Section II. Disparities in Premature Mortality in the Appalachian Region

II.A. Premature All-Cause Mortality

County-level, premature death rates from all causes for the U.S. as shown in Figure 2, demonstrate a strong gradient with low death rates generally occurring in the Northern part of the country and high death rates concentrated among counties in the Southeastern U.S. A substantial disparity is evident in the nine-fold difference between counties with the lowest and highest premature death rates. The Appalachian region is represented by considerable variability and a strong North-South gradient with the lowest death rates confined to the Northern-most counties and the highest death rates occurring among counties in the Central and Southern portions of the region. Within Appalachia, high-outliers are present in counties within Alabama and Mississippi and otherwise occur predominantly outside of the region.

The distribution of premature death rates from all cause for the Appalachian region as shown in Figure 3, highlight the North-South gradient shown in Figure 2, however the within-region disparity is less than the national disparity with a 2.4-fold difference between counties with the highest and lowest death rates. The majority of Appalachian counties fall with the 2nd to 4th quartiles of the national distribution. High-outliers in Alabama and Mississippi are more pronounced in the Appalachian distribution of premature death rates. The highest regional premature death rates occur predominantly among counties in the Central and Southern portions of the region.

Figure 2. Premature All-Cause Death Rate for U.S. Counties, 1995-2001

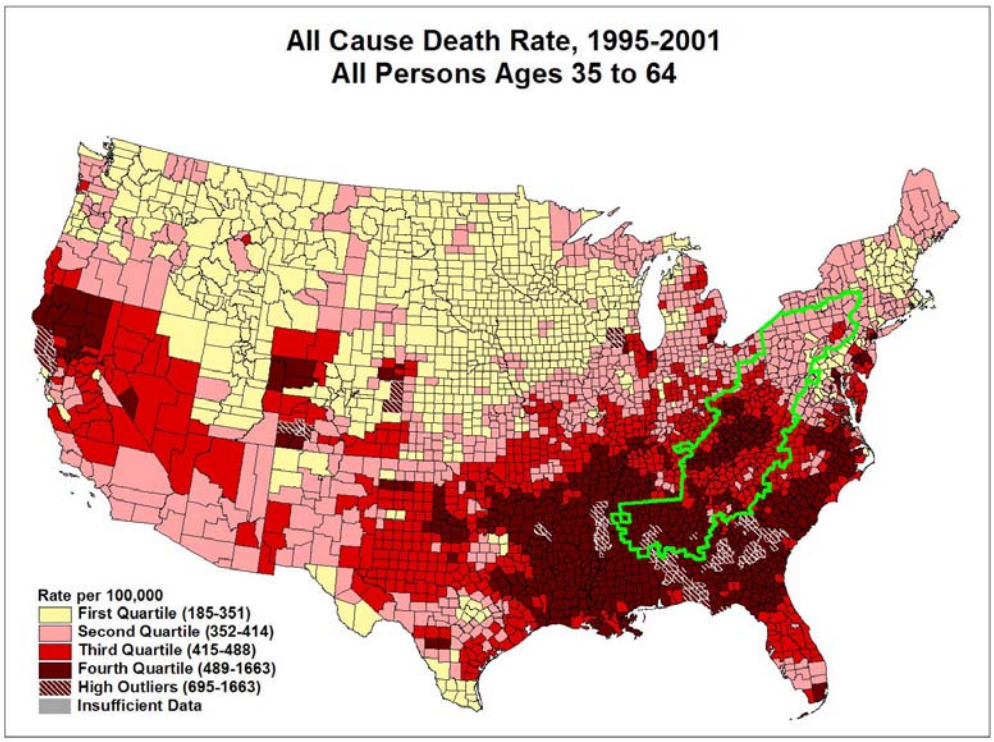
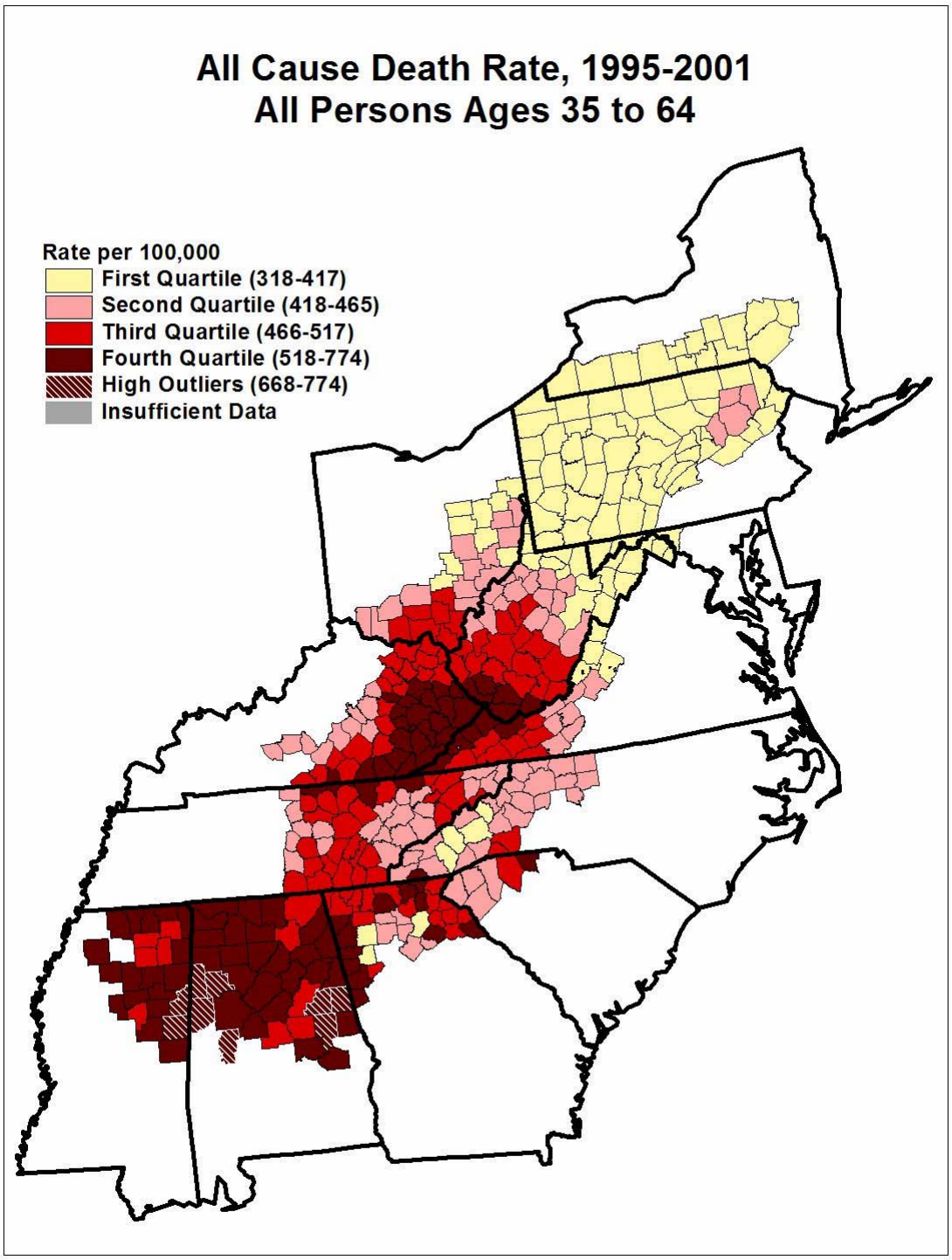


Figure 3. Premature All-Cause Death Rate for Appalachian Counties, 1995-2001



II.B. Premature Heart Disease Mortality

County-level, premature death rates from heart disease for the U.S. as shown in Figure 4, suggest a slightly stronger gradient with low death rates generally occurring in the Western part of the country and high death rates concentrated among counties in the Eastern U.S. The overall disparity among U.S. counties in premature heart disease mortality is less than that exhibited by all cause mortality with a 5.3-fold difference between the counties with the lowest and highest rates. The Appalachian region is more represented by 3rd and 4th quartile heart disease death rates in the national distribution, however the region contains only a single high-outlier in Eastern Kentucky. Other high-outliers occur predominantly in the Mississippi Delta region.

The distribution of premature death rates from heart disease for the Appalachian region (Figure 5.) indicate a weak North-South gradient, however there appears to be more distinct clustering of high death rate counties in the Central and Southern parts of the region. A group of three high-outlier counties occur in Eastern Kentucky. The within-region disparity is again less than the national disparity with a 2.2-fold difference between counties with the highest and lowest death rates. The majority of Appalachian counties fall with the 2nd to 4th quartiles of the national distribution.

Figure 4. Premature Heart Disease Death Rate for U.S. Counties, 1995-2001

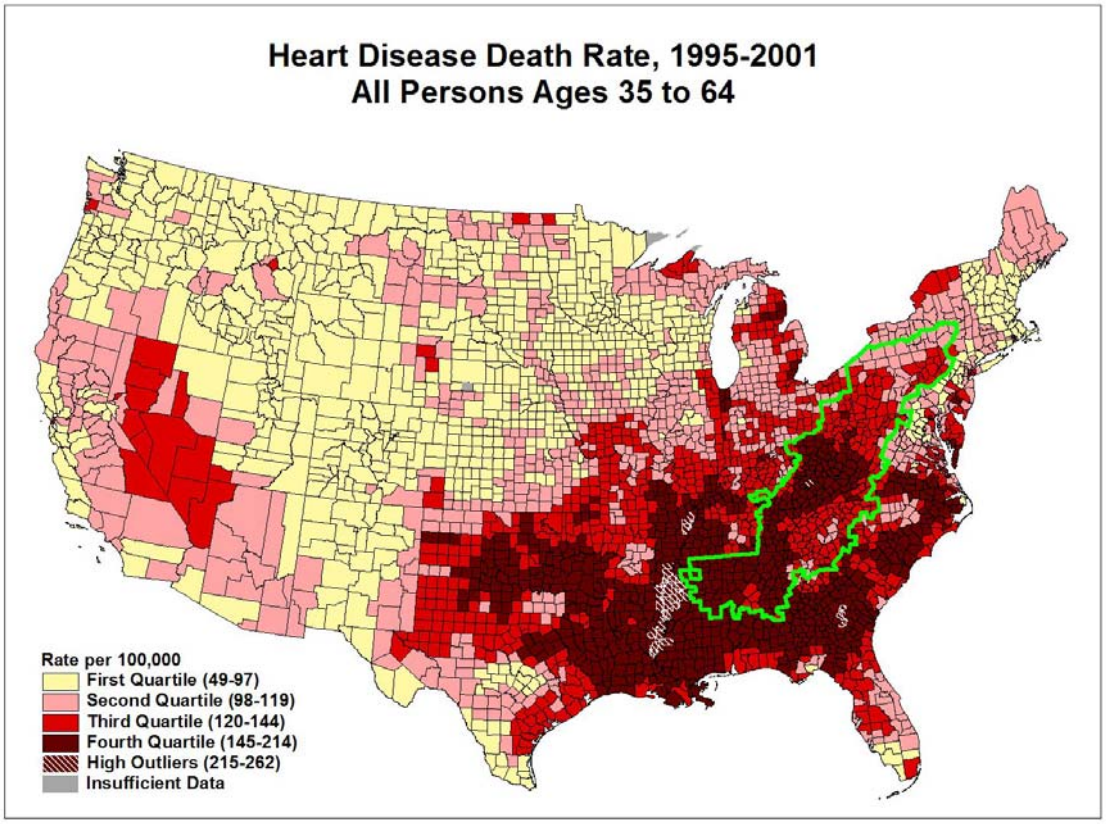
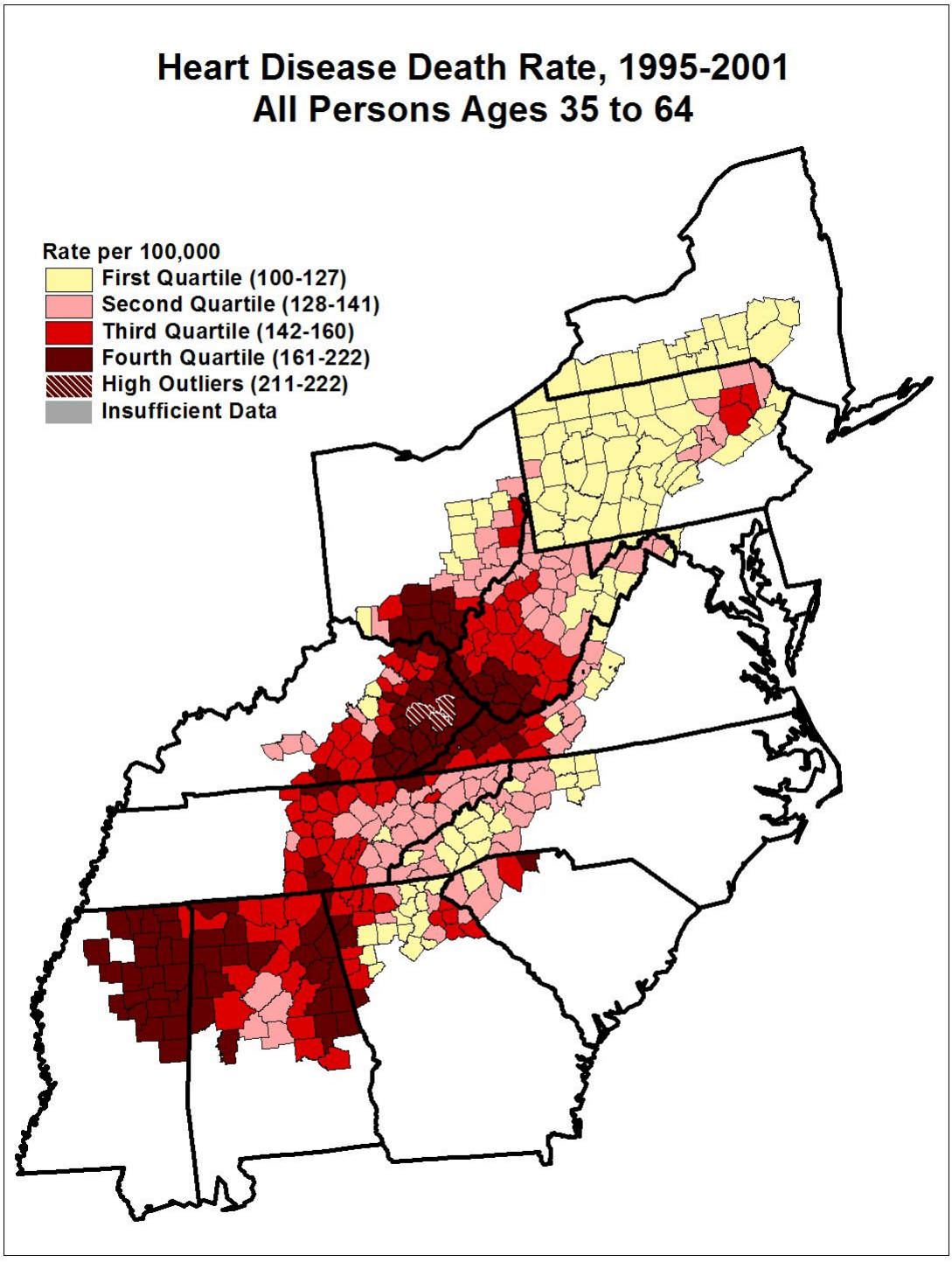


Figure 5. Premature Heart Disease Death Rate for Appalachian Counties, 1995-2001



II.C. Premature Cancer Mortality

The pattern of county-level, premature death rates from all site cancers for the U.S. as shown in Figure 6, is very similar to that of heart disease. A strong gradient is evident with low death rate counties generally occurring in the Western part of the country and high death rate counties concentrated among counties in the Eastern U.S. There is a three-fold difference in the overall disparity in premature cancer death rates among U.S. counties. The North-South gradient appears less dominant within the Appalachian region with a large portion of counties in the Central part of the region exhibiting high death rates, however the lowest death rates confined to the Northern-most counties . There are very few high and low-outliers in the national distribution with none occurring within the Appalachian region.

The distribution of premature death rates from all site cancers for the Appalachian region as shown in Figure 7, magnifies the high death rates that occur primarily in the Central part of the region. The within-region disparity is comparable to the national disparity with a 1.8-fold difference between counties with the highest and lowest death rates. A group of high-outliers in Eastern Kentucky are pronounced in the Appalachian distribution of premature death rates.

Figure 6. Premature Cancer Death Rate for U.S. Counties, 1995-2001

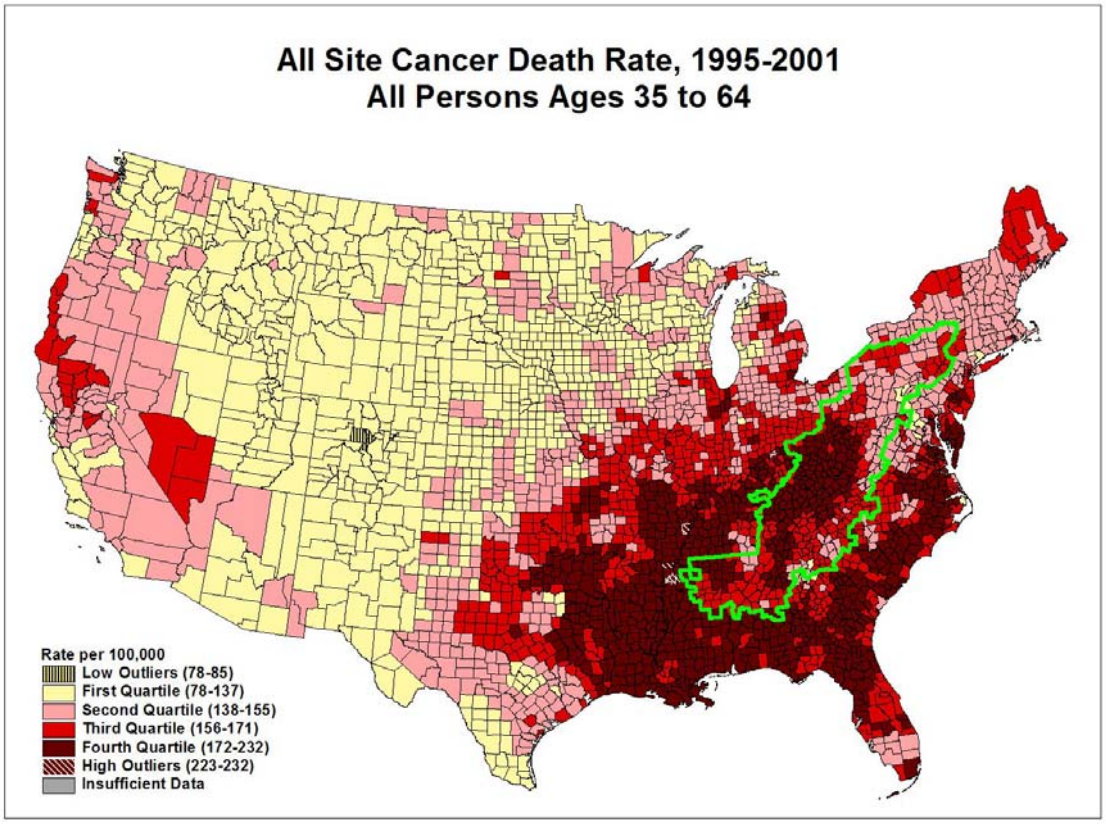
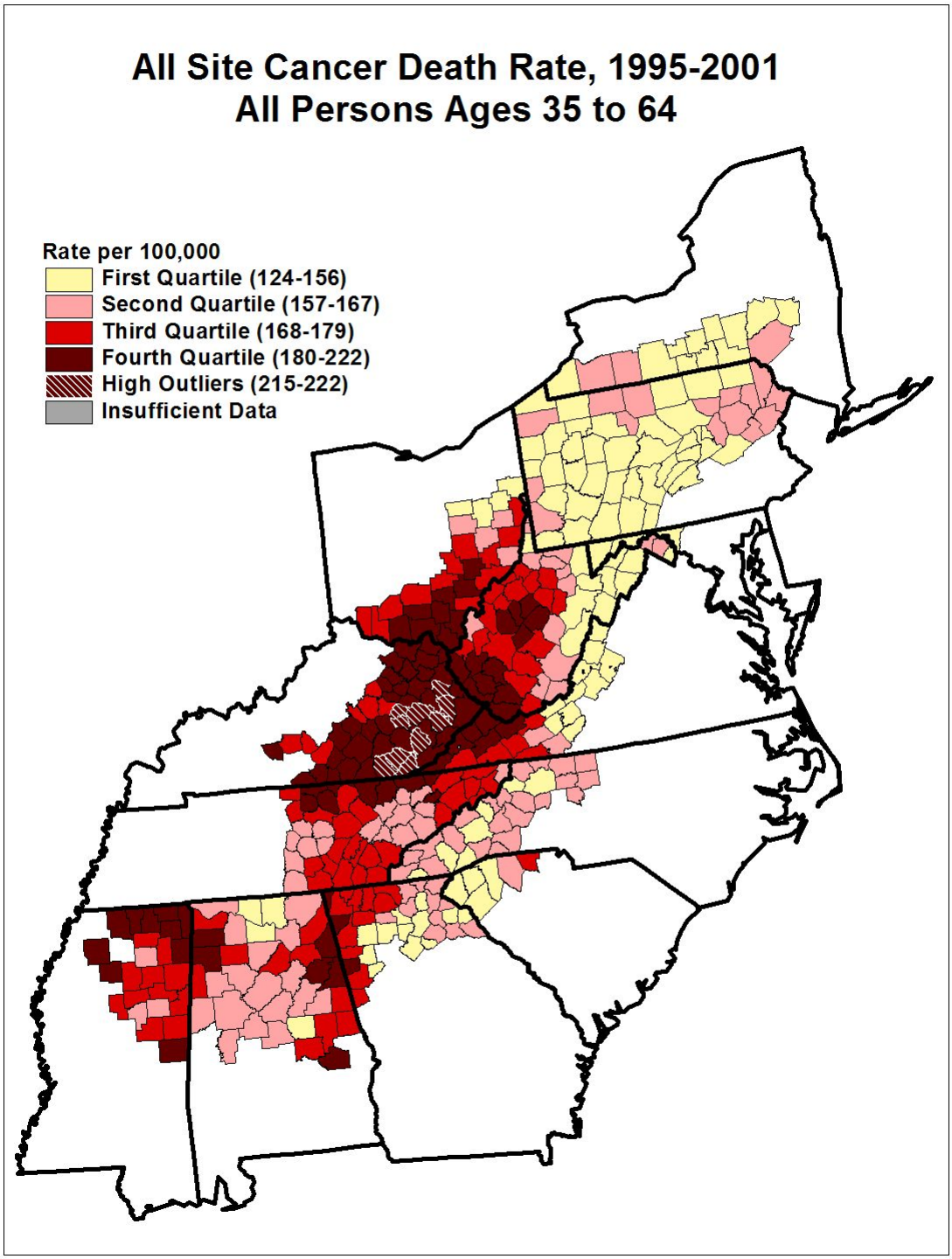


Figure 7. Premature Cancer Death Rate for Appalachian Counties, 1995-2001



II.D. Premature Stroke Mortality

The pattern of county-level, premature death rates from stroke for the U.S. as shown in Figure 8, is dominated by high death rate counties in the Southeastern U.S., which is referred to as the 'Stroke Belt' due to persistently high rates of stroke mortality in this region. Although the rates of premature mortality from stroke are low relative to heart disease and cancer, there is a 7.6-fold difference in the overall disparity in premature stroke death rates among U.S. counties. Due to the predominance of the 'Stroke-Belt' there appears to be a strong North-South gradient within the Appalachian region with a large portion of counties in the Northern part of the region exhibiting low death rates and the highest death rates confined to the Southern-most counties. There are large clusters of high-outlier counties in the national distribution, however these counties occur outside of Appalachian in the Mississippi Delta region and among states along the Atlantic Coast. The cluster of high-outlier counties in the Mississippi Delta region extends into the Appalachian region with two high-outlier counties occurring in the Appalachian region in Western Mississippi. There is a pocket of 4th quartile counties in Central Appalachia.

The distribution of premature death rates from stroke for the Appalachian region highlights the North-South gradient apparent in the national distribution (Figure 9). The within-region disparity is less than national disparity with a 3-fold difference between counties with the highest and lowest death rates. The same counties identified as Appalachian high-outliers in the National distribution are also high outliers in the Appalachian distribution.

Figure 8. Premature Stroke Death Rate for U.S. Counties, 1995-2001

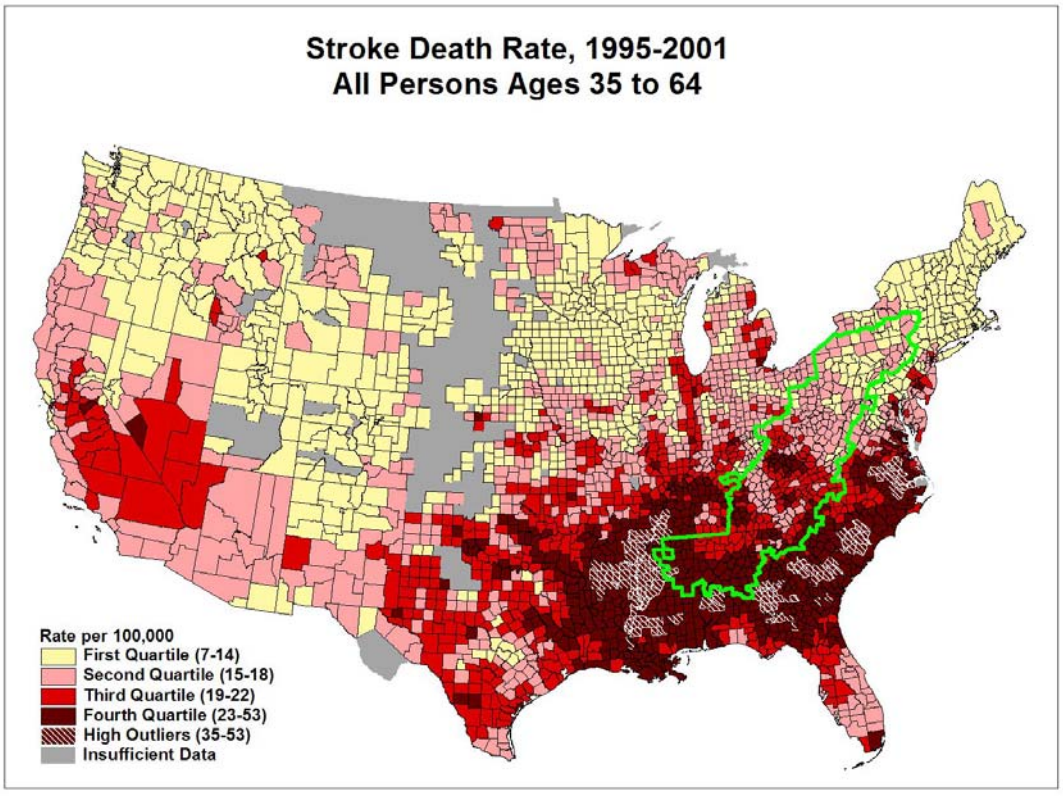


Figure 9. Premature Stroke Death Rate for Appalachian Counties, 1995-2001