

Summary of Cancer Incidence and Mortality for Greenville County, SC

Cancer Incidence in Greenville 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 Greenville County from 1996-2000, and how many cancer cases were expected. Overall, there were fewer cases of cancer than expected in Greenville County. The most common types of cancer in this county were prostate, female breast, lung, and colon/rectum cancers. These types of cancer are also the most common cancers occurring across all of South Carolina.

The analysis revealed there were two specific types of cancer (**Melanoma and Other Endocrine/Thymus**) where the number of cases was significantly higher than expected.

The main risk factor for melanoma is excessive exposure to ultraviolet radiation from the sunlight or tanning booths. Also, having certain types of moles makes a person more likely to develop melanoma. Finally, the risk of melanoma is greater if one or more of a person's first degree relatives have been diagnosed with melanoma.

The number of other endocrine/thymus cancer cases was significantly higher than expected in Greenville County. After further investigation, these cases of cancer were specifically from the adrenal gland, thymus and pineal gland. No specific lifestyle or environmental risk factors have been identified for cancer of the adrenal gland, thymus or pineal gland. For cancer of the thymus, some studies associate exposure of radiation to the upper chest as a risk factor, however the association has not been confirmed. The number of cases for each of these types of cancer was small, and consistent year to year from 1996 through 2000, therefore a cluster is not likely.

Cancer Deaths in Greenville County

To assess cancer deaths in Greenville 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 Greenville County and the number expected. Overall, the number of cancer deaths that occurred was less than expected in Greenville County.

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

Conclusions

To summarize, overall there were fewer cases of cancer occurring in Greenville County than expected. There were two specific types of cancer with a significantly higher number of cancer cases than expected in Greenville County. The number of melanoma cancer cases was significantly higher compared to the expected. The primary risk factor for melanoma of the skin is lifestyle-related, mainly exposure to the sun. The significantly higher number of other endocrine/thymus cancers was further investigated to determine these cancers were mostly of the adrenal gland and thymus. Only one case of pineal gland cancer was observed during the five year time period. The cases of adrenal gland cancer and thymus cancer occurred steadily during the five year time period, 1996-2000. The overall number of cancer deaths was lower than expected for Greenville County. No specific cancer types had a significantly higher number of cancer deaths.

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 Greenville County.

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

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

Site	Observed	Expected	Observed/Expected	Chi-SquareTest*
Prostate	1361	1303.07	1.04	2.58
Breast (Female)	1238	1227.27	1.01	0.09
Lung/Bronchus	1201	1274.95	0.94	4.29
Colon/Rectum	821	935.45	0.88	14.00
Melanoma	368	284.13	1.30	24.76
Bladder	290	318.35	0.91	2.53
Non-Hodgkin Lymphoma	237	266.70	0.89	3.31
Kidney/Renal Pelvis	227	206.16	1.10	2.11
Oral/Pharynx	188	235.44	0.80	9.56
Uterus	179	199.13	0.90	2.04
Pancreas	162	182.10	0.89	2.22
Leukemia	145	158.12	0.92	1.09
Ovary	126	136.07	0.93	0.75
Brain/CNS	122	112.28	1.09	0.84
Cervix	99	116.87	0.85	2.73
Thyroid	94	88.76	1.06	0.31
Stomach	89	128.33	0.69	12.05
Multiple Myeloma	80	91.12	0.88	1.36
Larynx	67	100.75	0.66	11.31
Esophagus	66	111.41	0.59	18.51
Liver	53	57.37	0.92	0.33
Other Female	47	42.77	1.10	0.42
Testis	41	36.15	1.13	0.65
Hodgkin Disease	36	38.52	0.93	0.16
Soft Tissue	35	45.19	0.77	2.30
Other Digestive	33	34.61	0.95	0.08
Anus/Anal Canal	26	23.89	1.09	0.19
Other Respiratory	25	29.27	0.85	0.62
Small Intestine	21	23.34	0.90	0.24
Gallbladder	20	17.52	1.14	0.35
Other Endocrine/Thymus	17	10.49	1.62	4.03
Penis	12	7.57	1.58	2.59
Bone/Joint	11	13.31	0.83	0.40
Ureter	6	8.97	0.67	0.98
Eye/Orbit	4	11.45	0.35	4.85
Other Urinary	4	5.26	0.76	0.30
Unknown/III-Defined	212	NA	NA	NA
All Sites	7837	8135.73	0.96	10.97

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.

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

Cancer Site	Observed	Expected	Observed/Expected	Chi-SquareTest*
Lung/Bronchus	1014	1108.56	0.91	8.07
Colon/Rectum	354	375.39	0.94	1.22
Female Breast	279	283.74	0.98	0.08
Unknown/III-Defined	254	230.96	1.10	2.30
Pancreas	187	208.71	0.90	2.26
Prostate	184	254.21	0.72	19.39
Leukemia	143	133.60	1.07	0.66
Non-Hodgkins Disease	132	137.49	0.96	0.22
Brain/CNS	98	97.28	1.01	0.01
Kidney/Renal Pelvis	93	77.58	1.20	3.07
Multiple Myeloma	81	87.11	0.93	0.43
Ovary	73	87.33	0.84	2.35
Stomach	71	96.16	0.74	6.58
Liver	69	72.49	0.95	0.17
Esophagus	65	93.02	0.70	8.44
Bladder	65	71.16	0.91	0.53
Oral/Pharynx	61	72.91	0.84	1.95
Melanoma Of Skin	56	43.69	1.28	3.47
Cervix	36	39.55	0.91	0.32
Uterus	34	43.93	0.77	2.24
Larynx	29	30.13	0.96	0.04
Soft Tissue	21	27.12	0.77	1.38
Other Skin	21	19.85	1.06	0.07
Other Digestive	12	16.53	0.73	1.24
Other Endocrine/Thymus	9	6.52	1.38	0.94
Thyroid	8	7.59	1.05	0.02
Gallbladder	8	11.43	0.70	1.03
Bone/Joints	8	11.07	0.72	0.85
Small Intestine	6	6.34	0.95	0.02
Hodgkins Disease	6	7.31	0.82	0.24
Other Respiratory	5	8.43	0.59	1.39
Other Female	1	9.85	0.10	7.95
All Sites	3540	3795.77	0.93	17.23

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.

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