

5. Cancer Mortality In Appalachia

Cancer deaths used in this analysis subsume a large number of specific cancers which have distinct etiologies. Overall, death rates from cancer have remained fairly stable in the U.S. since the 1970's while incidence has been on the rise, increasing 1.3 percent per year (Pickle *et al*, 1996). However, death rates incidence rates for specific cancers are highly variable and exhibit fairly distinct geographic patterns. In part, death rates from specific cancers will vary due to effective treatments that have been developed for some types of cancer.

Both in the Appalachian region and the non-Appalachian U.S., death rates from all cancers rank first among death rates used in this analysis for white and black women ages 35 to 64. (Figure. 6 – Section I) For white and black men ages 35 to 64 cancer death rates rank second. Among the elderly, Appalachian death rates from all cancers rank second for all demographic groups in both the Appalachian region and the non-Appalachian U.S.

County –Level Rates of Cancer Mortality in Appalachia

National maps for white women are shown on page 44 to highlight the general geographic trends in cancer mortality across the country. Generally higher rates of cancer mortality occur in the Eastern and Southeastern U.S., although the geographic distribution is considerably different among white women ages 35 to 64 and white women ages 65 and older. A large cluster of high outlier counties occur in the Central Appalachian region and represent the largest high rate cluster in the U.S. However, patterns of cancer mortality among elderly white women are much different, with the northern portions of the Appalachian region experiencing more adverse

mortality outcomes. This is likely due to the prevalence of breast cancer mortality among elderly women in the northeastern U.S. The complete set of national maps is presented in Appendix A.

County level rates of mortality from all cancers for the Appalachian region are shown on pages 45-48. County-level cancer death rates range from 142 to 178 death per 100,000 among white men ages 35 to 64, from 1,357 to 1,872 deaths per 100,000 among elderly white men, from 128 to 478 deaths per 100,000 among black men ages 35 to 64, from 1,303 to 3,452 deaths per 100,000 among elderly black men, 127 to 218 deaths per 100,000 among white women ages 35 to 64, from 694 to 1131 deaths per 100,000 among elderly white women, from 120 to 329 deaths per 100,000 among black women ages 35 to 64, and from 671 to 1,528 deaths per 100,000 among elderly black women. The disparity among county level death rates is greatest among black men followed by black women and white men, which rank second and sixth and eighth respectively (Table 2 - Section I).

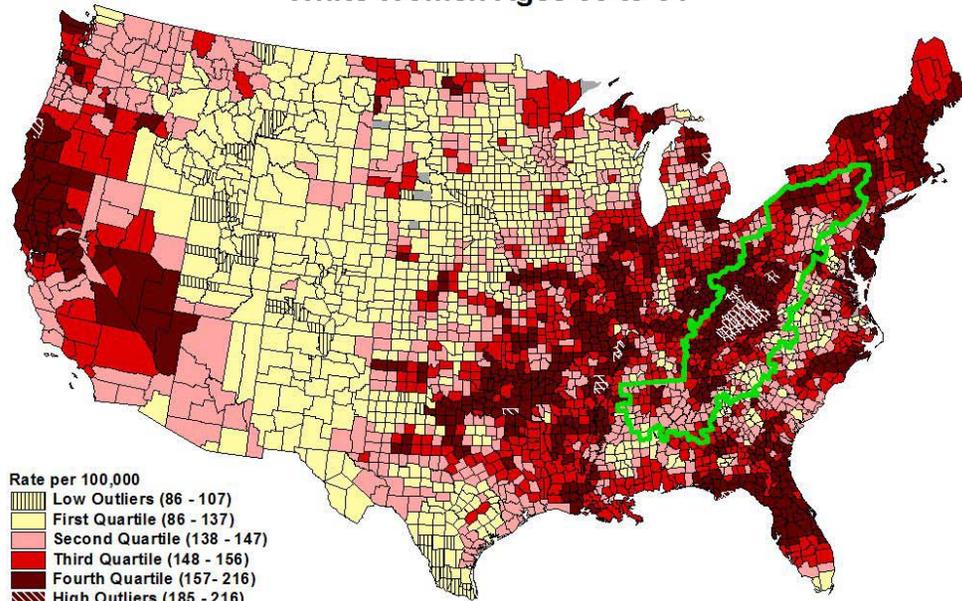
Distinct geographic patterns are evident in the distribution of cancer death rates, although there is significant variation in the geographic distribution of rates among the geographic subgroups. In general, high death rates from all cancers are predominant in the central portion of the Appalachian region among all demographic subgroups. Among white men of both age groups, high cancer death rates appear to cluster primarily in Eastern Kentucky, Southern West Virginia, and Southeastern Ohio with high outliers occurring in several counties in Eastern Kentucky. A smaller group of counties in Northern Georgia and Alabama also exhibit high rates of cancer mortality for white men. Among white women the patterns are quite different between cancer death rates in the two age groups. For white women ages 35 to 64, high

cancer death rates cluster primarily in Eastern Kentucky, Central and Southern West Virginia, Southeastern Ohio, and Western Virginia with a large group of high outlier counties occurring in Eastern Kentucky and Western Virginia. For elderly white women, high cancer death rates occur in Eastern Kentucky, Southern West Virginia, and Southeastern Ohio in addition to Southwestern Pennsylvania and Southern New York. A single high outlier county appears in Southern West Virginia. Notably, the southern portion of the region exhibits relatively low rates of cancer mortality for elderly white women. The northern shift in high cancer death rates is likely influenced by high death rates from breast cancer in the northern section of the Appalachian region (see section on Specific Cancers). Geographic pattern of cancer death rates for black men and women are less distinct than those for white men and women, although fewer counties have sufficient data to calculate stable cancer death rates. For black men ages 35 to 64, clusters of high rate counties occur in South-Central West Virginia, along the joint borders of Virginia-Tennessee-North Carolina, and a large cluster of high outliers in Southeastern Ohio. A steep gradient in cancer death rates among black men ages 35 to 64 is suggested by the presence of a low-outlier county in Southeastern Ohio. For elderly black men, smaller groups of high rate counties are distributed throughout the region in Southwestern West Virginia and Southeastern Ohio, South-Central Tennessee and Northwestern Georgia, Central Pennsylvania, with a group of high outlier counties in Eastern Kentucky. Again, low outlier counties occur in Southeastern Ohio for elderly black men. For black women ages 35 to 64 several clusters of high rates counties occur in Northern Alabama, Southern and Eastern West Virginia, Eastern Ohio, Southwestern Pennsylvania, and Eastern New York. High outlier counties are scattered throughout the region

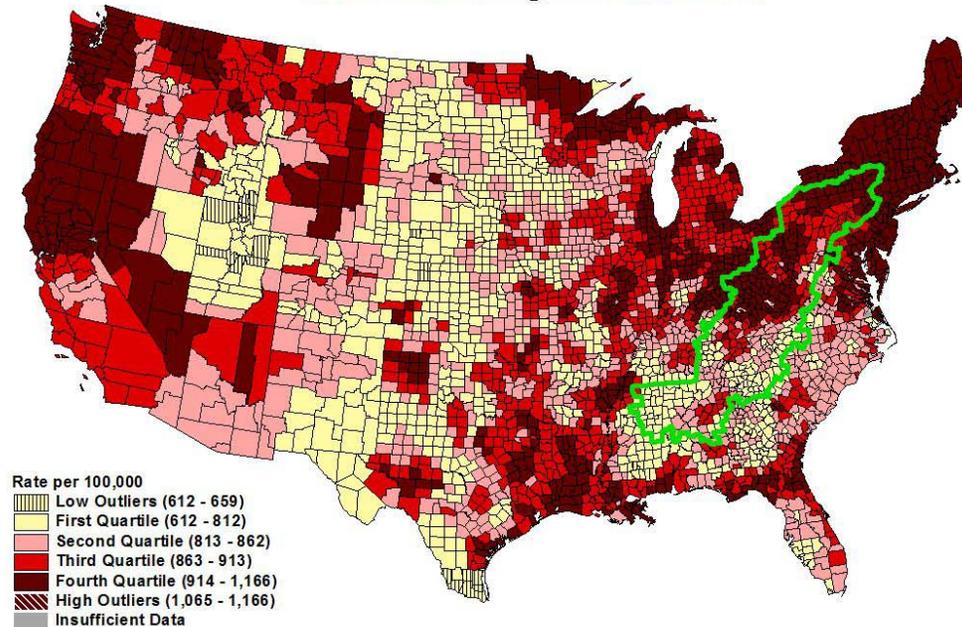
occurring in Eastern New York, Eastern Ohio, Southwestern Pennsylvania, Eastern and Central West Virginia, and Western North Carolina. For elderly black women, high rate counties occur primarily in South Central Pennsylvania, Eastern and Southern Ohio, Southern West Virginia, and Northeastern Tennessee.

Smoothed Cancer Death Rate, 1990-1997

White Women Ages 35 to 64

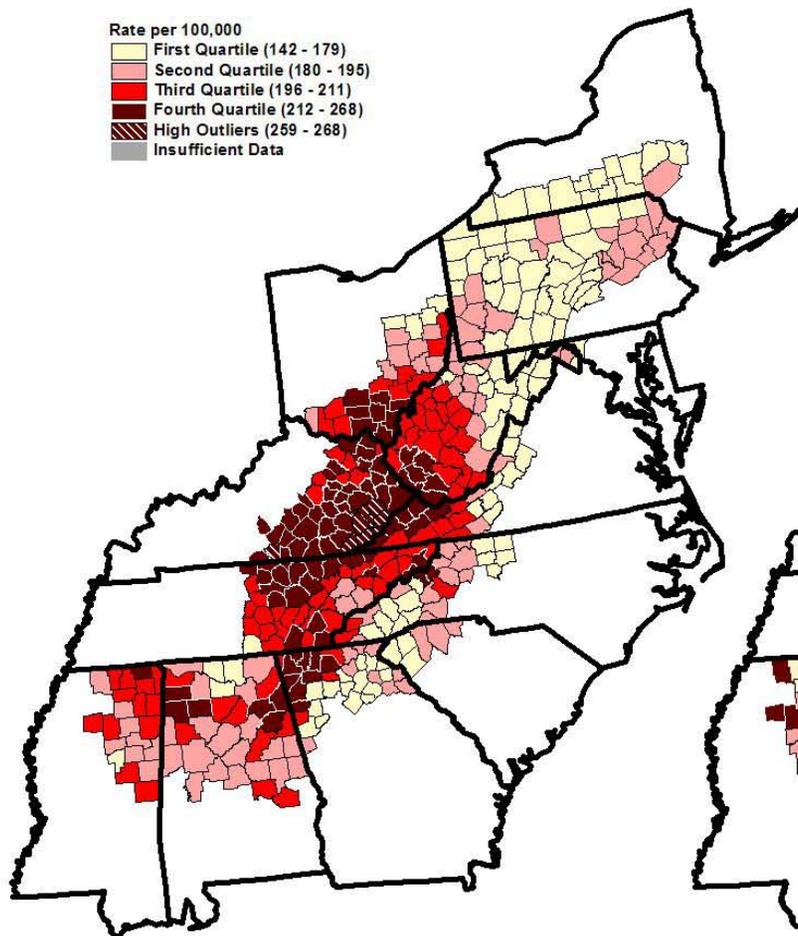
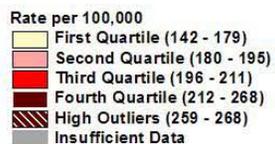


White Women Ages 65 and Older

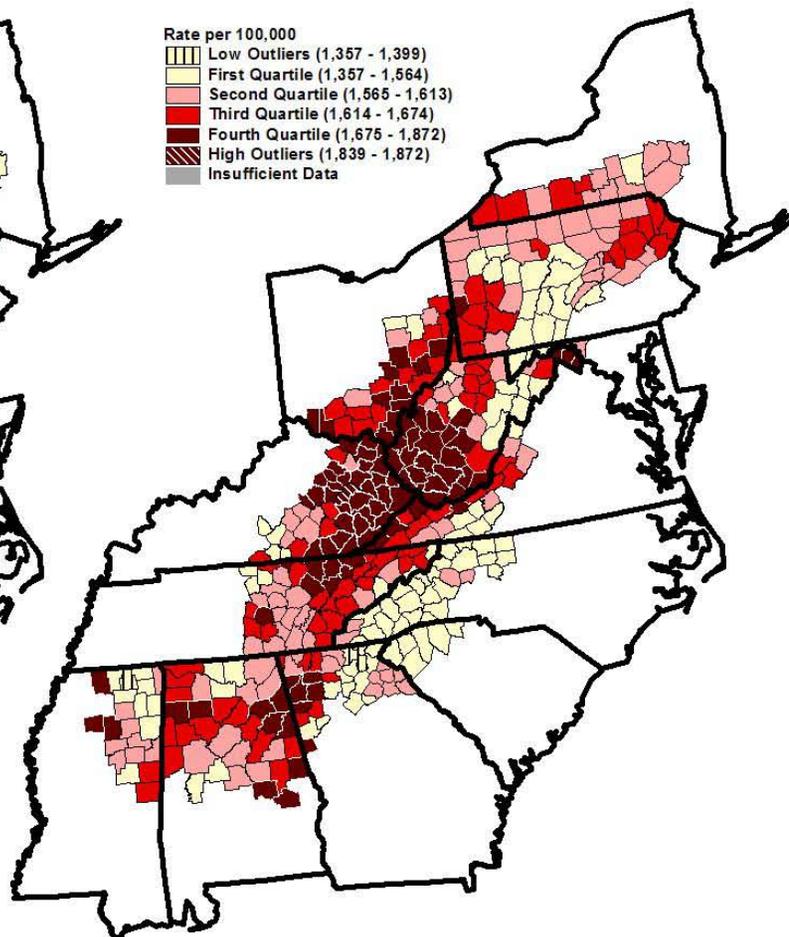


Smoothed Cancer Death Rate, 1990-1997

White Men Ages 35 to 64

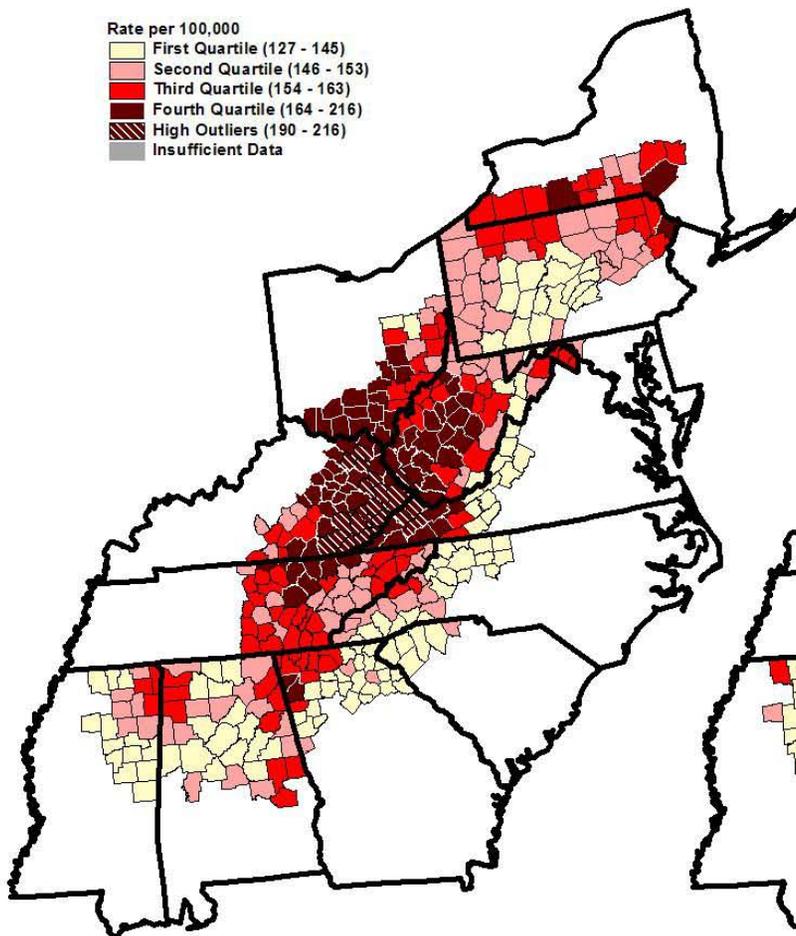


White Men Ages 65 and Older

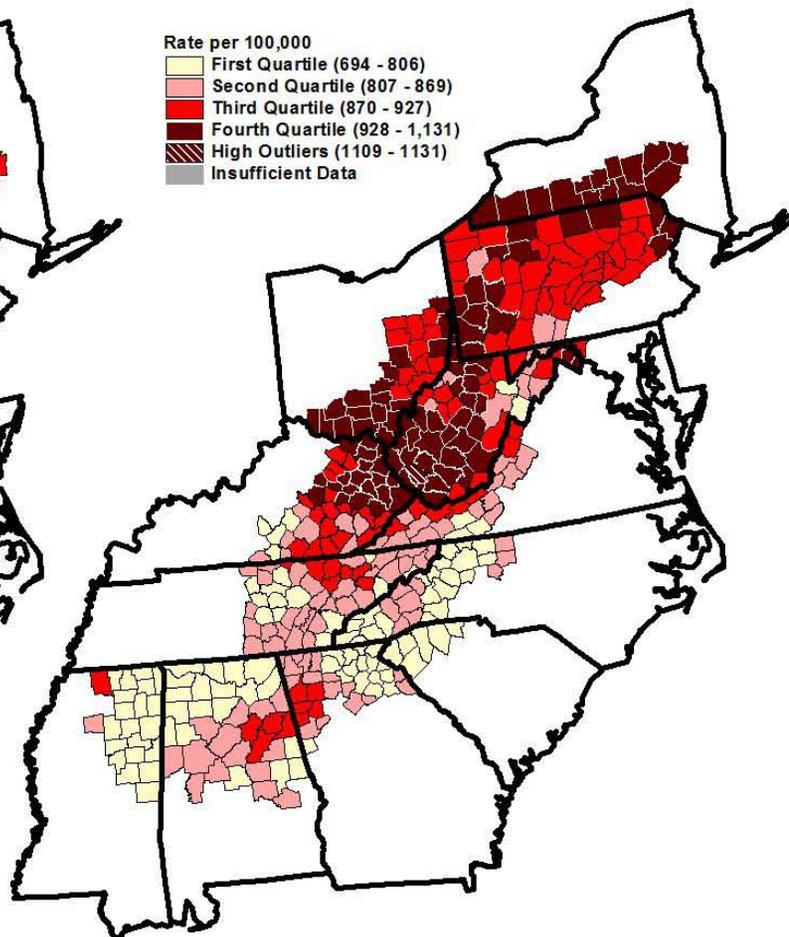
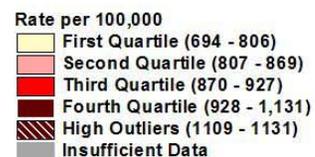


Smoothed Cancer Death Rate, 1990-1997

White Women Ages 35 to 64

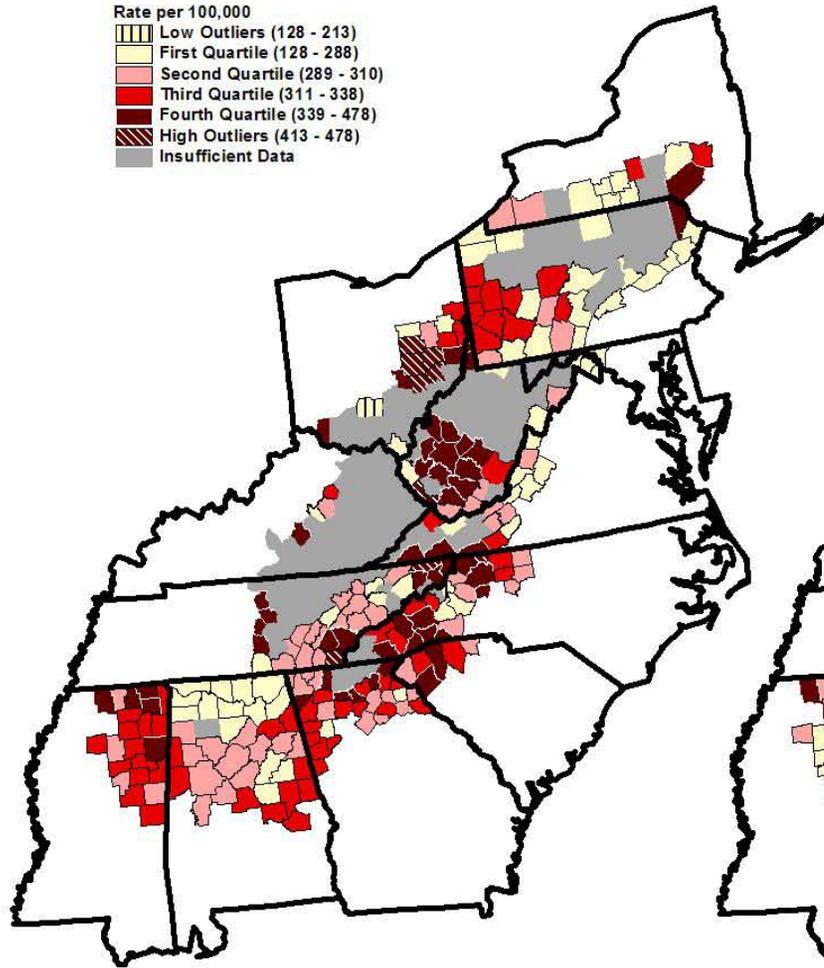


White Women Ages 65 and Older

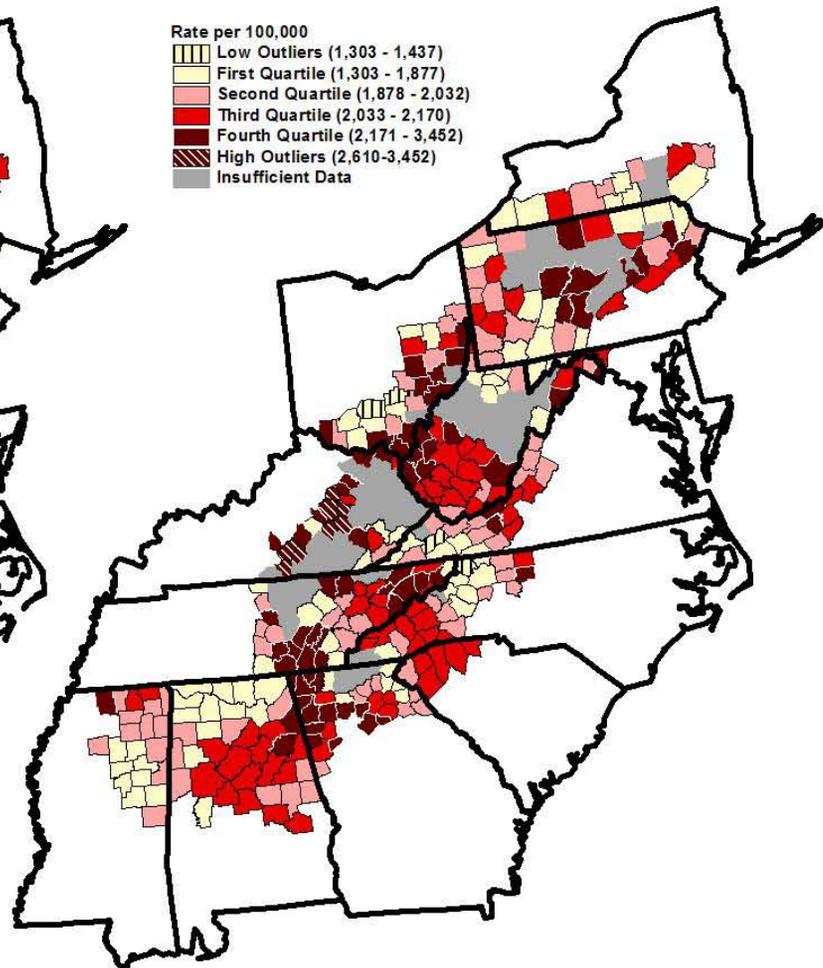


Smoothed Cancer Death Rate, 1990-1997

Black Men Ages 35 to 64

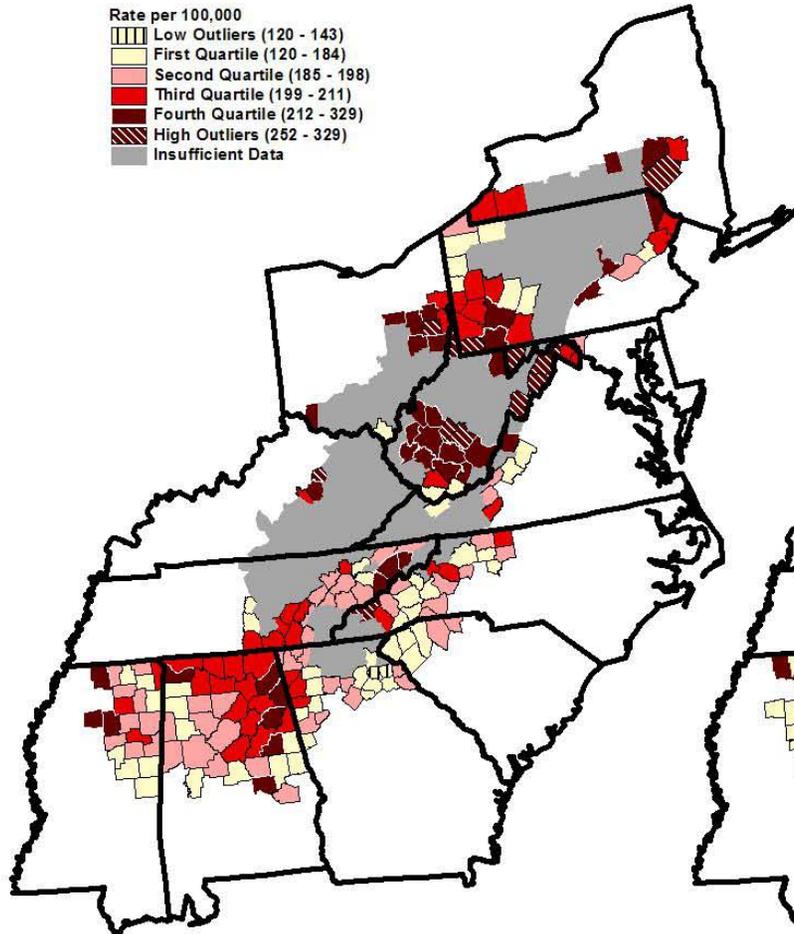


Black Men Ages 65 and Older

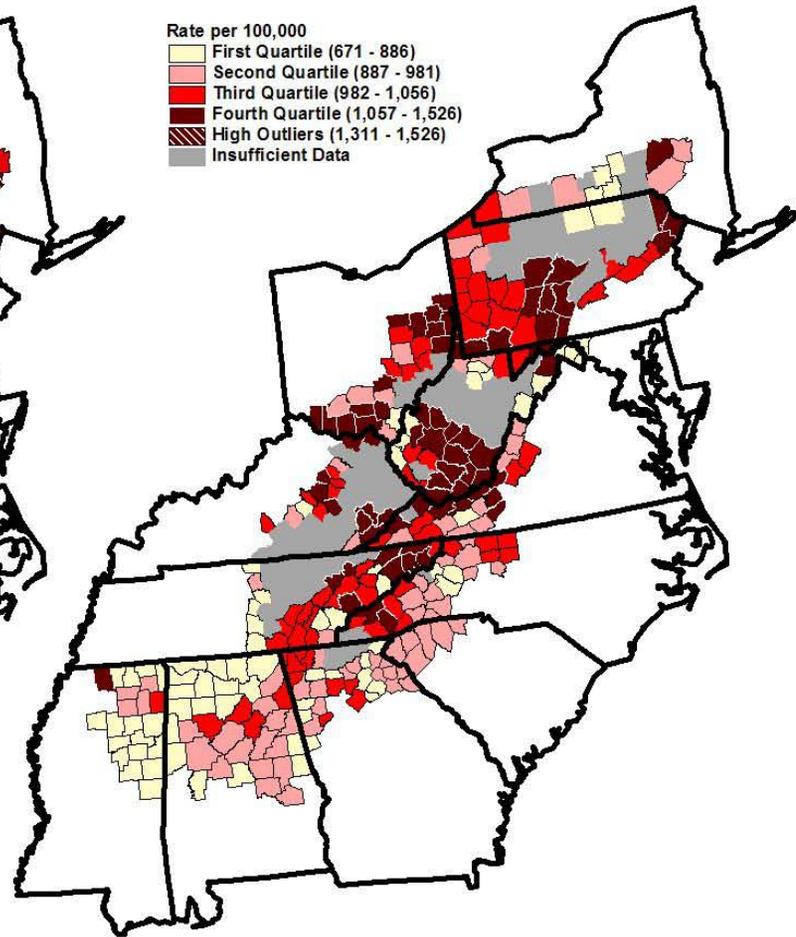
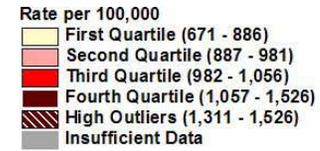


Smoothed Cancer Death Rate, 1990-1997

Black Women Ages 35 to 64



Black Women Ages 65 and Older



6. County-Level Trends in Cancer Mortality

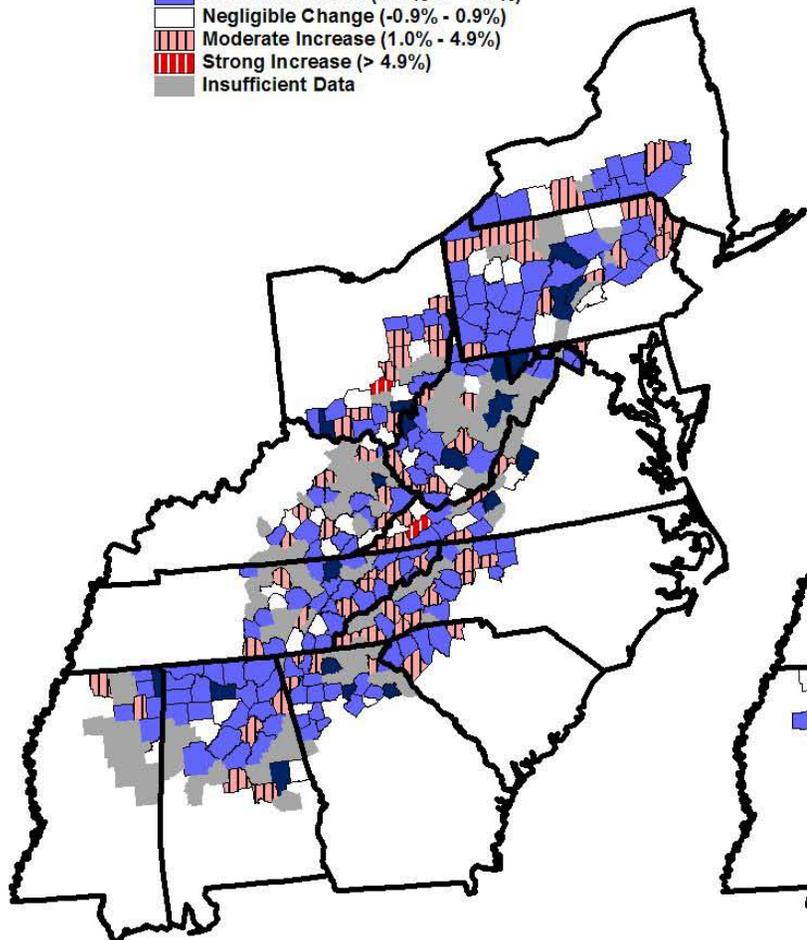
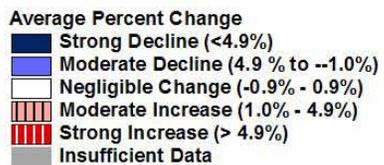
Maps depicting trends for cancer death rates over the period 1985-1997 are presented on pages 50-53. Overall, death rates from cancer have remained fairly stable since the 1970's (Pickle *et al*, 1996). The county-level trends presented in the following maps indicate significant variability in the mortality trends among counties in the Appalachian region. For many counties there were insufficient data to calculate county-level cancer mortality trends, particularly among the 35 to 64 age groups and all black population subgroups (refer to Section I B. County level Mortality Analyses and the Technical Appendix B for details on the estimation of mortality trends).

Perhaps the most striking feature of the trend maps on pages 50-53 is the number of counties that have experienced moderate to strong increases in mortality from all cancers. This may be due in part to medical advances in cancer diagnoses. However, due to strong variability in the etiology and likelihood of survival from specific cancers, these trends in mortality from all cancers combined are difficult to assess.

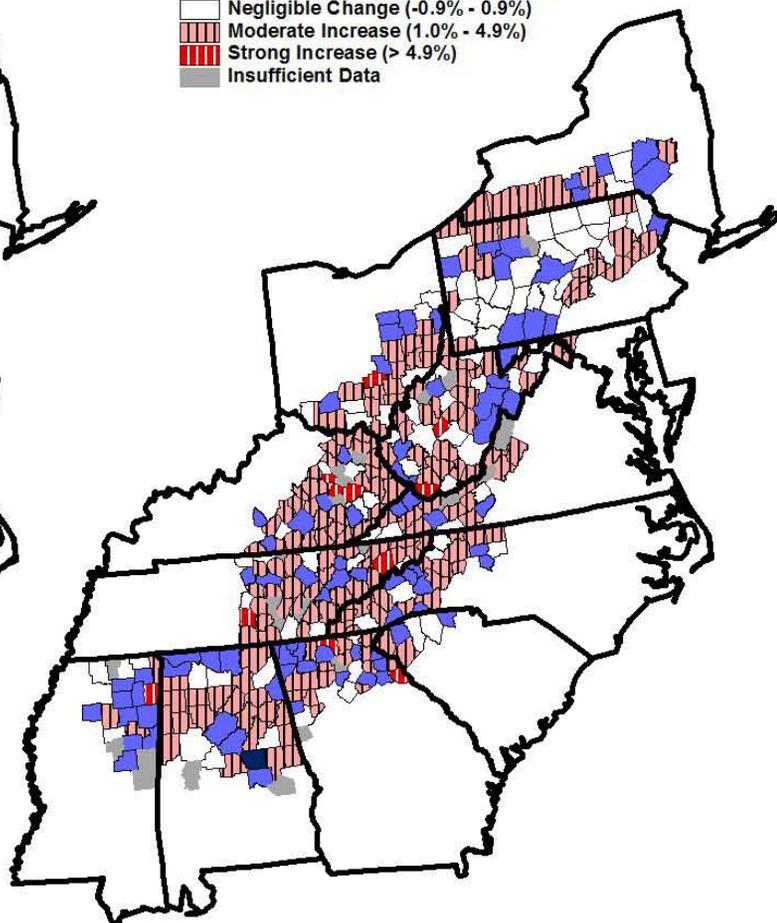
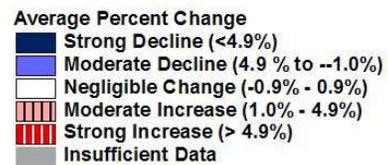
Among persons ages 35 to 64, trends in cancer mortality are primarily positive with the majority of counties experiencing moderate or strong declines. For those counties experiencing adverse trends, these data may provide clues that indicate deficiencies in cancer screening facilities, cancer screening utilization, and/or general lack of medical treatment options. Among the elderly, adverse trends in cancer mortality appear to be fairly widespread throughout the region.

Trends in Cancer Mortality, 1985-1997

White Men Ages 35 to 64

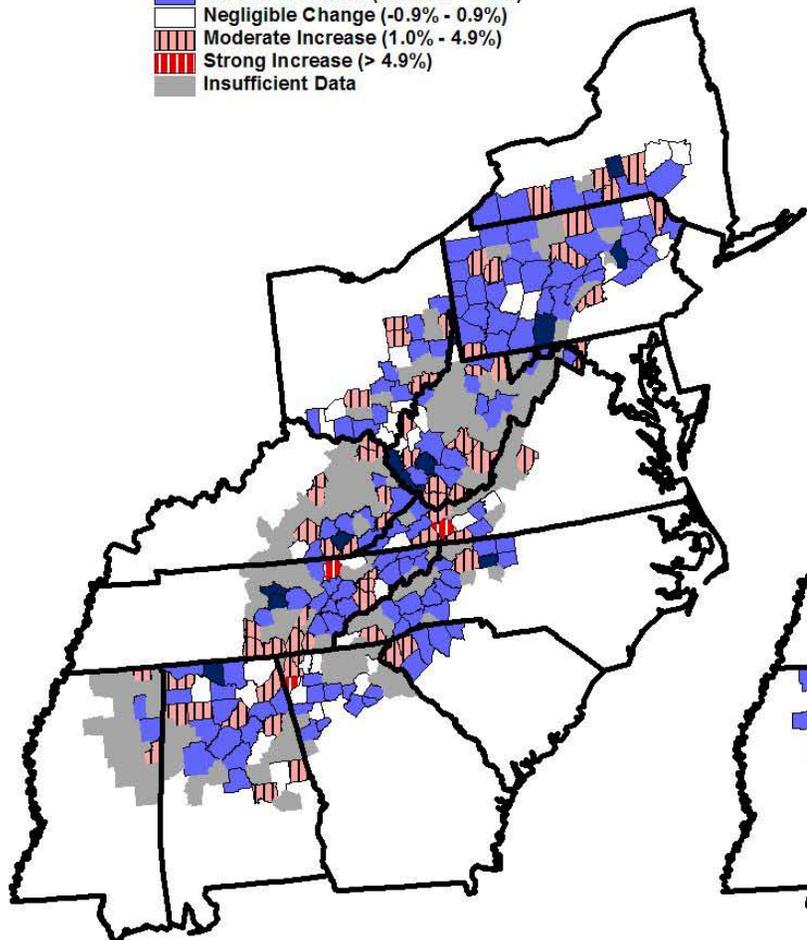


White Men Ages 65 and Older

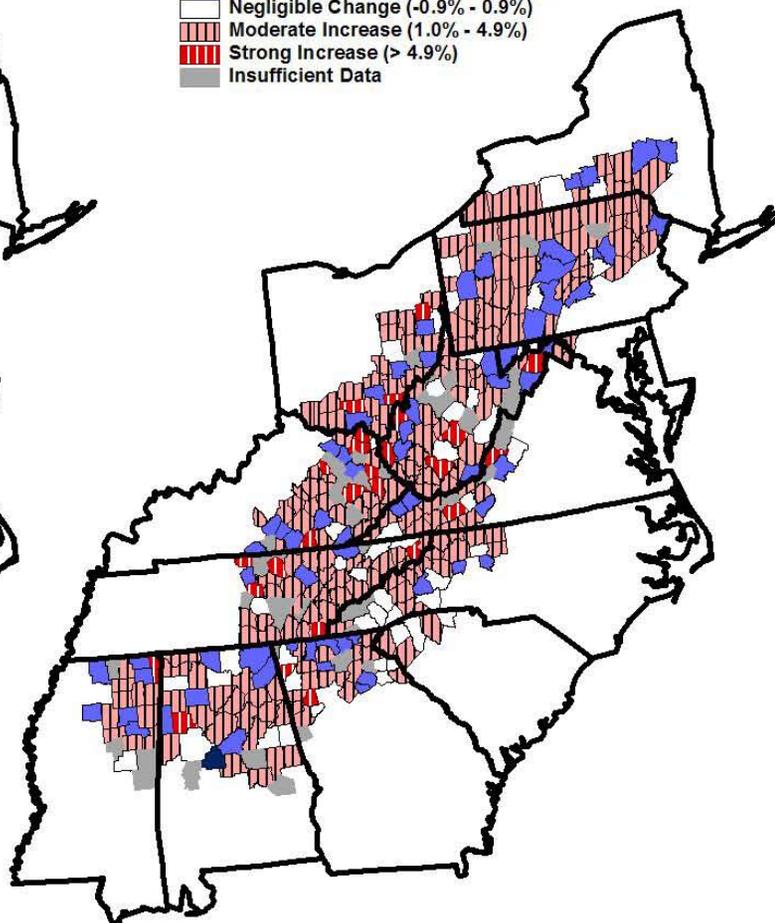
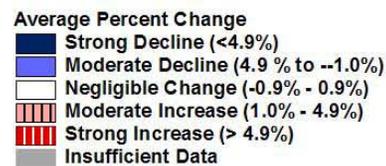


Trends in Cancer Mortality, 1985-1997

White Women Ages 35 to 64

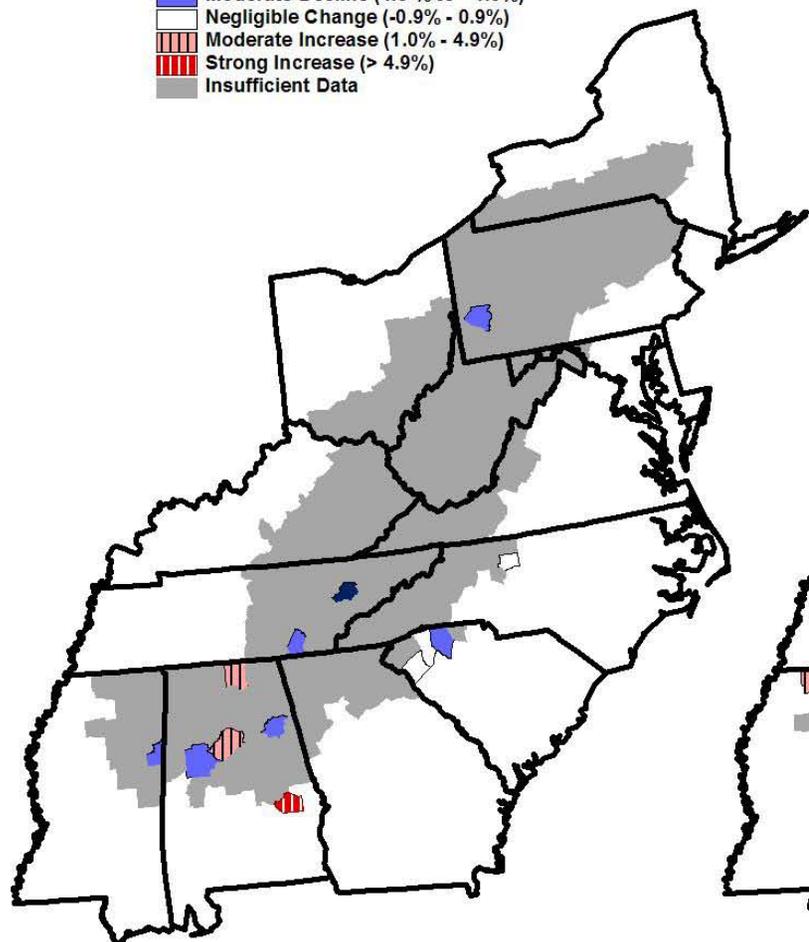


White Women Ages 65 and Older

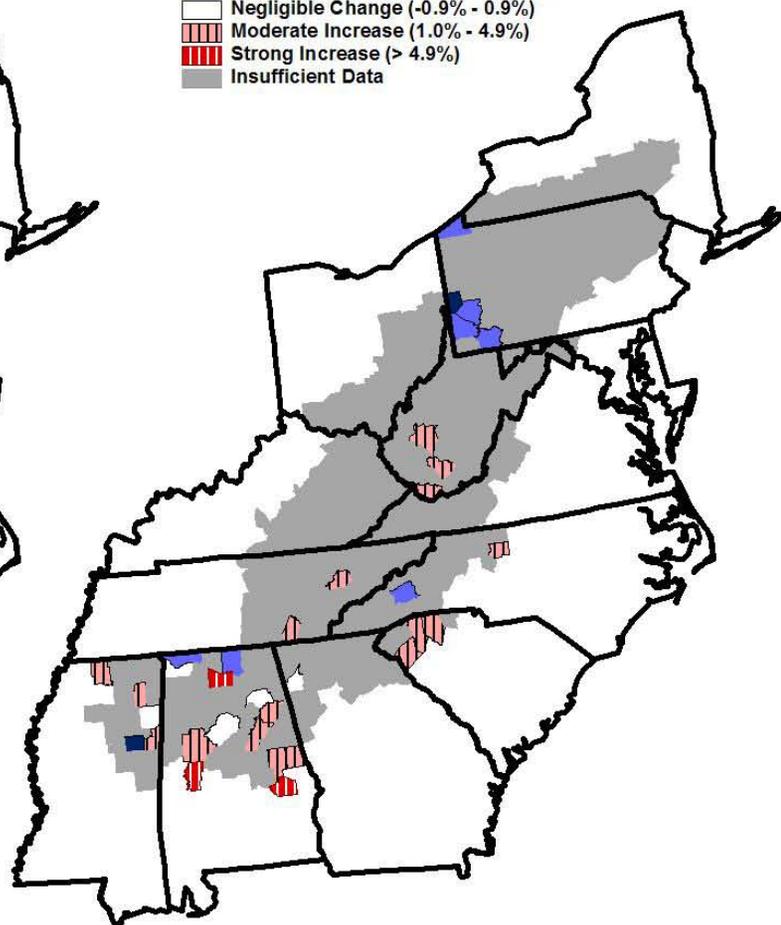
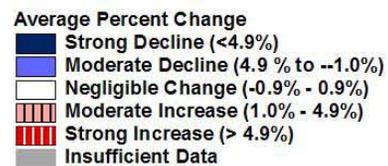


Trends in Cancer Mortality, 1985-1997

Black Men Ages 35 to 64

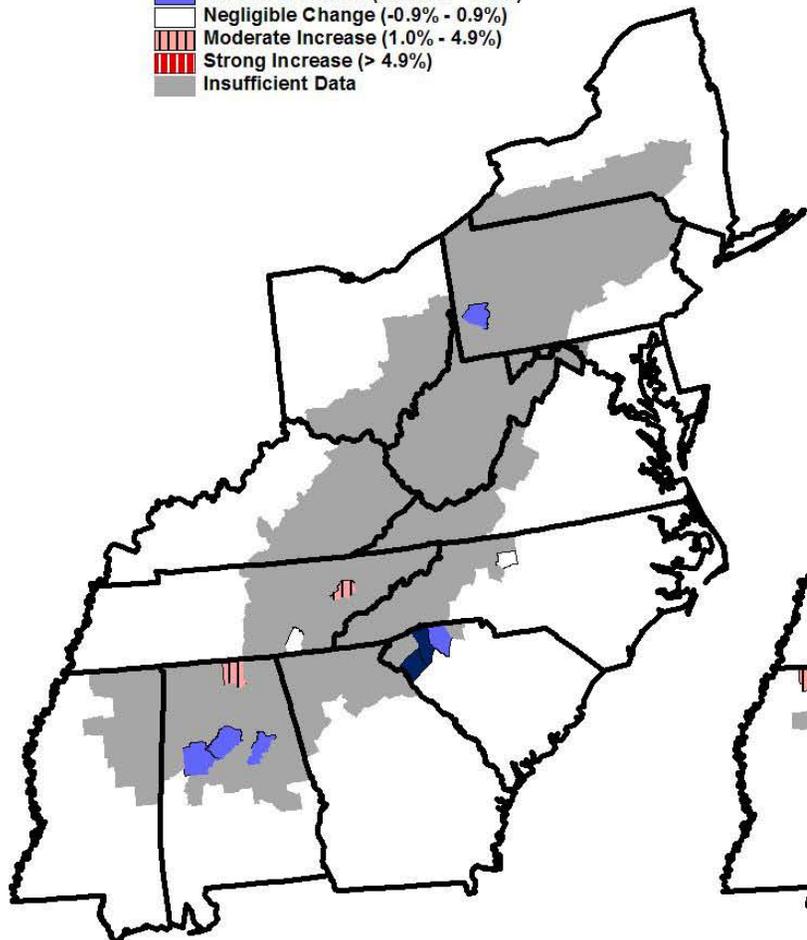


Black Men Ages 65 and Older



Trends in Cancer Mortality, 1985-1997

Black Women Ages 35 to 64



Black Women Ages 65 and Older

