

## **Summary of Cancer Incidence and Mortality for Anderson County, SC**

### ***Cancer Incidence in Anderson County***

The first step in the analysis of cancer data for this county was to look at the number of new cancer cases diagnosed in the county and compare this to the number of cancer cases expected in this county (see Table 1). This first step determines if there is anything unusual with cancer patterns in the area. The number of "expected" cancer cases is calculated by using South Carolina cancer rates and applying them to the population of each county.

Table 1 shows what types of cancer were diagnosed in Anderson County from 1996-2000, and how many cancer cases were expected. Overall, there was a higher number of cases of cancer than expected in Anderson county; however this was not statistically significant. The most common types of cancer in this county were prostate, lung, female breast, and colon/rectum cancers. These types of cancer are also the most common cancers occurring across all of South Carolina.

The analysis revealed no specific types of cancer where the number of cases was significantly higher than expected.

### ***Cancer Deaths in Anderson County***

To assess cancer deaths in Anderson County, cancer mortality data from 1998-2002 were used. The process used to analyze new cancer cases was also used to analyze cancer deaths. Table 2 shows the number of cancer deaths that occurred in Anderson County and the number expected. Overall, the number of cancer deaths that occurred was less than expected in Anderson County.

In Anderson County, two specific types of cancer (**Brain/Central Nervous System (CNS) and Colon/Rectum**) had a significantly higher number of cancer deaths than expected. After further investigation, the number of Brain/CNS deaths occurring each year was similar from year to year during 1998-2002. With the consistency in number of deaths for all five years, a cluster of cancer is not likely. The only established environmental risk factor for brain cancer is radiation. Today, most radiation-induced brain tumors are caused by radiation to the head given for the treatment of other cancers. Other environmental factors such as exposure to vinyl chloride, aspartame, and electromagnetic fields from cellular telephones or power lines have been suggested as risk factors. However, most researchers in this field agree that no conclusive evidence exists that clearly implicates these factors. Other risk factors for brain cancer include having an impaired immune system or a family history of brain cancer.

As for Colon/rectum cancer, the risk of developing this cancer increases greatly after age 50. About 90% of people found to have colorectal cancer are older than 50. Obesity, a diet high in animal fat, physical inactivity and smoking also increase risk. Also a family history of polyposis or a personal history of colon/rectum cancer, intestinal polyps, or chronic inflammatory bowel disease increase the risk of developing colon/rectum cancer.

### ***Conclusions***

To summarize, overall a higher number of cases of cancer occurred in Anderson County than expected. However this was not statistically significant and there were no specific cancer types with an increased number of cases. The total number of cancer deaths in Anderson County was less than expected. In Anderson County, the number of Brain/CNS and Colon/rectum deaths was significantly higher than expected. Risk factors associated with Brain/CNS cancers include age and specific environmental exposures. The number of Brain/CNS cancer deaths occurred consistently during the five year time period and the survival time for certain types of brain cancer are relatively short. The risk factors for Colon/rectum cancer are also age related, as well as lifestyle behaviors.

In order for a true cancer cluster to exist, the number of cancers occurring must be more than would be expected by chance. Along with statistical testing, there are several other criteria that determine whether a true cancer cluster exists. First, a cancer cluster would more likely involve rarer types of cancer rather than more common cancers like lung or prostate cancers. Also, a cancer cluster would occur with one specific type of cancer rather than having excesses in several different types of cancer.

Taking all these criteria into consideration, the South Carolina Central Cancer Registry determined there is no evidence of cancer clustering in Anderson County.

For questions about this report, please contact Susan Bolick-Aldrich, MSPH, Director of the South Carolina Central Cancer Registry.

***Report provided by:***

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Information on cancer incidence provided by the SC Central Cancer Registry, Office of Public Health Statistics and Information Services, SC Dept. of Health and Environmental Control.

Information on cancer mortality provided by the Division of Vital Records and the Division of Biostatistics, SC Dept. of Health and Environmental Control. 05/25/04

**Table 1. Analysis of New Cancer Cases in Anderson County, 1996-2000**

<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>Observed/Expected</b>	<b>Chi-SquareTest*</b>
Prostate	636	659.74	0.96	0.85
Lung/Bronchus	604	630.88	0.96	1.14
Breast (Female)	592	582.15	1.02	0.17
Colon/Rectum	482	457.12	1.05	1.35
Bladder	181	157.05	1.15	3.65
Non-Hodgkin Lymphoma	134	128.68	1.04	0.22
Melanoma	129	132.43	0.97	0.09
Oral/Pharynx	111	112.99	0.98	0.04
Kidney/Renal Pelvis	110	99.90	1.10	1.02
Uterus	88	96.25	0.91	0.71
Pancreas	82	89.24	0.92	0.59
Leukemia	75	75.50	0.99	0.00
Ovary	67	64.70	1.04	0.08
Larynx	62	49.21	1.26	3.32
Brain/CNS	61	52.85	1.15	1.26
Multiple Myeloma	57	44.69	1.28	3.39
Stomach	53	62.58	0.85	1.47
Thyroid	47	39.90	1.18	1.26
Esophagus	35	54.59	0.64	7.03
Cervix	33	52.69	0.63	7.36
Other Female	27	20.27	1.33	2.23
Soft Tissue	23	21.07	1.09	0.18
Other Digestive	22	16.80	1.31	1.61
Liver	21	27.80	0.76	1.66
Hodgkin Disease	20	16.92	1.18	0.56
Testis	19	15.09	1.26	1.01
Anus/Anal Canal	17	11.29	1.51	2.88
Small Intestine	15	11.32	1.32	1.19
Other Respiratory	8	14.22	0.56	2.72
Bone/Joint	7	5.95	1.18	0.18
Gallbladder	6	8.61	0.70	0.79
Eye/Orbit	1	5.42	0.18	3.60
Unknown/III-Defined	120	NA	NA	NA
All Sites	3992	3953.57	1.01	0.37

Excludes in situ cases of cancer to allow for comparison.

Cancer sites with less than 5 cases of cancer expected are not analyzed due to the unreliability of statistical tests based on small numbers. These sites have been removed from this table.

\*The Chi-Square statistical test allows us to determine if the difference between what is observed and what is expected is significant. If the value is greater than 3.84, then we are 95% confident that the observed number of cases is significantly different from the expected number of cases.

Prepared by: SC Central Cancer Registry, Office of Public Health Statistics and Information Services, Department of Health and Environmental Control, 2600 Bull St., Columbia, SC 29201

March 15, 2004 mgj

**Table 2. Analysis of Cancer Deaths in Anderson County, 1998-2002**

<b>CancerSite</b>	<b>Observed</b>	<b>Expected</b>	<b>Observed/Expected</b>	<b>Chi-SquareTest*</b>
Lung/Bronchus	499	549.00	0.91	4.55
<b>Colon/Rectum</b>	<b>228</b>	<b>183.09</b>	<b>1.25</b>	<b>11.02</b>
Unknown/III-Defined	125	112.61	1.11	1.36
Female Breast	117	135.49	0.86	2.52
Prostate	113	126.59	0.89	1.46
Pancreas	109	102.51	1.06	0.41
Non-Hodgkins Disease	75	67.03	1.12	0.95
Leukemia	60	64.59	0.93	0.33
<b>Brain/CNS</b>	<b>60</b>	<b>46.60</b>	<b>1.29</b>	<b>3.86</b>
Multiple Myeloma	53	43.04	1.23	2.31
Ovary	47	42.45	1.11	0.49
Kidney/Renal Pelvis	41	37.96	1.08	0.24
Liver	41	35.50	1.16	0.85
Bladder	37	35.03	1.06	0.11
Esophagus	28	45.69	0.61	6.85
Oral/Pharynx	27	35.13	0.77	1.88
Melanoma Of Skin	26	20.95	1.24	1.22
Stomach	24	46.69	0.51	11.03
Uterus	20	21.50	0.93	0.10
Larynx	19	14.82	1.28	1.18
Cervix	10	18.26	0.55	3.74
Soft Tissue	10	12.92	0.77	0.66
Other Skin	8	9.67	0.83	0.29
Other Digestive	5	8.03	0.62	1.14
Gallbladder	5	5.62	0.89	0.07
Bone/Joints	3	5.22	0.58	0.94
All Sites	1831	1857.25	0.99	0.37

Excludes in situ cases of cancer to allow for comparison.

Cancer sites with less than 5 cancer deaths expected are not analyzed due to the unreliability of statistical tests based on small numbers. These sites have been removed from this table.

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May 20, 2004 mgj