

Cancer Incidence in North Carolina 2004

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Introduction

Background

The North Carolina Central Cancer Registry (CCR), located within the State Center for Health Statistics, was established in 1986. The CCR operates under the authority granted in North Carolina General Statute 130A-208.

Legislation declaring cancer reporting to be mandatory in North Carolina became effective in 1947. Authorized funding for establishing a registry, however, was not appropriated until 1986. Between 1986 and 1989, only 50-60 percent of the cases were reported each year. Calendar year 1990 is the first year for which relatively complete statewide reporting was achieved. In 1999, new legislation was passed that requires every healthcare provider that detects, diagnoses, or treats cancer cases to report all cases to the CCR.

The CCR collects, analyzes, and disseminates information on newly diagnosed cancer patients in North Carolina with respect to demographics and medical characteristics. There are 132 hospitals in North Carolina which routinely diagnose and treat cancer patients; more than 45 of these hospitals have their own tumor registries. One hundred and eighty five facilities reported their 2004 incidence data to the CCR. Incidence data are reported to the CCR mostly by a secure internet-based database.

Purpose

Cancer Incidence in North Carolina 2004 is the eleventh annual report of the CCR. The contents of this report represent a summary of the information collected on cancer diagnosed among North Carolina residents in 2004. Previous volumes are located on the State Center for Health Statistics web site located at <http://www.schs.state.nc.us/SCHS/data/cancer.cfm>, under the title "Cancer Incidence in North Carolina, County-Specific Numbers."

Confidentiality

The CCR is committed to preserving the confidentiality of information obtained for medical, educational, research, and statistical purposes. Thus the CCR demands strict confidentiality and the protection of the identity of both cancer patients and reporting sources in registry data. The CCR does not release any identifying information regarding patients, hospitals, or physicians except under the authority of the General Statute guidelines.

Technical Notes

Overview and Definitions

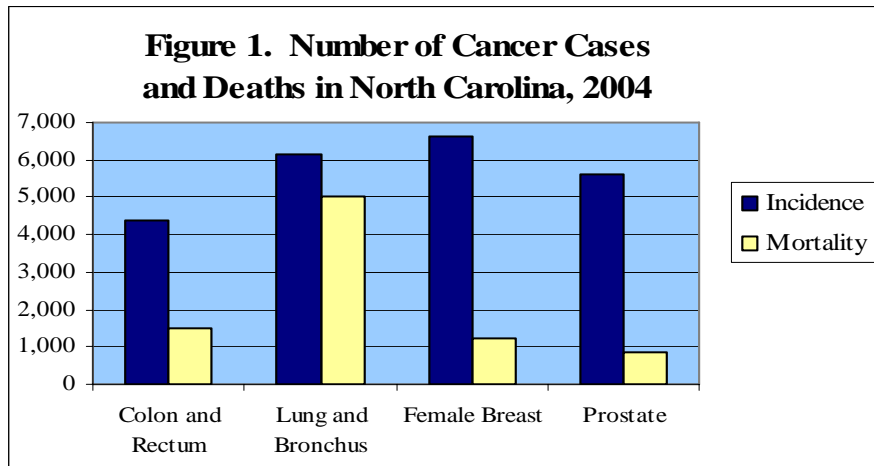
This report presents frequency counts, age-specific rates, and age-adjusted rates to describe newly diagnosed cases of cancer and mortality due to cancer.

Cancer Incidence and Mortality

Cancer incidence is the number of newly diagnosed cancer cases for each county whereas cancer mortality is the number of deaths due to cancer for each county. See Figure 1.

We assume that death certificates provide complete and accurate data on all causes of death. However, the accuracy of recording the cause of death varies for many cancers. For example, at the time of death, the history of cancer may not be known by the physician, or is considered not to have contributed to the death. Nonetheless, mortality data have been historically used widely to analyze cancer risk in populations.

Instances of under-reporting of cancer incidence have occurred. For some cancers (e.g., melanomas), under-reporting may lead to more cancer deaths being shown than incidence cases. Also, survival following a cancer diagnosis varies by cancer site. In populations with low use of health care services (e.g., rural and minority populations), more cancers are diagnosed at advanced stages when therapies are less successful; or the cases may not be diagnosed until death.



Cancer incidence, mortality, and age-adjusted rates for each county are presented in Table 5 and presented by site in Tables 6-9 for colon/rectum, lung/bronchus, female breast, and prostate cancers, respectively.

Differences in Reporting Cancer Incidence and Mortality Data

Many people living near the Virginia border go outside North Carolina for health care. It is known that Norfolk and Danville, Virginia attract patients for secondary and tertiary care. The State of North Carolina has an exchange agreement with all 50 states for exchanging death certificates, but only has an exchange agreement for cancer incidence data with 24 states, including our border states of Virginia, Tennessee and South Carolina.

Because death certificate data are available more quickly than incidence data, the 2004 mortality data include deaths of North Carolina residents who died in other states, but the incidence data do not include all cases diagnosed out-of-state.

Some counties have been found to under-report their cancer incidence due to poor case-finding procedures. These counties, especially rural counties where small hospitals do not have the services of trained tumor registrars, may have inadequate case finding. This results in incomplete reporting of new cancer cases. Death data are considered to be complete. This also contributes to what appears to be an excess of deaths compared to the number of cases for some cancer sites in some of the rural counties.

In the last few years, more cases are being diagnosed and treated outside of a hospital, in physician offices. This is particularly true for cancers of the skin and prostate, as well as some lymphoma and leukemia cases. Although physicians are required to report all cases to the CCR, many of them do not have the staff to do so. Physicians associated with a hospital will often report cases via a hospital registrar, but those not affiliated with a hospital may not report cases to the CCR. As a result, reporting for some cancers is known to be incomplete. Due to recent efforts by the CCR to improve the completeness of reporting by physician offices and pathology laboratories, the incidence of melanoma and prostate cancers have increased.

Incidence Rates

Two types of rates are presented in this report: age-adjusted and age-specific, each of which has a specific purpose. Both rates are expressed in this report as annual or five-year rates per 100,000 population.

Age-Adjusted Rates

An age-adjusted rate accurately describes the cancer experience that the population would have had if it had exactly the same age distribution as the comparison or standard population. Age-adjusted rates provide a single, summary rate for each area. The direct method was used to calculate all age-adjusted rates in this report by multiplying each age-specific rate by the number of people within that age group in the standard population and then summing these products, and dividing by the total population in the standard population. Age-adjusted rates should not be compared with any other type of rate or be used as absolute measurements of vital events; their sole purpose is to provide summary rates that can be compared between populations that have

different age structures. The standard population used in the calculation was the 2000 United States Census population.

Age-Specific Rates

The age-specific cancer incidence is the number of cancer cases that occur in the age groups from 0-4 to 85+. Age-specific rates are used to compare rates between different population groups of the same age and to examine age patterns for particular cancers. As expected, age-specific rates have a general tendency to increase with age. More than half of cancer cases occur among persons age 65 and older (Figure 2). North Carolina has attracted a large number of retirement-age people over the last decade. Understanding migration patterns is important for interpreting the data and is one reason for showing the data by age group. The largest concentrations of older-age residents are in the mountain counties, along the coast, and in the sandhills (along the mid-southern border).

Cancer patterns vary by age group. Children have a very different pattern of cancer than do adults. Leukemia, brain cancer, bone cancer, and lymphomas are the main cancer in people under age 20. In general, North Carolina's pediatric cancer patterns are quite consistent with national patterns.

Young adults (20-44) have a different pattern of cancer than do children. In this age group, lymphomas are even more common, as are some digestive and reproductive tissue cancers. All of these cancers are quite rare and cancer rates in these ages are generally lower than for other age groups.

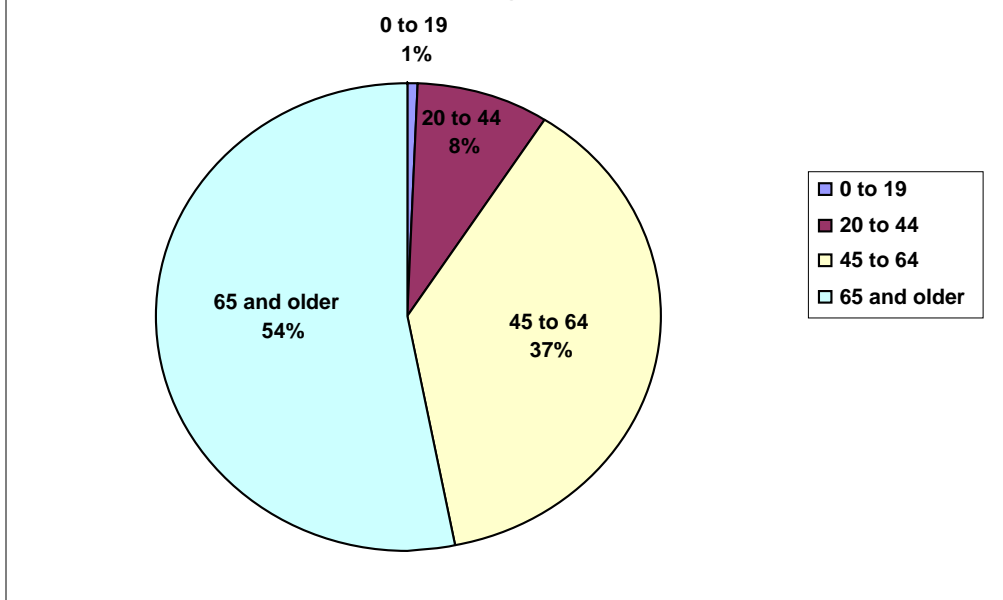
In the middle ages (45-64), cancer rates begin to rise, and the common cancers (lung, breast, and colon) emerge. The incursion of these cancers into younger age groups is the subject of considerable research at this time.

All cancer rates are at a maximum in the 70+ age categories. Prostate cancer is almost exclusively a disease of older men.

These age-specific patterns offer significant direction for screening priorities. For most cancers, the prospect for a normal life expectancy is good when the diagnosis is made early in the disease process. North Carolina legislation and federal programs are focused on increasing the access to screening services in this state. Older and underprivileged people are priority groups for these programs.

Age-specific cancer incidence and rates are presented in Table 10. The age-specific incidence rates demonstrate how cancer is a disease primarily of the older population.

Figure 2: Percentage of North Carolina Cancer Cases by Age Group, 2004

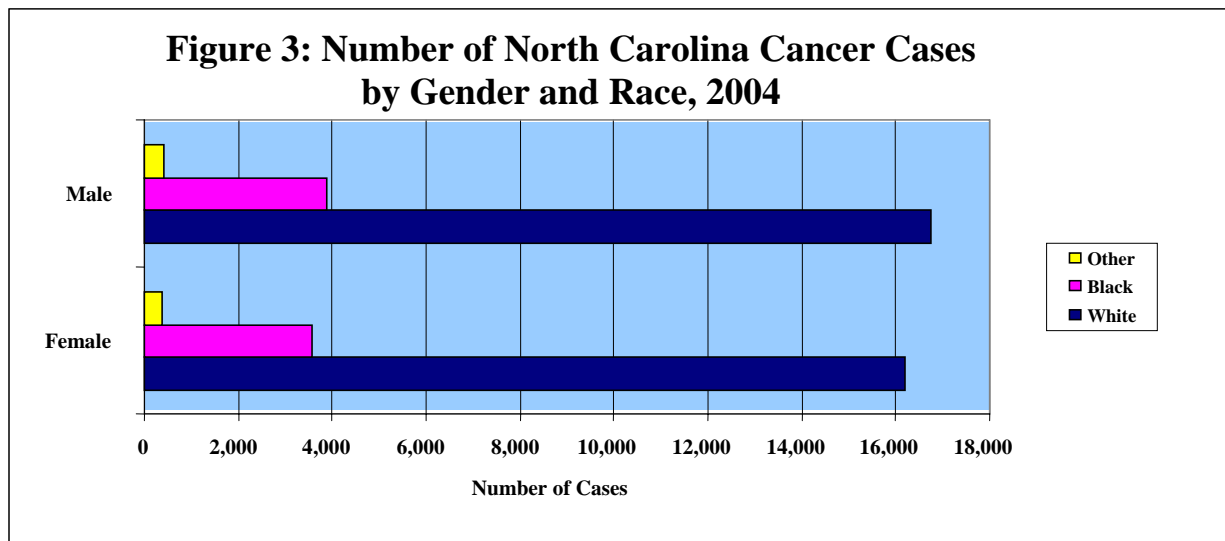


Race/Gender Specific Cases and Rates

The race/gender-specific cancer incidence is the number of cancer cases that occurred in each race/gender group. See Figure 3.

These data are provided because race is an important factor in interpreting cancer patterns in North Carolina. Cancer rates vary by race, race distributions vary across the state, and health care use has been found to vary by race. Because cancer risk is strongly associated with lifestyle and behavior, differences among ethnic and cultural groups can provide clues to factors involved in the development of cancer such as dietary patterns, alcohol use, and sexual and reproductive behaviors involved in the development of cancer.

Cancer cases and age-adjusted rates for North Carolina are presented by gender in Table 1 and by race in Table 3.



Reliability of Rates

Precautions should always be taken when comparing rates. Both the size of the numbers and the characteristics of the population are important indicators of a rate's real value. Rates based on small numbers of events over a given period of time or for sparsely populated geographic areas should be viewed with caution. These rates show considerable variation from year to year, thus limiting their usefulness in comparisons and estimation of rare occurrences. See the section titled "Small Numbers" on page 7.

Age-adjusted rates offer a standard method to compare cancer risk across geographic areas or time periods. However, there are limitations to their use and one should be familiar with these types of rates before using them. As already mentioned, age-adjusted rates are to be used only for comparison purposes and only if the same standard population was used in the calculation. This publication uses the 2000 U.S. Census as the standard population.

For assistance in interpreting these data, please contact the CCR statistical staff at (919) 715-4574.

Morphology (Cell Type) and Behavior

The specific morphology codes for these primary site categories have been provided in the Appendix in the table "Primary Site Definitions" to clarify counting of these cases. The lymphoma category includes all lymphoma cases with the morphology codes shown regardless of body site. Data on basal and squamous cell skin cancers are not collected by the CCR unless they have spread to tissue beyond the original site. Malignant melanoma may occur at many different body sites; however, this report focuses on melanoma of the skin. Please note that lymphomas are not grouped consistently by all researchers.

In these data, only malignant tumors are included. Data on benign central nervous system and brain and unspecified types are also reported to the CCR, but are not included in this report. Only invasive cervical cancer cases are included.

Limitations of Data

The user should be cautious when making county-to-county comparisons of the data in this report. Under-reporting in areas close to neighboring states and under-reporting for cancers that may not be diagnosed in hospitals must be considered when interpreting cancer incidence data. In addition, comparison of rates (computed with the number of cases and population data) can be easily misinterpreted. The age distributions and racial percentages in counties vary considerably.

Consider a comparison of Moore and Cabarrus counties. In 2004 over 21% percent of the Moore County population was at least 65 years old, while less than 12% percent of the Cabarrus County population was 65 and over. A larger proportion of the Moore County population can be expected to have cancer than the Cabarrus County population just because of the difference in the age pattern for these two counties. The use of age-adjusted rates will facilitate comparisons of risk.

On the other hand, almost 65% percent of Robeson County's population was comprised of minorities while over 97% percent of Watauga County's population is white. This difference in the racial composition of the populations of the two counties can also have a marked influence on the patterns of cancer incidence and mortality. Age-adjusted rates control for differences in the age structures of populations, but they do not control for differences in racial composition.

Interpretations of melanoma data should be treated with caution since the thoroughness of case-finding is suspect due to the likelihood that cases may be treated outside of hospitals and not reported to the CCR.

Small Numbers

Small numbers of cases are a problem for statistical reports of health data. Even for the most common cancers, some counties can expect to have only one or two cases in a year. For example, Tyrrell County, which has the smallest population of any county in the state, can expect to have only one case of female lung cancer each year (based on state lung cancer rates). Between 2000 and 2004, there were 5 cases of female lung cancer in Tyrrell County reported to the CCR. The majority of the cases were reported in 2001. It would appear that the county had an excessive amount of lung cancer in females in 2001. However, over the five-year period, the county averages exactly what was expected.

All statistics are subject to chance variation. Rates based on a very small number of events over a specified period of time or for a sparsely populated geographic area should be of particular concern and caution. When the number of events is small, multiple-year summary rates will

provide a much better measurement of risk. Expanding the period of time studied enlarges the absolute numbers and adds more credence to a statement regarding a rate.

Interpretation

This descriptive report is intended to serve as a baseline report for future reference. Because of the limitations described above, this publication should not be regarded as a definitive description of the cancer incidence in North Carolina. With additional training of hospital staff, collaboration from neighboring states, and increased physician and pathology laboratories reporting, the problems of under-reporting have declined. Although there are important limitations in the use of these data, the observed number of cases within a gender group in a specific county can be used for:

- ◆ planning health services at the county level;
- ◆ identifying high cancer incidence within a county;
- ◆ educating the public;
- ◆ motivating facilities such as hospitals and physicians to report incidence data accurately and in a timely manner; and
- ◆ encouraging more hospitals to organize tumor registries to provide better service to their cancer patients.

Comparison to National Data

This report was prepared to provide data for evaluation of cancer incidence and mortality patterns in North Carolina. The Annual Report to the Nation on the status of cancer, 1975-2003, produced by the North American Association of Cancer Registries (NAACCR) and the National Program of Cancer Registries (NPCR) at <http://www.cdc.gov/cancer/npcr/index.htm> is available for comparison with North Carolina's observed incidence cases for 2003 and previous years.

Available Cancer Information

Cancer is one of only two leading causes of death in the United States that has been increasing (diabetes is the other). This increase is largely the result of the aging of the population and the decline in mortality from other causes of death (e.g., heart disease and stroke). It is estimated that by the year 2015, cancer will be the leading cause of death in the United States.

Cancer is expected to strike one in three people sometime during their lifetime. For more information about cancer, contact a local office of the American Cancer Society or call 1-800-ACS-2345. Many communities also have hospital-based cancer programs through which local data and/or cancer-related services may be obtained. In many counties, local health departments have active cancer control programs. Another source of information on cancer is the Cancer Information Service, 1-800-4CANCER (1-800-422-6237). The Cancer Information Service, located at Duke University, is a national program funded by the National Cancer Institute that provides cancer information.

The CCR produces other reports on cancer in North Carolina, many of which are available on the website at <http://www.schs.state.nc.us/SCHS/CCR/>. A notable one is the *South Atlantic North Carolina Cancer Facts and Figures*. This report is published in collaboration with the South Atlantic Division of the American Cancer Society. Also, other units with the State Center for Health Statistics (SCHS) publish many reports on other diseases and on health care measures. For more information about other reports from the CCR please call (919) 715-4574. For information from other programs of the SCHS, please call (919) 733-4728, or write:

State Center for Health Statistics
1908 Mail Service Center
Raleigh, NC 27699-1908

Support for Cancer Research and Control

The CCR is actively involved with cancer research programs at universities in North Carolina, as well as with federal agencies and research institutes located within the state. One feature of this participation is the rapid identification of cancer patients for projects that are designed to collect information before the patient's first course of treatment is completed (e.g., genetic studies). Several organizations in North Carolina work to prevent cancer or to provide for early detection. Others work to promote a higher quality of life for cancer patients undergoing treatment and for cancer survivors. Still others are working to understand and reduce the racial/ethnic gaps in cancer diagnosis and mortality.

One program to promote access to cancer screening tests is the Breast and Cervical Cancer Control Program located in the Chronic Disease and Injury Section of the North Carolina Division of Public Health. The CCR provides statistical and data analysis support for the state's Cancer Control Program that funds cancer treatment for economically disadvantaged North Carolinians. Also, the CCR is associated with organizations such as the American Cancer Society and the state's Advisory Committee for Cancer Coordination and Control.

Table 1: 2004 Incidence Rates By Sex

Site	Males		Females	
	Cases	Rate ¹	Cases	Rate ¹
All Sites	21,045	567.8	20,157	427.7
Oral Cavity and Pharynx	715	18.0	302	6.3
Lip	36	1.2	22	0.4
Tongue	191	4.7	71	1.5
Salivary Glands	53	1.4	29	0.6
Floor of Mouth	63	1.6	18	0.4
Nasopharynx	30	0.7	20	0.4
Oropharynx	45	1.1	*	*
Hypopharynx	70	1.7	24	0.5
Other Mouth and Pharynx	227	5.7	112	2.3
Digestive System	3,856	105.0	3,342	69.5
Esophagus	322	8.4	95	1.9
Stomach	311	8.9	175	3.6
Small Intestine	85	2.2	75	1.6
Colon and Rectum	2,232	61.0	2,159	45.0
Anus and Anal Canal	42	1.0	102	2.2
Liver and Intrahepatic Bile Duct	282	7.3	92	1.9
Gallbladder	34	1.0	49	1.0
Pancreas	463	13.0	449	9.3
Other Digestive Organs	85	2.3	146	3.1
Respiratory System	4,090	112.4	2,664	56.1
Larynx	359	9.4	103	2.2
Lung and Bronchus	3,630	100.1	2,525	53.1
Other Respiratory Organs	101	2.8	36	0.8
Bones and Joints	50	1.3	42	1.0
Soft Tissues	109	2.8	116	2.5
Melanoma of the Skin	1,285	34.8	968	21.0
Breast	41	1.2	6,624	141.3
Invasive Breast	37	1.1	5,411	115.3
In Situ Breast	*	*	1,213	25.9
Female Genital System	.	.	2,146	45.7
Cervix Uteri	.	.	373	8.3
Uterus (Corpus, NOS)	.	.	1,002	21.0
Ovary	.	.	518	10.9
Other Female Genital Organs	.	.	253	5.5
Male Genital System	5,867	154.7	.	.
Prostate	5,619	148.7	.	.
Testis	210	4.9	.	.
Penis	33	0.9	.	.
Other Male Genital Organs	*	*	.	.
Urinary System	2,219	62.0	978	20.5
Bladder (incl. in situ)	1,282	37.3	446	9.2
Kidney and Renal Pelvis	890	23.3	489	10.3
Ureter	41	1.2	33	0.7
Other Urinary System	*	*	10	0.2
Eye and Orbit	52	1.4	34	0.7
Brain and CNS	285	7.2	269	5.9
Endocrine System	247	6.1	630	14.2
Thyroid	150	3.7	512	11.6
Other Endocrine and Thymus	97	2.4	118	2.7
Lymphomas	886	23.4	840	17.9
Hodgkins Disease	135	3.3	98	2.2
Non-Hodgkin's Lymphoma	751	20.1	742	15.6
Multiple Myeloma	256	7.1	213	4.4
Leukemia	464	12.7	355	7.6
Acute Lymphocytic Leukemia	22	0.5	16	0.4
Chronic Lymphocytic Leukemia	157	4.6	120	2.5
Acute Myeloid Leukemia	164	4.4	129	2.8
Chronic Myeloid Leukemia	37	1	40	0.8
Other Leukemia	84	2.2	50	1.1
Ill-Defined and Unspecified	519	14.8	563	11.6
All Other Cancers-Uncategorized	104	2.9	71	1.5

¹ Rates per 100,000 Population
Age-Adjusted to the 2000 U.S. Census

* Less than 10 Cases Observed.

** Rates based on less than 10 cases are unstable and therefore suppressed.

**Table 2: 2000 - 2004 Ten Most Frequently Diagnosed Cancers
By Sex**

Cancer	Males			
	Incidence		Mortality	
	Cases	Rate¹	Deaths	Rate¹
Prostate	27,869	154.7	4,523	31.9
Lung/Bronchus	17,064	97.5	14,970	87.0
Colon/Rectum	10,985	62.8	3,772	22.8
Bladder	5,717	34.4	1,021	6.8
Melanoma (skin)	5,615	30.9	727	4.1
Kidney	3,601	19.6	1,114	6.5
Non-Hodgkin's Lymphoma	3,496	19.5	1,526	9.2
Oral Cavity	3,232	17.2	734	4.1
Leukemia	2,238	12.6	1,564	9.5
Pancreas	2,075	12.0	2,166	12.7

Cancer	Females			
	Incidence		Mortality	
	Cases	Rate¹	Deaths	Rate¹
Female Breast	33,045	144.9	5,847	25.1
Lung/Bronchus	11,692	50.2	9,505	40.6
Colon/Rectum	10,565	44.9	3,863	16.1
Corpus Uteri	4,708	20.4	953	4.0
Melanoma (Skin)	4,332	19.3	448	1.9
Non-Hodgkin's Lymphoma	3,262	14.0	1,428	6.0
Ovary	2,883	12.5	2,014	8.5
Kidney	2,121	9.2	637	2.7
Endocrine	2,099	9.6	135	0.6
Pancreas	2,033	8.6	2,189	9.1

¹ Rates per 100,000 Population
Age-Adjusted to the 2000 U.S. Census

Table 3: 2004 Incidence Rates By Race

Site	Whites		Minorities	
	Cases	Rate ¹	Cases	Rate ¹
All Sites	32,963	480.3	8,103	483.5
Oral Cavity and Pharynx	777	11.2	232	12.7
Lip	56	0.8	*	*
Tongue	203	2.9	57	3.1
Salivary Glands	67	1.0	12	0.7
Floor of Mouth	63	0.9	18	0.9
Nasopharynx	29	0.4	21	1.1
Oropharynx	33	0.5	18	1.0
Hypopharynx	64	0.9	30	1.7
Other Mouth and Pharynx	262	3.8	74	4.1
Digestive System	5,497	80.1	1,684	103.2
Esophagus	321	4.6	94	5.6
Stomach	338	4.9	144	9.2
Small Intestine	120	1.7	40	2.3
Colon and Rectum	3,388	49.4	994	61.3
Anus and Anal Canal	116	1.7	28	1.5
Liver and Intrahepatic Bile Duct	280	4.0	93	5.1
Gallbladder	57	0.8	26	1.7
Pancreas	698	10.2	213	13.3
Other Digestive Organs	179	2.6	52	3.2
Respiratory System	5,564	80.6	1,187	73.2
Larynx	350	5.0	112	6.5
Lung and Bronchus	5,108	74.0	1,044	64.7
Other Respiratory Organs	106	1.6	31	1.9
Bones and Joints	72	1.1	20	0.9
Soft Tissues	170	2.5	54	2.8
Melanoma of the Skin	2,186	32.2	29	1.8
Breast	5,259	142.2	1,348	134.4
Invasive Breast	4,286	115.7	1,113	110.8
In Situ Breast	973	26.5	235	23.6
Female Genital System	1,710	46.5	432	43.7
Cervix Uteri	258	7.7	115	11.2
Uterus (Corpus, NOS)	795	21.0	205	21.2
Ovary	449	11.9	68	7.0
Other Female Genital Organs	208	5.8	44	4.3
Male Genital System	4,295	137.8	1,545	233.0
Prostate	4,076	131.1	1,515	229.6
Testis	185	5.6	25	2.4
Penis	30	1.0	*	*
Other Male Genital Organs	*	*	*	*
Urinary System	2,715	39.6	481	29.4
Bladder (incl. in situ)	1,540	22.5	186	12.1
Kidney and Renal Pelvis	1,095	15.9	285	16.6
Ureter	69	1.0	*	*
Other Urinary System	11	0.2	*	*
Eye and Orbit	78	1.2	*	*
Brain and CNS	473	7.1	79	4.2
Endocrine System	691	10.4	177	9.3
Thyroid	536	8.1	118	6.0
Other Endocrine and Thymus	155	2.3	59	3.3
Lymphomas	1,433	21.1	288	15.9
Hodgkins Disease	190	2.9	43	2.0
Non-Hodgkin's Lymphoma	1,243	18.2	245	13.9
Multiple Myeloma	314	4.6	155	9.8
Leukemia	673	10.1	144	8.2
Acute Lymphocytic Leukemia	31	0.5	7	0.4
Chronic Lymphocytic Leukemia	240	3.5	35	2.2
Acute Myeloid Leukemia	239	3.6	55	3
Chronic Myeloid Leukemia	58	0.9	18	0.9
Other Leukemia	105	1.6	29	1.6
Ill-Defined and Unspecified	880	13	201	12.6
All Other Cancers-Uncategorized	146	2.2	29	1.7

¹ Rates per 100,000 Population
Age-Adjusted to the 2000 U.S. Census

* Less than 10 Cases Observed.

** Rates based on less than 10 cases are unstable and therefore suppressed.

**Table 4: 2000-2004 Ten Most Frequently Diagnosed Cancers
By Race**

Cancer	Whites			
	Incidence		Mortality	
	Cases	Rate¹	Deaths	Rate¹
Female Breast	26,640	148.0	4,338	23.3
Lung/Bronchus	23,778	70.8	20,099	60.1
Prostate	20,524	137.6	2,933	25.0
Colon/Rectum	16,875	50.7	5,831	17.7
Melanoma (skin)	9,744	29.5	1,142	3.4
Bladder	6,913	20.8	1,298	4.0
Non-Hodgkin's Lymphoma	5,750	17.4	2,563	7.8
Kidney	4,523	13.5	1,407	4.2
Corpus Uteri	3,782	20.7	653	3.4
Oral Cavity	3,615	10.8	856	2.6
	Minorities			
Cancer	Incidence		Mortality	
	Cases	Rate¹	Deaths	Rate¹
Prostate	7,205	232.8	1,590	68.2
Female Breast	6,323	129.7	1,509	31.3
Lung/Bronchus	4,961	63.4	4,376	56.8
Colon/Rectum	4,642	59.4	1,803	23.7
Kidney	1,195	14.5	344	4.4
Oral Cavity	1,040	12.0	294	3.5
Non-Hodgkin's Lymphoma	995	11.7	391	5.1
Pancreas	939	12.4	968	13.0
Corpus Uteri	920	19.8	300	6.7
Bladder	801	10.8	255	3.6

¹ Rates per 100,000 Population
Age-Adjusted to the 2000 U.S. Census

Table 5: 2004 Total Cancer Incidence and Mortality Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate</i> ¹	<i>Deaths</i>	<i>Rate</i> ¹
NORTH CAROLINA	41,211	482.9	16,436	196.4
<i>Alamance</i>	765	525.0	300	201.9
<i>Alexander</i>	150	408.1	69	192.1
<i>Alleghany</i>	68	439.3	22	131.5
<i>Anson</i>	115	404.1	48	165.4
<i>Ashe</i>	144	421.1	69	193.9
<i>Avery</i>	104	487.8	42	188.1
<i>Beaufort</i>	297	528.0	119	204.7
<i>Bertie</i>	122	503.6	45	182.4
<i>Bladen</i>	138	364.5	78	206.6
<i>Brunswick</i>	466	395.0	225	192.8
<i>Buncombe</i>	1,256	492.7	451	173.5
<i>Burke</i>	321	325.5	209	210.9
<i>Cabarrus</i>	720	524.8	277	205.5
<i>Caldwell</i>	379	428.5	167	188.7
<i>Camden</i>	31	340.0	23	262.1
<i>Carteret</i>	456	526.1	178	206.1
<i>Caswell</i>	73	274.6	61	234.5
<i>Catawba</i>	782	518.1	286	193.5
<i>Chatham</i>	221	344.5	118	176.7
<i>Cherokee</i>	144	371.2	75	193.4
<i>Chowan</i>	83	438.3	48	239.3
<i>Clay</i>	41	261.5	27	159.3
<i>Cleveland</i>	685	646.6	217	201.9
<i>Columbus</i>	278	455.9	119	194.9
<i>Craven</i>	578	579.5	208	209.2
<i>Cumberland</i>	1,163	491.3	412	187.0
<i>Currituck</i>	57	267.1	42	194.5
<i>Dare</i>	130	316.9	79	204.7
<i>Davidson</i>	808	491.7	288	177.2
<i>Davie</i>	225	527.5	72	170.1
<i>Duplin</i>	161	311.0	122	239.9
<i>Durham</i>	1,044	519.0	401	206.0
<i>Edgecombe</i>	304	528.4	139	241.8
<i>Forsyth</i>	1,723	521.5	651	198.8
<i>Franklin</i>	230	463.1	110	238.7
<i>Gaston</i>	1,058	524.4	441	220.5
<i>Gates</i>	25	195.1	15	120.7
<i>Graham</i>	38	348.1	16	148.0
<i>Granville</i>	267	498.7	101	196.8
<i>Greene</i>	62	305.5	40	200.9
<i>Guilford</i>	2,148	506.6	737	177.1
<i>Halifax</i>	296	448.2	130	196.0
<i>Harnett</i>	346	398.2	202	244.5
<i>Haywood</i>	388	491.3	150	182.9
<i>Henderson</i>	620	437.1	243	161.1
<i>Hertford</i>	120	412.4	70	240.9
<i>Hoke</i>	112	393.2	66	263.8
<i>Hyde</i>	28	387.6	19	262.6
<i>Iredell</i>	668	484.3	223	165.3
<i>Jackson</i>	174	440.6	72	185.8

¹ Rates per 100,000 Population

Age-Adjusted to the 2000 U.S. Census

* Less than 10 Cases observed

** Rates based on less than 10 cases are unstable and therefore suppressed.

Table 5: 2004 Total Cancer Incidence and Mortality Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate</i> ¹	<i>Deaths</i>	<i>Rate</i> ¹
NORTH CAROLINA	41,211	482.9	16,436	196.4
<i>Johnston</i>	518	430.8	259	227.8
<i>Jones</i>	47	364.0	22	185.3
<i>Lee</i>	335	647.6	115	224.6
<i>Lenoir</i>	383	562.2	133	195.5
<i>Lincoln</i>	347	507.0	119	179.2
<i>McDowell</i>	243	492.3	110	219.9
<i>Macon</i>	197	397.5	102	199.7
<i>Madison</i>	114	459.9	53	203.2
<i>Martin</i>	123	414.4	75	251.6
<i>Mecklenburg</i>	2,801	455.5	1,038	181.5
<i>Mitchell</i>	104	478.0	40	168.4
<i>Montgomery</i>	133	429.1	67	222.3
<i>Moore</i>	599	512.2	251	207.6
<i>Nash</i>	510	538.9	206	221.2
<i>New Hanover</i>	938	505.5	364	198.8
<i>Northampton</i>	114	403.0	76	256.9
<i>Onslow</i>	513	521.8	209	228.1
<i>Orange</i>	529	532.7	169	188.2
<i>Pamlico</i>	94	491.3	32	167.1
<i>Pasquotank</i>	198	479.5	73	175.1
<i>Pender</i>	249	481.5	101	200.0
<i>Perquimans</i>	69	430.1	30	169.9
<i>Person</i>	189	458.7	73	179.1
<i>Pitt</i>	626	523.1	238	206.8
<i>Polk</i>	109	351.5	53	159.1
<i>Randolph</i>	656	472.1	252	185.1
<i>Richmond</i>	236	472.1	112	221.1
<i>Robeson</i>	564	497.7	250	231.6
<i>Rockingham</i>	533	489.9	239	216.3
<i>Rowan</i>	537	378.9	282	196.2
<i>Rutherford</i>	400	517.9	169	213.5
<i>Sampson</i>	282	446.6	125	202.2
<i>Scotland</i>	150	400.3	74	203.8
<i>Stanly</i>	360	550.4	136	205.5
<i>Stokes</i>	208	423.3	101	210.3
<i>Surry</i>	416	485.9	187	212.4
<i>Swain</i>	71	435.2	33	199.6
<i>Transylvania</i>	198	441.5	73	150.8
<i>Tyrrell</i>	16	337.4	*	*
<i>Union</i>	509	397.7	233	195.9
<i>Vance</i>	217	478.1	96	213.9
<i>Wake</i>	2,616	481.7	862	180.5
<i>Warren</i>	113	445.1	57	223.6
<i>Washington</i>	89	521.2	42	242.7
<i>Watauga</i>	198	493.5	64	161.7
<i>Wayne</i>	505	439.3	259	234.9
<i>Wilkes</i>	392	499.1	154	198.4
<i>Wilson</i>	413	511.3	177	221.4
<i>Yadkin</i>	242	584.0	81	194.0
<i>Yancey</i>	115	453.4	44	172.9

¹ Rates per 100,000 Population

Age-Adjusted to the 2000 U.S. Census

* Less than 10 Cases observed

** Rates based on less than 10 cases are unstable and therefore suppressed.

Table 6: 2004 Colon/Rectum Cancer Incidence Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate¹</i>
NORTH CAROLINA	4,392	51.8
<i>Alamance</i>	81	55.6
<i>Alexander</i>	10	28.5
<i>Alleghany</i>	*	*
<i>Anson</i>	11	37.4
<i>Ashe</i>	16	43.1
<i>Avery</i>	10	45.1
<i>Beaufort</i>	36	63.5
<i>Bertie</i>	22	91.2
<i>Bladen</i>	17	45.0
<i>Brunswick</i>	48	39.2
<i>Buncombe</i>	115	44.2
<i>Burke</i>	27	27.7
<i>Cabarrus</i>	68	50.5
<i>Caldwell</i>	44	51.0
<i>Camden</i>	*	*
<i>Carteret</i>	49	54.5
<i>Caswell</i>	11	42.9
<i>Catawba</i>	96	64.5
<i>Chatham</i>	25	38.6
<i>Cherokee</i>	19	47.3
<i>Chowan</i>	*	*
<i>Clay</i>	*	*
<i>Cleveland</i>	79	74.7
<i>Columbus</i>	25	40.3
<i>Craven</i>	69	68.7
<i>Cumberland</i>	138	63.8
<i>Currituck</i>	*	*
<i>Dare</i>	13	29.5
<i>Davidson</i>	102	62.1
<i>Davie</i>	13	31.0
<i>Duplin</i>	18	34.3
<i>Durham</i>	98	49.3
<i>Edgecombe</i>	33	55.7
<i>Forsyth</i>	150	45.4
<i>Franklin</i>	20	40.3
<i>Gaston</i>	109	53.8
<i>Gates</i>	*	*
<i>Graham</i>	*	*
<i>Granville</i>	43	81.6
<i>Greene</i>	13	63.6
<i>Guilford</i>	211	49.2
<i>Halifax</i>	41	61.8
<i>Harnett</i>	45	52.0
<i>Haywood</i>	44	53.0
<i>Henderson</i>	70	46.7
<i>Hertford</i>	17	58.2
<i>Hoke</i>	*	*
<i>Hyde</i>	*	*
<i>Iredell</i>	90	64.9
<i>Jackson</i>	22	56.9

¹ Rates per 100,000 Population

Age-Adjusted to the 2000 U.S. Census

* Less than 10 Cases observed

** Rates based on less than 10 cases are unstable and therefore suppressed.

Table 6: 2004 Colon/Rectum Cancer Incidence Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate¹</i>
NORTH CAROLINA	4,392	51.8
<i>Johnston</i>	38	32.7
<i>Jones</i>	*	*
<i>Lee</i>	39	74.6
<i>Lenoir</i>	47	67.7
<i>Lincoln</i>	46	68.7
<i>McDowell</i>	28	55.6
<i>Macon</i>	22	48.5
<i>Madison</i>	11	45.3
<i>Martin</i>	16	53.6
<i>Mecklenburg</i>	303	50.8
<i>Mitchell</i>	13	59.9
<i>Montgomery</i>	18	57.0
<i>Moore</i>	61	48.2
<i>Nash</i>	72	78.1
<i>New Hanover</i>	94	50.9
<i>Northampton</i>	12	38.8
<i>Onslow</i>	47	51.3
<i>Orange</i>	44	44.5
<i>Pamlico</i>	*	*
<i>Pasquotank</i>	28	67.4
<i>Pender</i>	27	52.3
<i>Perquimans</i>	*	*
<i>Person</i>	21	51.7
<i>Pitt</i>	56	46.5
<i>Polk</i>	12	38.8
<i>Randolph</i>	61	44.7
<i>Richmond</i>	28	56.0
<i>Robeson</i>	59	53.0
<i>Rockingham</i>	68	61.2
<i>Rowan</i>	52	36.3
<i>Rutherford</i>	63	80.3
<i>Sampson</i>	30	46.6
<i>Scotland</i>	15	41.3
<i>Stanly</i>	43	65.0
<i>Stokes</i>	16	33.0
<i>Surry</i>	46	53.9
<i>Swain</i>	*	*
<i>Transylvania</i>	16	37.2
<i>Tyrrell</i>	*	*
<i>Union</i>	69	56.7
<i>Vance</i>	25	55.7
<i>Wake</i>	221	43.6
<i>Warren</i>	16	62.5
<i>Washington</i>	11	68.8
<i>Watauga</i>	12	29.9
<i>Wayne</i>	69	61.4
<i>Wilkes</i>	34	43.8
<i>Wilson</i>	53	66.2
<i>Yadkin</i>	25	59.7
<i>Yancey</i>	16	61.2

¹ Rates per 100,000 Population

Age-Adjusted to the 2000 U.S. Census

* Less than 10 Cases observed

** Rates based on less than 10 cases are unstable and therefore suppressed.

Table 7: 2004 Lung/Bronchus Cancer Incidence Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate ¹</i>
NORTH CAROLINA	6,157	72.6
<i>Alamance</i>	122	82.8
<i>Alexander</i>	26	71.1
<i>Alleghany</i>	*	*
<i>Anson</i>	15	50.8
<i>Ashe</i>	25	70.0
<i>Avery</i>	20	91.3
<i>Beaufort</i>	40	68.0
<i>Bertie</i>	13	53.0
<i>Bladen</i>	25	63.6
<i>Brunswick</i>	86	68.4
<i>Buncombe</i>	187	72.4
<i>Burke</i>	55	54.6
<i>Cabarrus</i>	110	82.4
<i>Caldwell</i>	67	73.8
<i>Camden</i>	*	*
<i>Carteret</i>	69	75.3
<i>Caswell</i>	14	50.9
<i>Catawba</i>	106	70.1
<i>Chatham</i>	20	30.1
<i>Cherokee</i>	30	72.6
<i>Chowan</i>	11	55.4
<i>Clay</i>	*	*
<i>Cleveland</i>	129	119.5
<i>Columbus</i>	48	78.4
<i>Craven</i>	95	96.0
<i>Cumberland</i>	178	76.5
<i>Currituck</i>	15	71.4
<i>Dare</i>	18	45.4
<i>Davidson</i>	136	82.1
<i>Davie</i>	31	71.2
<i>Duplin</i>	26	49.4
<i>Durham</i>	124	64.3
<i>Edgecombe</i>	48	84.3
<i>Forsyth</i>	243	74.0
<i>Franklin</i>	36	75.5
<i>Gaston</i>	202	99.4
<i>Gates</i>	*	*
<i>Graham</i>	*	*
<i>Granville</i>	41	74.3
<i>Greene</i>	*	*
<i>Guilford</i>	300	72.1
<i>Halifax</i>	35	52.7
<i>Harnett</i>	56	66.3
<i>Haywood</i>	51	63.3
<i>Henderson</i>	77	50.3
<i>Hertford</i>	15	49.8
<i>Hoke</i>	26	97.2
<i>Hyde</i>	*	*
<i>Iredell</i>	88	64.3
<i>Jackson</i>	28	69.1

¹Rates per 100,000 Population

Age-Adjusted to the 2000 U.S. Census

* Less than 10 Cases observed

** Rates based on less than 10 cases are unstable and therefore suppressed.

Table 7: 2004 Lung/Bronchus Cancer Incidence Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate ¹</i>
NORTH CAROLINA	6,157	72.6
<i>Johnston</i>	103	88.6
<i>Jones</i>	12	90.4
<i>Lee</i>	61	119.9
<i>Lenoir</i>	55	78.4
<i>Lincoln</i>	45	66.6
<i>McDowell</i>	33	64.7
<i>Macon</i>	28	54.3
<i>Madison</i>	18	71.8
<i>Martin</i>	22	71.4
<i>Mecklenburg</i>	330	57.5
<i>Mitchell</i>	12	51.1
<i>Montgomery</i>	21	68.9
<i>Moore</i>	108	88.3
<i>Nash</i>	75	78.3
<i>New Hanover</i>	161	86.8
<i>Northampton</i>	15	51.2
<i>Onslow</i>	98	104.8
<i>Orange</i>	68	73.2
<i>Pamlico</i>	*	*
<i>Pasquotank</i>	26	62.7
<i>Pender</i>	35	64.8
<i>Perquimans</i>	*	*
<i>Person</i>	27	62.8
<i>Pitt</i>	74	63.0
<i>Polk</i>	16	51.2
<i>Randolph</i>	114	82.1
<i>Richmond</i>	44	88.2
<i>Robeson</i>	108	95.3
<i>Rockingham</i>	88	80.9
<i>Rowan</i>	94	65.5
<i>Rutherford</i>	55	68.7
<i>Sampson</i>	47	75.5
<i>Scotland</i>	34	89.6
<i>Stanly</i>	54	80.3
<i>Stokes</i>	45	89.7
<i>Surry</i>	80	91.6
<i>Swain</i>	*	*
<i>Transylvania</i>	33	69.4
<i>Tyrrell</i>	*	*
<i>Union</i>	64	52.0
<i>Vance</i>	29	62.6
<i>Wake</i>	288	59.2
<i>Warren</i>	18	71.6
<i>Washington</i>	11	62.8
<i>Watauga</i>	26	65.0
<i>Wayne</i>	86	74.1
<i>Wilkes</i>	70	87.3
<i>Wilson</i>	55	68.1
<i>Yadkin</i>	35	85.6
<i>Yancey</i>	19	74.7

¹Rates per 100,000 Population
Age-Adjusted to the 2000 U.S. Census

* Less than 10 Cases observed

** Rates based on less than 10 cases are unstable and therefore suppressed.

Table 8: 2004 Female Breast Cancer Incidence Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate</i> ¹
NORTH CAROLINA	6,624	141.3
<i>Alamance</i>	93	116.7
<i>Alexander</i>	14	69.5
<i>Alleghany</i>	*	*
<i>Anson</i>	19	113.8
<i>Ashe</i>	14	82.6
<i>Avery</i>	16	136.8
<i>Beaufort</i>	52	170.5
<i>Bertie</i>	16	123.2
<i>Bladen</i>	18	86.6
<i>Brunswick</i>	75	127.5
<i>Buncombe</i>	201	143.4
<i>Burke</i>	38	74.6
<i>Cabarrus</i>	101	134.4
<i>Caldwell</i>	66	138.0
<i>Camden</i>	*	*
<i>Carteret</i>	63	141.9
<i>Caswell</i>	15	106.9
<i>Catawba</i>	112	133.2
<i>Chatham</i>	38	118.1
<i>Cherokee</i>	32	153.9
<i>Chowan</i>	11	109.9
<i>Clay</i>	*	*
<i>Cleveland</i>	99	173.4
<i>Columbus</i>	47	149.3
<i>Craven</i>	85	157.3
<i>Cumberland</i>	203	150.1
<i>Currituck</i>	11	91.1
<i>Dare</i>	24	110.1
<i>Davidson</i>	106	118.3
<i>Davie</i>	35	152.5
<i>Duplin</i>	23	82.8
<i>Durham</i>	185	162.7
<i>Edgecombe</i>	55	167.1
<i>Forsyth</i>	288	157.1
<i>Franklin</i>	35	129.3
<i>Gaston</i>	161	144.3
<i>Gates</i>	*	*
<i>Graham</i>	*	*
<i>Granville</i>	31	111.4
<i>Greene</i>	15	147.0
<i>Guilford</i>	298	126.6
<i>Halifax</i>	35	94.8
<i>Harnett</i>	35	74.0
<i>Haywood</i>	64	152.0
<i>Henderson</i>	90	117.2
<i>Hertford</i>	17	100.9
<i>Hoke</i>	17	98.5
<i>Hyde</i>	*	*
<i>Iredell</i>	120	157.8
<i>Jackson</i>	12	54.8

¹ Rates per 100,000 Population

Sex specific populations are used to calculate rates for sex-specific cancers.

Age-Adjusted to the 2000 U.S. Census

* Less than 10 cases observed

** Rates based on less than 10 cases are unstable and therefore suppressed.

Table 8: 2004 Female Breast Cancer Incidence Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate</i> ¹
NORTH CAROLINA	6,624	141.3
<i>Johnston</i>	84	122.1
<i>Jones</i>	*	*
<i>Lee</i>	61	213.9
<i>Lenoir</i>	60	153.8
<i>Lincoln</i>	50	133.9
<i>McDowell</i>	39	155.5
<i>Macon</i>	41	145.1
<i>Madison</i>	18	135.9
<i>Martin</i>	21	124.2
<i>Mecklenburg</i>	521	144.7
<i>Mitchell</i>	22	225.8
<i>Montgomery</i>	24	145.3
<i>Moore</i>	104	173.3
<i>Nash</i>	93	178.9
<i>New Hanover</i>	168	165.2
<i>Northampton</i>	16	112.2
<i>Onslow</i>	81	148.6
<i>Orange</i>	100	181.7
<i>Pamlico</i>	19	194.4
<i>Pasquotank</i>	37	168.5
<i>Pender</i>	32	118.9
<i>Perquimans</i>	14	185.1
<i>Person</i>	30	128.1
<i>Pitt</i>	103	152.9
<i>Polk</i>	20	124.1
<i>Randolph</i>	94	121.8
<i>Richmond</i>	43	150.7
<i>Robeson</i>	80	127.0
<i>Rockingham</i>	79	130.4
<i>Rowan</i>	106	142.6
<i>Rutherford</i>	64	154.6
<i>Sampson</i>	37	106.3
<i>Scotland</i>	23	107.1
<i>Stanly</i>	52	150.5
<i>Stokes</i>	43	158.8
<i>Surry</i>	63	140.6
<i>Swain</i>	11	123.9
<i>Transylvania</i>	28	110.0
<i>Tyrrell</i>	*	*
<i>Union</i>	82	115.3
<i>Vance</i>	32	124.9
<i>Wake</i>	505	158.8
<i>Warren</i>	24	176.6
<i>Washington</i>	18	191.8
<i>Watauga</i>	35	164.9
<i>Wayne</i>	95	149.3
<i>Wilkes</i>	40	97.7
<i>Wilson</i>	84	184.3
<i>Yadkin</i>	31	137.1
<i>Yancey</i>	15	114.5

¹ Rates per 100,000 Population

Sex specific populations are used to calculate rates for sex-specific cancers.

Age-Adjusted to the 2000 U.S. Census

* Less than 10 cases observed

** Rates based on less than 10 cases are unstable and therefore suppressed.

Table 9: 2004 Prostate Cancer Incidence Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate</i> ¹
NORTH CAROLINA	5,618	148.7
<i>Alamance</i>	95	153.7
<i>Alexander</i>	25	149.5
<i>Alleghany</i>	10	139.8
<i>Anson</i>	19	152.8
<i>Ashe</i>	21	130.5
<i>Avery</i>	13	137.7
<i>Beaufort</i>	32	114.9
<i>Bertie</i>	19	177.2
<i>Bladen</i>	19	105.4
<i>Brunswick</i>	43	67.7
<i>Buncombe</i>	175	152.3
<i>Burke</i>	47	106.7
<i>Cabarrus</i>	86	148.3
<i>Caldwell</i>	31	76.7
<i>Camden</i>	*	*
<i>Carteret</i>	65	154.8
<i>Caswell</i>	14	111.5
<i>Catawba</i>	93	139.9
<i>Chatham</i>	41	139.7
<i>Cherokee</i>	*	*
<i>Chowan</i>	13	147.8
<i>Clay</i>	10	133.2
<i>Cleveland</i>	99	214.2
<i>Columbus</i>	42	157.7
<i>Craven</i>	87	181.5
<i>Cumberland</i>	169	168.2
<i>Currituck</i>	*	*
<i>Dare</i>	19	106.6
<i>Davidson</i>	98	130.9
<i>Davie</i>	31	153.6
<i>Duplin</i>	20	85.6
<i>Durham</i>	201	238.5
<i>Edgecombe</i>	47	188.3
<i>Forsyth</i>	248	175.2
<i>Franklin</i>	25	122.0
<i>Gaston</i>	129	152.0
<i>Gates</i>	*	*
<i>Graham</i>	*	*
<i>Granville</i>	32	134.0
<i>Greene</i>	*	*
<i>Guilford</i>	309	167.1
<i>Halifax</i>	53	199.0
<i>Harnett</i>	58	137.9
<i>Haywood</i>	57	151.0
<i>Henderson</i>	87	131.6
<i>Hertford</i>	19	158.5
<i>Hoke</i>	22	156.4
<i>Hyde</i>	*	*
<i>Iredell</i>	97	159.7
<i>Jackson</i>	21	102.1

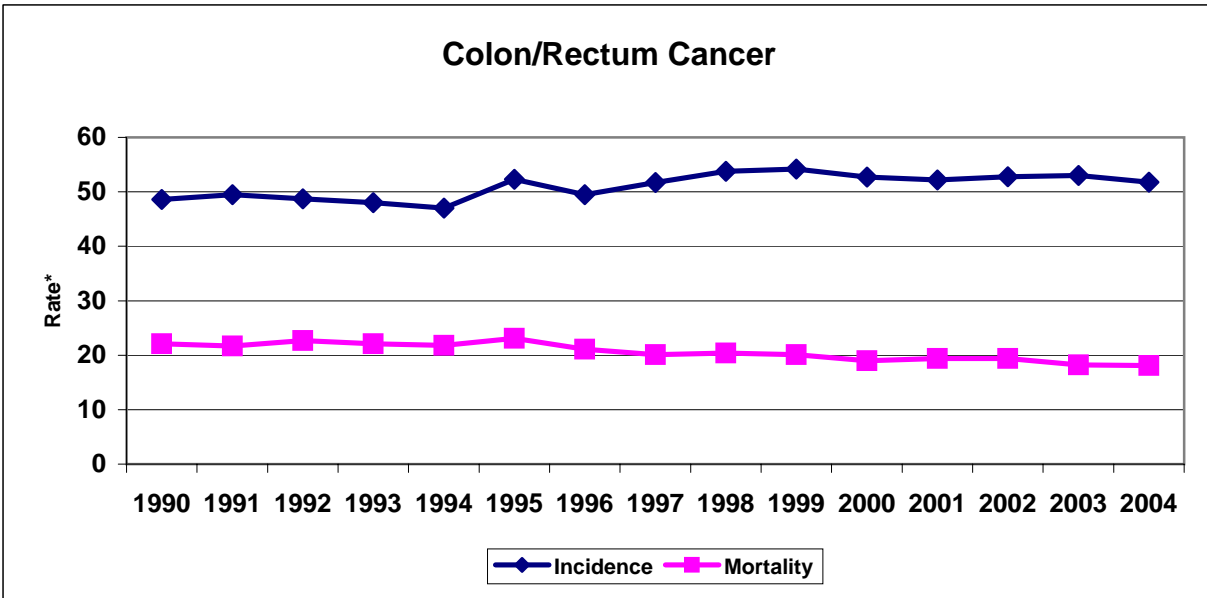
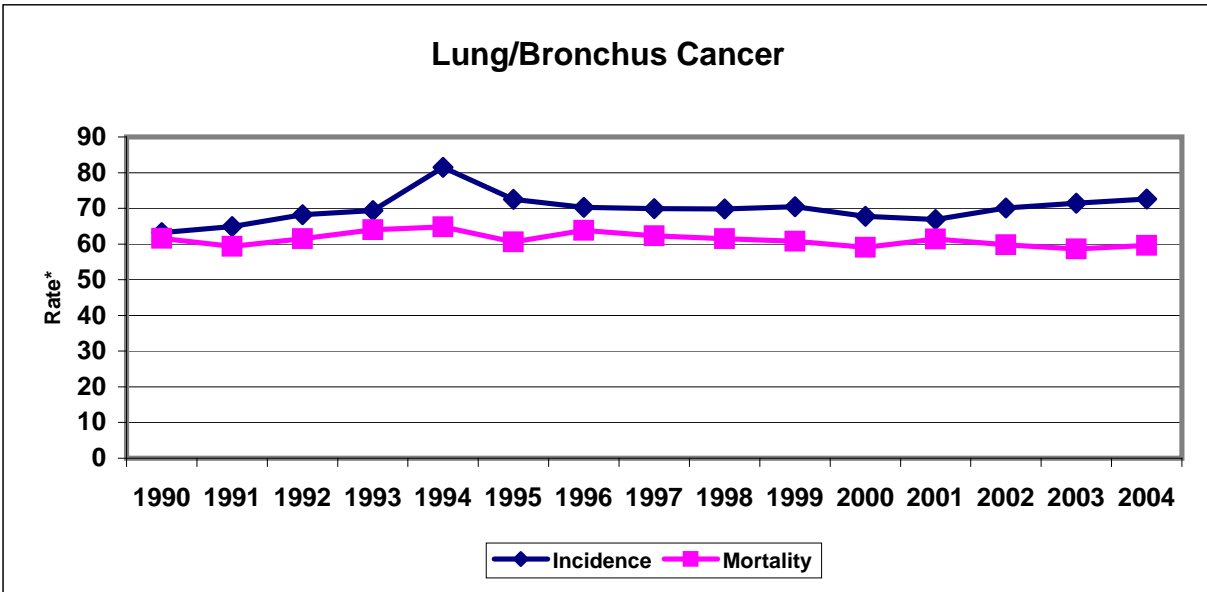
¹ Rates per 100,000 Population
Sex specific populations are used to calculate rates for sex-specific cancers.
Age-Adjusted to the 2000 U.S. Census
* Less than 10 cases observed
** Rates based on less than 10 cases are unstable and therefore suppressed.

Table 9: 2004 Prostate Cancer Incidence Rates By County

<i>County</i>	<i>Cases</i>	<i>Rate</i> ¹
NORTH CAROLINA	5,618	148.7
<i>Johnston</i>	52	102.8
<i>Jones</i>	*	*
<i>Lee</i>	46	207.0
<i>Lenoir</i>	64	212.5
<i>Lincoln</i>	44	139.5
<i>McDowell</i>	28	119.9
<i>Macon</i>	17	69.2
<i>Madison</i>	14	115.0
<i>Martin</i>	15	130.8
<i>Mecklenburg</i>	390	149.4
<i>Mitchell</i>	10	93.2
<i>Montgomery</i>	14	107.0
<i>Moore</i>	73	127.4
<i>Nash</i>	58	153.8
<i>New Hanover</i>	105	122.8
<i>Northampton</i>	23	179.7
<i>Onslow</i>	54	125.3
<i>Orange</i>	76	175.6
<i>Pamlico</i>	17	173.3
<i>Pasquotank</i>	36	211.8
<i>Pender</i>	25	98.3
<i>Perquimans</i>	10	128.4
<i>Person</i>	24	140.4
<i>Pitt</i>	95	201.8
<i>Polk</i>	13	93.5
<i>Randolph</i>	93	155.6
<i>Richmond</i>	29	135.8
<i>Robeson</i>	114	231.5
<i>Rockingham</i>	65	130.4
<i>Rowan</i>	35	53.7
<i>Rutherford</i>	49	141.5
<i>Sampson</i>	47	171.3
<i>Scotland</i>	20	109.6
<i>Stanly</i>	41	144.4
<i>Stokes</i>	19	92.2
<i>Surry</i>	45	114.8
<i>Swain</i>	*	*
<i>Transylvania</i>	32	141.5
<i>Tyrrell</i>	*	*
<i>Union</i>	63	112.6
<i>Vance</i>	36	185.1
<i>Wake</i>	383	164.4
<i>Warren</i>	19	171.8
<i>Washington</i>	13	196.5
<i>Watauga</i>	14	73.7
<i>Wayne</i>	56	107.0
<i>Wilkes</i>	73	197.3
<i>Wilson</i>	59	169.7
<i>Yadkin</i>	31	174.8
<i>Yancey</i>	15	123.0

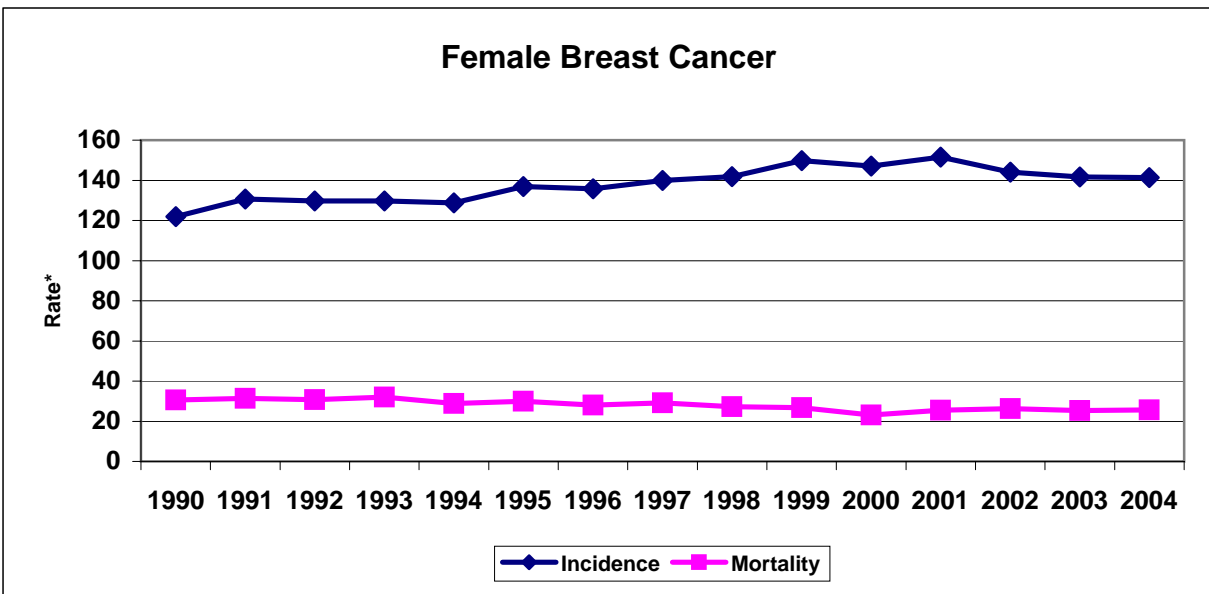
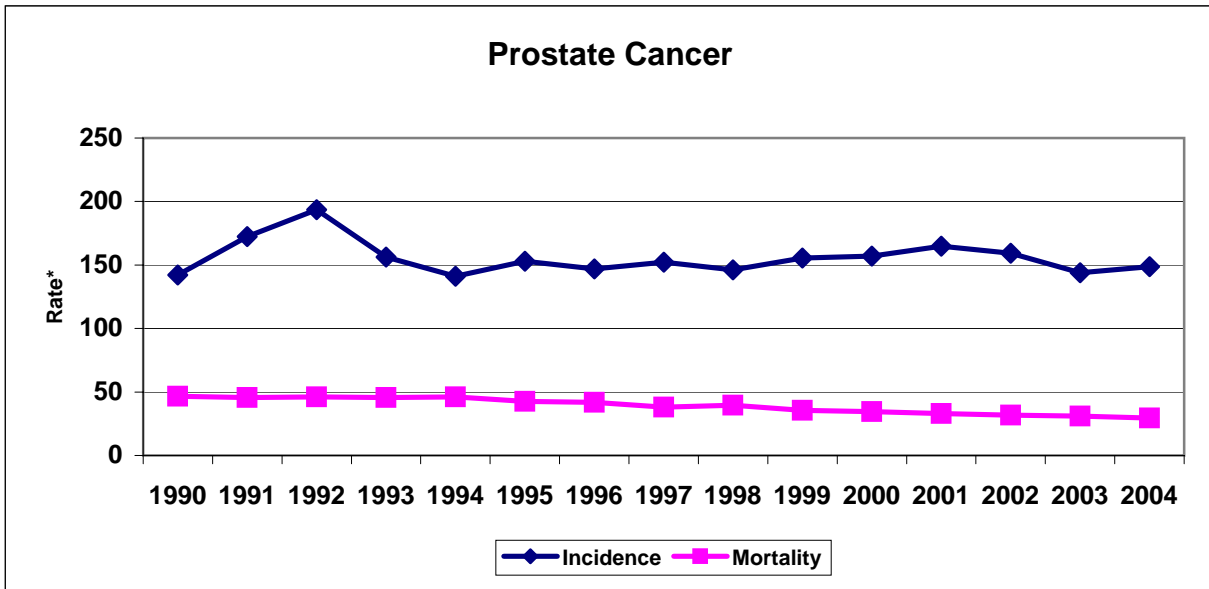
¹ Rates per 100,000 Population
Sex specific populations are used to calculate rates for sex-specific cancers.
Age-Adjusted to the 2000 U.S. Census
* Less than 10 cases observed
** Rates based on less than 10 cases are unstable and therefore suppressed.

**Chart 1: Trends For The Four Major Cancers
1990-2004**



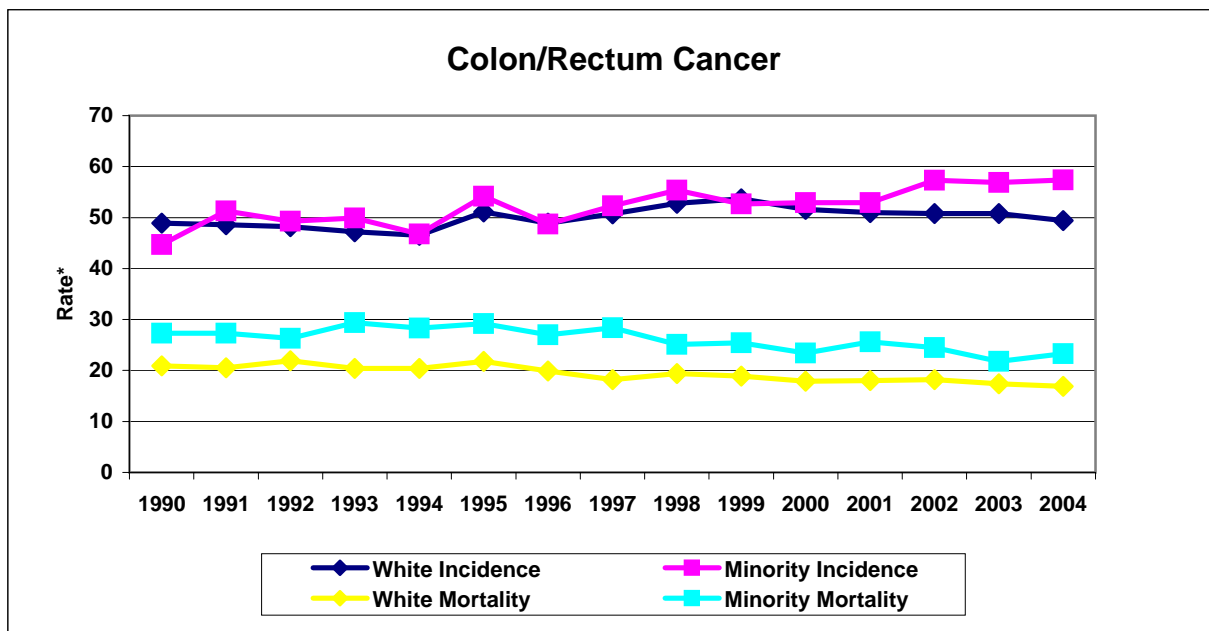
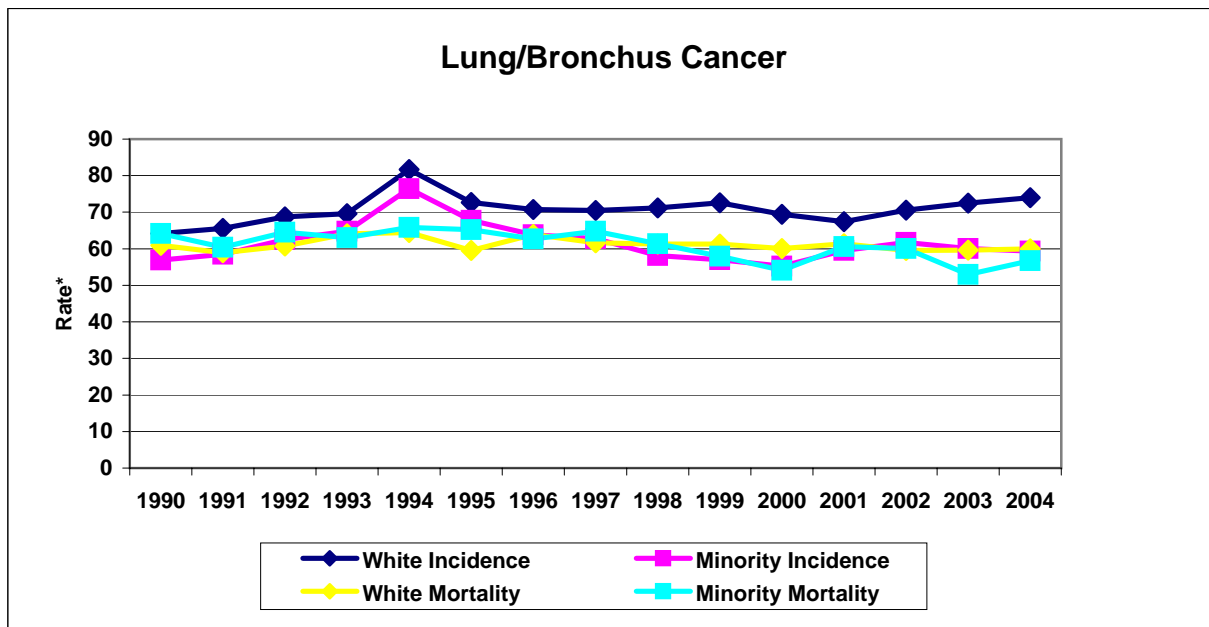
* Rates per 100,000 Population
Age-Adjusted to the 2000 U.S. Census

**Chart 1: Trends For The Four Major Cancers
1990-2004**



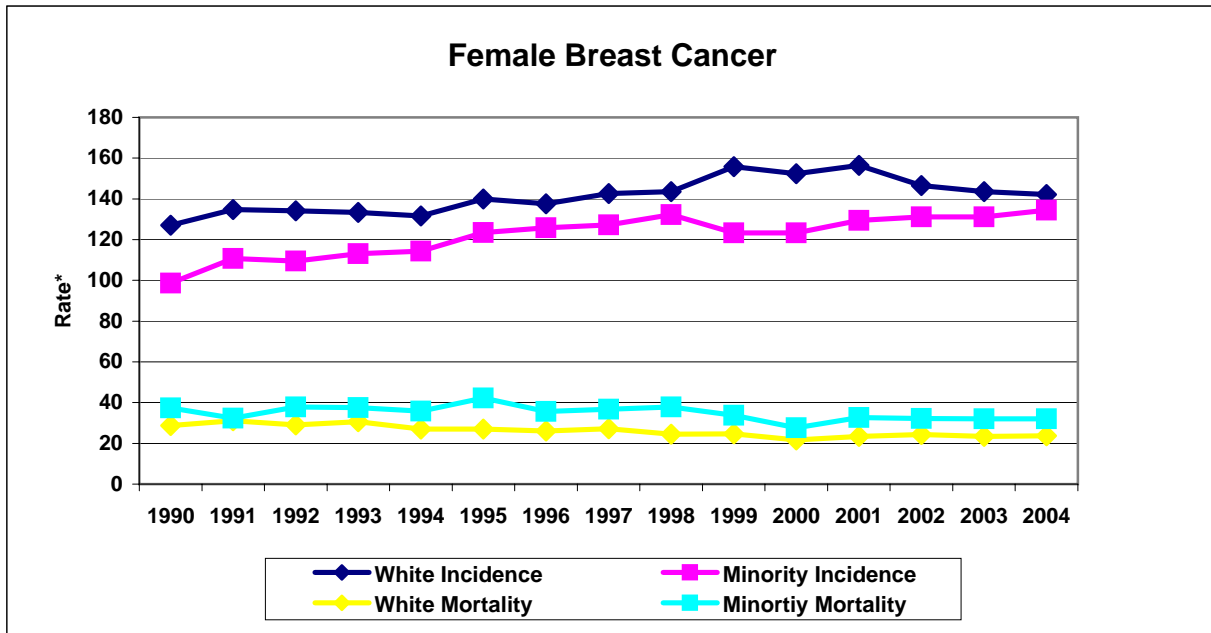
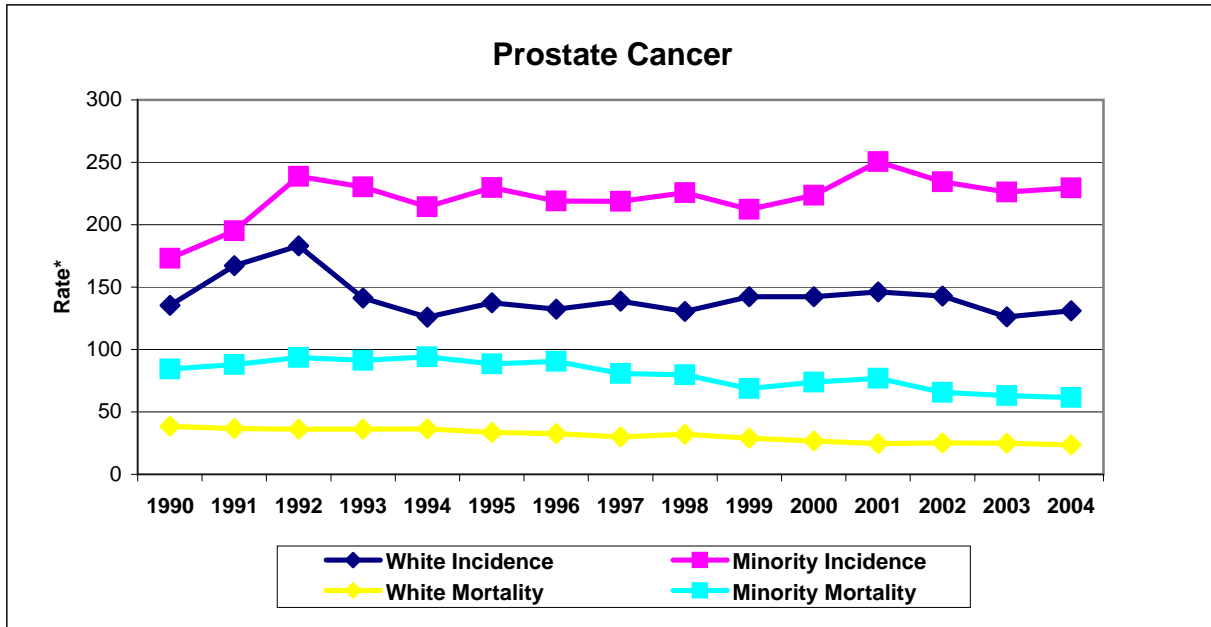
* Rates per 100,000 Population
Age-Adjusted to the 2000 U.S. Census

**Chart 2 (Continued): White and Minority Trends For The Four Major Cancers
1990-2004**



* Rates per 100,000 Population
Age-Adjusted to the 2000 U.S. Census

Chart 2 (Continued): White and Minority Trends For The Four Major Cancers



* Rates per 100,000 Population
Age-Adjusted to the 2000 U.S. Census

Table 10: Five Most Frequently Diagnosed Cancers By Age Group, 2004

The cancers listed are the five most frequently diagnosed cancers for each age group. Different age groups are at higher risks for different types of cancer. As age increases, the risk of cancer increases.

Ages 0-14			Ages 15-19		
Type	Cases	Rate*	Type	Cases	Rate*
Leukemia	71	4.1	Brain/CNS	15	2.5
Brain/CNS	61	3.5	Hodgkin's Disease	15	2.5
Kidney	21	1.2	Leukemia	13	2.2
Bone	19	1.1	NH Lymphoma	12	2.0
Endocrine	19	1.1	Bone	#	**
Ages 20-24			Ages 25-29		
Type	Cases	Rate*	Type	Cases	Rate*
Melanoma(Skin)	31	4.8	Endocrine	50	8.9
Endocrine	27	4.2	Melanoma(Skin)	49	8.7
Hodgkin's Disease	23	3.6	Testes ¹	40	13.8
Testes ¹	20	5.9	Hodgkin's Disease	28	5.0
NH Lymphoma	14	2.2	Female Breast ¹	18	6.6
Ages 30-34			Ages 35-39		
Type	Cases	Rate*	Type	Cases	Rate*
Female Breast ¹	96	30.6	Female Breast ¹	237	75.7
Melanoma(Skin)	85	13.4	Endocrine	110	17.5
Endocrine	67	10.5	Melanoma(Skin)	93	14.8
Testes ¹	41	12.7	Colon/Rectum	56	8.9
Colon/Rectum	38	6.0	Cervix Uteri ¹	48	15.3
Ages 40-44			Ages 45-49		
Type	Cases	Rate*	Type	Cases	Rate*
Female Breast ¹	442	131.4	Female Breast ¹	686	213.5
Melanoma(Skin)	145	21.7	Lung/Bronchus	233	37.0
Colon/Rectum	104	15.6	Colon/rectum	193	30.6
Lung/Bronchus	103	15.4	Melanoma(Skin)	147	23.3
Endocrine	96	14.4	Prostate ¹	121	39.2

*Rates Per 100,000 Population

Less than 10 cases observed

** Rates based on less than 10 Cases are unstable and therefore suppressed.

¹ Sex specific populations are used to calculate rates for sex-specific cancers.

Table 10: Five Most Frequently Diagnosed Cancers By Age Group, 2004

The cancers listed are the five most frequently diagnosed cancers for each age group. Different age groups are at higher risks for different types of cancer. As age increases, the risk of cancer increases.

Ages 50-54			Ages 55-59		
Type	Cases	Rate*	Type	Cases	Rate
Female Breast ¹	746	257.5	Female Breast ¹	833	328.1
Prostate ¹	442	162.5	Prostate ¹	780	329.1
Lung/Bronchus	397	70.7	Lung/Bronchus	613	124.9
Colon/Rectum	367	65.3	Colon/Rectum	473	96.4
Melanoma(Skin)	205	36.5	Melanoma(Skin)	239	48.7
Ages 60-64			Ages 65-69		
Type	Cases	Rate*	Type	Cases	Rate*
Prostate ¹	945	525.8	Prostate ¹	1,116	810.0
Lung/Bronchus	868	229.8	Lung/Bronchus	1,001	334.7
Female Breast ¹	756	381.9	Female Breast ¹	727	450.7
Colon/Rectum	499	132.1	Colon/Rectum	572	191.3
Melanoma(Skin)	216	57.2	Melanoma(Skin)	254	84.9
Ages 70-74			Ages 75-79		
Type	Cases	Rate*	Type	Cases	Rate*
Lung/Bronchus	1,066	431.8	Lung/Bronchus	951	463.8
Prostate ¹	972	897.5	Prostate ¹	703	845.1
Female Breast ¹	715	516.1	Colon/Rectum	596	290.7
Colon/Rectum	613	248.3	Female Breast ¹	627	514.5
Bladder	278	112.6	Bladder	276	134.6
Ages 80-84			Ages 85+		
Type	Cases	Rate*	Type	Cases	Rate*
Lung/Bronchus	588	408.2	Colon/Rectum	379	311.0
Colon/Rectum	482	334.6	Female Breast ¹	310	354.1
Female Breast ¹	428	462.8	Lung/Bronchus	300	246.2
Prostate ¹	323	626.3	Prostate ¹	184	536.2
Bladder	241	167.3	Bladder	181	148.5

*Rates Per 100,000 Population

Less than 10 cases observed

** Rates based on less than 10 Cases are unstable and therefore suppressed.

¹ Sex specific populations are used to calculate rates for sex-specific cancers.

Appendix A

Primary Site Definitions

International Classification of Disease for Oncology (ICD-O-3) Codes for Newly Diagnosed Neoplasms¹

Primary Site	ICD-O-3
All Sites	C000-C809
Oral Cavity and Pharynx:	C000-C148
❖ Lips	C000-C009
❖ Tongue	C019-C029
❖ Salivary Glands	C079-C089
❖ Floor of Mouth	C040-C049
❖ Nasopharynx	C110-C119
❖ Oropharynx	C100-C109
❖ Hypopharynx	C129-C139
❖ Other Mouth and Pharynx	C030-C039, C050-C069, C090-C099, C140, C142-C148
Digestive System:	C150-C269, C480-C488
❖ Esophagus	C150-C159
❖ Stomach	C160-C169
❖ Small Intestine	C170-C179
❖ Colon and Rectum	C180-C209, C260
❖ Anus, Anal Cavity and Anorectum	C210-C212, C218
❖ Liver and Intrahepatic Bile Duct	C220-C221
❖ Gallbladder	C239
❖ Pancreas	C250-C259
❖ Other Digestive Organs	C240-C249, C268-C269, C480-C488
Respiratory System:	C300-C399
❖ Larynx	C320-C329
❖ Lung and Bronchus	C340-C349
❖ Other Respiratory Organs	C300-C319, C339, C381-C399
Bones and Joints	C400-C419
Soft Tissues	C380, C470-C479, C490-C499
Skin	C440-C449
❖ Melanoma of Skin	C440-C449 (M8720-M8790)
❖ Other Skin	C440-C449 (Other histology)
Breast	C500-C509
❖ Invasive	C500-C509 (Behavior=3)
❖ In Situ	C500-C509 (Behavior=2)
Female Genital Organs:	C530-C589
❖ Cervix Uteri	C530-C539
❖ Uterus (Corpus, NOS)	C540-C559
❖ Ovary	C569
❖ Other Female Genital Organs	C510-C529, C570-C589

Appendix A (Continued)

Primary Site Definitions

International Classification of Disease for Oncology (ICD-O-3) Codes for Newly Diagnosed Neoplasms¹

Male Genital Organs:	C600-C639
❖ Prostate	C619
❖ Testis	C620-C629
❖ Penis	C600-C609
❖ Other Male Genital Organs	C630-C639
Urinary System:	C649-C689
❖ Bladder	C670-C679
❖ Kidney and Renal Pelvis	C649, C659
❖ Ureter	C669
❖ Other Urinary System	C680-C689
Eye & Orbit:	C690-C699
Brain & Central Nervous System (CNS):	C700-C729
Endocrine System:	C379, C739-C759
❖ Thyroid	C739
❖ Other Endocrine and Thymus	C379, C740-C759
Lymphomas:	M9590-M9717
❖ Hodgkin's Disease	M9650-M9667
❖ Non-Hodgkin's	M9590-M9596, M9670-M9671, M9673,M9675,M9678-M9680,M9684,M9687,M9689-M9691,M9695,M9698- M9702,M9705,M9708-M9709,M9714-M9719,M9727-M9729,M9823,M9827
Multiple Myeloma:	M9731-M9732,M9734
Leukemia:	M9800-M9948
❖ Acute Lymphocytic	M9826, M9835-M9837
❖ Chronic Lymphocytic	M9823
❖ Acute Myeloid	M9840, M9861, M9866, M9867, M9871-M9874, M9895-M9897,M9910,M9920
❖ Chronic Myeloid	M9863,M9875,M9876, M9945,M9946
❖ Other Leukemia	M9733, M9742,M9800-M9801,M9805, M9827,M9831, M9870, M9931, M9948, M9963-M9964
Ill-Defined & Unspecified	M9740-M9741,M9750-M9758,M9760- M9769,M9950-M9960-M9962,M9970,M9975,M9980,M9982-M9978,M9989

¹ Based on the SEER Incidence Site ICD-O-3 Recode, 1/27/2003
<http://seer.cancer.gov/siterecode/>

Note: Except for lymphoma, multiple myeloma, and leukemia, all categorized sites exclude M9590-M9989 unless otherwise stated.

Appendix B

Formulae

Mathematical definitions:

Age Group (i):

0-4	45-49
5-9	50-54
10-14	55-59
15-19	60-64
20-24	65-69
25-29	70-74
30-34	74-79
35-39	80-84
40-44	85+

Age-specific rate:

$$r_i = (c_i/r_i)*100,000$$

where r_i is the age-specific rate for age group (i), c_i is the count of cases for that age group (i) and r_i is the count of persons at risk (i.e., the population) for that age group (i); rates in all tables are presented per 100,000 population.

Observed:

- ◆ Male Observed = Number of new cases of cancer among males
- ◆ Female Observed = Number of new cases of cancer among females

Age-adjusted rate:

$$A.A.R. = \sum_{i=0-4}^{85+} (w_i r_i)$$

where w_i is the proportion of the age group in the 2000 U.S. Standard and r_i is the age-specific rate for age group.

**Appendix C: Population By County And Race/Gender
North Carolina, 2004**

County	White Males	White Females	Minority Males	Minority Females
NORTH CAROLINA	3178408	3200507	1026734	1135614
<i>Alamance</i>	52970	55444	13288	15424
<i>Alexander</i>	16476	16509	1048	1107
<i>Alleghany</i>	5245	5401	124	77
<i>Anson</i>	6379	6371	6459	6517
<i>Ashe</i>	12269	12458	206	171
<i>Avery</i>	8877	8201	817	105
<i>Beaufort</i>	15818	16645	6120	7277
<i>Bertie</i>	3488	3701	5786	6742
<i>Bladen</i>	9861	9885	6145	7105
<i>Brunswick</i>	35667	36412	6157	6798
<i>Buncombe</i>	93991	101213	9694	10214
<i>Burke</i>	38647	39315	6069	4864
<i>Cabarrus</i>	62682	63066	9975	10905
<i>Caldwell</i>	36284	37031	2617	2616
<i>Camden</i>	3521	3607	674	723
<i>Carteret</i>	27729	28919	2578	2644
<i>Caswell</i>	7746	7399	4393	4132
<i>Catawba</i>	63986	64576	9353	9874
<i>Chatham</i>	22744	22764	4457	5035
<i>Cherokee</i>	12000	12637	513	540
<i>Chowan</i>	4294	4627	2519	3031
<i>Clay</i>	4634	4850	56	78
<i>Cleveland</i>	36824	38762	10192	11622
<i>Columbus</i>	17447	18009	8982	10126
<i>Craven</i>	33888	32395	12489	13208
<i>Cumberland</i>	93617	85373	63719	68141
<i>Currituck</i>	10054	10161	780	881
<i>Dare</i>	16630	16301	660	657
<i>Davidson</i>	67187	69242	7881	8954
<i>Davie</i>	17343	17802	1353	1429
<i>Duplin</i>	19020	17733	6772	7957
<i>Durham</i>	64764	64474	50707	58920
<i>Edgecombe</i>	10860	11346	14358	17352
<i>Forsyth</i>	112237	117440	41794	49293
<i>Franklin</i>	18755	18447	7511	8169
<i>Gaston</i>	78657	82177	14505	16705
<i>Gates</i>	3339	3386	2050	2211
<i>Graham</i>	3630	3801	306	337
<i>Granville</i>	18008	16318	10276	8340
<i>Greene</i>	6021	5572	4356	4049
<i>Guilford</i>	138520	144612	70648	80913
<i>Halifax</i>	11275	12371	15658	17172
<i>Harnett</i>	37375	37118	12066	13069
<i>Haywood</i>	26481	28622	663	732
<i>Henderson</i>	44600	47161	2157	2206
<i>Hertford</i>	4312	4561	6563	8294
<i>Hoke</i>	10174	9215	9389	9848
<i>Hyde</i>	1849	1719	1232	842
<i>Iredell</i>	57081	57771	9891	11265
<i>Jackson</i>	15129	15788	2369	2343

**Appendix C: Population By County And Race/Gender
North Carolina, 2004**

County	White Males	White Females	Minority Males	Minority Females
NORTH CAROLINA	3178408	3200507	1026734	1135614
<i>Johnston</i>	59474	58569	11345	12003
<i>Jones</i>	3275	3281	1697	1988
<i>Lee</i>	19851	19444	5086	5765
<i>Lenoir</i>	16617	17312	11340	13277
<i>Lincoln</i>	31675	31620	2316	2459
<i>McDowell</i>	20144	20471	1555	1077
<i>Macon</i>	14862	16223	394	290
<i>Madison</i>	9816	10083	174	131
<i>Martin</i>	6258	6868	5130	6446
<i>Mecklenburg</i>	259390	252904	120652	135843
<i>Mitchell</i>	7810	8008	79	95
<i>Montgomery</i>	10511	10284	3255	3103
<i>Moore</i>	32217	33909	6125	7091
<i>Nash</i>	28104	29173	15790	17645
<i>New Hanover</i>	70061	72538	14585	17129
<i>Northampton</i>	4201	4381	6099	6885
<i>Onslow</i>	68751	53232	19811	17917
<i>Orange</i>	47214	50401	10705	12645
<i>Pamlico</i>	4870	4861	1818	1525
<i>Pasquotank</i>	10486	10772	7948	8400
<i>Pender</i>	17674	17038	5206	5226
<i>Perquimans</i>	4178	4433	1462	1767
<i>Person</i>	12924	13354	4985	5722
<i>Pitt</i>	44080	46235	23285	27908
<i>Polk</i>	8474	9292	566	634
<i>Randolph</i>	62564	63209	4887	5145
<i>Richmond</i>	15168	15266	7782	8236
<i>Robeson</i>	22708	21936	39308	42602
<i>Rockingham</i>	35874	37532	8830	9882
<i>Rowan</i>	54704	54967	11513	11950
<i>Rutherford</i>	26751	28639	3825	4005
<i>Sampson</i>	21599	20872	9817	10342
<i>Scotland</i>	9014	9800	8277	9773
<i>Stanly</i>	25017	25477	4382	4202
<i>Stokes</i>	21355	22121	1147	1264
<i>Surry</i>	33631	34646	1975	2024
<i>Swain</i>	4348	4678	2163	2281
<i>Transylvania</i>	13427	14613	825	849
<i>Tyrrell</i>	1262	1178	1045	689
<i>Union</i>	66508	65268	9746	10325
<i>Vance</i>	10614	10999	10176	12040
<i>Wake</i>	275402	269122	84876	94308
<i>Warren</i>	4059	4029	5885	6101
<i>Washington</i>	3243	3364	3130	3743
<i>Watauga</i>	20802	20784	641	627
<i>Wayne</i>	36966	36785	19718	21641
<i>Wilkes</i>	31522	32135	1631	1694
<i>Wilson</i>	22259	22613	14535	17007
<i>Yadkin</i>	17536	17995	737	786
<i>Yancey</i>	8773	9085	100	113

Appendix D: U.S. Standard Million Population 2000

Ages 0-4	69135
Ages 5-9	72532
Ages 10-14	73032
Ages 15-19	72168
Ages 20-24	66478
Ages 25-29	64530
Ages 30-34	71044
Ages 35-39	80762
Ages 40-44	81851
Ages 45-49	72118
Ages 50-54	62716
Ages 55-59	48454
Ages 60-64	38793
Ages 65-69	34264
Ages 70-74	31773
Ages 75-79	27000
Ages 80-84	17842
Ages 85+	15508

Source: U.S. Bureau of the Census, Census of Population: 2000.