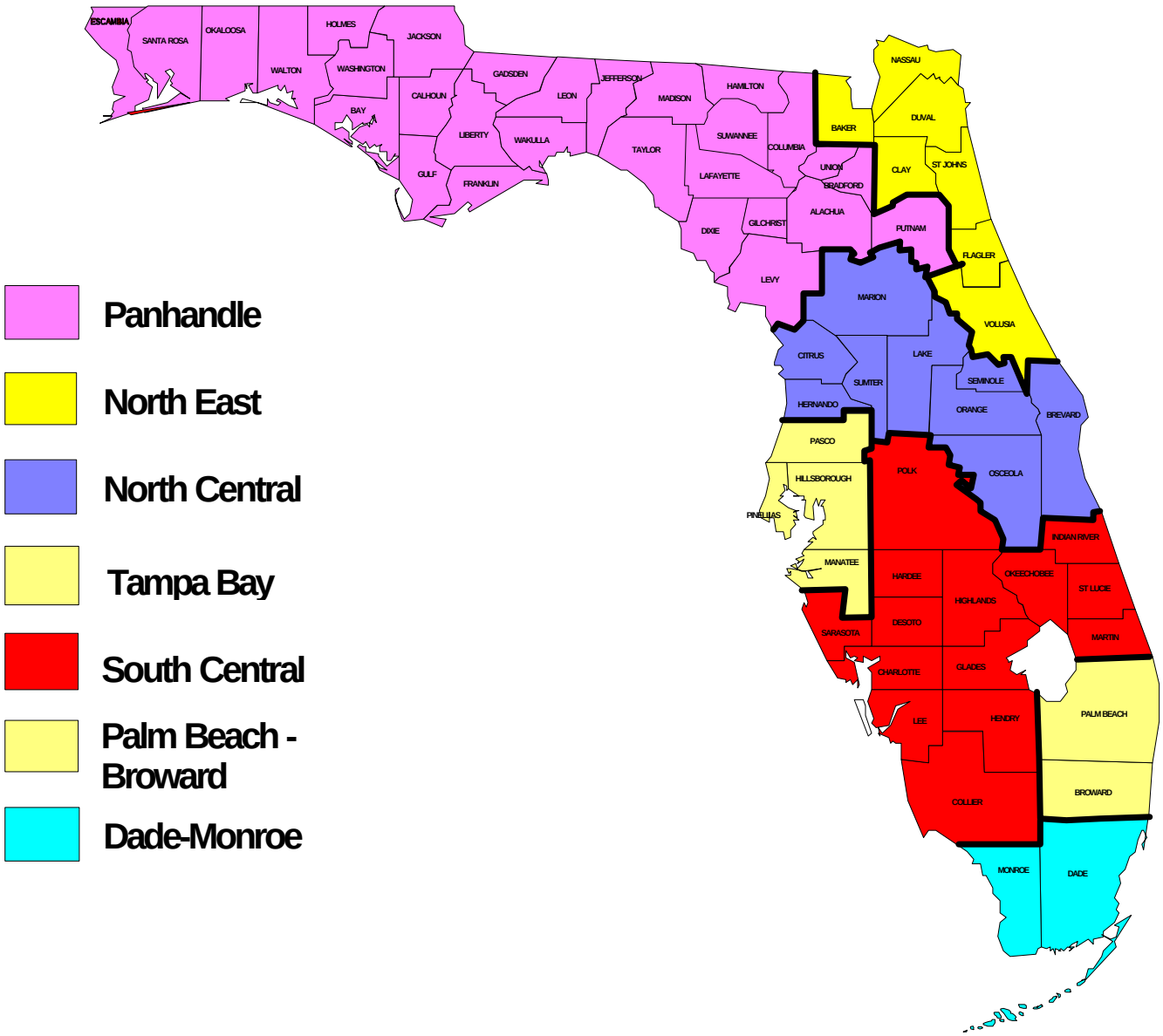
The age-adjusted mortality rates by cancer site across regions of Florida found in Table 6 show fairly limited regional variation for women. The age-adjusted mortality rates per 100,000 population from all types of cancer ranged from a high of 147 in the Northeast to a low of 121 in Dade-Monroe; the overall rate for Florida was 132. The risk of mortality from all types of cancer in the Northeast region was 21 % higher than in Dade-Monroe. Four regions of Florida exceeded the state age-adjusted mortality rate for all cancers among women: The Panhandle (137), Northeast (147), North Central (136) and Palm-Beach Broward (135). The Tampa Bay, South Central and Dade-Monroe regions had lower age-adjusted rates for all cancers than for the state as a whole.
For women, cancers of the lung and bronchus, breast and colon/rectum were the most prominent sites leading to cancer mortality in all regions of the state. Lung and bronchial cancer was the predominant

cause of cancer death in all regions *except* in Dade-Monroe, where breast cancer death rates exceeded those for cancers of the lung and bronchus (25/100,000 for breast and 22/100,000 for lung and bronchus). Further, the relatively low overall rate of cancer in Dade-Monroe as compared to all other regions reflects the relatively low rate of deaths from cancer of the lung and bronchus (22/100,000 versus a range of 36 to 43/100,000 in the other six regions). The mortality rate from breast cancer in Dade-Monroe was exactly the same as the state rate. Thus, breast cancer mortality exceeded lung cancer mortality in Dade-Monroe because the lung cancer death rate was low, not because the breast cancer death rate was high.

Among men, there was a modest difference in the risk of dying from cancers of all types across regions. Of the seven regions compared in this report, the Panhandle had the highest age-adjusted cancer death rate at 229/100,000 population and the Palm Beach-Broward region had the lowest mortality rate (183/100,00) for men -- a 25% higher risk of dying of cancer in the Panhandle than in Palm Beach-Broward. Lung and bronchial cancer accounted for the relatively high rate of cancer deaths overall in the Panhandle compared to all of the other six regions (90/100,000 in the Panhandle versus a range of 56/100,000 in Dade-Monroe to 83/100,000 in the Northeast). Again, deaths from cancer of the lung and bronchus were above the state average for women and were the highest in the state for men, consistent with high rates of smoking in the Panhandle. Conversely, Palm-Beach-Broward had low mortality rates from lung and bronchus, prostate and colorectal cancers compared to the state average for these sites.

As among women in Florida, the age-adjusted death rate from lung and bronchial cancer for men was lower in Dade-Monroe than in all other regions of the state. This region has the lowest smoking prevalence among the regions and the lowest incidence of lung and bronchus cancer: Smoking prevalence in Dade-Monroe was 17.7/100,000 and was 21.9/100,000 in Florida, with a range from 21.0/100,000 to 25.6/100,000 in the other six regions for persons age 35 and above (1996 Smoking Attributable Mortality Report, Florida Department of Health).

FLORIDA REGIONS, 1998



Note: Regional populations are listed in Appendix II.

Table 2.

Estimated Population, New Cases and Deaths for All Cancers by Region and Sex, Florida, 1995

	Population			New Cases[1]			Deaths[1]		
Region	*Total*	Women	Men	*Total*	Women	Men	*Total*	Women	Men
Florida	**14,209,530**	**7,325,137**	**6,884,393**	**72,660**	**34,423**	**38,237**	**36,669**	**16,760**	**19,909**
Panhandle	1,635,522	821,834	813,688	6,005	2,771	3,234	3,354	1,457	1,897
Northeast	1,453,041	743,258	709,783	6,940	3,388	3,552	3,475	1,625	1,850
North Central	2,338,061	1,189,882	1,148,179	11,731	5,312	6,425	5,829	2,607	3,222
Tampa Bay	2,315,168	1,212,507	1,102,661	13,258	6,299	6,958	6,764	3,082	3,682
South Central	2,028,027	1,047,958	980,069	12,550	5,805	6,754	6,347	2,738	3,609
Palm Beach-Broward	2,336,452	1,217,945	1,118,507	13,303	6,571	6,732	6,621	3,244	3,377
Dade-Monroe	2,103,257	1,091,752	1,011,505	8,802	4,277	4,582	4,279	2,007	2,272

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

Sources: Florida Cancer Data System and Office of Vital Statistics, Florida Department of Health.

Table 3.
New Cases For Major Cancer Sites by Sex, Florida and Regions, 1995

	New Cases							
	Florida	Panhandle	Northeast	N. Central	Tampa Bay	S. Central	Palm Beach -Broward	Dade-Monroe
Females								
All Cancers[1]	**34,423**	**2,771**	**3,388**	**5,312**	**6,299**	**5,805**	**6,571**	**4,277**
Breast	10,193	863	1,040	1,624	1,785	1,618	2,018	1,245
Lung & Bronchus	5,034	406	494	820	1,007	956	940	411
Colorectal	4,657	325	452	660	901	769	902	648
Corpus	1,881	156	185	261	351	335	342	251
Ovary	1,428	95	124	218	259	257	282	193
Non-Hodgkin's	1,200	88	115	188	214	199	228	168
Cervix	892	80	92	157	139	128	153	143
Pancreas	810	70	78	123	148	143	143	105
Bladder	780	48	73	115	136	155	149	104
Melanoma	662	63	54	95	125	128	145	52
Oral	644	60	67	83	111	120	130	73
Kidney	637	45	62	107	126	124	102	71
Leukemia	622	53	77	85	118	108	103	78
Stomach	497	32	37	85	92	68	105	78
Thyroid	465	38	57	49	62	53	115	91
Brain & Nervous	397	40	43	64	71	65	61	53
Myeloma	287	24	42	48	49	57	46	30
Esophagus	245	15	29	37	41	47	47	20
Larynx	171	17	12	28	36	34	31	13
Males								
All Cancers[1]	**38,237**	**3,234**	**3,552**	**6,425**	**6,958**	**6,754**	**6,732**	**4,582**
Prostate	10,769	949	922	1,963	1,946	1,765	1,916	1,308
Lung & Bronchus	7,355	716	760	1,252	1,369	1,410	1,088	760
Colorectal	4,997	339	489	805	967	907	905	585
Bladder	2,109	144	168	312	373	388	481	243
Non-Hodgkin's	1,466	92	141	245	248	226	312	217
Oral	1,309	126	133	201	231	211	191	201
Melanoma	1,006	62	84	148	186	197	239	90
Kidney	988	61	89	179	175	184	171	129
Stomach	869	69	64	132	168	165	140	131
Pancreas	815	80	71	124	147	151	152	90
Leukemia	794	65	93	129	143	154	128	82
Larynx	758	84	55	113	123	148	130	105
Esophagus	568	54	47	123	102	92	75	75
Brain & Nervous	529	64	59	79	98	82	78	69
Myeloma	373	37	56	49	60	74	56	41
Thyroid	178	16	16	27	27	22	49	21
Breast	129	8	14	22	15	30	24	16

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

Sources: Florida Cancer Data System
Office of Vital Statistics, Florida Department of Health
1995 population projections were provided by the Florida Consensus Estimating Conference, Spring 1996.

Table 4.
Age-Adjusted Incidence Rates for Major Cancer Sites by Sex, Florida and Regions, 1995

	Rates per 100,000							
	Florida	Panhandle	Northeast	N. Central	Tampa Bay	S. Central	Palm Beach -Broward	Dade-Monroe
Females								
All Cancers[1]	**305**	**277**	**333**	**306**	**304**	**301**	**324**	**290**
Breast	95	90	105	97	93	90	105	88
Lung & Bronchus	43	41	49	46	47	46	45	27
Colorectal	35	30	39	33	34	32	36	39
Corpus	17	15	19	16	18	17	17	18
Ovary	14	10	13	13	13	15	15	14
Non-Hodgkin's	10	8	11	10	10	9	11	11
Cervix	9	8	9	10	9	9	10	10
Pancreas	7	6	7	7	6	6	6	6
Oral	6	6	7	5	6	7	7	5
Bladder	6	4	7	6	6	6	6	6
Stomach	6	3	3	4	3	3	5	5
Kidney	6	5	6	7	6	6	5	5
Melanoma	6	6	6	6	8	8	8	3
Leukemia	5	6	8	5	6	7	6	6
Brain & Nervous	4	4	5	4	4	5	4	4
Myeloma	4	2	4	3	2	3	2	2
Thyroid	2	4	6	3	4	4	8	7
Esophagus	2	1	3	2	2	2	2	1
Larynx	2	2	1	2	2	2	2	1
Males								
All Cancers[1]	**405**	**392**	**427**	**430**	**407**	**386**	**403**	**399**
Prostate	112	115	109	131	111	95	115	116
Lung & Bronchus	78	87	93	84	79	79	66	66
Colorectal	50	41	58	51	53	49	49	50
Bladder	21	17	20	20	20	21	25	20
Non-Hodgkin's	16	11	17	17	15	15	19	18
Oral	15	16	17	14	16	14	13	18
Melanoma	11	7	10	10	12	12	15	8
Kidney	11	8	11	12	11	11	10	11
Leukemia	9	8	11	9	9	10	9	7
Stomach	9	8	7	9	9	9	8	11
Larynx	9	11	7	8	8	9	9	10
Pancreas	8	10	8	8	8	8	8	8
Brain & Nervous	6	8	8	6	7	6	5	6
Esophagus	6	7	6	8	6	5	4	7
Myeloma	4	4	7	3	3	4	3	4
Thyroid	2	2	2	2	2	2	3	2
Breast	1	1	2	2	1	2	1	1

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

Sources: Florida Cancer Data System
Office of Vital Statistics, Florida Department of Health

Table 5.
Deaths for Major Cancer Sites by Sex, Florida and Regions, 1995

	Deaths							
	Florida	Panhandle	Northeast	N. Central	Tampa Bay	S. Central	Palm Beach Broward	Dade-Monroe
Females								
All Cancers[1]	**16,760**	**1,457**	**1,625**	**2,607**	**3,082**	**2,738**	**3,244**	**2,007**
Lung & Bronchus	4,423	406	453	745	842	795	816	366
Breast	2,832	237	251	431	522	432	576	383
Colorectal	1,795	159	169	262	348	302	319	236
Pancreas	959	80	85	151	164	151	188	140
Ovary	872	69	89	130	159	146	184	95
Non-Hodgkin's	724	53	67	101	117	113	169	104
Leukemia	553	44	54	97	91	88	105	74
Brain & Nervous	369	35	27	50	79	69	70	39
Stomach	345	19	34	52	71	42	65	62
Myeloma	300	15	40	67	43	56	43	36
Cervix	259	27	24	47	39	31	52	39
Bladder	257	25	22	40	53	44	46	27
Kidney	241	18	25	35	53	47	41	22
Oral	203	24	23	25	38	31	46	16
Esophagus	184	11	20	26	34	36	34	23
Corpus	165	25	23	15	17	33	24	28
Melanoma	141	14	14	21	23	21	32	16
Larynx	61	8	5	8	12	11	13	4
Thyroid	41	1	4	7	7	7	8	7
Males								
All Cancers[1]	**19,909**	**1,897**	**1,850**	**3,222**	**3,682**	**3,609**	**3,377**	**2,272**
Lung & Bronchus	6,693	741	686	1,125	1,222	1,236	1,031	652
Prostate	2,535	224	216	365	436	482	482	330
Colorectal	1,908	152	153	354	385	323	314	227
Pancreas	962	82	78	145	179	176	188	114
Non-Hodgkin's	803	56	63	137	132	143	159	113
Leukemia	766	62	73	141	131	141	135	83
Bladder	613	37	58	81	131	130	117	59
Stomach	568	57	44	86	108	101	95	77
Esophagus	537	55	48	99	115	97	69	54
Brain & Nervous	492	50	51	81	86	83	75	66
Oral	450	49	41	58	97	72	63	70
Kidney	447	40	40	84	94	65	80	44
Myeloma	365	32	28	58	63	75	70	39
Melanoma	333	29	35	57	58	65	61	28
Larynx	245	23	24	33	41	43	41	40
Thyroid	35	3	2	2	8	4	12	4
Breast	21	1	2	4	3	3	6	2

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

Sources: Florida Cancer Data System
Office of Vital Statistics, Florida Department of Health

Table 6.
Age-Adjusted Mortality Rates for Major Cancer Sites by Sex, Florida and Regions, 1995

	Rates per 100,000							
	Florida	Panhandle	Northeast	N. Central	Tampa Bay	S. Central	Palm Beach -Broward	Dade-Monroe
Females								
All Cancers[1]	**132**	**137**	**147**	**136**	**129**	**125**	**135**	**121**
Lung & Bronchus	36	39	43	40	36	37	36	22
Breast	25	24	24	25	24	23	27	25
Colorectal	12	14	14	12	12	12	11	12
Ovary	7	7	8	7	7	7	8	6
Pancreas	7	7	7	7	6	6	7	8
Non-Hodgkin's	5	5	5	5	4	4	6	6
Leukemia	4	4	5	5	4	4	4	4
Brain & Nervous	3	4	3	3	4	4	3	3
Cervix	3	3	3	3	2	2	3	3
Stomach	3	2	3	3	3	2	2	4
Myeloma	2	1	3	3	2	2	2	2
Kidney	2	2	2	2	2	2	1	1
Oral	2	2	2	1	1	2	2	1
Bladder	2	2	1	2	2	2	1	1
Esophagus	1	1	2	1	1	2	1	1
Corpus	1	2	2	1	1	1	1	2
Melanoma	1	1	1	1	1	1	2	1
Larynx	1	1	1	0	1	1	1	0
Thyroid	0	0	0	0	0	0	0	0
Males								
All Cancers[1]	**200**	**229**	**218**	**207**	**202**	**193**	**183**	**190**
Lung & Bronchus	70	90	83	74	70	70	59	56
Prostate	22	27	23	21	19	21	21	25
Colorectal	19	18	18	22	20	17	17	19
Pancreas	10	10	9	9	10	10	10	10
Non-Hodgkin's	8	7	7	9	7	8	9	9
Leukemia	8	8	9	9	7	8	7	7
Stomach	6	7	5	6	6	5	5	7
Esophagus	6	7	6	7	7	5	4	5
Bladder	6	4	6	5	6	6	5	5
Brain & Nervous	5	6	6	6	6	5	4	6
Oral	5	6	5	4	6	4	4	6
Kidney	5	5	5	6	6	4	5	4
Myeloma	4	4	3	4	3	4	4	3
Melanoma	3	3	4	4	3	4	3	2
Larynx	3	3	3	3	2	3	3	3
Thyroid	0	0	0	0	0	0	1	0
Breast	0	0	0	0	0	0	0	0

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

Sources: Florida Cancer Data System
Office of Vital Statistics, Florida Department of Health

TRENDS IN CANCER INCIDENCE AND MORTALITY FROM 1981-1995

Figures 2.1 and 2.2 show the fifteen-year trends in the numbers of new cases and deaths and in age-adjusted incidence and mortality for all cancer sites combined. The number of new cases of cancer and cancer deaths among women has been rising steadily from 1981-1995, but the age-adjusted incidence and mortality rates were fairly constant across this same time period. This pattern indicates that while a woman's individual risk of developing or dying of cancer has not increased over the past 15 years, the burden of cancer care for the health care system has been rising steadily, in large part due to population growth in the state.

The number of new cancer cases among men rose annually from 1986-1991 and then peaked in 1992 followed by a slight decline from 1993-1995. The peak in cancer incidence was probably an artifact of the increased use of PSA screening for prostate cancer. Overall, the age-adjusted incidence rates of cancer in men were essentially the same in 1995 as in 1981, but the number of new cases of cancer among men has steadily grown over the past 15 years as the population has grown and aged. The age-adjusted rates of cancer in men were substantially higher and the number of new cases was slightly higher than those for women.

As with women, the number of deaths from cancer among men has been increasing over the past fifteen years, while the age-adjusted rates of cancer mortality have remained very steady. A man's individual risk of dying from cancer has not increased over the past decade and a half. However, the number of cancer deaths has grown, largely due to the expansion of the elderly population in Florida. Patterns of cancer mortality for men relative to women were similar to those for incidence. Both the absolute number of deaths and the age-adjusted rates were slightly higher in men than in women during the 15-year period examined.

Tables 7 and 8 present age-adjusted cancer incidence and mortality rates for women and men in Florida between 1981 and 1995 for the seven most frequently occurring types of cancer in Florida. Figures 3.1 - 4.2 portray graphically these same data. From 1981 to 1995 the age-adjusted incidence rates for all cancer sites in women increased slightly until 1990 and then declined gradually through 1995. Specifically, incidence rates per 100,000 women were 294.5 in 1981, rose to 324 in 1990 and then declined to 305.4 in 1995 (see Table 7). No single cancer site appears to account for the relatively high incidence rate in 1990. In order from highest to lowest incidence rates, the seven most frequently diagnosed cancers in women between 1981 and 1995 were of the breast, lung and bronchus, colon and rectum, uterus, ovary, non-Hodgkin's lymphoma and cervix. In 1995, cancers of the breast, lung and bronchus and colon/rectum combined constituted nearly 60% of the incidence rate for all cancer sites among women. Before 1982 breast cancer death rates in women exceeded lung cancer death rates.

The age-standardized incidence for breast cancer in women was about double the incidence rate for cancers of the lung and bronchus and colorectal cancer, the next most frequently diagnosed cancers. Breast cancer alone accounted for 30% of total cancer incidence. Incidence rates of breast cancer peaked in the late 1980s and then declined slightly between 1989 and 1995. The slight decline during this period suggests that a greater proportion of breast cancers are being diagnosed in the outpatient setting and thus, are not reported to FCDS. Incidence rates for uterine, ovarian and cervical cancers remained fairly stable over the past 15 years (see Table 7 and Figure 3.1).

Between 1981 and 1995, age-standardized cancer incidence rates per 100,000 men for all cancer sites (Figure 4.1) were lowest in 1983 (377.6), peaked in 1991 and 1992 (452.6 and 456.7 respectively) and declined markedly in 1993-1995, returning to levels approximating those in 1988 (401.0). Apparent increases in incidence rates for prostate cancer during 1991 and 1992 seem to underlie the dramatic increase in incidence for all cancers during those years (see Table 8).

In order from highest to lowest incidence rates in 1995, the seven sites listed in Table 8 are prostate, lung and bronchus, colorectal, bladder, non-Hodgkin's, melanoma and stomach. In 1995, cancers of the prostate, lung and bronchus and colon/rectum combined accounted for 59% of total cancer incidence in men.

Among men, age-standardized incidence rates for prostate cancer were higher than for any other cancer site, followed by cancers of the lung and bronchus, colorectal, bladder, stomach, non-Hodgkin's lymphoma and melanoma. Incidence rates of non-Hodgkin's lymphoma increased steadily and prostate cancer rates increased dramatically over the past 15 years. The incidence of prostate cancer reached an apex in 1992 (149.8/100,000) and then declined steadily until 1995 (112.3/100,000). The temporary, steep increase in prostate cancer incidence in the early 1990s as well as the steady increase in these rates over the 15 years examined are likely artifacts of more frequent screening with the digital rectal exam and the PSA.

The subsequent decline in the incidence of prostate cancer may reflect lower screening rates because of increasing concern in the medical community that the benefits of screening for prostate cancer (lower death rates and better quality of life) may not exceed the personal and financial costs (Coley, Barry, Fleming and Mulley 1997, Collins and Barry 1996). (See Table 8 and Figure 4.1). Incidence rates for lung and bronchus, colorectal, and bladder cancer declined fairly steadily. Stomach cancer rates declined slightly and the incidence of melanoma remained stable between 1981 and 1995.

The cancer sites with the greatest fluctuations in incidence over time (including lung, breast, bladder and colorectal cancers) were also the most commonly occurring types of cancer. Trends in these forms of cancer can be explained in light of changes in known risk factors amenable to prevention and in screening. Specifically, lung cancer in men has decreased because of declining smoking rates among men, whereas lung cancer has been on the rise among women as a consequence of the growing number of women who smoke cigarettes, especially since the 1950s. The dramatic decline in bladder cancer over the last 15 years among men is probably due to increased occupational safety measures that reduce occupational exposure to carcinogens for bladder cancer and to a decline in smoking among men (Anton-Culver, Lee-Feldstein and Taylor 1992, Lamm and Torti 1996).

Colorectal cancer has been declining steadily for both men and women. Risk factors associated with colorectal cancer include low levels of exercise, obesity and high-fat, low-fiber diets. Thus, increased physical activity and healthier diets might be tied to the steady reduction in colorectal cancer. The sharp increases in breast cancer from 1987 - 1988 and in prostate cancer between 1990 and 1991 likely reflect more pervasive screening for these types of cancers. Both increases may be accounted for largely by detection of local stage cancers (data not shown here).

The age-adjusted mortality rates for the seven cancer sites listed among women were, in order from highest rates to lowest, breast, lung and bronchus, colorectal, ovary, non-Hodgkin's, cervix, and uterus (see Table 7 and Figure 3.2). The three cancer sites that accounted for the highest proportion of deaths for women in 1995 were: cancers of the lung and bronchus (27%), breast (19%) and colorectal (9%), which together accounted for 55% of total cancer mortality rates. Although breast cancer far exceeded lung cancer in *incidence rates*, lung cancer death rates were substantially higher than death rates from breast cancer. In addition, lung cancer mortality rates increased dramatically over the past 15 years, whereas deaths from breast cancer remained steady over this time period.

Again, women's increased rates of smoking have led to the rising incidence of lung cancer. The prognosis for survival from lung cancer is poor relative to that from breast cancer. Hence, death rates from lung cancer in 1995 were high and grew rapidly over the past decade-and-a-half, outpacing deaths from breast cancer (the deaths:cases ratio for lung cancer was 0.90 and for breast cancer was 0.24; see Table 1).

The age-adjusted mortality rates for the seven cancer sites listed among men were, in order from highest rates to lowest, lung and bronchus, prostate, colorectal, non-Hodgkin's, stomach, bladder, and melanoma

(see Table 8 and Figure 4.2). The three sites with the highest mortality rates among men -- lung and bronchus (35%), prostate (11%) and colorectal (9%) cancers -- were the three top contributors to cancer deaths and account for 55% of the total cancer death rate. Deaths from prostate cancer and melanoma increased between 1981 and 1990, and then declined slightly through 1995. Mortality rates for lung, colorectal, bladder and stomach cancers decreased notably over the past fifteen years, paralleling declines in incidence rates for those cancers. However, lung cancer has remained the top cause of cancer deaths among men over the past 15 years, followed by prostate cancer. Non-Hodgkin's lymphoma was the only cancer of the seven cancers selected here for which death rates increased since 1981; rates of non-Hodgkin's lymphoma increased rather substantially (from 5.4 in 1981 to 8.1 per 100,000 men in 1995). The increasing death rates from non-Hodgkin's lymphoma during this period reflect steady increases in incidence rates of this form of cancer.

The average annual percent change in age-adjusted incidence rates was the rate of change in the age-adjusted rates of cancer each year, on average, from 1986 through 1995 (see Table 9 and Figure 5). The average annual percent change was calculated for a 10-year period, which is long enough to show clear trends but is short enough to be associated with current issues in cancer diagnosis and treatment. "Significant" changes are changes in the rates that are not likely to have occurred by chance. Significance of an annual percent change depends, in part, on the initial values of the age-adjusted rates. For example, in the case of stomach cancer incidence rates, the annual percent change was -1.0 for both women and men. However, this change was significant for women but not for men because the age-adjusted rate for men was nearly double the rate for women. Therefore, the same percent change for men as for women did not significantly effect the larger rates for men.

Among women, there was no significant average annual percent change for all cancers combined in the age-adjusted rates of cancer incidence and mortality. For men, there was a non-significant (1.0%) annual increase in the incidence of all cancers for men between 1986 and 1995, but there was no change in mortality over this period (Table 9).

Tables 7, 8 and 9 all depict whether certain types of cancer incidence and mortality rates increase, decrease or remain unchanged. However, the time frame examined is different for Table 9 compared to Tables 7 and 8, so there are some minor differences between these tables in broader patterns of change. For example, although Table 8 reveals an increase in melanoma from 1981-1990 and a slight decrease from then through 1995, Table 9 indicates that melanoma rates did not change from 1986-1995. Thus, although both tables indicate that rates of melanoma were fairly stable over relatively long time periods, Table 8 spans a longer period of time and captures more variation (increases and decreases) within shorter periods.

Among the age-adjusted rates for the 20 selected sites in Table 9, the incidence and mortality rates of colorectal and stomach cancer declined for women and men between 1986 and 1995. The average annual percentage reduction in colorectal cancer incidence and mortality was significant (-2.0% for women and men, for incidence and mortality). Stomach cancer incidence declined an average of 1.0% per year for women and men and mortality from this form of cancer was reduced by 3.0% per year for both sexes. These changes were significant for women's incidence and for mortality for both sexes. There was a significant increase in non-Hodgkin's lymphoma during 1986-1995 for both incidence and mortality and for both sexes; the annual increase in incidence for women was 1.0% and for men was 3.0%, while the increase for mortality was 2.0% for both sexes.

The incidence of bladder cancer declined significantly for both men and women (-3.9% and -2.0% per year, respectively) but there were no changes in mortality from bladder cancer. Between 1986 and 1995, the significant decline in the age-adjusted incidence for bladder cancer probably resulted from more bladder cancers being diagnosed in outpatient settings. Although there were no significant changes in the incidence of brain cancer between 1986 and 1995 for women (1.0) or men (0.0), the death rate from this form of cancer increased significantly for both women (3.0% per year) and men (2.0% per year).

Incidence and mortality rates of cancer of the lung and bronchus declined significantly for men over the period examined (-1.0%), which is consistent with lower rates of smoking among men, beginning in the 1970s. Unfortunately, the incidence and death rates from lung and bronchus cancer increased significantly for women (1.0% and 2.0%, respectively), consistent with increased rates of cigarette smoking among women. There were no significant changes in the incidence or mortality rates for either sex for kidney and pancreatic cancer.

Women's incidence and mortality rates for the following sites did not change significantly between 1986 and 1995: body of the uterus, breast, ovary, esophagus, larynx, leukemia, kidney, pancreas and myeloma. The incidence rate of cervical and oral cancers and melanoma decreased significantly in women but mortality rates from these cancer types were unchanged. Incidence of thyroid cancer increased significantly (3.5% per year) for women, but mortality from this type of cancer did not change significantly.

The following section highlights general trends in incidence and mortality for the 20 sites examined in Table 9 and Figure 5 (w = in women, m = in men, b = in both sexes):

- **Cancers for which incidence and mortality rates remained unchanged** (no significant decrease or increase): kidney (b), melanoma (b), pancreas (b), uterine (w), breast (w), ovarian (w), esophageal (w), laryngeal (w), and oral (m).

- **Cancers for which both incidence and mortality decreased significantly**: colorectal (b), stomach (w), lung and bronchus (m).

- **Cancers for which both incidence and mortality increased significantly:** lung and bronchus (w) and non-Hodgkin's (b).

- **Cancers for which incidence rates remained unchanged or decreased and mortality increased significantly:** brain (b), esophageal (m) myeloma (m), and thyroid (m). The gap between mortality and incidence for these cancers might be associated with later screening, leading to diagnosis at later stages of cancer, less efficacious treatment for these cancers than for other types, or a lag time between the onset of cancer and death.

- **There were no cancers for which incidence rates remained unchanged or increased and mortality decreased significantly.**

Figure 2.1
New Cases and Age-Adjusted Incidence Rates for All Cancers, Florida: 1981-1995

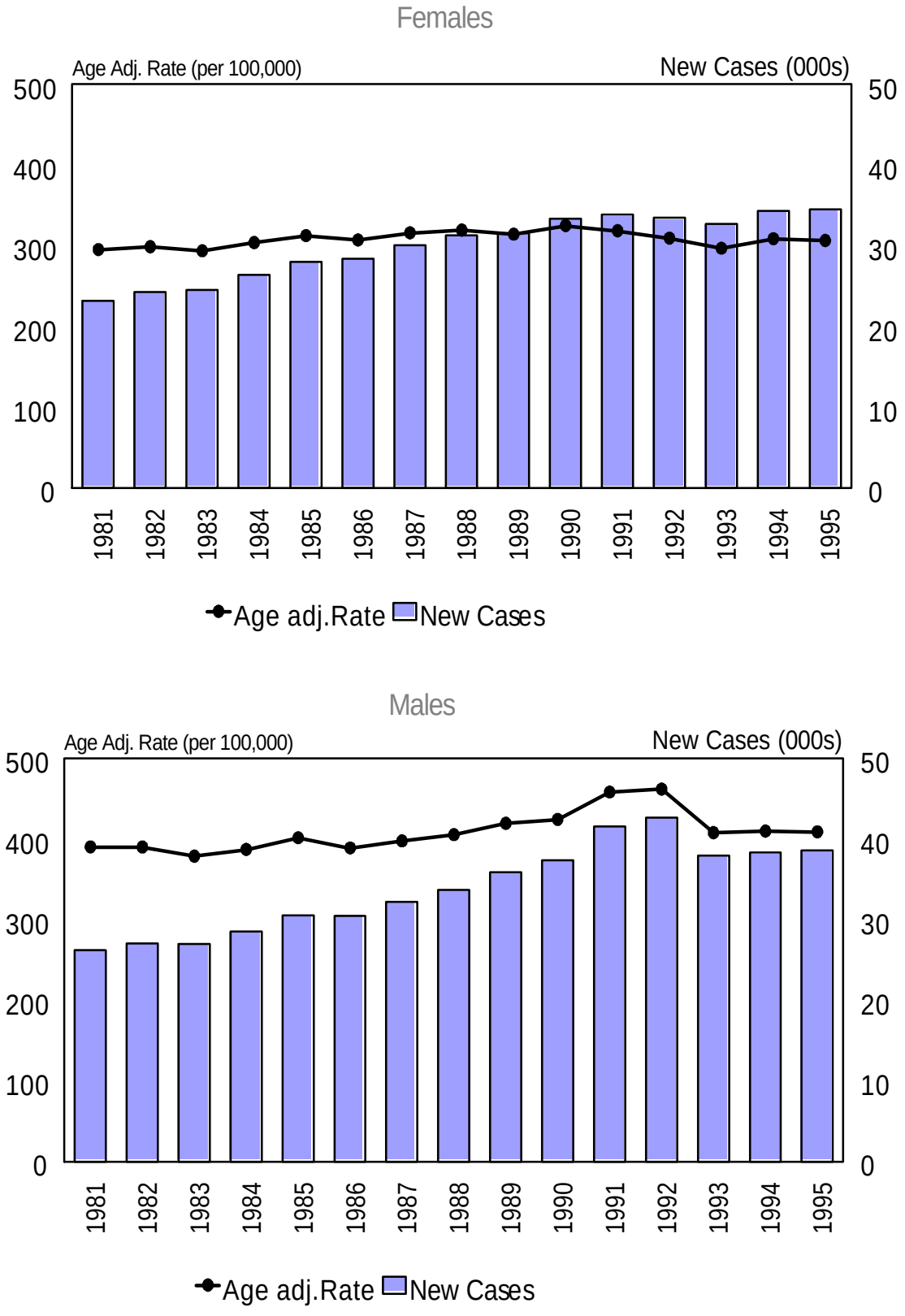
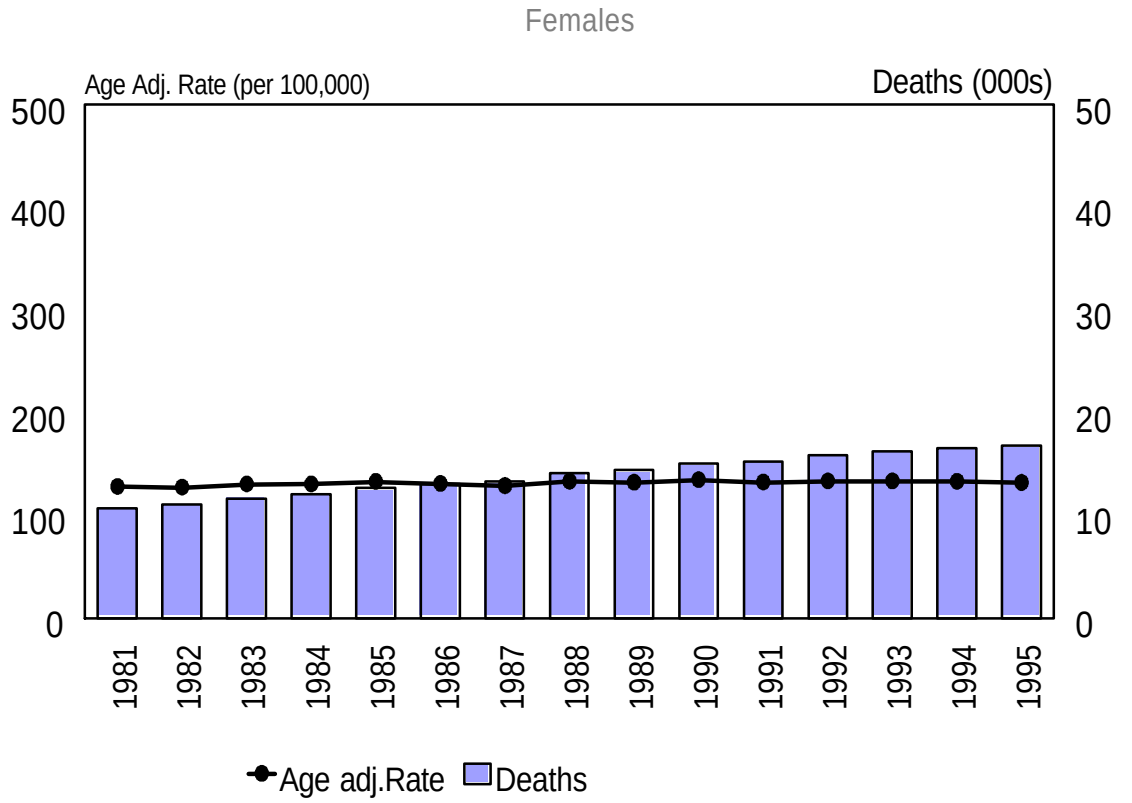


Figure 2.2
Deaths and Age-Adjusted Mortality Rates for All Cancers, Florida 1981-1995



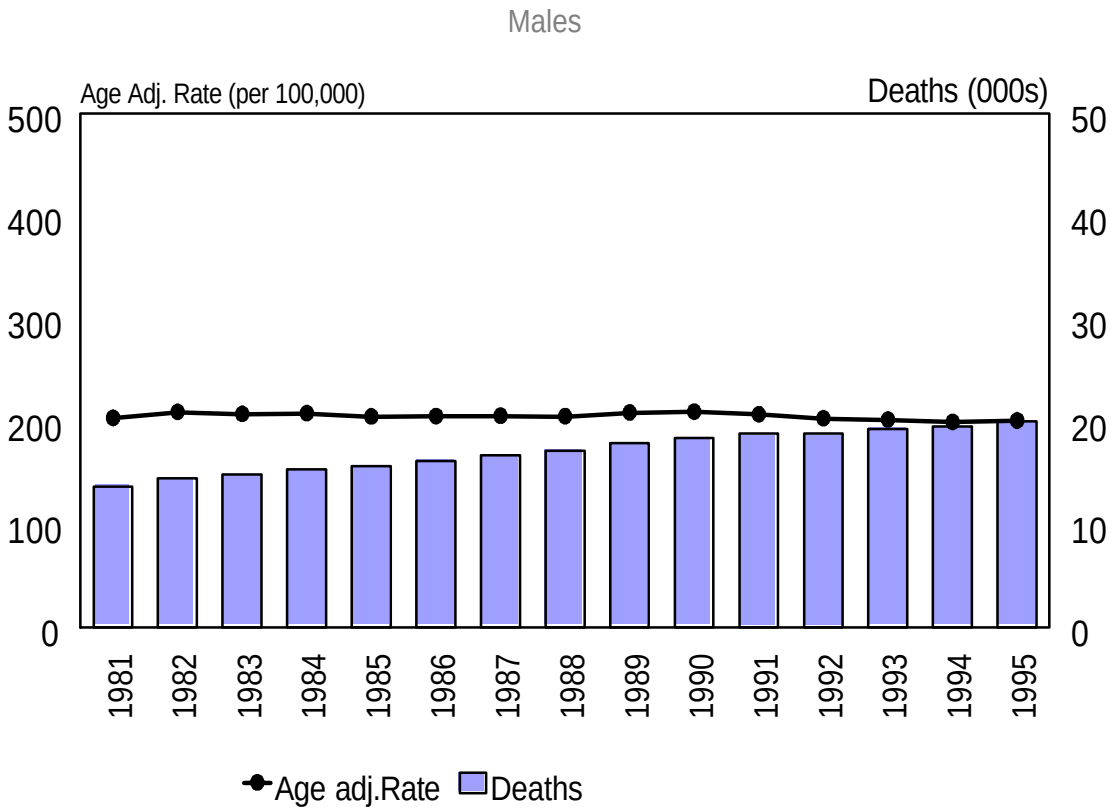


Figure 3.1
Age-Adjusted Incidence Rates for Selected Cancer Sites, Florida, 1981-1995

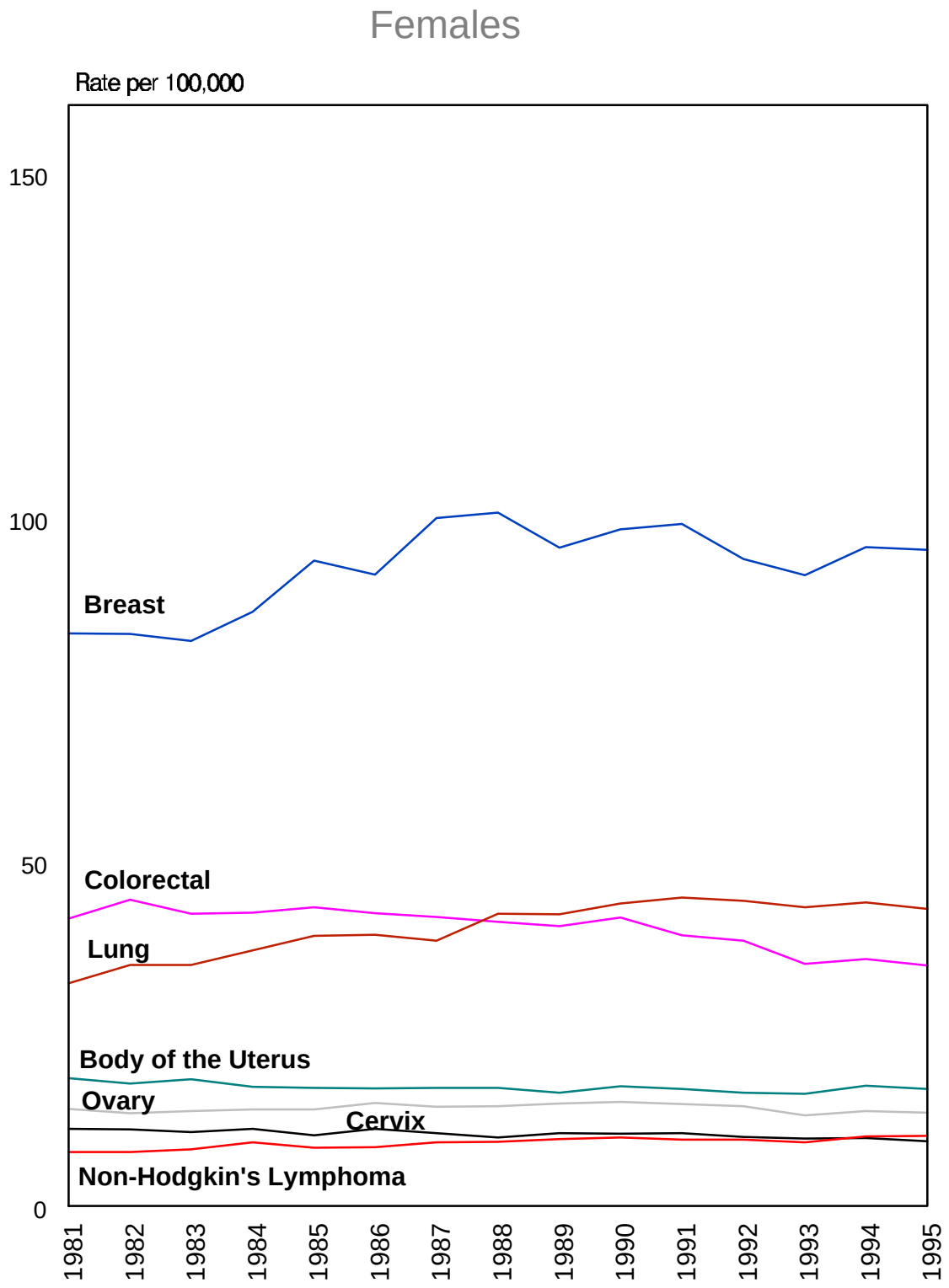


Figure 3.2
Age-Adjusted Mortality Rates for Selected Cancer Sites, Florida, 1981-1995

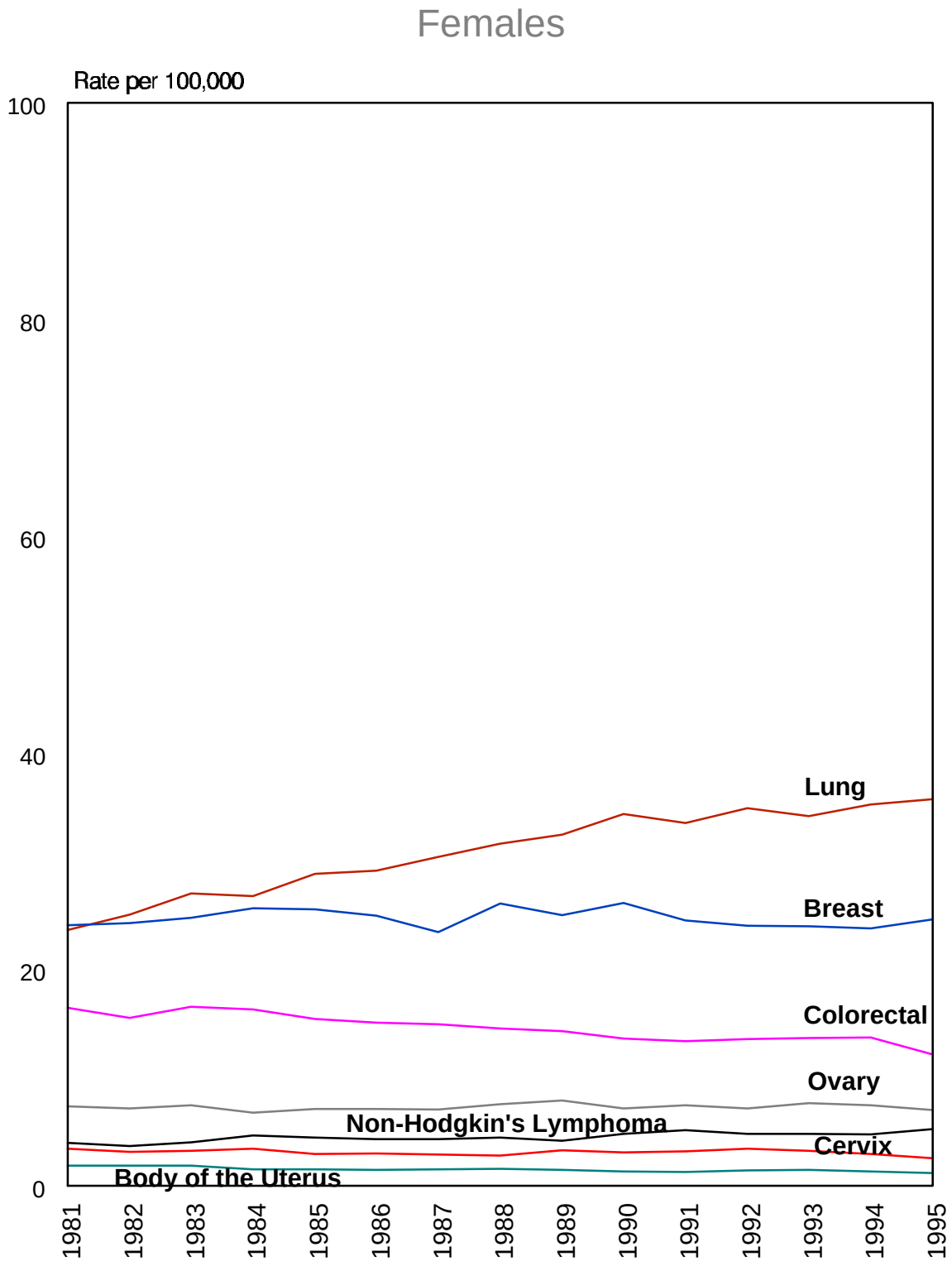


Figure 4.1
Age-Adjusted Incidence Rates for Selected Cancer Sites, Florida, 1981-1995

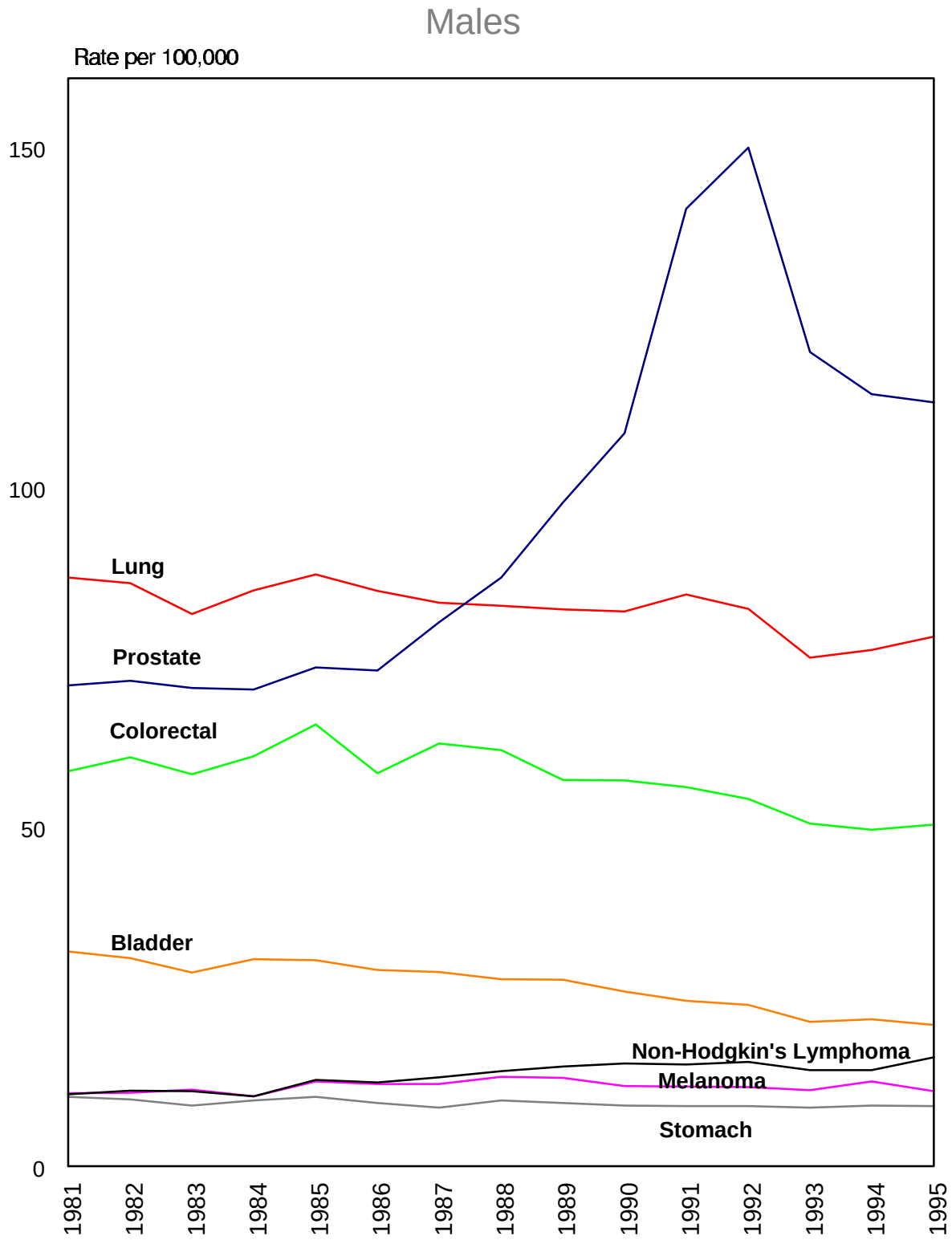
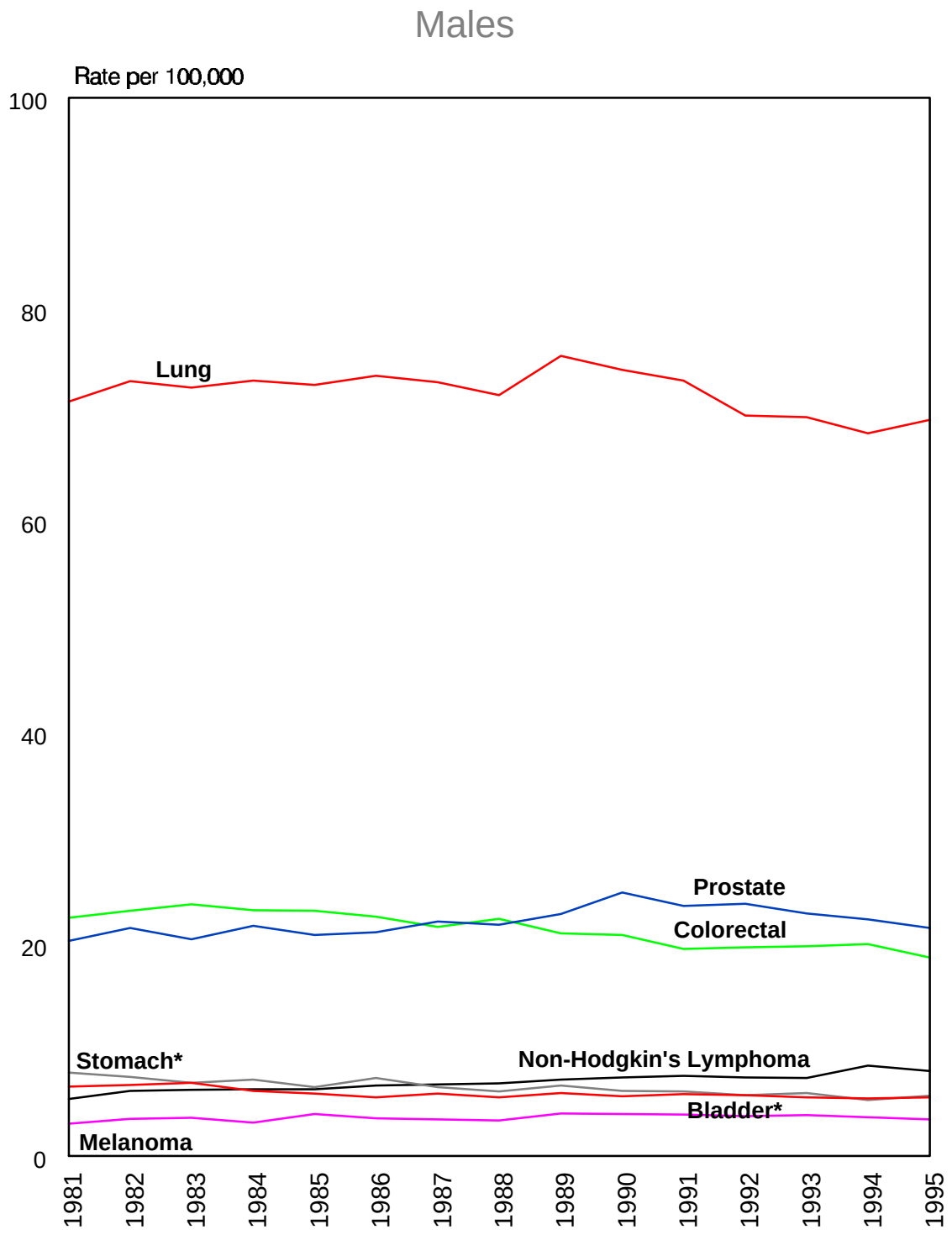


Figure 4.2
Age-Adjusted Mortality Rates for Selected Cancer Sites, Florida, 1981-1995



*Stomach and bladder converge in 1995.

Table 7.
Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites in Females, Florida, 1981-1995

	Rates per 100,000							
Year	All Cancers[1]	Breast	Lung & Bronchus	Colo-Rectal	Body of Uterus	Ovary	Non-Hodgkin's	Cervix
Incidence								
1981	294.5	83.2	32.4	41.8	18.6	14.1	7.9	11.3
1982	298.2	83.2	35.0	44.5	17.8	13.5	7.9	11.2
1983	293.1	82.1	35.0	42.5	18.4	13.8	8.2	10.8
1984	303.2	86.3	37.2	42.6	17.4	14.0	9.2	11.2
1985	311.9	93.8	39.3	43.4	17.1	14.0	8.5	10.3
1986	306.6	91.7	39.5	42.5	17.1	15.0	8.6	11.2
1987	315.3	100.0	38.6	42.0	17.2	14.4	9.3	10.6
1988	318.5	100.8	42.5	41.3	17.1	14.5	9.4	10.0
1989	313.5	95.7	42.4	40.6	16.4	14.9	9.7	10.6
1990	324.0	98.3	44.0	41.9	17.4	15.2	10.0	10.5
1991	317.5	99.1	44.8	39.4	17.0	14.8	9.7	10.6
1992	308.3	94.0	44.4	38.6	16.5	14.5	9.6	10.0
1993	296.1	91.7	43.4	35.2	16.3	13.2	9.2	9.8
1994	307.7	95.8	44.1	35.9	17.5	13.8	10.1	9.9
1995	305.4	95.3	43.2	34.9	17.0	13.5	10.2	9.5
Mortality								
1981	127.7	24.1	23.6	16.5	1.9	7.4	4.0	3.5
1982	126.9	24.3	25.1	15.5	1.9	7.2	3.7	3.2
1983	130.0	24.8	27.0	16.6	1.9	7.5	4.0	3.3
1984	130.0	25.7	26.7	16.3	1.6	6.8	4.7	3.4
1985	132.6	25.6	28.8	15.4	1.5	7.1	4.5	2.9
1986	130.6	25.0	29.1	15.1	1.5	7.1	4.3	3.0
1987	128.4	23.5	30.4	14.9	1.5	7.1	4.3	2.9
1988	132.8	26.1	31.6	14.6	1.6	7.6	4.5	2.8
1989	131.8	25.0	32.4	14.3	1.5	7.9	4.2	3.3
1990	134.4	26.1	34.4	13.6	1.4	7.2	4.8	3.1
1991	132.0	24.5	33.5	13.4	1.3	7.4	5.2	3.2
1992	133.2	24.1	34.9	13.6	1.4	7.2	4.8	3.5
1993	133.1	24.0	34.1	13.7	1.5	7.7	4.8	3.2
1994	132.8	23.8	35.2	13.7	1.4	7.5	4.8	2.9
1995	131.5	24.6	35.7	12.2	1.2	7.0	5.3	2.6

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

Sources: Florida Cancer Data System and Office of Vital Statistics, Florida Department of Health.

Table 8.
Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites in Males, Florida, 1981-1995

Year	All Cancers[1]	Prostate	Lung & Bronchus	Colo-rectal	Bladder	Stomach	Non-Hodgkin's	Melanoma[2]
	Rates per 100,000							
Incidence								
1981	389.3	70.7	86.6	58.1	31.6	10.2	10.5	10.7
1982	389.1	71.4	85.7	60.1	30.6	9.8	11.1	10.8
1983	377.6	70.3	81.2	57.6	28.5	8.9	11.0	11.2
1984	385.8	70.1	84.7	60.3	30.4	9.6	10.2	10.3
1985	399.6	73.3	87.1	65.0	30.3	10.2	12.7	12.4
1986	386.4	72.9	84.6	57.7	28.9	9.3	12.3	12.1
1987	394.5	80.0	82.9	62.2	28.5	8.6	13.0	12.1
1988	401.0	86.6	82.4	61.2	27.5	9.6	13.9	13.1
1989	414.6	97.6	81.9	56.8	27.4	9.3	14.6	13.0
1990	418.9	107.8	81.6	56.7	25.6	8.9	15.1	11.8
1991	452.6	140.9	84.0	55.8	24.3	8.8	15.0	11.7
1992	456.7	149.8	82.0	54.0	23.7	8.8	15.3	11.6
1993	403.5	119.7	74.8	50.4	21.2	8.6	14.1	11.2
1994	404.8	113.6	75.9	49.4	21.6	8.9	16.5	12.4
1995	404.9	112.3	77.9	50.2	20.8	8.8	16.0	11.0
Mortality								
1981	202.1	20.4	71.3	22.5	6.6	7.9	5.4	3.1
1982	207.9	21.6	73.3	23.2	6.7	7.5	6.2	3.5
1983	205.9	20.5	72.6	23.8	6.9	6.9	6.2	3.6
1984	206.3	21.8	73.3	23.3	6.2	7.2	6.3	3.2
1985	203.6	20.9	72.9	23.2	5.9	6.5	0.3	4.0
1986	203.8	21.2	73.7	22.6	5.5	7.4	0.7	3.6
1987	203.9	22.1	73.2	21.7	5.9	6.5	6.8	3.5
1988	203.5	21.9	71.9	22.4	5.6	6.1	6.9	3.4
1989	207.2	22.9	75.6	21.1	5.9	6.7	7.2	4.0
1990	208.1	24.9	74.3	20.9	5.7	6.1	7.4	4.0
1991	205.7	23.7	73.3	19.6	5.9	6.1	7.6	3.9
1992	201.5	23.8	70.0	19.7	5.7	5.8	7.5	3.8
1993	200.2	22.9	69.8	19.8	5.6	5.9	7.4	3.9
1994	198.4	22.4	68.3	20.0	5.5	5.3	8.5	3.7
1995	199.7	21.5	69.6	18.8	5.6	5.7	8.1	3.5

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

[2]Melanoma in Whites only.

Sources: Florida Cancer Data System and Office of Vital Statistics, Florida Department of Health.

Table 9.
Annual Percent Change in Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites, Florida 1986-1995

	Incidence		Mortality	
	Female	Male	Female	Male
All Cancers[1]	0.0	1.0	0.0	0.0
Bladder	-2.0 **	-3.9 **	1.0	0.0
Body of Uterus	0.0	----	-2.0	----
Brain & Nervous	1.0	0.0	3.0 **	2.0 *
Breast	0.0	----	0.0	----
Cervix	-1.0 **	----	0.0	----
Colorectal	-2.0 **	-2.0 **	-2.0 **	-2.0 **
Esophagus	-1.0	1.0	0.0	1.0 *
Kidney	1.0	1.0	-1.0	1.0
Larynx	-1.0	-1.0 *	1.0	1.0
Leukemia	-1.0	-2.0 **	0.0	0.0
Lung & Bronchus	1.0 *	-1.0 **	2.0 **	-1.0 **
Melanoma	-2.0 **	-1.0	-2.0	0.0
Myeloma	-2.0	-2.0	1.0	2.0 *
Non-Hodgkin's	1.0 *	3.0 **	2.0 **	2.0 **
Oral	-1.0 *	-1.0	-2.0	-2.0
Ovary	-1.0	----	0.0	----
Pancreas	0.0	0.0	0.0	0.0
Prostate	----	6.2 **	----	0.0
Stomach	-1.0 **	-1.0	-3.0 **	-3.0 **
Thyroid	3.5 **	1.5	0.1	4.5 **

*significant at p=0.05

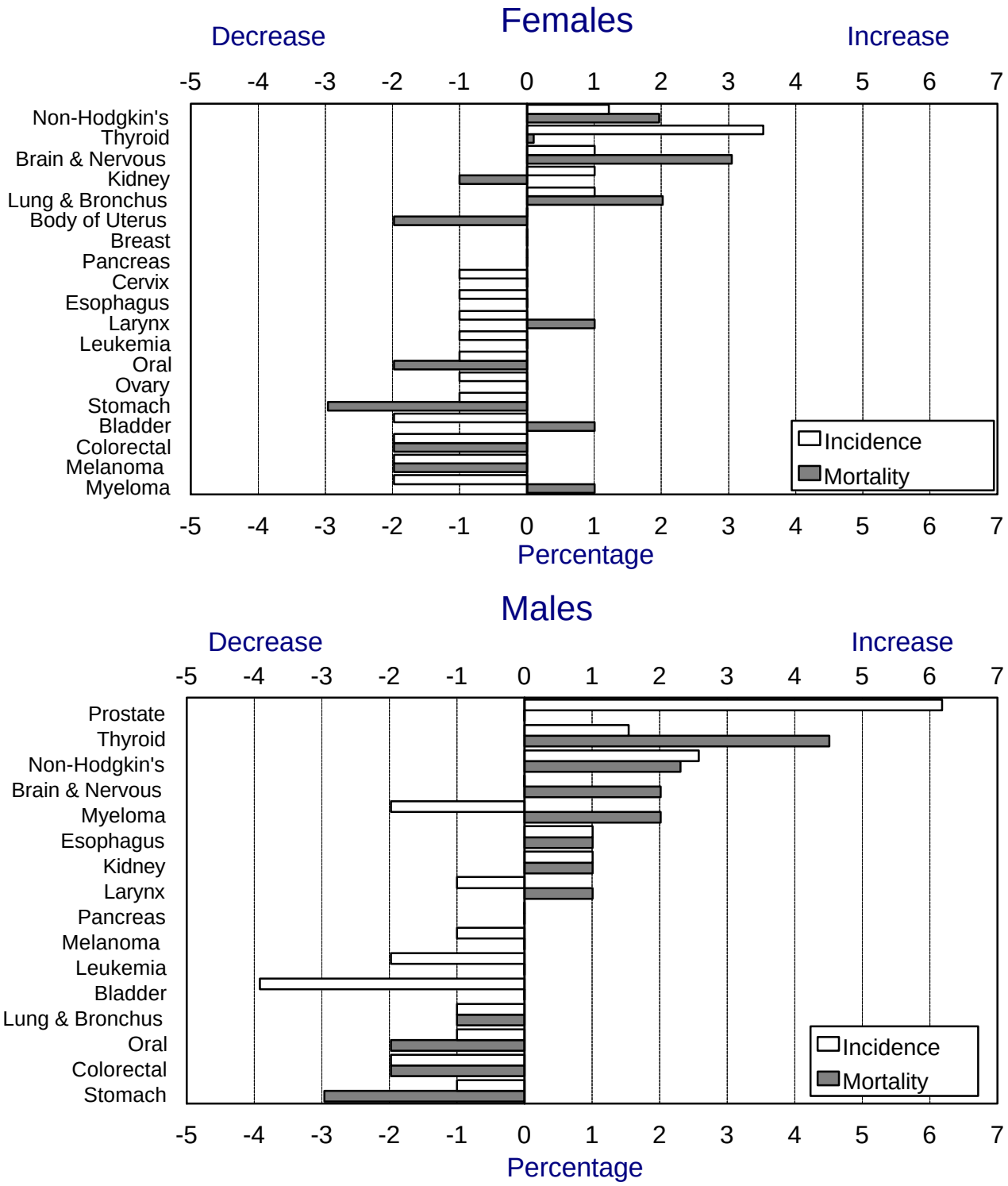
**significant at p=0.01

Note: Average Annual Percent Change is calculated assuming a log linear model.

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

Sources: Florida Cancer Data System and Office of Vital Statistics, Florida Department of Health.

Figure 5.
Average Annual Percent Change in Age-Adjusted Incidence and Mortality Rates for Selected Cancer Sites, Florida, 1986-1995



THE DISTRIBUTION OF CANCER BY AGE AND SEX

New cases of cancer, cancer deaths and estimated population during 1995 are listed in Table 10 for nine age groups and for all ages combined by sex. Table 11 details the number of new cases and deaths by age group for the three most common forms of cancer for men and women during 1995. The burden of cancer -- both for new cases and deaths -- was higher among men than among women, overall, even though there were more women than men in the population (Table 10). Figure 6 shows rates for each age-group over time for all cancers combined.

Table 11 shows that more men than women developed and died from lung cancer at all ages combined, which is largely attributable to higher rates of smoking among men relative to women. In contrast, there were no clear sex differences at all ages combined in the number of new cases and deaths for colorectal cancer nor was there a substantial difference in the number of cases and deaths of the third most common cancers in men and women (prostate cancer and breast cancer, respectively).

Fifteen year trends in the age-specific incidence and mortality rates for all cancers are depicted graphically in Figure 6. These trends are displayed separately for females and males, which allows for comparison of sex and age differences in cancer rates across time. These data are presented on a logarithmic scale in order to display in a single graphic cancer rates for age groups with very different rates of cancer. Cancer incidence and mortality rates per 100,000 people increased markedly with age for both females and males.

The 1995 cancer incidence rate among females was 14.8/100,000 in 0-19 year olds and was 1462.7/100,000 in those 80 years and older, a gap of 1,448/100,000 between the youngest and oldest age groups. There was a similar, but slightly smaller gap across age groups for mortality in females; the rate for 0-19 year olds was 2.8/100,000 and was 1,114.5/100,000 for those 80 years and older, a gap of about 1,112/100,000. For males, age gaps in cancer incidence and mortality were larger than the age gaps for females. Specifically, the incidence rate for 0-19 year old males was 14.5/100,000 and for the 80 years and older group was 2,317.9/100,000, a gap of 2,303.4/100,000. The gap in mortality rates between the youngest and oldest age groups in males was 2,005/100,000.

Between ages 0-19, there were minimal sex differences in cancer incidence rates from 1981-1995, whereas from ages 20-49, women outpaced men in their rates of cancer incidence. This is because breast cancer is relatively common in women aged 40-49, compared to prostate cancer, which is rare in men in this age group. Mortality rates for females and males were similar up until age 50 when the cancer death rate for men began to exceed that of women; the sex gap in mortality rates grew substantially with each decade of age. The gender gap in cancer incidence and mortality rates among the elderly and the wide difference in cancer rates from the youngest to oldest males suggest that the effects of exposure to risk factors for cancer -- a disease primarily of older persons -- accrue over the lifetime for men more than for women. This disparity in cancer risk between elderly women and men has not changed markedly over the past decade, suggesting that factors such as smoking and occupational hazards that put men at a high risk of cancer over a lifetime need to be addressed. Further, public health programs should also be oriented to preventing women from being exposed to traditionally male risk factors for cancer as gender norms for health behaviors shift over time.

Table 10.
Estimated Population, New Cases of Cancer and Cancer Deaths by Age Group and Sex, Florida, 1995

Age Group	Population			New Cases[1]			Deaths[1]		
	Total	Women	Men	*Total*	Women	Men	*Total*	Women	Men
0-19	3,609,276	1,761,134	1,848,142	527	259	268	113	50	63
20-29	1,764,093	858,670	905,423	722	401	321	124	59	65
30-39	2,208,713	1,107,350	1,101,363	2,236	1,364	872	524	281	243
40-49	1,956,694	997,675	959,019	4,823	2,977	1,846	1,643	849	794
50-59	1,382,162	725,447	656,715	9,058	4,595	4,463	3,713	1,734	1,979
60-69	1,322,681	721,578	601,103	19,315	8,177	11,138	8,360	3,552	4,808
70-79	1,274,578	719,263	555,315	23,727	10,327	13,400	12,255	5,424	6,831
80+	691,291	433,993	257,298	12,252	6,323	5,929	9,936	4,810	5,126
All Ages	**14,209,524**	**7,325,132**	**6,884,392**	**72,660**	**34,423**	**38,237**	**36,668**	**16,760**	**19,909**

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

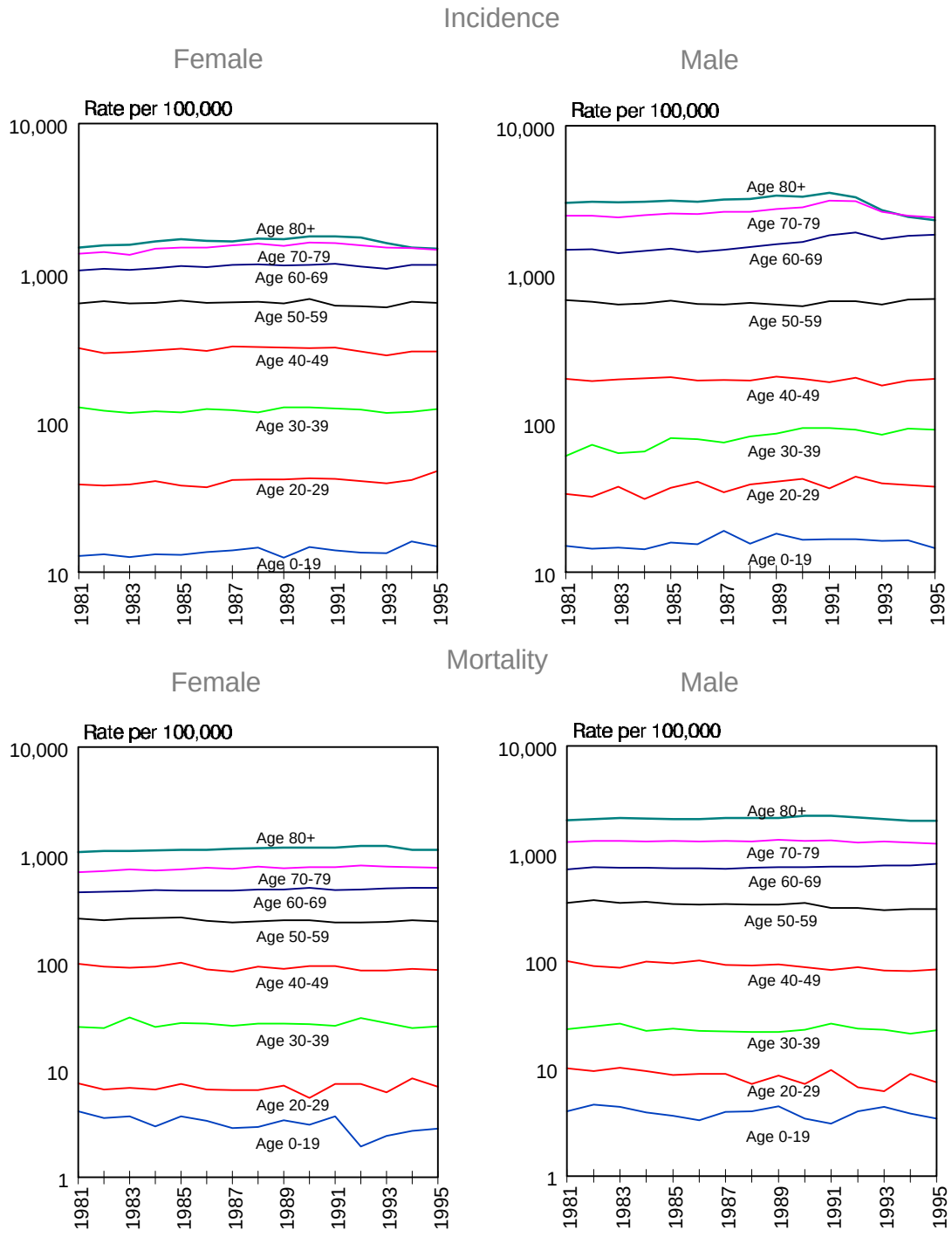
Sources: Florida Cancer Data System and Office of Vital Statistics, Florida Department of Health.
1995 population projections were provided by the Florida Consensus Estimating Conference, Spring 1996.

Table 11.
New Cases and Deaths for Selected Cancer Sites by Age Group and Sex, Florida, 1995

Age Group	Lung			Colorectal			Breast	Prostate
	Total	Female	Male	*Total*	Female	Male	Female	Male
New Cases[1]								
0-19	1	0	1	1	1	0	0	1
20-29	12	4	8	25	8	17	48	0
30-39	110	51	59	125	53	72	472	1
40-49	509	192	317	379	184	195	1,339	117
50-59	1,596	657	939	914	422	492	1,704	1,088
60-69	3,818	1,522	2,296	2,252	943	1,309	2,474	3,841
70-79	4,493	1,832	2,661	3,392	1,598	1,794	2,731	4,452
80+	1,850	776	1,074	2,566	1,448	1,118	1,425	1,269
All Ages	**12,389**	**5,034**	**7,355**	**9,654**	**4,657**	**4,997**	**10,193**	**10,769**
Deaths[1]								
0-19	2	0	2	0	0	0	0	0
20-29	4	1	3	5	1	4	5	0
30-39	48	23	25	36	16	20	92	0
40-49	383	139	244	126	52	74	293	10
50-59	1,290	492	798	297	123	174	428	50
60-69	3,125	1,157	1,968	735	283	452	629	381
70-79	4,044	1,655	2,389	1,217	577	640	725	874
80+	2,220	956	1,264	1,287	743	544	660	1,220
All Ages	**11,116**	**4,423**	**6,693**	**3,703**	**1,795**	**1,908**	**2,832**	**2,535**

[1]Excludes non-melanoma skin cancer (ICD-9 173).
Note: Totals may not add due to rounding. Refer to Appendix I for methodology.
Sources: Florida Cancer Data System and Office of Vital Statistics, Florida Department of Health

Figure 6.
Age-Specific Incidence and Mortality Rates for All Cancers, Florida 1981-1995



YEARS OF POTENTIAL LIFE LOST FROM CANCER

Figure 7 displays the thirteen causes of death that contributed most to years of potential life lost (YPLL) to age 75 years for women and men in 1995 in Florida. Table 12 depicts the number and percentage of years of potential life lost by cause of death in Florida in 1995. For people of all ages, cancer was the leading cause of years of potential life lost (259,136 years of potential life were lost to cancer -- 21% of YPLL from all causes of death); the next five highest contributors to YPLL were heart diseases, HIV/AIDS, unintentional injuries, suicide and homicide. Cancers with the highest incidence and for which death rates are high at early ages contributed most to YPLL. Of the years of potential life lost to cancer, the majority were due to cancers of the lung and bronchus (29.4% of all YPLL from cancer) followed by breast cancer (11.1% of all YPLL from cancer).

Nearly 2/3 of years of potential life lost for all causes of death were due to deaths among men; YPLL for all causes was 428,381 for women and was 792,037 for men (see Figure 7 and Table 12). Women lost 120,631 years of potential life from all types of cancer among women (28% of YPLL from all causes of death) and men lost 138,505 years from all types of cancer among men (17.5% of YPLL from all causes of death). For men, the three causes of death that contributed most to years of potential life lost in order from first to third were heart disease, cancer, and HIV/AIDS. For women, cancer, heart disease and unintentional injuries were the top three causes of death contributing to YPLL. There was a fairly large excess of YPLL for men relative to women for heart disease, HIV, unintentional injuries, suicide, homicide, diseases of the liver and cirrhosis, pneumonia and “all other” causes of death. Disparity between the number of YPLL between women and men was minimal for perinatal causes, cerebrovascular diseases, congenital anomalies, COPD and diabetes.

There were six cancer sites for which the years of potential life lost for men as a percentage of all YPLL from cancer were at least twice that of women: oral (3.1% of all cancer YPLL for men and 1.3% for women), stomach (2.9% for men and 1.6% for women), esophagus (2.8% for men and 1.0% for women), liver (2.5% for men and 1.2% for women), bladder (1.6% for men and 0.7% for women) and larynx (1.6% for men and 0.4% for women). Other than breast, ovarian and cervical cancer, women’s YPLL were not higher than men’s for any single cancer site listed in Table 12.

Although prostate cancer has a mortality rate close to that of breast cancer, the YPLL for breast cancer (28,768 or 11.1% of YPLL from cancer) was much higher than for prostate cancer (5,779 or 2.2% of YPLL from cancer) or for colorectal cancer (20,251 YPLL or 7.8% of all YPLL from cancer). These patterns of excessive years of life lost from breast cancer relative to prostate and colorectal cancer reflect the relatively young age at which women die of breast cancer. About thirty percent of breast cancer deaths in Florida women occur before 60 years of age.

For children 0-14 years old, cancer was ranked eighth as a contributor to YPLL. For children, cancer followed perinatal causes, congenital anomalies, heart disease, drowning and other injuries, and homicide as leading causes of death affecting YPLL. Deaths from cancer among 0-14 year old children accounted for just over 3% of YPLL for all causes of death.

Figure 7.
Years of Potential Life Lost (YPLL) to Age 75 by Cause of Death, Florida, 1995

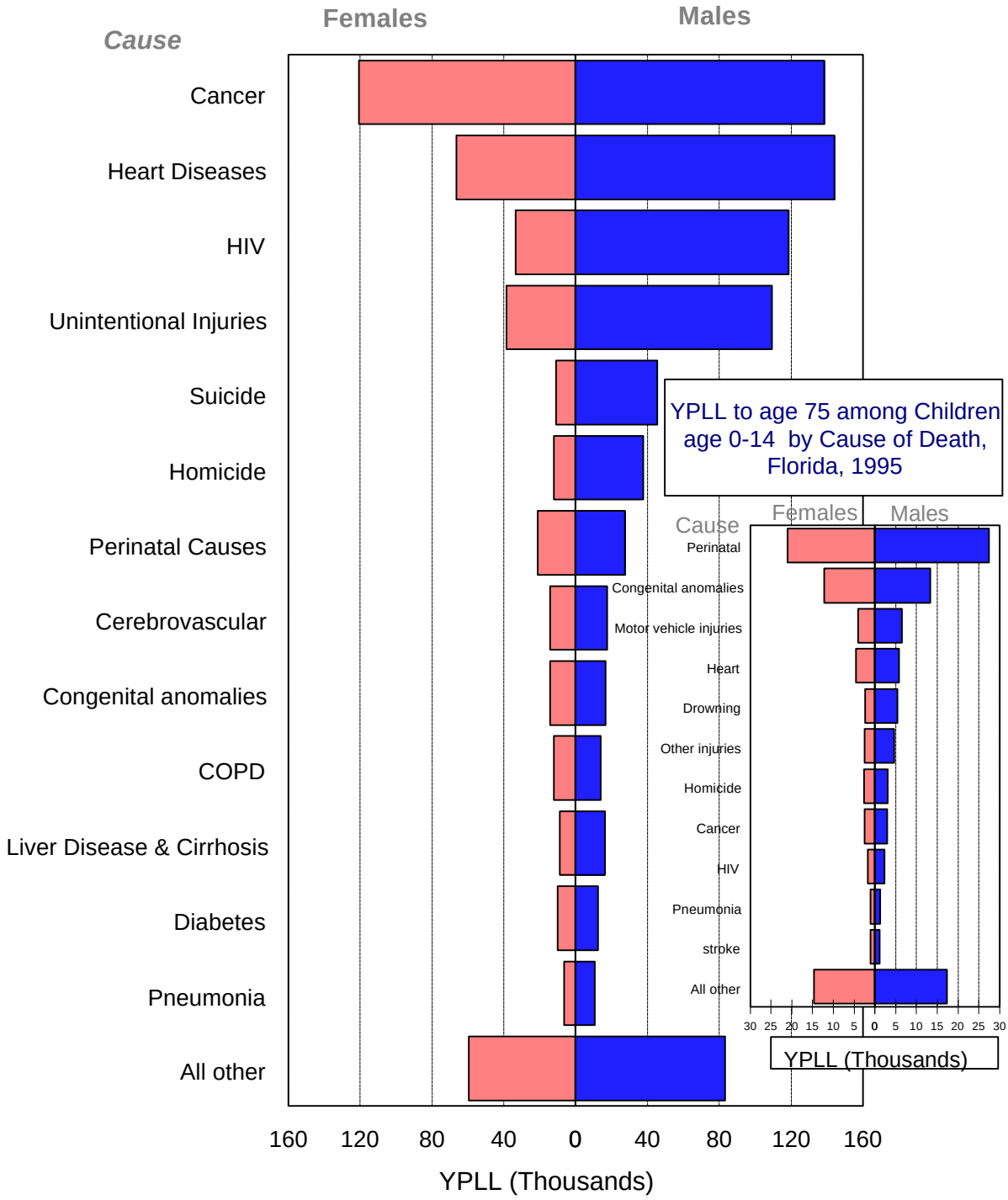


Table 12. Years of Potential Life Lost[1] Due to Cancer, Florida, 1995.

	Total		Female		Male		
	Years	%	*Years*	%	Years	%	
All Causes	**1,221,070**		**428,381**		**792,037**		A
All Cancers	**259,136**	**100**	**120,631**	**100**	**138,505**	**100**	
Childhood Cancer[2] (Age 0-14)	**5,453**	**2.1**	**2,491**	**2.1**	**2,962**	**2.1**	
Cancer Site							
Lung & Bronchus	76,296	29.4	28,888	23.9	47,408	34.2	
Breast	28,768	11.1	28,602	23.7	166	0.1	
Colorectal	20,251	7.8	8,291	6.9	11,960	8.6	
Leukemia	11,813	4.6	4,973	4.1	6,840	4.9	
Non-Hodgkin's Lymphoma	11,233	4.3	4,181	3.5	7,052	5.1	
Pancreas	10,813	4.2	4,416	3.7	6,397	4.6	
Brain	10,683	4.1	4,276	3.5	6,407	4.6	
Ovary	6,641	2.6	6,641	5.5	-	-	
Oral	5,957	2.3	1,625	1.3	4,332	3.1	
Stomach	5,920	2.3	1,964	1.6	3,956	2.9	
Prostate	5,779	2.2	-	-	5,779	4.2	
Kidney	5,640	2.2	1,681	1.4	3,959	2.9	
Melanoma	5,362	2.1	1,671	1.4	3,691	2.7	
Esophagus	5,113	2.0	1,220	1.0	3,893	2.8	
Liver	4,871	1.9	1,394	1.2	3,477	2.5	
Cervix	4,574	1.8	4,574	3.8	-	-	
Multiple Myeloma	3,523	1.4	1,475	1.2	2,048	1.5	
Bladder	3,066	1.2	842	0.7	2,224	1.6	
Larynx	2,684	1.0	484	0.4	2,200	1.6	
Hodgkin's Lymphoma	1,477	0.6	674	0.6	803	0.6	
All Other Cancers[3]	28,672	11.1	12,759	10.6	15,913	11.5	

[1]Figures are ranked in order of YPLL for both sexes combined and are calculated up to 75 years of age.
[2]Childhood cancers are included within the relevant sites.
[3]Excludes non-melanoma skin cancers, ICD-9 173.

CHILDHOOD CANCERS: 0 - 14 YEARS OF AGE, 1991-1995

Table 13 details the number of new cases of cancer and deaths by site for children from birth to 14 years of age in Florida between 1991-1995, the most recent five-year period for which data are available. In addition, the percentage of new cancers and deaths and the age-adjusted incidence and mortality rates *per 1 million children* are depicted for each of eight selected sites and for "all other" cancers. There were 1,919 new cases of childhood cancer in Florida between 1991-1995 (an average of 384 per year) and 389 deaths (an average of 78 deaths per year).

Leukemia was the most prominent type of cancer in children with 615 cases constituting 32% of all childhood cancers during the 5-year period. The age-adjusted incidence rate of leukemia was 46.4 per 1 million children per year. Similarly, the majority of cancer deaths were due to leukemia with 135 deaths per year over 5 years (34.7% of all cancer deaths in children) and an age-adjusted mortality rate of 10 per million per year.

Types of childhood cancer are listed in order from those with the highest incidence rates to lowest in Table 13. The mortality ranking for most types of cancer deaths was the same as the incidence ranking with a few exceptions. Cancer of the endocrine system (e.g., pituitary, thyroid and thymus) was ranked seventh for incidence but had the third highest mortality rate of all cancers listed. The deaths:cases ratio for endocrine cancer was 0.53. It is evident from these patterns that cancers of the endocrine system have a poor prognosis or result in earlier death than other forms of cancer listed here. In contrast, the deaths:cases ratio of all of the other cancer sites in Table 13 ranged from 0.04 for cancer of the eye to 0.29 for brain and other nervous system cancers. Within the broader category of leukemia (deaths:cases ratio = 0.22), the sub-category of "acute lymphocytic" leukemia had a very low deaths:cases ratio (0.12), whereas the "other leukemias" category had a relatively high deaths:cases ratio (0.59).

Table 13.

New Cases, Deaths and Age-Specific Incidence (ASIR) and Mortality Rates (ASMR) in Florida (1991-1995) by Site for Children Aged 0-14

	New Cases		ASIR per	Deaths		ASMR per
	Number	*%*	1,000,000	*Number*	*%*	1,000,000
All Cancers	**1919**		**144.9**	**389**		**29.4**
Leukemia	**615**	**32.0**	**46.4**	**135**	**34.7**	**10.2**
Acute Lymphocytic	482	25.1	36.4	56	14.4	4.2
Other Leukemias	133	6.9	10.0	79	20.3	6.0
Brain and other Nervous System	**388**	**20.2**	**29.3**	**114**	**29.3**	**8.6**
Lymphomas	**183**	**9.5**	**13.8**	**21**	**5.4**	**1.6**
Non-Hodgkin's	111	5.8	8.4	21	5.4	1.6
Hodgkin's Disease	72	3.8	5.4	0	0.0	0.0
Kidney	**135**	**7.0**	**10.2**	**11**	**2.8**	**0.8**
Soft tissue	**116**	**6.0**	**8.8**	**22**	**5.7**	**1.7**
Bones and Joints	**96**	**5.0**	**7.2**	**17**	**4.4**	**1.3**
Endocrine	**79**	**4.1**	**6.0**	**42**	**10.8**	**3.2**
Eyes	**68**	**3.5**	**5.1**	**3**	**0.8**	**0.2**
All Other	**239**	**12.5**	**18.4**	**24**	**6.2**	**1.8**
Average per Year	**384**			**78**		

Note: Data are shown for the most recent five-year period available and exclude non-melanoma skin cancer (ICD-9 173) . Rates are age specific and are expressed per million.

Sources: Florida Cancer Data System and Office of Vital Statistics, Florida Department of Health

GLOSSARY

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

ICD-0: *The 10th Revision of the International Classification of Diseases for Oncology*, Second Edition (ICD-0-2), 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. Individuals who were diagnosed after death are included in the mortality figures but are not included in the incidence figures.

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 1970 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 1970 population.

Age-Specific Rate

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

APPENDIX I: METHODOLOGY

Data Sources and Processing

Population data are provided by the Florida Consensus Estimating Conference, Spring 1996. Florida Cancer Data System, the tumor registry for the state of Florida, provided the incidence data for this report. New tumors are reported to FCDS by all hospitals in Florida. Mortality data are provided by the Vital Statistics Office, Department of Health.

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 occurred 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 (0 to 4, 5 to 9, 10 to 14,... 80 to 84, 85 and older) 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 1970 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 1970 US 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 each of the rates. The estimated AAPC is 100*(exp b-1) where b is the slope of the model ln(rate)= cte+ b(year)+e and e is the error term. The most recent 10 year data period, namely 1986-1995 was analyzed to give both a reliable and most current estimate for the AAPC. Confidence intervals at the 95% and 99% levels were built around the estimate and are used to test for statistical significance.

Years of Potential Life Lost (YPLL)

For each death of Florida residents recorded in 1995, the age at death was subtracted from 75 for those who died at age 75 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 recently changed the standard for YPLL calculations from 65 to 75. For consistency, the same standard was used here.

Childhood Cancers

Cancer mortality data are classified using ICD-9 codes. Incidence, however is classified using a more refined code, the ICD-0 version, with subdivisions based on morphology. Wilms' tumors, for example, which are most of the kidney cancers occurring 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.

APPENDIX II: REGIONAL POPULATION DATA and 1970 U.S. STANDARD MILLION POPULATION

Region	Total Population	Female Population	Male Population	Former HRS Districts*
Florida	**14,209,530**	**7,325,137**	**6,884,393**	
Panhandle	1,635,524	821,834	813,688	Districts 1-3
Northeast	1,453,041	743,258	709,783	Districts 4 & 12
North Central	2,338,061	1,189,882	1,148,179	Districts 7 & 13
Tampa Bay	2,315,170	1,212,507	1,102,661	Districts 5 & 6
South Central	2,028,025	1,047,958	980,069	Districts 8, 14 & 15
Palm Beach-Broward	2,336,452	1,217,945	1,118,507	Districts 9 & 10
Dade-Monroe	2,103,257	1,091,752	1,011,505	District 11

*The former HRS (Health and Rehabilitative Services) districts have been used in previous reports and are listed to enable comparison with statistics for the relevant regions above.

Standard Million Populations, by Age (See Kosary et. al 1995)

Age	U.S. Standard Million Population, 1970
All ages	1,000,000
<5	84,416
5-9	98,204
10-14	102,304
15-19	93,845
20-24	80,561
25-29	66,320
30-34	56,249
35-39	54,565
40-44	58,958
45-49	59,622
50-54	54,643
55-59	49,077
60-64	42,403
65-69	34,406
70-74	26,789
75-79	18,871
80-84	11,241
80+	7,435

REFERENCES

Anton-Culver, Hoda, Anna Lee-Feldstein and Thomas H. Taylor. 1992. "Occupation and Bladder Cancer Risk." *American Journal of Epidemiology* 136:89-94.

Coley, Christopher M., Michael J. Barry, Craig Fleming, Albert Mulley. 1997. "Early Detection of Prostate Cancer: Part I, Probability and Effectiveness of Tests." *Annals of Internal Medicine* 126:394-406.

Collins, Mary McNaughton and Michael J. Barry. 1996. "Controversies in Prostate Cancer Screening: Analogies to the Early Lung Cancer Screening Debate." *Journal of the American Medical Association* 276:1976-1978.

Florida Behavioral Risk Factor Surveillance System (BRFSS):1991-1995.

Kosary, C.L., L.A. Ries, B.A. Miller, B.F. Hankey, A. Harras, B.K. Edwards (eds.). 1995. *SEER Cancer Statistics Review, 1973-1992: Tables and Graphs*. NIH: Bethesda, MD Publication Number 96-2789, p. 476.

Lamm, Donald L and Torti, Frank M. 1996. "Bladder Cancer, 1996." *CA: A Cancer Journal for Clinicians* 46:93-112.

National Institutes of Health. 1998. *The SEER Program Code Manual, 3rd Edition.* Bethesda: NIH, National Cancer Institute. NIH Publication Number 98-1999. January 1998.

Schottenfeld, David and Joseph F. Fraumeni, Jr. (eds.). 1996. *Cancer Epidemiology and Prevention*, *Second Edition*. New York: Oxford University Press.

World Health Organization. 1977. *The 1975 Revision of the International Classification of Diseases*.

World Health Organization. 1990. *The 10th Revision of the International Classification of Diseases for Oncology*, Second Edition (ICD-0-2). C. Percy, V. Van Holten and C. Muir (eds.).

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