

**Development of a Research Agenda  
on the Issues of Access to Care and Reduction of Health Status  
Disparities of Rural African Americans in South Carolina**



**Prepared by the South Carolina  
State Office of Rural Health  
John R. "Buddy" Watkins  
Executive Director**

January 10, 2001

## **Investigators**

Michael E. Samuels, DrPH  
Janice C. Probst, PhD  
Department of Health Administration  
School of Public Health  
University of South Carolina  
Columbia, SC 29208

Karen Willert, PhD  
Walter “Pete” Bailey, MPH  
Elizabeth Corley, MA  
Office of Research and Statistics  
South Carolina Budget and Control Board  
Columbia, SC

This report was developed under contract 99-0661 (P)  
From the Office of Rural Health Policy

Joan Van Nostrand, DPA  
Project Officer



## Table of Contents

Executive Summary.....	iii
Chapter 1: Introduction ...	3
Chapter 2: Theoretical Approach to Rural Health Disparities .....	5
Section 2A: Introduction.....	5
Section 2B: Model of Health Outcomes.....	6
Section 2C: Health Outcomes among Rural African Americans .....	8
Section 2D: Access to Care .....	9
Section 2E: Structural Barriers to Care .....	11
Section 2F: Socio-Demographic Barriers to Care .....	16
Chapter 3: Method for Exploring Racial Health Disparities in South Carolina .....	20
Section 3A: Data Sources .....	20
Section 3B: Definition of Urban and Rural .....	21
Section 3C: Calculation of Vital Statistics .....	21
Section 3D: Calculation of Health Care Utilization Rates .....	22
Section 3E: Presentation of Comparative Data .....	22
Chapter 4: Disparities in Health among Rural African Americans in South Carolina .....	23
Section 4A: Vital Statistics .....	23
Section 4B: Health Care Utilization .....	27
Chapter 5: South Carolina Policies affecting Racial Health Disparities .....	35
Section 5A: Health Behaviors.....	35
Section 5B: Access to Care.....	35
Section 5C: Mental Health.....	36
Section 5D: Emergency Services .....	36
Section 5E: Structural Barriers to Care .....	37
Section 5F: Fiscal Insecurity of Rural Hospitals .....	38
Section 5G: Financial Barriers.....	38
Chapter 6: Conclusions and Recommendations for Further Research.....	40
Section 6A: Problems of Infants and Children .....	40
Section 6B: Problems of Adults .....	42
Section 6C: Data and Methods.....	43
Bibliography.....	44

### APPENDICES

#### Appendix A.

of Rural Areas in South Carolina, By Race and Age

Appendix E. Rural Medicaid Client Utilization Disparities, 1998

Appendix F. Policy Committee Recommendations

Appendix G. Selective Literature Search – Specific Disease Conditions

## Executive Summary

The South Carolina State Office of Rural Health used population-based data sets maintained by the South Carolina Office of Research and Statistics of the Budget and Control Board to explore disparities in health and health care use between African-American and white rural residents. The information presented in this report *begins* the exploration of disparities in health among rural African Americans and rural white residents. As an introductory, descriptive study, it can only point to areas where discrepancies are present. Further research is needed across multiple areas to provide reasons behind and remedies for these problems. Key findings include:

### Mortality

- While the birth rate among rural African American women (60.4 per 1,000) was nearly identical to the rural white rate (63.2) in 1997, African American infant mortality was 2.31 times higher (15.0 versus 6.5). While extensive research is in process to identify and ameliorate causes of infant mortality, research continues to be needed to identify uniquely *rural* barriers to effective health care and positive health outcomes.
- Age adjusted death rates among rural African Americans were consistently higher than in rural white populations. Among ages 25-49, the ratio of African American to white age-adjusted deaths was 1.41; among rural African Americans aged 50-64, 1.63; among African Americans aged 65-74, 1.36; among rural African Americans aged 75 and above, 1.43. Cardiovascular disease, cancer and diabetes were principal contributors to excess mortality.

### Use of hospital and emergency department services

- Use of hospital services was nearly equal among rural African American and white residents (overall ratio = 0.95). Emergency department visit rates, however, were higher among rural African Americans than among the white population (ratio =1.52); this difference was present across all age groups.
- Among children and young adults, rural African American residents were more likely than rural white residents to be hospitalized for anemia, particularly sickle cell anemia, and for asthma.
- Among rural adults 25 – 49 years, hospitalization rates for all disorders of the circulatory system were approximately equal across races (ratio=1.10 across 8,715 discharges). However, African Americans in this age group were less likely to be hospitalized for corrective procedures such as coronary bypass surgery (ratio=0.47) or pacemaker implantation (ratio = 0.41) and more likely to be hospitalized for heart failure (ratio = 4.44) and hypertension (ratio = 4.16). Similarly, among rural adults aged 50 – 64 (16,085 total discharges, ratio=1.13), African Americans had low rates of hospitalization for corrective procedures such as coronary bypass (0.37) or pacemaker

implantation (ratio = 0.42) but high rates for heart failure (ratio = 2.70) and hypertension (ratio = 3.89). Research is needed to identify rural barriers to the receipt of services by minority patients (e.g., distance to specialized medical providers or health belief systems that delay care).

- After age 65, Medicare eligibility should make access more even across racial categories. However, rural African Americans still received corrective procedures at half the rate of rural whites (coronary bypass with cardiac catheterization, ratio=0.41; bypass without catheterization, 0.53; pacemaker implant, 0.53). Rural African Americans had higher rates of hospitalization for amputation (4.41) and heart failure and shock (1.77).
- The availability of practitioners in rural areas, the ability of these practitioners to provide education and counseling as well as care, the effectiveness of different practitioner configurations (e.g., incorporation of midlevel practitioners), and the influence of state and federal reimbursement policies on willingness to accept patients are just examples of the questions raised by rural African American health disparities which merit further research.

### **Outpatient visits among Medicaid Recipients**

- Among rural children, African American residents had higher visit rates than white children for asthma, contact dermatitis and other eczema, and anemia. While sickle cell was the leading form of anemia among rural African American children, deficiency anemias also generated excess utilization (ratio=2.43). Additional issues to be explored include the effects of differing rural county infrastructures on the nutritional status of children (presence/absence of health department and social services offices; presence and number of outreach workers), including private sector infrastructure (e.g., presence absence of grocery chains in rural communities, willingness of rural food vendors to accept food stamps and other nutritional support vouchers).
- African American children were only half as likely to have visits for mental problems in general (ratio = 0.56 among children 1 – 5 and among children 6-12) and attention deficit disorder in particular (ratio = 0.45 among children 1-5 and 0.53 among children 6-12). While 33 of 46 South Carolina counties were designated shortage areas for mental health personnel, white low income rural children appear more able than African American children to obtain mental health services. However, much more needs to be known about this issue. In addition to parental knowledge, differing rates of service utilization may reflect different referral patterns by educators, differential availability of health professionals at rural schools, differing availability of mental health experts, or other factors.

## Chapter 1

### Introduction

Minorities have had poorer health and lower life expectancy than white populations in the United States “for as long as these measures have been collected separately by race” (Council of Economic Advisors, 1998). The problem is multi-factorial: racial discrimination, past and present, has resulted in educational and socio-economic differences between African American and majority populations which are associated with poorer health outcomes independent of race. Differences across races also stem in part from “less intensive” care provided to minority populations (Fiscella, Franks, Gold and Clancy, 2000). Correcting health status, health access and quality of life disparities became a national priority in 1998 with the establishment of the President’s Initiative on Race.

Studies of the health of African American populations are frequently conducted in urban areas. The African American population nationally is concentrated in urban areas, with only 14.4% of African Americans (4.814 million persons) living in rural counties.<sup>1</sup> In 1996, 98 rural counties in the US—mostly in the Northwestern area—had *no* African American residents, and 1106 rural counties had African American populations of 1% or less. Only 11 states, nearly all in the historic South, had rural populations that were more than 7% African American. In consequence, researchers and policy makers have given less attention to the potential problems faced by rural African Americans. Mueller and colleagues (Mueller, Ortega, Parket, Patil & Askenazi, 1999) note only 71 rural, African American studies between 1970-1993. Assuming that rural and urban populations face similar problems, however, is a poor base for policy. As will be discussed below, the structure of disease, health care access and health care utilization can differ considerably across geographic areas. Solutions effective in one context may be irrelevant in another.

The report that follows draws on utilization data from South Carolina to explore disparities in health care utilization and health status between rural African American residents and their white counterparts. South Carolina offers an ideal setting in which to explore the problems and possibilities of health disparities in rural areas, for three reasons. First, South Carolina’s rural population is 41% African American, a higher proportion than is present in any other state. Thus, our rural population is adequate to permit exploration of health and health utilization statistics. Second, South Carolina is representative of the Southern region. This geographic area contains many of the 540 persistent poverty counties, those with poverty levels of 20% of the population or more in each Census since 1960 (Beale, 1996). South Carolina’s swathe of majority-African American counties reflects the 255 African American poverty counties distributed across the old plantation South. Third, South Carolina possesses unique linked databases that allow for extensive health research. South Carolina is thus able to analyze accurately rural subpopulations (for example, within all Medicaid recipients).

---

<sup>1</sup> Analyses using the USA Counties 1998 CD-ROM (Bureau of the Census, Washington DC) and SAS statistical software.

The information presented in this report *begins* the exploration of disparities in health among rural African Americans. Using data from the state of South Carolina, we explore differences in health and in health services utilization between rural white and African American residents. As an introductory, descriptive study this report can only suggest areas where discrepancies are present; it cannot offer reasons or remedies for these problems.

## Chapter 2

### Theoretical Approach to Rural Health Disparities

#### 2.A. Introduction

The relative importance of minority status and urban/rural residence as contributors to health and longevity have not yet been determined. Much research on African American health disparities is conducted on whole populations without geographic reference, or specifically concentrates on urban areas. Some comparative research has suggested that urban African Americans have higher mortality than rural peers (Geronimus, Bound, Waidmann, Hillemeier and Burns, 1996). However, both the study cited and a subsequent expanded analysis (Geronimus, Bound & Waidman, 1999) compare urban Northern communities to rural Southern communities, and thus may reflect regional differences as well as urban/rural residence. For some risk factors, rural residence has been linked to racial disparities: a higher proportion of rural African American births are to teenaged mothers (27.1%) than rural white births (14.0%); both exceed comparable rates in urban populations (Lishner, Larson, Rosenblatt, Clark; 1999; p. 135). Similarly, rural African American women with breast cancer were detected at a later stage in the disease than either white women or urban African American women (Amey et al., 1997) and rural African American men were more likely to have nonlocalized prostate cancer at diagnosis (Liff, Chow & Greenberg, 1991).

It is not necessary that the health disparities experienced by rural African Americans be *worse* than those felt by urban minorities in order for the disparities to be important. Health disparities associated with race or ethnicity are unacceptable regardless of geography. Increased study is needed to determine the causes of, and eliminate, disparities in health that disadvantage rural African Americans, because rural health status and barriers to health improvement do not necessarily reflect those of urban areas.

Failure to understand the unique demographic and need characteristics of rural populations can lead to inappropriate policy. Kazal (1997), for example, found that CDC screening recommendations for detection of lead, developed based on urban areas with older housing stock and heavy vehicular traffic, had a positive predictive value of only 3.5% in a population of rural children living in relatively new housing with little traffic. Similarly, Thomas, Schoenback, Weiner, Parker and Earp (1996) discovered that available information regarding the epidemiologic distribution of gonorrhea, all based on studies drawn from urban areas, did not reflect disease patterns in a rural North Carolina county. The rural gonorrhea rate of 1,156 cases per 100,000 person years was higher than that for New York City during the same time period (298 cases / 100,000). They also point to differences in several factors commonly used for planning interventions: eg, the sex ratios were different (males at 1.8:1 in the rural setting versus 1.1:1 in urban areas), the age distribution was less biased toward younger people, and the geographic distribution of cases was less focused around a core area (Table 1, p. 275). The authors conclude by calling for more study of factors promoting the spread of STDs in rural areas (Thomas et al., 1996). Their call could apply equally well to many other diseases and handicaps. In the following section, we will review what is currently known about disparities in health between African American and majority populations in rural areas.

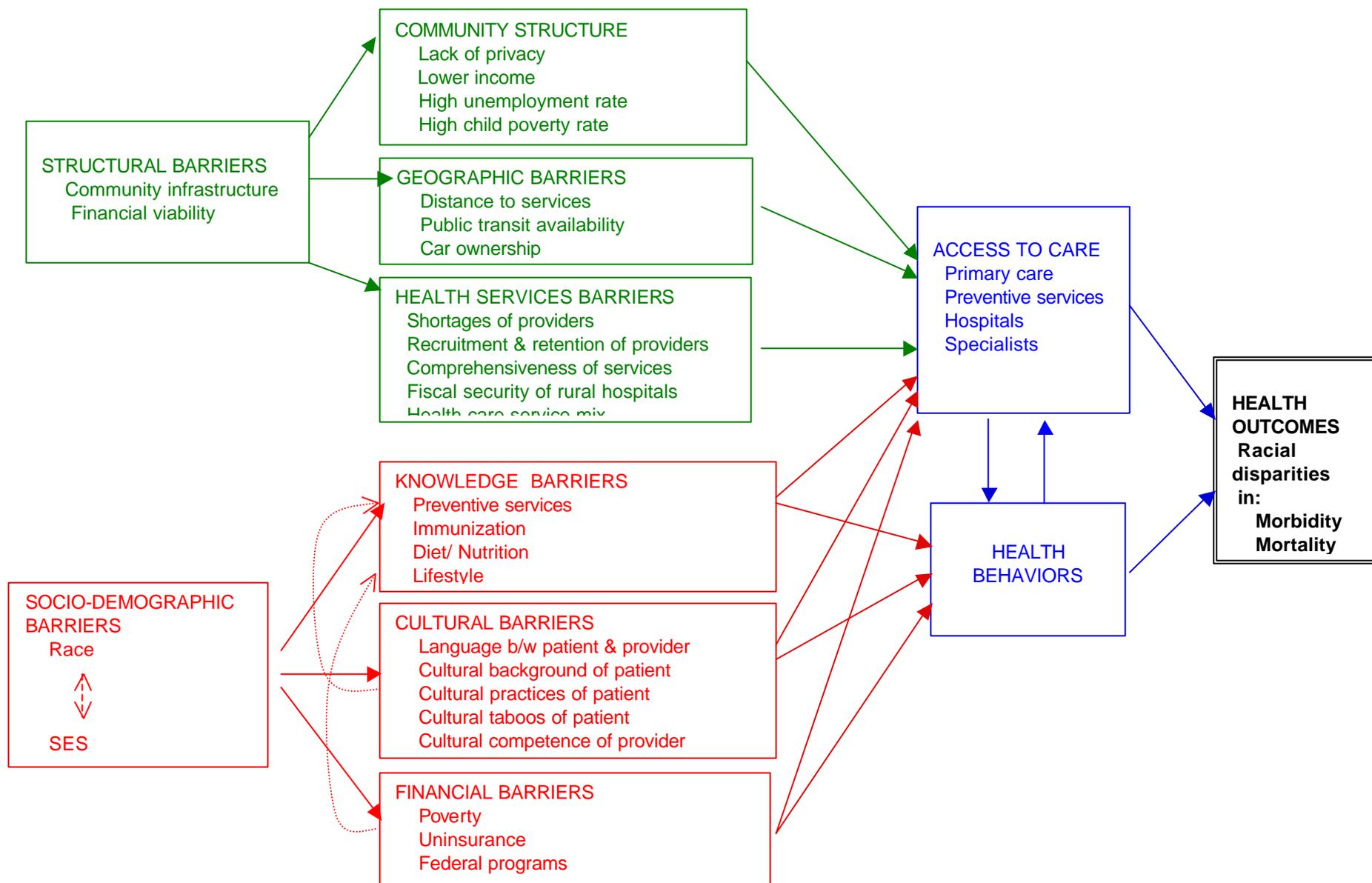
## **2.B. Model of Health Outcomes**

Our model of health and health services delivery structures our analysis of rural health issues that disproportionately affect African Americans. (See Figure, next page.) Two factors, access to care and health behaviors, are deemed to most immediately affect racial disparities in morbidity and mortality.<sup>2</sup> Both structural and socio-demographic barriers, which often serve to hamper minority populations in particular, influence access to care and health behaviors. In the presentation that follows, we present information documenting poorer health outcomes among rural African American residents, identify major differences in health behaviors and access to care, and examine the evidence for structural and socio-demographic barriers in access to care. For the purposes of our model, structural barriers to care include problems related to rural community structure, geographic issues specific to rural areas, and health service issues faced in rural areas. Socio-demographic barriers to care include knowledge issues on the part of rural patients, cultural values and practices among rural residents, and financial factors.

---

<sup>2</sup> Genetic factors clearly have an influence in a few disease entities, most notably sickle cell anemia. However, because the number of conditions for which genetic links has been found is extremely small, and because genetic variables are not generally subject to policy intervention, genetic issues are not discussed here.

Figure 2-1. Theoretical model of the antecedents of health status



## **2.C. Health Outcomes among Rural African American Residents**

Research has repeatedly documented that African Americans experience poorer health status than majority populations and subsequently die earlier. The citations below hint at findings specific to rural areas. From a policy perspective, additional support is needed for systems that track race-specific morbidity and mortality at the county level and at even smaller residential units, so that accurate assessment is possible for rural regions.

### *1. Mortality*

Mortality differences between whites and African Americans are well documented. However, available literature decreases dramatically when one begins to further classify these disparities to urban and rural dwellers. The studies presented below include information specific to rural populations:

- Residential mortality differences in the South favor metropolitan populations (Potter and Galle, 1990).
- In the nonmetropolitan South, greater African American-white differentials in mortality are seen for CVD and accidents (Potter and Galle, 1990).
- Infant mortality among African Americans is at least twice as high as for white Americans (Nickens, 1991).
- A study of premature mortality found that there were slightly more years of life lost in rural areas than in urban areas with Southern states bearing a disproportionate share of this burden. Further, in metropolitan and rural counties with high proportions of African American population and female headed households, additional premature mortality was predicted (Mansfield et al., 1999).

### *2. Morbidity*

The available evidence on morbidity clearly shows a disparity between African Americans and whites. Thus, African American populations, in both rural and urban areas, are disadvantaged compared to their white counterparts when it comes to health and disability. The evidence presented below highlights specific disease conditions and highlights the experiences of rural African American residents.

- Research almost invariably shows that morbidity and incidence rates for pancreatic cancer are higher for African Americans than for whites (Mueller et. al., 1998).
- There is a higher prevalence of asthma among rural African Americans (Keil and Saunders, 1991).
- There have been significant increases in disability associated with being from a rural area, female, elderly, less educated, African American, and poor (Holzer et al., 1996).

- Rural, impoverished African Americans in the South experience the highest level of health related disability (Blank et al., 1996).

### 3. *Health behaviors*

Available data suggest that rural African American populations may be less likely to engage in healthy activities, to seek preventive care, and to seek care early in illness (see also issues listed under “Access to Care”). Additional research is needed into appropriate health education media for dispersed rural populations and into structural barriers (lack of exercise opportunities, as for example lack of sidewalks) to healthy behaviors in rural areas.

- Rural African American women are less likely to exercise, to maintain a favorable weight, or to stop smoking than white women (Edwards et. al., 1991).
- African American women have a higher prevalence of elevated serum cholesterol and blood pressures than white women. These risk behaviors were found to be higher in rural than urban areas (Edwards et. al., 1991).

## 2.D. **Access to Care**

Access to care is often operationalized as actual use of services. Rural African Americans are less likely to report receiving any care, having a regular source of care, or receiving preventive services. Evidence for poorer access is presented here, structural factors affecting access and possible policy implications are discussed in the next section.

### 1. *Utilization of services, general*

The literature regarding utilization of services indicates two major trends. First, there is a lack of study into health related issues surrounding rural minorities. Second, the existing body of literature indicates poorer access for rural minorities:

- Rural minorities are among the most medically understudied and underserved of all population groups in this country (Brathwaite and Taylor, 1992; Williams et al., 1994).
- Access is worse for rural minority populations, even in comparison to urban minority populations (Mueller et. al., 1998).

### 2. *Primary care*

Access to primary care is as important an issue in rural areas as it is in urban areas. Regardless of population size, it is critical that primary care services are available to its

residents. The issues presented here indicate that in addition to ensuring that services are available, one must also consider rural minorities likelihood to utilize such services. Further, a greater understanding of emergency department use in rural areas is needed.

- Rural residents are more likely to be without a regular source of health care and are less likely to seek care (Blank et al., 1996).
- Those living in a county not adjacent to a metro area and including a city of 10,000 or more persons were frequently less likely than others to report having a usual source of care (Ricketts, 1999).
- Rural African Americans were among the least likely to have used a physician during the previous 12 months (Mueller, Patil, and Boilesen, 1998).
- Rural adolescents were more likely to use only the ED than were suburban or urban adolescents (Wilson and Klein, 2000).
- Nationally, as many as 1.5 million adolescents age 10 to 18 years reported having no usual source of health care other than the ED. These adolescents were more likely to live in rural areas, be African American or male, and have fewer financial resources (Wilson and Klein, 2000).

### 3. *Preventive services*

The use of preventive services goes hand in hand with primary care. Literature here shows a strong correlation between race and other demographic indicators (i.e., education and income) and the tendency to utilize preventive care.

- Children from families with lower incomes, families with fewer years of education, and of racial minorities are less likely to be immunized (Lowery et al. 1998).
- Although they are more likely to suffer many chronic conditions, minority, poor, and rural residents are less likely to receive preventive health screenings than are nonminority, nonpoor, and urban individuals (Department of Health and Human Services, 1991).
- African American women in rural areas were less likely to be screened for cervical cancer than their rural white counterparts or than African American women in urban areas (Duelberg 1992).
- Rural African Americans had the lowest incidence of testing for a Pap test (Kleinman and Kopstein 1981).

### 4. *Hospitals and Specialists*

Access to hospitals and specialists are of particular concern in rural areas. Both hospitals and specialists require a certain population base (that is not always available in rural areas) to be financially successful.

- Larger rural communities are more likely to have a hospital than smaller rural communities (Ricketts, 1999).
- The more highly specialized a physician, the less likely he or she will settle in a rural area (Ricketts, 1999).
- Issues of sufficient population base to achieve professional and economic equilibrium are an issue for specialists in rural areas (Ricketts, 1999).

## **2.E. Structural Barriers to Care**

Persistent poverty in rural areas is a principal barrier to the development of community health infrastructure. Action in two arenas will be needed. First, existing programs that directly or indirectly subsidize the provision of services in selected rural areas must be continued. Rural areas that currently lack a well-developed economic infrastructure cannot hope to attract providers or retain hospital capacity without support. Second, additional exploration into the role of economic development is essential if barriers to care such as unemployment, uninsurance and lack of transportation are to be corrected.

It has been suggested that current economic policy tends to focus on urban African American employment issues, neglecting more severe problems in rural areas (Gibbes, 1996). Jobs available to rural African Americans in the South, for example, are influenced by the region's manufacturing base, which has focused on low-skill jobs, and by "a particularly strong legacy of racial segregation" (Gibbes, 1986, p. 66). Small rural towns, particularly African American-majority towns, have become "pockets of poverty with high unemployment" (Cromartie and Beale, 1996). As recently as 1980, 47% of African American women and 56% of African American men in service industries in the rural South were categorized as household or commercial cleaning staff. The drop in African American women in service roles between 1980 and 1990 (to 35%) was affected by their moving into sales, particularly cashiers, and into technical positions, particularly nurses aides. In blue collar industries, rural African American women are generally found at the bottom rung, working in job classifications such as "operator" that are simultaneously at the bottom of the wage scale and the top of the scale for likelihood of moving off-shore (Gibbes, 1996).

Despite the significance of employment for ability to afford health insurance, deductibles, and other health care related expenses, few analyses have explored the role of community economic characteristics in health outcomes. It is important to recognize the limits of what may be achieved through changes in health systems, and to strive for integrated rural health and economic development policy. For example, if an individual has lived virtually all of his or her adult life without health insurance because the jobs available in a rural community do not offer it, improving the Medicare prescription policy at age 65 will probably not have a large impact on his/her health. Life-style patterns that will result in chronic disease are set in adolescence and early adulthood. Good jobs and good access to preventive interventions in one's 20's are required to reduce disparities that emerge in mid-life.

## *1. Community structure*

Health issues among rural African Americans cannot be separated from economic issues. National Census data suggest that rural counties with high African American populations disproportionately experience situations likely to impair access to care. In counties with no African American residents, an average of 4.0% of households lack a vehicle and 5.0% lack a telephone. In counties with up to 5% African American residents these percentages rise to 6.4% and 7.0%, respectively. In counties where the majority (over 50%) residents are African American, 16.5% of households lack a vehicle and 15.8% lack a telephone.

Issues of community structure which affect access to care include lack of privacy in rural communities, lower incomes seen in rural communities, higher unemployment rates, and high child poverty rates.

South Carolina, with 30.2% of its citizens classified as African American in 1996, has a significant rural African American population. Across all 30 rural counties in the state, the average county has a 44.8% African American population. Twelve of South Carolina's 30 rural counties have majority African American populations, ranging from 52.1% to 68.6% of total population. The demographics of South Carolina's rural counties, but particularly its rural, majority African American counties, speak to lack of education and lack of development.

Across South Carolina, 68.3% of persons over age 25 have completed a high school education. In the state's 30 rural counties, an average of 59.1% of adults have a high school education; in majority African American counties, this average drops to 56.5%. Unemployment is higher in rural counties and job opportunities pay less. For South Carolina as a whole in 1996, unemployment averaged 6.0% across counties. In rural counties, unemployment averaged 9.1%; in rural, majority African American counties, this value was 10.2%. Job opportunities, as measured by the average nonfarm payroll per employee, averaged \$22,431 across South Carolina in 1995. In rural, majority African American counties, the nonfarm payroll per employee averaged \$18,866. With a poorly educated work force, relatively high unemployment and relatively low salaries for employed persons, per capita income in the 12 majority African American rural counties averaged \$13,707 in 1996, versus \$16,007 in majority white rural counties and \$17,710 for all of South Carolina. At the household level, income averaged \$20,963 in majority African American counties and \$25,693 in majority white rural counties, versus \$27,962 for the state as a whole (1996 data). Reflecting the same set of factors, the percent of persons below poverty (1993 data) was highest in majority African American counties, at 26.3%, with majority white rural counties averaging 18.5% and the state of South Carolina averaging 16.6% in poverty. Low income and high poverty lead to lack of economic strength at the county level. Majority African American rural counties averaged \$176.5M in deposits in commercial banks and savings institutions in 1997, versus \$356.8M in majority white rural counties and \$1.505M for the state as a whole.

South Carolina's demographic profile is similar to that of the historic plantation South. High concentrations of African Americans in rural areas, with few human and financial resources, may be found across the region:

- Poverty is associated with rural residence, the South, and minority status in general, and with African Americans residing in the rural South in particular (Brown and Warner, 1991; Rowland and Lyons, 1989).
- Lack of privacy in small towns may lead individuals to reject preventive services associated with “embarrassing conditions” (Strickland and Strickland, 1996).
- High percentage African American counties in the rural South have substantially lower levels of public infrastructure than other counties in the region which places minorities at even greater risk of unavailability of services (Brown and Warner, 1991).
- The lack of mental health and substance abuse infrastructure means that residents in rural areas often go untreated (National Rural Health Association, 1999b).
- In 1990, only 79.5% of nonmetropolitan counties had any mental health services (National Rural Health Association, 1999b).
- Among nonmetropolitan hospitals, 18.6% offer emergency psychiatric services, compared with 37.4% of metropolitan hospitals (National Rural Health Association, 1999b).

## 2. *Geographic Barriers*

Geographic barriers play a critical role for residents of rural areas. Distances to services combined with lack of public transit and a decreased percentage of residents who own or have access to a car increase transportation barriers compared to urban residents. For residents who live great distances from services *and* have no access to transportation, obtaining health care becomes that much more difficult.

Many rural residents in South Carolina, but particularly those in majority African American counties, experience household situations that may impair their ability to seek health care. Across all rural counties, the proportion of households lacking access to a car ranges from 6.1% to 22.0%. In majority African American counties, an average of 15.2% of households lack access to a vehicle, versus 11.6% in other rural counties. Similarly, an average of 14.6% of all households in majority African American rural counties in South Carolina lack a telephone, versus 11.0% in majority white rural counties. General rural barriers cited in the literature include:

- Distance to services can be a prohibitive barrier in that having to travel long distances to a provider can become a reason not to seek care (Mueller, Patil, and Boilesen, 1998).

- Car ownership may not eliminate transportation problems if employed members of the household needed the car for work, the car was not safe for long-distance travel, or the household cannot afford gas (Strickland and Strickland, 1996).
- In a study of rural Florida, African Americans were the most likely minority group to be without transportation to care (Albrecht et al., 1998).
- In a study of North Florida, rural African American elders used senior centers, and special transportation services for senior citizens, at rates higher than those in urban areas or rural whites and Hispanics (Netzer et al., 1997).

### 3. *Health Services Barriers*

Potential barriers to the use of health services in rural areas may stem from the nature of the rural infrastructure. Frequently cited problems across the nation include shortages of health service providers, difficulty recruiting and retaining providers, and the comprehensiveness of services available. South Carolina data exhibit similar patterns.

#### *Shortages of Providers*

Primary care is central to the discussion of rural health access. Adequate supplies of primary care providers and services are crucial in any geographic area, regardless of population size or density. In South Carolina rural areas have fewer primary care physicians per population than do higher density regions (See Table below).

Table 2-1. Number of FTE Primary Care physicians per 10,000 population in South Carolina, by rurality of county

County size definitions: SMSA, largest urban area =50,000 population; Other Urban, largest urban area 25,000 – 49,999; suburban, 10,000-24,999; larger rural, largest community 5,000-9999 population; small rural, largest community = 5,000 population.

National data note the following about rural physician shortages and their effects:

- In rural areas, the average ratio of primary care physicians to patients is 1:3,500 (Center for Health Policy, 2000). An appropriate ratio is commonly considered to be 1:2,000.
- People living in nonmetropolitan areas are four times as likely to live in a HPSA than persons in metropolitan areas (Federal Office of Rural Health Policy, 2000).
- The nation's Southern states have the greatest need for primary care physicians; to remove all their HPSA designations would require an additional 1,096 physicians (Federal Office of Rural Health Policy, 2000).

- Rural physicians are reducing their provision of childhood immunizations, requiring rural children to obtain immunizations at public health departments (Hueston et al., 1994).

### *Difficulty of recruitment and retention of providers*

Four major factors that make it difficult to staff rural areas are: 1) a sparse population, 2) lack of amenities, 3) extreme and persistent poverty, 4) a population consisting primarily of ethnic and racial minorities (Ricketts, 1999). A review of the relevant literature regarding staffing rural areas shows that economic policy issues are directly related. In addition to workload and fiscal security of the hospitals, there are also several issues that affect reimbursement levels. Some key examples of this are mentioned:

- Rural areas get larger share of gross practice from Medicare and Medicaid which effects reimbursement level (National Rural Health Association, 1998).
- Rural areas have less ability to perform economically enhancing procedures (i.e., obstetrical, surgical), which affects reimbursement level (National Rural Health Association, 1998).
- Shift in rural areas to Medicaid managed care, which affects reimbursement levels (National Rural Health Association, 1998).
- Rural hospitals rely more heavily on Medicaid and Medicare that often results in reimbursement rates below actual costs (Center for Health Policy, 2000).
- Physicians in rural areas earn less (and work more) (National Rural Health Association, 1998).

Also central to attracting and retaining quality physicians are the aspects of a “well-rounded” life for the physician and his family:

- Rural areas may lack sufficient employment, education, and recreational activities for a physician’s spouse and children (National Rural Health Association, 1998).
- Professional isolation often occurs in rural areas which effects consultation, professional conference attendance, and personal vacations (National Rural Health Association, 1998).
- There are heavier workloads and demands on physicians in rural areas. Physicians in nonmetropolitan counties worked more hours per week and had more patient visits per week than those in metropolitan counties (National Rural Health Association, 1998; Federal Office of Rural Health Policy, 2000).

### *Comprehensiveness of Services*

While areas with small populations often cannot support an extensive array of specialist services and providers, there are some areas where provision is critical. In South Carolina, 33

of 46 counties are designated health professions shortage areas for mental health personnel. Mental health and obstetric care are specialties in short supply in rural areas nationally:

- The number of mental health providers in rural America is inadequate (National Rural Health Association, 1999b).
- Increasing numbers of rural women must travel outside the county or rely on general practitioners for obstetric services (Nesbitt et al., 1990).
- Three fourths of Georgia's rural counties lack obstetric services (Ryan, 1993).

## **2.F. Socio-Demographic Barriers to Care**

While knowledge does not ensure appropriate health behavior, *lack* of knowledge can prohibit it. Additional support for health education and prevention programs directed at African Americans living in rural areas is needed. In addition, cultural issues, up to and including racial bias on the part of providers and patients, cannot be neglected when examining health behaviors and health care access.

### *1. Knowledge Barriers*

Knowledge barriers refer to a lack of information on the part of the patient about health and nutrition related issues that lead to a healthy lifestyle and appropriate preventive care. These knowledge barriers can include a lack of knowledge about what encompasses appropriate preventive care, lack of knowledge about immunizations and immunization schedules, as well as a lack of knowledge about proper diet, nutrition, and exercise.

- Rural-related impediments to entitlement coverage include functional illiteracy, fear of insensitive treatment by agency employees, family pride, and stigma within the community (Bushy, 1990).
- For many rural poor, medical services are considered a luxury (Strickland and Strickland, 1996).
- Rural children who lived with an adult with less than a high school education were significantly less likely to have received necessary immunizations than rural children who lived with an adult with some college education (Lowery et al. 1998).
- Rural areas have fewer preventive and health promotion programs than urban areas (Bushy, 1990; Weinert and Long, 1990).

### *2. Cultural Issues*

As the diversity in rural areas increases, so too does the breadth of cultural issues that will be faced between provider and client. Language problems between patient and provider are pertinent on two levels: first, in relation to non-English speaking clients and second, if there exists an inability of the provider to relay technical information at an appropriate level for the patient.

Also highly relevant to bridging cultural gaps are the cultural background, values, and taboos of the patient. This often includes perceptions by rural residents that health care is not necessary.

- Cultural differences often exist in the definition or perception of illness, and the appropriate source and type of care (Mueller et. al. 1999).
- The conception of health in rural areas often follows a performance model (i.e., if it's not broken, don't fix it), which may prohibit seeking preventive care (Strickland and Strickland, 1996).
- Stronger reliance on informal social support networks may also prohibit seeking preventive care (Strickland and Strickland, 1996).
- In a study of rural Georgia, patients who had not received preventive services in the past year commonly stated that health services were not needed (Strickland and Strickland, 1996).
- The stigma attached to having a mental disorder in rural areas often leads to under-diagnosis and under-treatment of mental disorders (National Rural Health Association, 1999b).

Finally, the cultural competence of the provider must also be considered in assessing the effectiveness which rural residents are able to access care. If the provider does not have adequate knowledge of the language and cultural values and beliefs of rural residents, then suggested regimens of care may not be followed. While literature in this area is sparse, examples are given:

- Physicians interact differently with poor and minority patients, both eliciting and providing less medical information and engaging in shorter consultations; this leaves poor patients uninformed (Ventres and Gordon, 1990).
- A cultural “match” between provider (or his staff) and patient helps to bridge social distance.
- It is important that there is an understanding on the part of the provider of client culture.

### 3. *Financial Barriers to Care for Rural African Americans*

In the present health care system, knowledge and beliefs regarding health can only be implemented with money. High uninsurance among rural populations is a significant barrier to care and a threat to the stability of community health infrastructure. Again, both subsidies and economic development are necessary. Thus, policies that expand Medicaid eligibility among vulnerable populations are most desirable when coupled with strategies for industrial development.

### *Poverty*

The literature below highlights the issue of poverty in rural areas. Poverty is linked both to unemployment and to employment at wage levels insufficient to allow the wage earner to purchase self or family health insurance coverage.

- There are increasing income and employment disparities between urban and rural settings (Jensen and Tienda, 1989; Lichter, 1989; Summers, 1991; Tolbert and Lyson, 1992).
- There have been increases in child poverty in rural areas (Jensen and Eggebeen 1994; Garrett et al. 1994).
- Inability to pay was a commonly cited barrier to receiving preventive services in rural Georgia (Strickland and Strickland, 1996).
- Rural residents are more likely than their urban counterparts to delay getting care because of financial barriers (Ricketts, 1999).

### *Uninsurance*

Uninsurance often tends to be a side effect of both poverty and declining community infrastructure, both of which tend to be found in rural areas. The literature below expands on this:

- Lack of health insurance often restricts a person's ability to pay for services (Mueller, Patil, and Boilesen, 1998).
- The insured person is twice as likely as the person without insurance to use a physician's services (Mueller, Patil, and Boilesen, 1998).
- States in the Southwest and Southeast have the highest percentage of uninsured people (National Rural Health Association, 1999).
- Those residing in MSAs were 1.42 times more likely to have insurance than those residing in non-MSAs (Shi, 2000).
- Vulnerable groups susceptible to uninsurance include racial/ethnic minorities, low income or self-employed, and those residing in non-MSAs. Belonging to multiple "at risk" groups would only increase the likelihood of uninsurance (Shi, 2000).
- Rural African Americans have a higher percentage of uninsured than rural white citizens (Mueller, Patil, and Boilesen, 1998).

- African Americans in the rural South are one and a half times less likely to be insured than are whites from the South or Northern African Americans, and two times less likely to be insured than non-Southern whites (Korczyk, 1989).
- Almost 2/3 of rural residents who indicated that they did not get needed care reported that the reason was that they could not afford it or they did not have insurance (Ricketts, 1999).

### *Federal Programs*

Given high rates of poverty and uninsurance among rural residents, issues regarding federal programs must be addressed. Particular attention is needed to the effect large Medicaid and Medicare populations have on hospital reimbursement levels (see points raised regarding the recruitment and retention of providers).

- Rural residents without Medicaid or private insurance are the least likely to see a physician (Blank et al., 1996).
- The rural poor are less likely to be covered by entitlement programs than are the urban poor (Office of Technology Assessment, 1990).
- Rural African American respondents in Florida were about twice as likely as Hispanics or whites to rely on Medicaid (Albrecht et al., 1998).

## Chapter 3

### Method for Exploring Racial Health Disparities in South Carolina

Health disparities experienced by rural African Americans in South Carolina were studied using existing health and utilization data sets. Utilization rates, as will be discussed in more detail later, cannot definitively explain disparities in health or health care between races. However, such data can raise questions to be addressed in greater depth using more effective research designs. This chapter provides details on the data sources used for identifying rural residents and calculating utilization rates.

#### 3.A. Sources for utilization data

The Office of Research and Statistics of the South Carolina Budget and Control Board maintains three data sets that were used to explore racial disparities in receipt of health care in South Carolina. The analysis is based on health care services provided during calendar 1998.

*Inpatient data files.* This data set encompasses every hospitalization that occurs in the state. By legislation, each hospital must submit a uniform discharge summary for each patient discharged; thus, this data set applies to the entire population of persons discharged from hospitals across the state. The information available in this dataset includes: basic demographics, geographic information, admission and discharge dates, service episode, reason for service, response, payor, provider type, charges, general outcomes, cross system outcomes.

*Emergency Department visits.* This data set also captures statewide information. It contains one entry for every patient visit made to an emergency department. Information provided in this data set is similar to the information available in the inpatient data files.

*Medicaid outpatient files.* This data set *only* includes persons receiving outpatient services paid by Medicaid and delivered in a routine office setting, that is, not in an emergency department or a hospital clinic. Some constraints are placed on this data set by the fact that it is based on billing data, thus, information reflects the claims that Medicaid has paid. If the provider elected not to submit a bill, no record of the service would be present in the record. Similarly, if a claim was disallowed, no record would be present. The basic unit of the Medicaid file is the bill submitted by a provider for care provided to one patient. One bill, however, may contain charges incurred over multiple dates of service. The information available within this data set is similar to that in the inpatient data files.

*Population data.* Population data used in calculating rates were taken from the official population estimates of the Bureau of the Census for the year 1996 based on the 1990 Census.

*Race data.* Information used in this report comes from data files maintained by the Office of Research and Statistics for relevant agencies, such as Vital Records and Statistics and

the Health and Human Services Finance Commission. These agencies in turn receive much of their information from local health services providers. No attempt has been made to verify race information by reviewing medical records or by contacting individuals to determine how they would self-describe themselves by race. Race and ethnicity coding can be subjective, particularly when persons who are both white and Hispanic or African American and Hispanic are considered. In addition, the race category to which a health care provider might assign and individual may differ from the category in which the individual would place himself or herself.

### **3.B. Definitions of Urban and Rural**

Unless otherwise stated, analyses presented here define rural and urban regions using zip codes. Urban and rural are defined using the Census definition of an MSA. First, if a county is a non-MSA county, then the whole county was coded as rural. In the remaining counties, those that are MSA counties, Zip codes are used to “carve out” the urban areas within that county. In these cases, a Zip code is considered urban if it is at least 50% urban by the Census definition of urban.

### **3.C. Calculation of birth and death rates**

The demographic indicators used in this report include mortality rates, age specific birth rates, infant mortality and fetal mortality rates. For each of these indicators the rates were calculated for African Americans and whites in both rural and urban areas. Based on the rates, ratios were calculated for rural and urban areas, comparing the African American rate to the white rate. These ratios are useful in highlighting racial disparities and will be the focus of much of the discussion of the demographic results.

South Carolina mortality rates are presented for rural and urban South Carolina by race (African American and white). The death rates and ratios are based on the vital records file for 1997. The death file included 32,983 observations after excluding those of unknown race and those who were not South Carolina residents. The mortality rates are presented as age specific death rates per 100,000 population and are grouped by underlying cause of death (based on ICD-9-CM codes).

Age specific birth rates are presented for rural and urban South Carolina. These birth rates are based on 1997 vital records. The birth files include 48,319 cases after including only African Americans and whites and excluding those who are not South Carolina residents. The birth rate is presented as the number of live births in a given age group per 1,000 population. Also presented is the ratio of the African American to white rates in both rural and urban South Carolina.

Also of interest here are statistics regarding low birth weight (LBW) and very low birth weight (VLBW) births. LBW and VLBW are presented as percentages of the relevant population subgroup. Low birth weight is defined as 2500 grams or less and very low birth weight is defined as 1500 grams or less.

Infant mortality rates are presented using 1997 vital records data. There were a total of 460 infant deaths in 1997 among South Carolina residents of white or African American race. The fetal mortality rates were calculated using 1998 vital records data. There were a total of 450 fetal deaths among white and African American South Carolinians. Both the infant and fetal mortality rates are presented as the number of deaths per 1,000 population for each age group.

### **3.D. Calculation of utilization rates**

Information about South Carolina inpatient hospitalizations, emergency department utilization, and visits among the Medicaid population was analyzed to determine the presence of racial disparities.

The emergency department statistics include the visit rates per 100,000 population by age and diagnostic category for 1998. The hospital information includes the rate of inpatient hospitalizations per 100,000 population from October 1997 through September 1998. The rates are presented by age and diagnostic category.

One drawback of utilization data is that it is difficult to determine whether white/African American ratios represent true disparities in underlying disease, or if the ratios are reflections of differences in use of services. For example, increased hospitalizations within the rural African American population may indicate that a particular disease is more prevalent or more severe. For conditions that nearly always lead to hospitalization, such as hip fracture, hospital utilization data probably provides an accurate assessment of the incidence of the underlying condition. Alternatively, a high hospitalization rate may indicate a tendency among rural African Americans to wait until the condition has reached a level of severity that requires hospitalization. For many conditions, such as diabetes, utilization rates are a mixture of difference in underlying rates of disease and a consequence of differing levels of primary care access. This report can identify disparities, but cannot specifically attribute any given difference to the possible causes suggested here.

To cover the full spectrum of primary care through hospitalization, additional analyses were conducted on the Medicaid population. Analysis of Medicaid data was limited to outpatient Medicaid claims, from the emergency room, outpatient hospital clinics, a physician's office, or an FQHC. The base population was the number of persons eligible on July 1, 1998. Analyses were confined to the two age groups with significant representation in the Medicaid population, 0-18 year olds and those over 65. Medicaid eligibility rules tend to exclude person aged 19-64 unless they are blind or disabled; these individuals are not representative of the general population. Medicaid utilization analysis is presented by age group and condition for 1998. The rates represent the visit rate for a given race, age group, and condition in both rural and urban areas. The ratio is the African American rate to the white rate for both rural and urban areas.

### **3.E. Presentation of comparative data**

The rates presented are limited to cases where there were 50 or more deaths in rural South Carolina and where the ratio of the African American rate to white death rate is less than .7 or greater than 1.3 in rural areas. While the results presented contain both rural and urban rates and ratios, the following discussion is limited to the rural statistics.

## Chapter 4

### Disparities in Health Among Rural African Americans in South Carolina

Our presentation of health disparities among rural African Americans in South Carolina follows the structure of the model presented in Chapter Two. All of the health and utilization disparities presented here are multi-factorial in origin and require multi-faceted solutions. This report, however, focuses on presenting the data. The intent is to identify problem areas that subsequent research may elect to explore in greater detail. Concentrating on South Carolina health data systems, the report focuses on:

- Mortality as measured by death rates
- Morbidity and / or access, as measured by health care utilization:
  - Hospital and emergency department utilization, all rural residents
  - Outpatient utilization, rural Medicaid recipients only

#### 4.A. Vital Statistics

##### 1. Birth Rates

Many infants born to rural African American women begin life at a disadvantage. While the ratio of African American to white birth rates is similar, there are disparities in the birth rates for teen women (Table 4-1). In both rural and urban areas teenage African Americans had a higher birth rate than whites, although the disparity was higher in urban areas.

Table 4-1. 1997 Age Specific Birth Rates Per 1,000 Population Residents of South Carolina by Rural, Urban, and Race

	Rural	Rural AA	Rural WH	Rural Ratio	Urban	Urban AA	Urban WH	Urban Ratio
Age	Births	Birth Rate	Birth Rate	AA:WH	Births	Birth Rate	Birth Rate	AA:WH
All ages	29,506	60.4	63.2	0.96	18,813	64.0	48.1	1.33
12-19	5,282	67.7	45.4	1.49	2,848	79.9	29.8	2.68
20-24	8,844	212.0	203.4	1.04	4,636	205.0	108.5	1.89
25-29	7,824	96.1	161.6	0.59	5,162	109.2	113.8	0.96
30-34	5,092	46.9	75.3	0.62	4,044	52.3	69.2	0.76
35-39	2,060	22.7	27.6	0.82	1,842	25.8	31.2	0.83
40-46	404	3.2	3.5	0.91	281	3.1	3.1	1.00

Note: Urban and rural ratios are of African American rate to white rate

The percent of infants with low birth very low birth weight was similar in both rural and urban areas (Table 4-2, below). In both settings, African Americans had a higher percentage of both low birth weight and very low birth weight babies.

Table 4-2. Number and percent of VLBW and LBW births by rural, urban, and race

	TOTAL								
	Total	Afr Amer	White	Total	Afr Amer	White	Total	Afr Amer	White
Number of births									
Total	49331	17790	30541	29513	10760	18753	18818	7030	11788
VLBW	900	551	349	556	331	225	344	220	124
% VLBW	1.86	3.10	1.14	1.88	3.08	1.20	1.83	3.13	1.05
LBW	4409	2382	2027	2753	1430	1323	1656	952	704
% LBW	9.12	13.39	6.64	9.33	13.29	7.05	8.80	13.54	5.97

## 2. Mortality rates

Information on which the discussion of mortality among rural African Americans is based is presented in Appendices A and B. Appendix A contains unadjusted causes of death by race and age group; Appendix B, age-adjusted death rates by rural versus urban residence of the decedent and race. Both sources shed light on the problems of rural African Americans.

### *Fetal Mortality*

Fetal mortality rates were higher among African American women across virtually all maternal age groups (Table 4-3). Rural African American women appeared to have better outcomes than their urban counterparts, since the overall fetal death rate in rural areas was 2.43 times higher for African Americans than whites, whereas it was 3.24 times higher in urban areas. However, caution should be used in interpreting this data, as reporting of pregnancy, and thus recording of fetal death, may be lower in rural areas.

Table 4-3. 1998 Fetal Mortality Rates Per 1,000 Population, Residents of South Carolina by Age of Mother, Rural / Urban Residence, and Race

	Rural	Rural AA	Rural WH	Rural Ratio	Urban	Urban AA	Urban WH	Urban Ratio
Age	Deaths	Rate	Rate	AA:WH	Deaths	Rate	Rate	AA:WH
All ages	276	14.6	6.0	2.43	174	15.9	4.9	3.24
12-19	51	14.9	4.1	3.63	45	22.8	6.9	3.30

20-24	80	12.5	6.1	2.05	46	13.9	5.0	2.78
25-29	68	14.8	5.7	2.60	36	9.3	5.8	1.60
30-34	46	15.7	6.3	2.49	23	16.0	2.3	6.96
35-39	25	21.6	7.0	3.09	22	24.7	6.8	3.63
40-46	6	15.6	16.4	0.95	2	11.0	4.0	2.75

*Mortality in the Birth Year.*

In both rural and urban areas, the African American infant mortality rate exceeded that for the comparable white population (Table 4-4). Overall, the African American infant mortality rate was more than twice that of the white rate. The level of disparity was approximately the same in both urban and rural areas.

Table 4-4. 1997 Infant Mortality Rates Per 1,000 Population, Residents of South Carolina by Age of Mother, Rural, Urban, and Race

	Rural	Rural AA	Rural WH	Rural Ratio	Urban	Urban AA	Urban WH	Urban Ratio
Age of mother	Deaths	Rate	Rate	AA:WH	Deaths	Rate	Rate	AA:WH
All ages	280	15.0	6.5	2.31	182	15.2	6.6	2.30
12-19	63	16.1	7.9	2.04	38	15.2	11.1	1.37
20-24	85	13.2	7.2	1.83	47	14.2	6.6	2.15
25-29	73	16.8	6.5	2.58	49	16.6	6.5	2.55
30-34	40	14.9	5.4	2.76	28	13.2	4.9	2.69
35-39	16	16.1	4.2	3.83	14	16.7	4.4	3.80
40-46	3	7.8	7.3	1.07	6	25.3	20.4	1.24

Note: Urban and rural ratios are of African American rate to white rate.

The leading cause of death among white children under one year of age was congenital anomalies, followed by disorders relating to short gestation (Appendix A). Among African American children, these causes are reversed. Disorders relating to short gestation were the leading cause of death, pointing to the importance of prematurity as a cause of mortality.

*Mortality among Children 1 – 5 Years.* The leading cause of death among young children across South Carolina was accidents (Appendix A). Among white children, accidents caused 25.0% of deaths in 1997, followed by malignant neoplasms at 18.8%; intentional violence caused 8.6% of deaths. Among African American children, 30.6% of deaths were due to accidents and 12.2% to intentional violence. Among rural children ages 1 – 5 years, the ratio of deaths among African American (141.9 / 100,000) to those among white children (92.1 / 100,000) was 1.54. (See Appendix B.) Accidents, the largest cause of rural childhood deaths, were more frequent in the rural African American population (38.1 / 100,000) than among the white population (15.3 / 100,000; ratio = 2.49). Symptoms and ill defined conditions, the next largest category of deaths, were also more common among African American rural children than among white children (ratio = 1.56), while deaths due to congenital anomalies were similar across the two groups (ratio = 1.05).

*Mortality among Children 5 – 14 Years.* Among older children, accidents caused more than half of all deaths (51.2% for all children; 55.4% among white children and 47.4% among African American children). Among 6 – 12 year old rural children, the ratio of African American to white death rates was 1.20 (24.9/100,000 versus 20.7/100,000; see Appendix B). Because the absolute number of deaths in this age group is quite small, no conclusions about individual sources of these disparities could be drawn.

*Mortality among Young Adults.* Accidents and intentional violence were the leading causes of death among persons age 15 – 24 Years statewide (Appendix A); however, the role of violence was much larger among African American young adults. Among whites, 56.5% of all deaths were caused by accidents and 6.0% by intentional violence; among African Americans, 40.5% of deaths were accidental and 25.7% the result of violence. The ratio of African American to white deaths among rural residents aged 13-24 was 1.21 (157.5/100,000 for African Americans and 129.9/100,000 among whites).

*Mortality among Adults 24 – 44 Years.* The leading causes of death among all white South Carolinians between the ages of 24 and 44 were accidents (27.5%) and cancer (14.1%). Among African Americans in this age group, the leading causes of death were accident (16.8%) and HIV (15.2%), pointing to the greater effect this disease has had on the African American population (Appendix A). Among rural residents aged 25-49 (Appendix B), the overall death rate among rural African Americans aged 25 – 49 was 1.76 times higher than among whites.

Excess mortality among rural African Americans was present across all major causes of death categories. Rural African Americans aged 25 - 49 had a slightly higher death rate from accidents, poisoning and violence than rural whites (86.5 / 100,000 versus 78.7 / 100,000; ratio = 0.10). Circulatory system disorders took a greater toll among rural African Americans (death rate = 97.2 / 100,000) than among whites (47.3 / 100,000; ratio = 2.05). Rural African Americans were four times as likely to die from conditions in the infectious and parasitic disease category as rural whites. Disparities were also seen for neoplasm of the digestive organs and peritoneum (ratio = 2.98) and breast cancer (ratio = 2.83). Note that the disparity in breast cancer is much higher in rural than in urban areas (ratio = 1.44).

*Mortality among Adults 45 – 64 Years.* The leading cause of death among both whites and African Americans in the 45 – 64 age group was cancer, followed by heart disease (Appendix A). Age adjusted death rates among 50-64 year olds were 1.63 higher for rural African Americans than rural whites, and 1.91 times higher for urban African Americans than urban whites (Appendix B).

As was the case among younger adults, death rates among rural African Americans exceed those for rural whites across every major diagnostic category. Diseases of the circulatory system, the major cause of death in this age group, were proportionately higher among African Americans (543.9 / 100,000) than among rural whites (301.0 / 100,000; ratio = 1.81). Neoplasms, causing the second highest number of deaths, were also proportionately

higher in rural African American populations (405.0 / 100,00) than among rural whites (303.6 / 100,000; ratio = 1.33). Endocrine disorders caused relatively few deaths among rural persons age 50 - 64, but this category was notable for the disparities in deaths from diabetes, which were proportionately higher among African Americans (ratio for diabetes mellitus without complications, 3.02; for diabetes mellitus with complications, 3.04).

*Mortality among Adults 65 – 74 Years.* Among the “young old,” the leading causes of death in 1997 were cancer, heart disease and cerebrovascular disease (Appendix A). When rural mortality rates were examined (Appendix B), discrepancies between African American and white populations were less than at earlier ages, but still present (Appendix B).

Rural African American death rates were 1.36 times those of white rural residents. Disorders of the circulatory system were a more frequent cause of death among rural African American residents (1,451.2 / 100,000) than among whites (975.1 / 100,000; ratio = 1.49). Death rates from cancer were 901.8 among rural African Americans age 65 - 74, versus 752.5 among rural whites (ratio = 1.20). Endocrine disorders also were more frequently causes of death among rural African Americans (2.04 / 100,000) than among rural whites (70.5 / 100,000; ratio = 2.97), with most deaths stemming from diabetes. Disorders of the respiratory system, however, which took the third highest number of rural deaths, were more frequent among rural whites (270.1 / 100,000) versus African Americans (194.6 / 100,000; ratio = 0.72). It may be hypothesized that the latter difference stems from historically lower smoking rates among African Americans in this age group.

*Mortality among Adults 75+ Years.* Among all South Carolinians in this age group, the leading causes of death were heart disease, cancer, and cerebrovascular disease (Appendix A).

Rural death rates continued to be slightly higher among rural African Americans (ratio of 1.12) than among their white peers. The ratio of African American to white death rates for circulatory system diseases reflected the overall death rates (ratio = 1.11). Cancer death rates remained higher among rural African Americans (1147.3 / 100,000) than among whites (946.8 / 100,000; ratio = 1.21). Endocrine and metabolic diseases also caused proportionately more deaths among rural African Americans (407.4 / 100,000) than among rural whites (188.9 / 100,000; ratio = 2.16), with diabetes the most prominent single condition in this category. Deaths due to diseases of the respiratory system, continuing the trend noted in the 65-74 age group, were proportionately higher among rural whites age 75 and above (676.3 / 100,00) than among rural African Americans of that age (484.9 / 100,000; ratio = 0.72).

#### **4.B. HEALTH CARE UTILIZATION**

*Morbidity* data that is specific down to the county level, allowing us to distinguish between rural and urban populations by race, is not available at this time. Accordingly, this report presents *utilization* data pertaining to three health care services: hospitalizations, emergency department visits, and Medicaid outpatient care (excluding emergency department

visits). Utilization data offers an imperfect estimate of prevalence, as persons with a disease may choose not to seek care, or may seek it less frequently than health care providers would recommend. Conversely, persons without a disease, the “worried well,” may seek treatment in the absence of true health problems. While imperfect, utilization data do offer a description of the disease conditions for which populations seek care. Utilization data also speak to differences in access to care, particularly for elective and corrective procedures.

The detailed information presented in the sections that follow pertains solely to racial differences within rural areas in South Carolina. In urban areas, African Americans use some types of service more than white populations do. Urban African Americans have more total hospital discharges per population than urban white residents (ratio = 1.24), while in rural areas admission rates are similar (ratio = 0.95). While African Americans recorded more emergency department (ED) discharges than whites statewide, disparities were greater in urban areas (ratio = 2.37) than in rural areas (ratio = 1.52). Data summarized below are presented more fully in the appendices.

## **1. Hospitalization and Emergency Department Visits**

While age-specific death rates are generally higher in the rural African American population than in the white population, use of hospital services was nearly equal (overall ratio, 0.95). Emergency department visits, on the other hand, were higher among the African American than among the white rural population (ratio=1.52). Higher emergency department visits may be associated with financial issues (emergency departments provide service without regard to financial need), with access to primary care services in general, with cultural patterns, or with differences in disease presentation.

The hospitalization data summarized in the next sections is presented in Appendix C; emergency department data is presented in Appendix D. Several caveats surround the use of this data. First, one year of experience offers a snapshot, not a detailed study. Given the large list of conditions studied, it is possible that some disparities between African American and white use of these services represent “noise” rather than ongoing differences between the two populations. However, in areas where differences in health status as well as health care utilization have been documented, or where utilization trends parallel mortality trends, real differences are likely to be present. As a second caveat, it should be noted again that this report illustrates disparities; it does not attempt to explain them. Further research will be needed to clarify causes of differences in use of health services and in the nature of health services sought.

*Utilization during the Birth Year.* During the first year of life, severe morbidity and mortality were driven by conditions relating to birth. The proportion of deaths due to short gestation and maternal complications of pregnancy was higher among African Americans than among the majority population.

The largest cause of hospitalization in this age group was MDC 15, Newborns and other neonates with condition; in this category the ratio of rural African American to White hospitalization rates is nearly equal (ratio = 0.95). African-American infants, however, were

more likely to be recorded as deaths or transfers than white rural infants (total discharges 715; ratio = 1.57). Adverse African American ratios were found across both sexes and across the state's four major geographic units.

The most common diagnosis among infants brought to emergency departments was respiratory system problems (8,2651 visits; ratio 1.68), followed by disorders of the nervous system and sense organs (5,879 visits; ratio 1.22) and symptoms and ill-defined conditions (5,045 visits, ratio 1.38). Overall, the ratio of African-American to white visit rates was 1.46. African American-white ratios for ED use were consistent across genders and income levels.

*Utilization among Children 1 – 5 Years.* Children in this age group were infrequently hospitalized; only 6,708 total discharges were recorded among residents of rural areas between October 1997 and September 1998. Overall, hospitalization rates in this age group did not differ by race; the African American/white ratio was 1.02. Areas in which African American children were at greater risk for hospitalization included respiratory disorders (2,479 discharges; ratio = 1.39) and, due particularly to sickle cell disease, blood disorders (214 discharges; 2.75). African American-white differentials for blood disorders were higher among boys (3.24) than among girls (2.18).

ED visits were slightly more common for African American rural children than for other rural children (74,247 visits; overall ratio = 1.31). Leading areas of racial disparity among ED visits included respiratory system disorders (18,614 visits; ratio 1.65), infectious and parasitic diseases (5,884 visits; ratio 1.62), and diseases of the digestive system (3,894 visits, ratio = 1.78). Within the respiratory disease category, there were high African American-white disparities for pneumonia (ratio = 1.69), bronchitis (ratio = 2.56) and asthma (ratio = 2.45). ED visits for diseases of the blood, while higher among African Americans than among whites (ratio = 10.97), were rare. There were only 124 ED visits for this diagnosis, versus 214 hospital discharges.

Accidents, poisoning and violence caused 17,210 of the total ED visits in the 1 – 5 age group; accidents were also the leading cause of death in this age group. African American children were slightly underrepresented in use of EDs for accidental injury (ratio=0.87).

*Utilization among Children 6 – 12 Years.* Children age 6 – 12 were seldom hospitalized (4,411 discharges for all rural residents between October 1997 and September 1998) and African American/white ratios were approximately equal (0.97 overall). African American children were more likely than their white peers to be hospitalized for treatment of respiratory diseases (945 discharges; ratio=1.67), which include bronchitis (338 discharges; ratio = 1.34) and asthma (434 discharges; ratio = 2.01). Blood disorders continued to affect African American more than white children (250 discharges, ratio = 3.79).

Rural children aged 6 – 12 made 59,715 ED visits in calendar 1998, with African American rates per population being closer to those of whites (ratio = 1.21) in this age group than in any other. Disparities persisted in visits for respiratory system disorders (11,581 discharges; ratio = 1.68), including asthma (1,752 discharges, ratio = 3.23). Disorders of the

digestive system brought proportionately more African American than white children to EDs (2,576 visits; ratio = 1.71). A small number of children, but disproportionately African American, were seen for chest pain (649 visits; ratio = 2.16).

*Utilization among Young Adults 13 – 24 Years.* Rural adolescents were hospitalized at approximately equal rates across races (ratio = 1.14). Just over half of the discharges in this category (376/681) were attributable to diabetes, which was more prevalent among African Americans (ratio = 1.55). Hospitalization disparities for diabetes were slightly higher among males (ratio = 1.78) than among females (ratio = 1.41).

Pregnancy was a principal cause of hospitalization in the 13 - 24 age group, accounting for 17,110 of 22,814 female discharges. African American rural women in this age group were more likely than white rural women to be hospitalized for pregnancy (17,110 discharges, ratio = 1.22) and more likely to have complications of pregnancy, including vaginal delivery with complications (ratio = 1.41), cesarean section with complicating conditions (1.66), postpartum and post abortion diagnoses (ratio = 1.83), or other antenatal diagnoses (ratio = 1.57). Hospitalization for diseases of the circulatory system was proportionately higher among rural African Americans than whites (ratio = 1.64).

Hospitalizations due to blood disorders (517 discharges) continued to be small in number but disproportionately affected African Americans (ratio = 9.86). Rural discharges for disorders of red blood cells (298 discharges) had a rural African American/white ratio of 48.75.

Young adults made 141,082 ED visits in Calendar 1998, with African Americans making slightly more visits per population than whites (ratio=1.24). Areas with high African American disparities included respiratory diseases (16,145 visits, ratio = 1.44), asthma (1,906 visits, ratio = 2.26), disorders of the genitourinary system (11,498 visits, ratio = 1.53), female PID (1,602 visits, ratio = 2.03), and complications of pregnancy (6,808 visits, ratio = 1.62). Rural African American-white disparities in ED visits for asthma were higher among men (ratio = 2.86) than among women (ratio = 1.88). Accidents, trauma and violence, which caused about a third of all ED visits (49,264/141,082), were evenly distributed across races.

*Utilization among Adults 25 – 49 Years.* There were 76,271 hospitalizations among rural residents age 25-49 between October 1997 and September 1998, with the ratio of African American to white discharges being nearly equal (ratio = 1.07). It is in this age group that the “typical” patterns of ill-health among African Americans in South Carolina begin to manifest themselves.

Hospitalization rates for all disorders of the circulatory system were approximately equal across races (ratio = 1.10). However, rural African Americans were less likely than rural white residents to be hospitalized for corrective procedures such as coronary bypass surgery (ratio = 0.47) or pacemaker implantation (ratio = 0.41) and more likely to be hospitalized for heart failure (ratio = 4.44) and hypertension (ratio = 4.16). African Americans were more likely to be hospitalized for endocrine disorders (ratio = 1.97), with diabetes under age 35 (ratio = 3.48) and over age 35 (ratio = 2.41) as significant contributors. While kidney disorders as a group

cause equal rates of hospitalization among African Americans and whites, African Americans were more likely to be hospitalized for renal failure (ratio = 4.53). While African American women aged 25-49 were less likely than their white peers to be hospitalized for pregnancy (ratio = 0.90), they were more likely to have postpartum complications (ratio = 1.46), antepartum diagnoses (ratio = 1.53) or ectopic pregnancy (ratio = 2.51). African Americans were slightly more likely than whites to be hospitalized for respiratory diseases (ratio = 1.43), particularly bronchitis and asthma (ratio = 1.96). Diseases and disorders of the blood (category includes sickle cell) continued to be more common among African Americans (ratio = 8.69). Finally, HIV caused more hospitalizations among rural African Americans than rural whites (ratio = 5.96).

Rural African Americans in the 25-49 age group made proportionately more ED visits (ratio=1.43) than their white peers. In virtually all disease categories (as distinct from accidents), African American visit rates were twice that of whites. There was a connection between ED visits and disorders requiring hospitalization: African Americans were more likely to visit an ED for essential hypertension (ratio = 5.38); for all respiratory diseases (ratio = 1.70) and asthma (ratio = 2.26); for endocrine disorders (ratio = 2.54) including uncomplicated diabetes (ratio = 4.04) and diabetes with complications (ratio = 2.31); for female PID (ratio = 3.46) and disorders of menstruation (ratio = 2.73); and for problems of the blood and blood-forming organs (ratio = 28.29). It cannot be stated from the data whether these visits led to subsequent hospitalizations, that is, whether high hospitalization rates were induced by high ED visit rates. Alternative explanations are possible: for example high visit rates may reflect conditions with a higher underlying severity in the rural African American than the rural white population. Shortage of primary care practitioners is another possible explanation for high ED use, if untreated disease states deteriorate sufficiently to require hospitalization.

*Utilization among Adults 50 – 64 Years.* Hospitalization rates among rural middle aged African Americans were nearly 20% higher (ratio = 1.17) than among rural whites in the same age group. Utilization data suggest clinical areas contributing to the overall disparity. For example, while respiratory disease rates were nearly equal among races (ratio = 1.01), African American had less hospitalization in COPD (ratio = 0.468), possibly because they have lower rates of smoking than the white population (Bolen *et al*, 2000). Low rates for COPD, however, were balanced by high hospitalization rates for bronchitis, both with (ratio = 1.82) and without (ratio = 1.68) complications. Similarly, while hospitalizations for circulatory problems were about equal (ratio = 1.13), African Americans had markedly low rates for corrective procedures such as coronary bypass (ratio = 0.37) or pacemaker implantation (ratio = 0.42) but high rates for heart failure (ratio = 2.70) and hypertension (ratio = 3.89). African American/white disparities in hospitalization for heart failure were higher among rural women (ratio = 3.24) than among men (ratio = 2.31) in this age category, while the opposite was true for hospitalization for hypertension, which was more disproportionately a cause for hospitalization among African American men (ratio = 4.59) than African American women (ratio = 3.45). Hospitalization rates were higher for endocrine disorders among rural African Americans compared to whites (ratio = 2.39), pushed by high rates for diabetes (ratio = 5.82). Rural African American – white ratios for hospitalization for renal failure paralleled that for diabetes (ratio = 5.79). In this post-childbearing age group, African American women were

less likely than their white peers to be hospitalized for diseases and disorders of the female reproductive system. Absolute numbers were small, but African Americans were disproportionately likely to be hospitalized for amputations caused by circulatory problems (ratio = 4.19). While hospitalization for HIV continued to be more common among African Americans than whites, absolute numbers of discharges were small in this age group.

The ratio of rural African American to white ED visits rates was 1.79, with disproportionate use by African Americans present across disease categories. Marked differences include the African American-white ratio in ED use for endocrine disorders (ratio = 4.74), including diabetes (ratio = 4.42); disorders of the circulatory system (ratio = 2.13), including essential hypertension (ratio = 4.49) and congestive heart failure (ratio = 3.74); diseases of the respiratory system (ratio = 2.13) including asthma (ratio = 3.13), diseases of the digestive system (ratio = 2.40), including gastritis and duodenitis (ratio = 3.09); connective tissue disorders such as arthropathies (ratio = 5.56), and complications of surgery or other medical care (ratio = 2.28).

*Utilization among Adults 65 – 74 Years.* After age 65, Medicare eligibility should make access more even across racial categories. However, rural African Americans still received corrective procedures at half the rate of whites (coronary bypass with cardiac catheterization, ratio=0.41; bypass without catheterization, 0.53; pacemaker implant, 0.53). Rural African Americans had higher rates of hospitalization for amputation (ratio = 4.41) and heart failure and shock (ratio = 1.77). Diabetes was still a problem (ratio = 4.20), but note that excess hospitalization declined slightly (the African American/white ratio was 5.82 in the 50-64 age group). A similar pattern can be seen with renal failure, with African American-white ratios becoming slightly more even (ratio = 3.67) than in the preceding age group. However, this apparent “improvement” may mean that the prevalence of disease has increased among rural white patients rather than that it has decreased among rural African Americans. Hypertension was not a prominent cause of hospitalization among this age group, perhaps because by this age rural African Americans manifest the sequellae of hypertension, such as congestive heart failure, rather than the initial condition.

African Americans continued to have ED visit rates greater than their rural white counterparts (ratio = 1.79 overall). The problematic conditions continued to be hypertension (ratio = 3.01), diabetes (ratio = 5.21) and congestive heart failure (ratio = 2.49). Acute upper respiratory infections brought rural African Americans to the ED more frequently than rural whites (ratio = 2.44), as did the arthropathies (ratio = 3.64).

*Utilization among Adults 75+ Years.* Rural African American elders were hospitalized at a higher rate (ratio = 1.21) than their white neighbors, for all of the reasons evident among younger age group. Amputations (ratio = 4.11), a symptom of end-stage disease and possibly of insufficient ambulatory care, were high in this population, while preventive procedures such as revascularization (ratio = 0.23) are low. Diabetes (ratio = 3.50) and renal failure (3.30) contributed to excess hospitalization.

ED visits continued to be higher among rural African Americans than among rural whites (ratio = 1.670). The excess was highest for diabetes with complications (ratio = 6.21), nutritional deficiencies and metabolic disorders (ratio = 3.15), and diseases of the digestive system (ratio = 2.34).

## **2. Medicaid Outpatient Visits**

In the preceding section of the report, we noted that emergency department and hospital utilization data provide only a limited perspective on disease. When both ED and hospital rates are high within one population, several alternative explanations are possible: differing rates of underlying disease; equal rates of underlying disease but differing rates of ambulatory care treatment; cultural patterns of care seeking (use of ED visits); induced utilization (high ED use leading to high hospitalization, on the principle that ED physicians must have a higher index of suspicion with an unknown patient than a community physician would have with a continuity patient); others could be proposed. Ideally, all utilization within a population should be tracked.

The resources of the present study did not allow tracking of a defined population through all levels of care. However, we were able to examine Medicaid outpatient (ambulatory) utilization. Medicaid data have multiple limits, principally stemming from the restricted populations served (pregnant women; children; the disabled; the elderly). On the other hand, when examining Medicaid data one is presumably looking at persons with similar economic constraints, so that remaining differences are more clearly attributable to racial sources.

In the paragraphs below, we present racial disparities in rural outpatient visits funded by Medicaid. Only data pertaining to children (persons up to age 18) and adults over age 65 are shown, as adults between the ages of 19 and 65 would only qualify for Medicaid under special circumstances, such as disability, which might affect their health care utilization. Data in the discussion are presented in Appendix E, Rural Medicaid Client Utilization Disparities, 1998

*Medicaid Outpatient Visits in the Birth Year.* The largest disparities in Medicaid claims in the first year of life were related to diseases of the skin, diseases of the respiratory system, and infectious and parasitic diseases. African American newborns were twice as likely to have visits for contact dermatitis and other eczema, and one and a half times more likely to have candidiasis. Some research suggests that African heritage children are at increased risk for atopic dermatitis (Williams et al. 1995), which would suggest that this finding represents an ongoing health differential and not a single-year phenomenon. Rural African American infants were also seen proportionately more frequently for chronic and unspecified bronchitis (ratio = 1.69) and for asthma (ratio = 1.47) than rural whites. Rural African American female infants showed greater racial disparities (ratio = 2.20) than male infants (ratio = 1.21).

*Medicaid Outpatient Visits among Children 1 – 5 Years.* Children ages 1-5 showed the strongest race disparity in Medicaid visits for infectious and parasitic diseases (particularly dermatophytosis). African American children were six and half times more likely to have a Medicaid visit for this condition (6.47). African American children in this age group were two

and a half times more likely to have a Medicaid visit for anemia (2.63). While a significant portion of the anemia is explained by disparities in sickle cell disease (ratio 12.66), there were also strong disparities for deficiency anemias (ratio 2.43) and other anemias (ratio 2.59) as well. Visits related to asthma as well as diseases of the skin create race disparities within this age group.

Also interesting to note are the instances where rural African American children were *less* likely to use health services. African American children were only half as likely to have visits for mental problems in general (0.56) and attention deficit disorder in particular (0.450). Discussions of attention deficient disorder are clouded by the controversial nature of this conditions, with suggestions that it is over-treated. However, a conservative approach would be to assume that there is a subgroup of children who have neurological deficits to learning. The prevalence of ADHD has been estimated at 3-5% (LaFever et al. 1999; Bussing et al. 1998; Szatmari et al. 1989). However, minority children may be less likely to receive services for ADHD. A previous study of Medicaid youths found African Americans were 2.5 times less likely to receive Ritalin than Caucasian youths (Zito et al. 1997). This under-service may be due to several factors: fewer African American than white parents had ever heard of ADHD, African American parents were more likely to attribute ADHD to excessive sugar in the diet than whites, and African American parents reported less use of (and preference for) written informational materials than white parents (Bussing et al. 1998). It is also possible that school behaviors generating a physician referral among white children elicit disciplinary action rather than treatment in minority children.

*Medicaid Outpatient Visits among Children 6 – 12 Years.* African American children were more than three and a half times likely to have visited a health care provider for anemia (3.81). Again, further analysis revealed that a large portion of this is due to the disparities in sickle cell disease (ratio 66.70). However disparities are also present for deficiency anemia (ratio 3.71) and other anemias (ratio 2.61). In terms of infectious and parasitic diseases, African American children were more likely than rural white children to have a Medicaid visit for dermatophytosis (ratio 3.58) but less likely to have a visit for streptococcal sore throat (ratio 0.40) or other infectious and parasitic diseases (ratio 0.59). African American children in this age group were also more likely to have a claim for diseases of the skin (other infection of the skin, 1.37; other inflammatory condition of the skin, 2.79) and asthma (ratio 1.55).

Rural African Americans in this age group were again less likely to have a visit for attention deficit disorder (ratio .054). Rural whites were more likely to have Medicaid claims for acute reaction to stress and adjustment (ratio 0.50). Rural African American children were also less likely to have a Medicaid claim for diseases of the respiratory system excluding asthma (acute sinusitis, 0.58; acute pharyngitis, 0.61; acute tonsillitis, 0.69). African American children in rural areas were also less likely to have visits for fracture of the radius and ulna (ratio 0.47).

*Medicaid Outpatient Visits among Children 13 – 18 Years.* In this age group, rural African Americans were more likely to be seen for diseases of the blood (ratio 2.66) than rural whites. Rural African Americans were also twice as likely to have a visit for chest pain than rural whites. Rural African Americans in this age group were also more likely to have visits for

asthma (ratio 1.85) but less likely to have visits for other respiratory conditions (acute sinusitis, 0.59; acute bronchitis, 0.56) than rural whites. Rural African Americans were also slightly more likely to have visits for sprains and strains of the ankle (ratio 1.49). Within this age group, rural African American females were more likely to have a Medicaid claim for contraceptive management (ratio 1.84) but were less likely to have claims for normal pregnancy (ratio 0.70), and postpartum care (ratio 0.61) than their white counterparts.

Within this age group we again see fewer visits among African Americans for attention deficit disorder (ratio 0.50) and acute reaction to stress and adjustment (ratio 0.63). They were also less likely to have Medicaid claims for otitis media and eustachian tube disorder (ratio 0.46).

*65 – 74 Years.* Rural African Americans aged 65 to 74 had more Medicaid claims for diseases of the circulatory system than rural whites.

*75+ Years.* Rural African Americans over age 75 had more Medicaid claims for diseases of the nervous system than rural whites.

## Chapter 5

### South Carolina Policies Affecting Racial Health Disparities

The Health Issues taxonomy of the National Association of State Legislatures was used to identify major issues of state policy that could affect access to health care and the reduction of health disparities of rural African Americans. Current South Carolina policies were reviewed and are summarized below, following the model of health behaviors, services and outcomes presented in Chapter 2. Our starting point was the draft listing of rural health issues in South Carolina and of state and national policy issues in rural health (November 1, 2000). Current recommendations of the South Carolina Rural Health Association are attached as Appendix F.

It is important to note that most policies influence rural areas as a side effect rather than an intentional goal. Because most of the population, including health care professionals and legislators, live in urban areas, policies tend to be focused on urban facilities, such as hospitals, and urban populations. Some of these policies may have unintended effects on rural populations and institutions.

#### 5.A. Health behaviors

*HIV/AIDS:* SC currently spends over \$4,000,000 on the AIDS Drug Assistance Programs, but a greater level of funding is needed. SC has a good HIV Reporting and Partner Notification program in place. Continued support is needed for health education and prevention activities.

*Health Education programs:* Health education is in short supply in rural areas in South Carolina. The types of community programs sponsored by hospitals and large provider groups as a means of building community good-will are minimal or non-existent in struggling rural facilities. There is a significant need for certified diabetes educators to address issues of self-maintenance among persons with diabetes in rural areas.

*Cultural competence:* South Carolina's medical workforce is principally white, while about 2 of every 5 rural residents are African American (See Table 5-1, below). While a racial "match" is not essential for quality health care, understanding across racial and cultural divides is crucial. Existing programs for promoting diversity and cultural competence across the health workforce need to be expanded and to contain a focus on rural, minority health issues.

#### 5.B. Access to Care

*Access to Primary Health Care:* Strengthen state support to SC State Offices of Rural Health. In South Carolina, the State Office of Rural Health assists local communities with recruitment, through loan repayment as well as targeted advertising to physicians and other health professionals. The State Office of Rural Health also assists physician retention through development and implementation of *locum tenens* programs. A detailed evaluation of the effectiveness of state-administered loan repayment programs has not yet been accomplished.

*Access for children:* SC has been one of the leading states in implementing the Child Health Insurance Plan (CHIP) under Medicaid. The effectiveness of this expanded financial access program has not yet been studied in South Carolina. In particular, the impact of this program on rural minority children, given their more limited access to practitioners, has not yet been examined.

*Adolescent Health:* SC has 22 school-based health centers (SBHCs). There is a need for many more.

*Diabetes:* SC is one of 13 states that do not mandate that health insurance cover diabetes supplies (glucose test strips, syringes). This has a major impact on rural and African American populations, which have disproportionate rates of hospitalization and amputation as diabetic sequelae.

*Access to Dental care:* SC has put into place increased reimbursement for dental services under Medicaid. However, as noted below, there is a shortage of providers in rural counties.

*Access to prescription drugs:* South Carolina is one of 16 states having an active or planned program of pharmacy assistance for seniors. Medicare does not provide financial support for prescription medications. The effects of geographic distance between rural residents and pharmacy services, however, has not yet been studied. In addition, work is needed to determine the impact on pharmacy counseling when locally owned pharmacies are supplanted by retail outlet chains offering pharmacy services, such as Walmart.

### **5.C. Mental health**

Minority children in rural South Carolina are less likely to receive care for behavioral disorders (ADD, ADHD) than white children. Research is needed to determine whether disparities stem from differential referral by school authorities (i.e., punishment rather than medical evaluation), reluctance of parents to seek care, failure of medical providers to offer age-specific developmental screening, or shortages of mental health providers in rural areas. As noted below, rural areas experience severe shortages of mental health professionals.

### **5.D. Emergency Services**

There is a need for state-wide coordination to ensure that all rural areas in South Carolina have high quality EMS services available to them, linked to appropriate levels of hospital service.

South Carolina leads the nation in the thoroughness and accuracy with which addresses have been geo-coded. While significant progress has been made, some rural counties still lack “911” systems, hindering the ability of EMS to respond rapidly.

Defibrillators for Cardiac Arrest: SC has legislation permitting their use by non-clinicians. Rural areas would greatly benefit from full implementation of a program that would provide funding for equipment and training.

**5.E. Structural barriers to care**

*Community:* Poverty remains a significant cause of lack of health insurance and low utilization of preventive care. Economic development strategies that build capital in rural areas without undermining the local tax base (through tax rebates and incentives) are required. There is a pressing need for research into the effect of economic development dollars, both in terms of their effect on subsequent employment and their relationship to sustaining a viable health services infrastructure in rural areas.

*Geographic:* In rural counties, lack of transportation is a significant barrier to care. Across all rural counties, the proportion of households lacking access to a car ranges from 6.1% to 22.0%. In majority African American counties, an average of 15.2% of households lack access to a vehicle, versus 11.6% in other rural counties. Development and expansion of regional transit systems needs to be supported.

*Shortages of providers:* Physicians, dentists and mental health providers are all in short supply in rural South Carolina. Eighteen (18) of 46 South Carolina counties are whole-county HPSAs.<sup>3</sup> Only 362 physicians report those counties as their principal practice location. (Other physicians may spend some hours each week in these counties, but this is not their principal practice location.) While the proportion of all physicians who are African American is higher in small rural counties than in other regions (See Table 5-1), it still falls far short of the proportion of the population that is African American.

Table 5-1. Number of physicians in South Carolina counties, by race of physician and level of rurality of county

Population of largest town in county	African American	African American as % total	Other	White	Total Physicians
≥50,000	163	4.5	267	3,247	3,647
25,000-49,999	42	4.0	85	913	1,040
10,000-24,999	23	5.1	49	379	451
5,000-9,999	22	6.1	55	285	362
≤4,999	15	8.2	21	147	183

The National Rural Health Association has called for reauthorization of the national Health Services Corps Program upon its expiration in September 2000. The NHSC program makes significant contributions to South Carolina, both in terms of active service and through its influence on the subsequent practice patterns of physicians.

---

<sup>3</sup> Abbeville, Barnwell, Calhoun, Chester, Clarendon, Colleton, Darlington, Dillon, Edgefield, Fairfield, Hampton, Jasper, Lee, Marlboro, McCormick, Saluda, Union, Williamsburg

Only 45 of the 864 dentists currently practicing in South Carolina (1999 data) are African American, and 28 of these dentists practice in large urban counties. Many rural counties lack an African American dentist. Dentists play a role in identifying systemic health problems with oral manifestations. In addition, dental health is related to adequate nutritional intake, especially in older populations. Problems with teeth or dentures can serve as a barrier to eating.

Because providers are in short supply, programs that maximize the effectiveness of existing resources are crucial. Policies that encourage the formation of cooperative networks among institutions (hospitals, primary care providers) will lead to more efficient distribution of resources. Similarly, training and policies that encourage interdisciplinary cooperation expand the availability of services in rural areas are crucial. For example, optometrists can link with physicians and health agencies in the detection of diabetic retinopathy, while podiatrists could cooperate in detecting and referring for diabetic peripheral neuropathy.

#### **5.F. Fiscal insecurity of rural hospitals**

Medicare-dependent hospitals and sole community hospitals typify rural health services networks in rural South Carolina. Medicare inpatient margins in rural hospitals fall significantly short of those in urban areas (4.4 versus 9.7 percent in 1995). Funding strategies that enable these institutions to remain financially viable, such as reduction of the urban/rural wage index disparity, are essential. Adequate reimbursement will also facilitate recruitment and retention of staff in rural areas. Keeping qualified health care providers in location both contributes to the health of rural populations and, by reducing out-migration of trained, skilled workers, enhances the economic position of rural counties. (See further discussion below)

#### **5.G. Financial barriers**

*Poverty & Uninsurance:* Poverty and resulting lack of financial means to access health care remain persistent problems in rural South Carolina. Economic development strategies must be combined with innovative programs making health insurance available to small, low wage businesses.

*Federal Programs:* Rural/urban differences in both the provisions and the effects of Federal programs pose significant threats to health care infrastructures in rural areas. The Balanced Budget Act of 1997 (BBA) reduced payment to Medicare providers. Because rural areas have older, poorer patient populations, with fewer insured patients in their mix, rural providers are disproportionately affected by these changes. The Balanced Budget Refinement Act of 1999 (BBRA) failed to correct underlying problems in this area.

The BBA attempted to protect the health of rural populations by strengthening the Medicare Rural Hospital Flexibility / Critical Access Hospital (CAH) program, with some modifications through the BBRA. It is essential that continuing refinements be sensitive to the needs and the diversity of rural situations. Global “fixes” cannot be expected to work equally

well in rural Montana and rural South Carolina. The goal should be to insure hospital access appropriate to area specific rural circumstances.

The BBA also allowed state Medicaid agencies to pay Federally-Qualified Health Centers (FQHCs) and Rural Health Clinics (RHCs) using methods that do not reflect these institutions true costs. FQHCs (17) and RHCs (98) constitute a significant safety net for impoverished populations in these regions. Policies assuring that these institutions can remain fiscally solvent and serving our rural populations are required.

## Chapter 6

### Conclusions and Recommendations for Further Research

An analysis of health services data invariably raises more questions than it resolves. In Chapter 4, racial differences in mortality and health services utilization between rural African American and white South Carolinians were found across all age groups. In the paragraphs below, major themes pertaining to morbidity and mortality data are highlighted and areas meriting further research are discussed.

#### 6.A. Problems of infants and children

While the birth rate among rural African American women (60.4 per 1,000) was nearly identical to the white rate (63.2) in 1997, African American infant mortality was 2.31 times higher (15.0 versus 6.5 per 1,000). The leading cause of death among rural white children under one year of age was congenital anomalies, followed by disorders relating to short gestation. In African American children, these causes were reversed, pointing to the importance of prematurity as a cause of mortality for rural African American infants.

Hospital discharge data show that rural African-American infants were more likely to be recorded as deaths or transfers than white rural infants (total discharges 715; ratio = 1.57). Transfers would be necessary when high risk infants were not identified before birth, so that the mother could be triaged to a larger urban hospital. Higher rates of transfer may be related to lower rates of prenatal care among African American mothers, to higher fertility rates among such women (the “weathering” phenomenon makes the possibility of adverse outcomes increase with the number of pregnancies), to the broad range of differences in life experience tied to race in a rural Southern community, or to any of a host of other factors. Infant mortality is one of the most complex issues being addressed by the public health system. While extensive research is in process to identify and ameliorate causes of infant mortality; research continues to be needed to identify uniquely *rural* barriers to effective health care and positive health outcomes.

Among children and young adults, rural African American residents were more likely than white residents to be hospitalized for anemia, particularly sickle cell anemia, and for asthma. Disparities in health attributable to sickle cell anemia cannot be rectified through public policy, as this condition occurs most frequently in African Americans. Basic biological research will be needed to ameliorate problems stemming from this disease. However, it is noteworthy that deficiency anemias also generated excess utilization among rural African American children (ratio=2.43). Policy research exploring the penetration of the Women, Infants and Children supplemental nutrition program, or similar educational/financial interventions, among rural populations is needed. Additional issues to be explored include the effects of differing rural county infrastructures on the nutritional status of children (presence/absence of health department and social services offices; presence and number of outreach workers), including private sector infrastructure (e.g., presence absence of grocery chains in rural communities, willingness of rural food vendors to accept food stamps and other nutritional support vouchers).

Asthma remains a perplexing health issue. Several studies have noted that asthma is the most common chronic illness among children (Miller 2000; Goodman et al. 1998; Heaman and Estes 1997). African American children have a higher prevalence of asthma than white children (Halfon and Newacheck 1993). The findings in rural South Carolinians parallel previous work that African heritage populations were more likely to have ED asthma care and had higher asthma hospitalization rates (Miller 2000; Joseph et al. 1997; Goodman et al. 1998; DHHS 1996). Joseph et al. (1997) suggest that a true racial difference in asthma severity may exist. Goodman et al. (1998) call for further research on minorities and the poor at the state and community level. Some studies have argued that SES is a more important predictor of asthma severity than race (Litonjua et al. 1989; Apter et al. 1997). Racial disparities in health care utilization for asthma among rural children identified by the present study would argue against recent publications suggesting that asthma is an urban disorder, rather than an African American disorder (*The Nations Health*, Nov. 2000). Clearly, however, further research is needed. Clinical manifestations of asthma in African American and white populations need to be clarified and linked to living conditions, particularly in rural housing stock. In addition, appropriate health education for asthma self-maintenance needs to be available for rural residents. The extent to which current health education in rural areas is compromised by limited numbers of primary care practitioners with heavy workloads had not been explored. Since childhood asthma is generally controlled with a multi-medication regimen, distances to pharmacy providers and insurance restrictions on prescription medications also have a role to play in the severity of the disease in rural populations.

Utilization data suggest occasional areas of under-service in rural African American populations. Mental health services are used at a lower rate among rural African Americans of all ages. This potential for under-service may be most troubling among children, where failure to diagnose and treat barriers to learning can result in poor school performance, dropping out of school, and lower income prospects throughout a lifetime. The degree to which economic development and education are intertwined cannot be overestimated. South Carolina data show rural African American children utilizing services for attention deficit disorder at about half the rate of white children. The prevalence of ADHD has been estimated to be around 3-5% (LaFever et al. 1999; Bussing et al. 1998; Szatmari et al. 1989). If the prevalence does not differ across races, than service rates should be equal across races. Bussing et al. (1998) suggest that minority children may be less likely to receive services and Zito et al. (1997) indicate that African American children are less likely to receive Ritalin. There seems to be some evidence that the under-service among African American children may be related to a lack of knowledge and misinformation among African American parents (Bussing et al. 1998). However, much more needs to be known about this issue. In addition to parental knowledge, differing rates of service utilization may reflect different referral patterns by educators, differential availability of health professionals at rural schools, differing availability of mental health experts, or other factors.

## **6.B. Problems of adults**

Death rates for rural African American residents begin to significantly exceed white rates in the 25-49 age group. In this population, age adjusted death rates among rural African Americans were higher than rural white rates (African American rate, 392.2 versus 222.1 per 100,000 population, ratio = 1.76). Based on the information presented in Chapter 4, excess deaths stem from inappropriate health behaviors (deaths from HIV), from cancer, and from chronic disease. While infectious disease becomes less of a factor in racial disparities in mortality as the population considered becomes older, cancer and chronic disease gain in importance.

Among adults 25 – 49 years, hospitalization rates for all disorders of the circulatory system were approximately equal across races (ratio=1.10). However, African Americans were less likely to be hospitalized for protective procedures such as coronary bypass surgery (ratio=0.47) or pacemaker implantation (ratio = 0.41) and more likely to be hospitalized for heart failure (ratio = 4.44) and hypertension (ratio = 4.16). Similarly, among adults aged 50 – 64 hospitalizations for circulatory problems were about equal between races (ratio = 1.13). Nonetheless, African Americans had markedly low rates for protective procedures such as coronary bypass (0.37) or pacemaker implantation (ratio = 0.42) but high rates for heart failure (ratio = 2.70) and hypertension (ratio = 3.89).

After age 65, Medicare eligibility should make access more even across racial categories. However, rural African Americans at age 65 and above received protective procedures at half the rate of whites (coronary bypass with cardiac catheterization, ratio=0.41; bypass without catheterization, 0.53; pacemaker implant, 0.53). Rural African Americans had higher rates of hospitalization for amputation (4.41) and heart failure and shock (1.77).

The illnesses highlighted in the preceding paragraphs, principally circulatory and endocrine disorders (e.g., hypertension and diabetes), are each best treated by ongoing ambulatory care in a context that offers continuity of provider. Research has shown that poor, African American, rural Medicare recipients in primary care shortage areas are more likely to experience preventable hospitalization (Culler, Parchman, and Przybylski, 1998), suggesting that they are not receiving appropriate continuous care. Medicare recipients who rate their health as “fair” or “poor” are particularly vulnerable (Parchman and, Culler, 1999). Given the need for ongoing primary care, the higher rate of emergency department visits among the African American than among the white population (ratio =1.518 across all age groups) is troubling and worthy of further research. The availability of practitioners in rural areas, the ability of these practitioners to provide education and counseling as well as care, the effectiveness of different practitioner configurations (e.g., incorporation of midlevel practitioners), and the influence of state and federal reimbursement policies on willingness to accept patients are just examples of the questions raised by rural African American health disparities.

Additional issues pertaining to the availability of practitioners in health care shortage areas need to be examined. State-wide, African American residents of South Carolina are nearly twice as likely to report cost as a barrier to their seeking health care (15.1% versus 7.9%; Bolen *et al*, 2000), but data were not presented for rural areas. For a combination of historical and cultural reasons as well as for financial reasons, that rural African American

populations may have less access to primary care providers than white populations even when those practitioners are present in the community. If chronic disease prevalence is greater among rural African American than white populations, additional practitioners or innovative practitioner mixes may be needed to overcome personnel shortages.

### **6.C. Data and methods**

The information presented in the preceding chapters was, with the exception of Medicaid utilization, derived from statewide, population based data sets. Such data sets are crucial to the development of effective public health policy, but are present in few states. Two important issues must be resolved to ensure the future availability of such information.

First, funding support may be needed for the initiation of data centers at the state level. In South Carolina, the capacity to collect, maintain and link health services data sets was initially developed using philanthropic funding. Subsequently, that capacity has been maintained because state executive and legislative branch officials recognize the value of population data for planning, and through funding derived from research efforts. Because existing federal and state health data collection systems rarely contain adequate information about rural populations, development of electronic, population based systems may be the only way to generate sufficient data to explore rural issues in detail.

Second, federal privacy guidelines pertaining to health services information must be implemented in a way that protects both the privacy of the individual and the need of health services researchers to plan for the future benefit of those individuals. There is a difference between “no use of identified data” and “no use of data” which needs to be presented to the public and legislators in a manner that can be understood and accepted.

## Bibliography

- \_\_\_\_\_ (2000) Asthma linked to urban living, not race. *The Nations Health*, November, p. 28.
- Amey CH, Miller MK, Albrecht SL. (1997) The role of race and residence in determining stage at diagnosis of breast cancer. *J Rural Health*. Spring;13(2):99-108.
- Beale C. (1996) The ethnic dimension of persistent poverty in rural and small-town areas. in Swanson LL (ed.) *Racial/Ethnic Minorities in Rural Areas: Progress and Stagnation, 1980–1990*. Rural Economic Division, Economic Research Services, US Department of Agriculture, Agricultural Economic Report No. 731. Washington, DC.
- Blank, Michael B, Marlene M Eisenberg, David S Hargrove, and Jeanne C Fox. 1996. "Health Care Reform and Special Populations." *Community Mental Health Journal* 32: 427-429.
- Bolen JC, Rhodes L, Powell-Griner EE, Bland SD and Holtzman D. (2000) State-Specific Prevalence of Selected Health Behaviors, by Race and Tehnicity—Behavioral Risk Factor Surveillance System, 1997. *MMWR*; 49 (No. SS2).
- Branch, David R. (1999). "Prevalence of Atopic Dermatitis in Children is on the Rise." *Family Practice News* 29: 44.
- Brathwaite, Ronald L. and Sandra E. Taylor. (1992) "African American Health: and Introduction." Pp. 3-5 in *Health Issues in the African American Community*, edited by R.L. Braithwaite and S.E. Taylor. San Francisco, CA: Jossey-Bass.
- Brown, D, and M Warner. (1991). "Persistent low-income nonmetropolitan areas in the United States: Some Conceptual Challenges for Development Policy." *Policy Studies Journal* 19: 22-41.
- Bushy, A. (1990). "Rural U.S. Women: Traditions and Transitions Affecting Health Care." *Health Care for Women International* 11: 503-513.
- Bussing, Regina; Schoenberg, Nancy E.; Perwien, Amy R. (1998). "Knowledge and information about ADHD: Evidence of Cultural Differences among African American and White Parents." *Social Science and Medicine* 46: 919-929.
- Center for Health Policy. (2000). "The Current Status of Health Care in Rural America." Issue Brief prepared by Capital Area Rural Health Roundtable.
- Cromartie JB and Beale CL. (1996) Increasing African American-white separation in the plantation south, 1970-90 in Swanson LL (ed.) *Racial/Ethnic Minorities in Rural Areas: Progress and Stagnation, 1980–1990*. Rural Economic Division, Economic Research Services, US Department of Agriculture, Agricultural Economic Report No. 731. Washington, DC
- Culler SD, Parchman ML, Przybylski M. (1998) Factors related to potentially preventable hospitalizations among the elderly. *Med Care* Jun;36(6):804-17
- Department of Health and Human Services. (1991). *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*. DHHS Publication No. [PHS]-91-50212. Washington, D.C.: U.S. Government Printing Office.
- Department of Health and Human Services. (1996). *Asthma Mortality and Hospitalization among Young Children and Young Adults – United States, 1980-1993*. U.S. Department of Health and Human Services.
- Duelberg SI. (1992) Preventive health behavior among African American and white women in urban and rural areas. *Soc Sci Med*. 34(2):191-8.

- Edwards KA, Parker DE, Burks CD, et al. (1991). "Cardiovascular Risks: Among African American and White Rural-Urban Low Income Women." *ABNF J* 2: 72-76.
- Federal Office of Rural Health Policy. (2000). "Facts about.... Rural Physicians." Fact sheet developed by the North Carolina Rural Health Research Program, University of North Carolina at Chapel Hill Cecil G. Sheps Center for Health Services Research.
- Fiscella K, Franks P, Gold MR and Clancy CM. (2000) Inequality in Quality: Addressing socioeconomic, racial and ethnic disparities in health care. *JAMA*; 283(19):2579-2589.
- Garrett, Patricia, Nicholas Ng'andu and John Ferron. (1994). "Is Rural Residence a Risk Factor for Childhood Poverty?" *Rural Sociology* 59:66-85.
- Gergen, Peter J.; Weiss, Kevin B. (1990) "Changing Patterns of Asthma Hospitalization among Children: 1979 to 1987." *JAMA* 264: 1688-1693.
- Geronimus AT, Bound J, Waidmann TA, Hillemeier MM, Burns PB. (1996) Excess mortality among African Americans and whites in the United States. *N Engl J Med*. 1996 335(21):1552-8
- Geronimus AT, Bound J, Waidmann TA. (1999) Poverty, time, and place: variation in excess mortality across selected US populations, 1980-1990. *J Epidemiol Community Health*. 53(6):325-34.
- Gibbes RM. (1996) Trends in Occupational Status among Rural Southern African Americans, in Swanson LL (ed.) *Racial/Ethnic Minorities in Rural Areas: Progress and Stagnation, 1980–1990*. Rural Economic Division, Economic Research Services, US Department of Agriculture, Agricultural Economic Report No. 731. Washington, DC
- Goodman, David C.; Stukel, Therese A.; Chang, Chiang-hua. (1998). "Trends in Pediatric Asthma Hospitalization Rates: Regional and Socioeconomic Differences." *Pediatrics* 101:208-214.
- Heaman, Doris J.; Estes, Jenny. (1997). "The Free-Running Asthma Screening Test: An Approach to Screening for Exercised-Induced Asthma in Rural Alabama." *Journal of School Health* 67: 83-89.
- Holzer CE 3rd, Nguyen HT, Goldsmith HF, Thompson WW. (1996) The demographics of disability in the south. *Community Ment Health J*. 32(5):431-43
- Hueston WJ, Mainous AG 3d, Farrell JB. (1994) Childhood immunization availability in primary care practices. Effects of programs providing free vaccines to physicians. *Arch Fam Med*. 3(7):605-9.
- Hurtado, EK; Claussen, AH; Scott, KG. (1999). "Early Childhood Anemia and Mild Moderate Mental Retardation." *Am J Clin Nutr* 69: 115-119.
- Jensen, Leif and Marta Tienda. (1989). "Nonmetropolitan Minority Families in the United States: Trends in Racial and Economic Stratification, 1959-1986." *Rural Sociology* 54:509-32.
- Jensen, Leif and David J. Eggebeen (1994). "Nonmetropolitan Poor Children and Reliance on Public Assistance." *Rural Sociology* 59: 46-65.
- Joseph, CL; Havstad, SL; Ownby, DR; Johnson CC; and Tilley, BC. (1997). "The Effect of Allergist Visits and Prescriptions Filled for Anti-Inflammatory Medications on the Racial Differential in Emergency Department Use for Asthma." *Abstr Book Assoc Health Serv Res* 14: 251.
- Kazal LA. (1997) The failure of CDC screening questionnaire to efficiently detect elevated lead levels in a rural population of children. *J Fam Pract* 45:515-518.

Keil JE, Saunders DE Jr. (1991) Urban and rural differences in cardiovascular disease in African Americans. *Cardiovasc Clin.* 1991;21(3):17-28.

Kleinman JC, Kopstein A. (1981) Who is being screened for cervical cancer? *Am J Public Health.* 71(1):73-6

LaFever, Gretchen B.; Dawson, Keila V.; Morrow, Ardythe. (1999). "The Extent of Drug Therapy for Attention Deficit-Hyperactivity Disorder among Children in Public Schools." *American Journal of Public Health* 89: 1359-1364.

Lee AJ, Gehlbach S, Hosmer D, Reti M and Baker CS. (1997) Medicare treatment differences for African Americans and whites. *Med Care* 35:1173-1189.

Leong, MA; Dampier, C; Varlotta, L; Allen, JL. (1997). "Airway Hyperreactivity in Children with Sickle Cell Disease." *Journal of Pediatrics* 131: 278-283.

Lichter, Daniel T. (1989). "Race, Employment Hardship, and Inequality in the American Nonmetropolitan South." *American Sociological Review* 54: 436-46.

Liff JM, Chow WH, Greenberg RS. (1991) Rural-urban differences in stage at diagnosis. Possible relationship to cancer screening. *Cancer*; 67:1454-9.

Lishner DM, Larson EH, Rosenblatt RA Clark SJ. (1999) Rural maternal and perinatal health. In Ricketts TC Editor, *Rural Health in the United States*, New York: Oxford University Press.

Litonjua, AA; Carey, VJ; Weiss, ST; Gold DR. (1999). "Race, Socioeconomic Factors, and Area of Residence are Associated with Asthma Prevalence." *Pediatr Pulmonol* 28: 394-401.

Lowery NE, Belansky ES, Siegel CD, Goodspeed JR, Harman CP, Steiner JF. (1998) Rural childhood immunization. Rates and demographic characteristics. *J Fam Pract.* 47(3):221-5.

Mansfield CJ, Wilson JL, Kobrinski EJ, Mitchell J. (1999) Premature mortality in the United States: the roles of geographic area, socioeconomic status, household type, and availability of medical care. *Am J Public Health.* 89(6):893-8.

Miller, Jane E. (2000). "The Effects of Race/Ethnicity and Income on Early Childhood Asthma Prevalence." *The American Journal of Public Health* 90:428.

Mueller KJ, Ortega ST, Parket K, Patil K and Askenazi A. (1999) Health status and access to care among rural minorities. *J Health Care Poor Underserved* 10: 230-249.

Mueller KJ, Patil K, and Boilesen E. (1998) The role of uninsurance and race in healthcare utilization by rural minorities. *Health Serv Res*; 33:597-610.

National Rural Health Association. (1998). "Physician Recruitment and Retention." Issue Paper prepared by National Rural Health Association.

National Rural Health Association. (1999). "Access to Health Care for the Uninsured in Rural and Frontier America." Issue Paper prepared by National Rural Health Association.

National Rural Health Association. (1999b). "Mental Health in Rural America." Issue Paper prepared by the National Rural Health Association.

Nesbitt, T., F. Connell, L. Hart, and R. Rosenblatt. (1990). "Access to Obstetric Care in Rural Areas: Effect on Birth Outcomes." *American Journal of Public Health* 80: 814-818.

- Netzer, Julie K., Raymond T. Coward, Chuck W. Peek, John C. Henretta, R. Paul Duncan, Molly C. Dougherty. (1997). "Race and Residence Differences in the Use of Formal Services by Older Adults." *Research on Aging* 19: 300-332.
- Nickens HW. (1995) Race/Ethnicity as a factor in health and health care. *Health Serv Res*; 30:151-163.
- Office of Technology Assessment. (1990). *Health Care in Rural America* (OTA Publication No. OTA-H-34). Washington, DC: U.S. Government Printing Office
- Parchman ML, Culler SD. (1999) Preventable hospitalizations in primary care shortage areas. An analysis of vulnerable Medicare beneficiaries. *Arch Fam Med* Nov-Dec;8(6):487-91
- Pineda, David; Ardila, Aifredo; Rosselli, Monica; Arias, Beatriz E.; Henao, Gloria C.; Gomez, Luisa F.; Mejia, Silvia E.; Miranda, Martha L. (1999). "Prevalence of Attention-Deficit/Hyperactivity Disorder Symptoms in 4- to 17-year-old Children in the General Populations." *Journal of Abnormal Child Psychology* 27: 455-466.
- Potter, Lloyd B. and Omer R. Galle. (1990). "Residential and Racial Mortality Differentials in the South by Cause of Death." *Rural Sociology* 55: 233-244.
- Ricketts TC, Johnson-Webb, KD and Randolph RK. (1999) Populations and Places in Rural America, in: Ricketts TC Editor, *Rural Health in the United States*, New York: Oxford University Press.
- Robinson, Linda M.; Sclar, David A.; Skaer, Tracy L.; Galin, Richard S. (1999). "National Trends in the Prevalence of Attention-Deficit/Hyperactivity Disorder and the Prescribing of Methylphenidate among School-Age Children: 1990-1995." *Clinical Pediatrics* 38: 209.
- Rogers CC, (1998) Socioeconomic circumstances of minority elderly differ from those of white elderly. *Rural Conditions and Trends*; 9(2):35-41.
- Rowland D, Lyons B. (1989) Triple jeopardy: rural, poor, and uninsured. *Health Serv Res*. 23(6):975-1004..
- Ryan, R. 1993. *Rural Health in Georgia*. Atlanta, GA: Georgia State Office of Rural Health.
- Salob, Stacey P.; Laverty, Aidan; Atherton, David J. 1993. "Bronchial Hyperresponsiveness in Children with Atopic Dermatitis." *Pediatrics* 91: 13-16.
- Samuel, VJ; George, P; Thornell, A; Curtis, S; Taylor, A; Brome, D; Mick, E; Faraone, SV; and Biederman, J. (1999). "A Pilot Controlled Family Study of DSM-III-R and DSM-IV ADHD in African American Children." *J Am Acad Child Adolesc Psychiatry* 38: 34-9.
- Schur CL and Franco SJ (1999). Access to Health Care, in Ricketts TC Editor, *Rural Health in the United States*, New York: Oxford University Press.
- Strickland J, Strickland DL.(1996) Barriers to preventive health services for minority households in the rural south. *J Rural Health*. 12(3):206-17.
- Summers, Gene F. (1991). "Minorities in Rural Societies." *Rural Sociology* 57: 177-88.
- Szatmari, P.; Offord, D.R.; Boyle, M.H. (1989). "Ontario Child Health Study: Prevalence of Attention Deficit Disorder with Hyperactivity." *Journal of Child Psychology and Psychiatry*, 30: 219-230.
- Thomas JC, Schoenback VJ, Weiner DH, Parker ED and Earp JA. (1996) Rural gonorrhea in the Southeastern United States: A neglected epidemic? *Am J Epidemiology*; 143:269-277.
- Tolbert, Charles M. and Thomas A. Lyson (1992). "Earnings Inequality in the Nonmetropolitan United States: 1967-1990." *Rural Sociology* 57:494-511.

U.S. Department of Health and Human Services. (2000, January). Healthy people 2010 (Conference Edition in Two Volumes) [Online]. Available: <http://www.health.gov/healthypeople/Document/default.htm> [2000, March 16].

Ventres, W, and P Gordon. (1990). "Communication Strategies for Caring for the Underserved." *Journal of Health Care for the Poor and Underserved* 1: 305-313.

Weinert, C. and Long, K. (1990). "Rural Families and Health Care: Refining the Knowledge Base." In D. Unger and M. Sussman (Eds.), *Families in Community Settings: Interdisciplinary Perspectives*. Binghamton, NY: Hawthorne

Williams, David R., Risa A. Lavizzo-Mourey, and Rueben C. Warren. (1994). "The Concept of Race and Health Status in America." *Public Health Reports* 109: 26-41.

Williams, HC; Pembroke, AC; Forsdyke, H; Boodoo, G; Hay, RJ; Burney, PG. (1995). "London-born African American Caribbean children are at Increased Risk of Atopic Dermatitis." *J Am Acad Dermatol* 32:212-217.

Wilson KM, Klein JD. (2000) Adolescents who use the emergency department as their usual source of care. *Arch Pediatr Adolesc Med.* 154(4):361-5.

Zito, JM; Safer, DJ; dosReis, S; Madger, LS; Riddle, MA. (1997). "Methylphenidate patterns among Medicaid Youths." *Psychopharmacological Bulletin* 33: 143-7.

**APPENDIX A**

**Unadjusted causes of death, South Carolina, 1997  
By Age and Race**

<b>Age Group</b>	<b>Total</b>		<b>White</b>		<b>AfrAmer</b>	
	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>
<b>Under 1 Year</b>						
All Causes.	494	100.0	207	100.0	287	100.0
Congenital Anomalies (740-759).	94	19.0	55	26.6	39	13.6
Disorders Relating to Short Gestation, Etc. (765)..	73	14.8	20	9.7	53	18.5
Sudden Infant Death Syndrome (7980)..	47	9.5	20	9.7	27	9.4
Newborn Affected by Maternal Compl. of Preg. (761)	31	6.3	15	7.2	16	5.6
Respiratory Distress Syndrome (769)..	24	4.9	9	4.3	15	5.2
All Other Causes..	225	44.3	88	42.5	137	47.7
<b>1 - 4 Years</b>						
All Causes.	81	100.0	32	100.0	49	100.0
Accidents (E800-E949).	23	28.4	8	25.0	15	30.6
Malignant Neoplasms (140-208)..	8	9.9	6	18.8	2	4.1
Homicide and Legal Intervention (E960-E978)	7	8.6	1	3.1	6	12.2
Diseases of Heart (390-398,402,404-429).	6	7.4	3	9.4	3	6.1
Septicemia (038)	4	4.9	3	9.4	1	2.0
Congenital Anomalies (740-759)	4	4.9	2	6.3	2	4.1
All Other Causes	29	35.8	9	28.1	20	40.8
<b>5 - 14 Years</b>						
All Causes..	123	100.0	65	100.0	57	100.0
Accidents (E800-E949)..	63	51.2	36	55.4	27	47.4
Malignant Neoplasms (140-208)	8	6.5	5	7.7	3	5.3
Congenital Anomalies (740-759)	6	4.9	3	4.6	3	5.3
Diseases of Heart (390-398,402,404-429).	5	4.1	1	1.5	4	7.0
Homicide and Legal Intervention (E960-E978)	5	4.1	4	6.2	1	1.8
All Other Causes	36	29.3	16	24.6	19	33.3
<b>15 - 24 Years</b>						
All Causes.....	538	100.0	301	100.0	237	100.0
Accidents (E800-E949).....	266.0	49.4	170.0	56.5	96.0	40.5
Homicide and Legal Intervention (E960-E978).....	79.0	14.7	18.0	6	61.0	25.7
Suicide (E950-E959).....	59.0	11	45.0	15	14.0	5.9
Malignant Neoplasms (140-208).....	31.0	5.8	22.0	7.3	9.0	3.8
Diseases of the Heart (390-398, 402, 404-429) .....	24.0	4.5	10.0	3.3	14.0	5.9
All Other Causes	79.0	14.7	36.0	12	43.0	18.1
<b>24 - 44 years</b>						
All Causes..	2,393 *	100.0	1,268	100.0	100	
				1,124		

Accidents (E800-E949).	538	22.5	349	27.5	189	16.8
Diseases of the Heart (390-398, 402, 404-429).	332	13.9	171	13.5	161	14.3
Malignant Neoplasms (140-208)..	321	13.4	179	14.1	142	12.6
HIV Infection (042-044)	215	9.0	44	3.5	171	15.2
Homicide and Legal Intervention (E960-E978..	176 7	0.4	82	6.5	94	8.4
All Other Causes..	811	33.9	443	34.9	367	32.7
<b>45 - 64 Years</b>						
All Causes	7,024	100.0	4,403	100.0	2613	100.0
Malignant Neoplasms (140-208).....	2,243	31.9	1,503	34.1	740	28.3
Diseases of Heart (390-398, 402, 404-429).	1,899	27.0	1,221	27.7	678	25.9
Cerebrovascular Diseases (430-438).	425	6.1	203	4.6	222	8.5
Accidents (E800-E949).	337	4.8	201	4.6	136	5.2
Diabetes Mellitus (250).	284	4.0	136	3.1	148	5.7
All Other Causes..	1,836	26.1	1,139	25.9	689	26.4
<b>65 - 74 Years</b>						
All Causes..	7,305	100.0	5,219	100.0	2083	100.0
Malignant Neoplasms (140-208).	2236	30.6	1,649	31.6	587	28.2
Diseases of Heart (390-398, 402, 404-429).	2,227	30.5	1,603	30.7	624	30.0
Cerebrovascular Disease (430-438).	566	7.7	346	6.6	220	10.6
Chr. Obs. Pulm. Dis. & Allied Conditions (490-496).	483	6.6	416	8.0	67	3.2
Diabetes Mellitus (250).	249	3.4	121	2.3	128	6.1
All Other Causes.	1,544	21.1	1,084	20.8	457	21.9
<b>75 Years and Over</b>						
All Causes	15,696	100.0	11,863	100.0	3,825	100.0
Diseases of Heart (390-398, 402, 404-429).	5,379	34.3	4,153	35.0	1,226	32.1
Malignant Neoplasms (140-208).	2,776	17.7	2,051	17.3	725	19.0
Cerebrovascular Disease (430-438)	1,767	11.3	1,288	10.9	479	12.5
Chr. Obs. Pulm. Dis. & Allied Conditions (490-496	723	4.6	624	5.3	99	2.6
Pneumonia and Influenza (480-487).	656	4.2	522	4.4	134	3.5
All Other Causes..	4,395	28.0	3,225	27.2	1,162	30.4

**Appendix B**

**1997 DEATH RATES PER 100,000 POPULATION  
RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE**



1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1  
RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE  
NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL	RURAL	RURAL RATIO AA:WH	URBAN CASES	URBAN	URBAN	URBAN RATIO AA:WH
				AA	WH			DEATH RATE	DEATH RATE	
ALL AGES	ALL CONDITIONS	ALL CONDITIONS	20013	901.3	958.9	0.94	12573	847.7	825.2	1.03
ALL AGES	I.INFECTIVE & PARASITIC DIS	ALL CONDITIONS	505	36.1	17.5	2.06	351	51.5	12.5	4.12
		VIRAL DIS	206	11.8	8.6	1.37	115	12.8	5.7	2.25
		OTHER INFECT.& PARASITIC DIS	299	24.3	8.9	2.73	236	38.7	6.8	5.69
ALL AGES	II.NEOPLASMS	ALL CONDITIONS	4585	198.0	223.9	0.88	2979	192.8	198.6	0.97
		LIP, ORAL CAVITY & PHARYNX	77	5.4	2.7	2.00	55	4.6	3.3	1.39
		LARGE INTESTINE & RECTUM	453	19.6	22.1	0.89	295	20.5	19.1	1.07
		OTHER DIG.ORGANS & PERITONEUM	627	34.8	26.7	1.30	383	33.0	22.4	1.47
		TRACHEA, BRONCHUS & LUNG	1348	41.5	74.2	0.56	883	43.8	63.9	0.69
		BONE,CONN.& SOFT TISSUE,SKIN	134	3.8	7.5	0.51	78	2.4	6.2	0.39
		BREAST	347	18.5	15.2	1.22	223	17.8	13.6	1.31
		FEMALE GENITAL ORGANS	213	11.0	9.5	1.16	135	9.1	8.8	1.03
		PROSTATE	322	21.2	12.1	1.75	194	19.7	10.2	1.93
		URINARY ORGANS	150	5.8	7.7	0.75	145	6.3	10.9	0.58
		LEUKEMIA	158	6.2	8.0	0.78	101	4.6	7.5	0.61
		OTHER HEMATOPOIETIC TISSUE	268	11.0	13.4	0.82	184	12.8	11.9	1.08
		OTHER & UNSPECIFIED SITES	437	17.3	22.1	0.78	273	15.9	18.9	0.84
		DIGESTIVE SYSTEM	.	.	.	.	2	0.2	0.1	2.00
		BONE & CONNECTIVE TISSUE	1	0.1	.	.	.	.	.	.
OTHER BENIGN NEOPLASMS	50	1.8	2.6	0.69	28	2.2	1.7	1.29		
ALL AGES	III.ENDOCRINE,NUTRIT.& META.	ALL CONDITIONS	845	53.5	32.8	1.63	520	54.2	26.9	2.01
		DIS OF THYROID GLAND	12	0.4	0.6	0.67	5	0.2	0.4	0.50
		DIABETES MELLITUS W/O COMP.	442	28.6	16.8	1.70	249	28.4	11.9	2.39
		DIABETES MELLITUS W/COMP.	186	13.5	6.3	2.14	136	17.6	5.7	3.09
		OTHER ENDOCRINE DIS	10	0.8	0.3	2.67	12	0.7	0.8	0.88
		OBESITY	19	1.1	0.8	1.38	10	1.0	0.5	2.00

		NUTRIT.DEFIC.& META. DIS	176	8.9	8.0	1.11	108	6.3	7.5	0.84
ALL AGES	IV.BLOOD & BL-FORMING ORGANS	ALL CONDITIONS	76	4.7	3.0	1.57	62	5.3	3.6	1.47
		ANEMIAS	41	2.8	1.5	1.87	36	3.4	2.0	1.70
		OTHER	35	1.8	1.5	1.20	26	1.9	1.6	1.19
ALL AGES	V.MENTAL DISORDERS	ALL CONDITIONS	434	16.6	22.2	0.75	341	15.2	25.3	0.60
		ORGANIC PSYCHOTIC CONDITIONS	210	5.2	12.2	0.43	189	6.3	14.9	0.42
		SCHIZOPHRENIC DISORDERS	2	0.1	0.1	1.00	4	0.5	0.2	2.50
		OTHER PSYCHOSES	108	3.2	6.0	0.53	86	4.1	6.3	0.65
		ALCOHOL DEPENDENCE SYNDROME	63	5.1	1.9	2.68	39	2.6	2.6	1.00
		NONDEPENDENT USE OF DRUGS	15	0.8	0.6	1.33	13	1.2	0.7	1.71
		OTHER MENTAL DISORDERS	36	2.1	1.5	1.40	10	0.5	0.7	0.71
ALL AGES	VI.NERVOUS SYS.& SENSE ORGANS	ALL CONDITIONS	436	14.7	23.4	0.63	287	15.2	20.4	0.75
		EPILEPSY	16	1.3	0.5	2.60	11	1.7	0.4	4.25
		DIS OF CENTRAL NERVOUS SYSTEM	403	13.1	21.8	0.60	265	12.0	19.6	0.61
		DIS OF NERVES & PERI. GANGLIA	17	0.3	1.1	0.27	10	1.2	0.5	2.40
		OTITIS MEDIA/EUST. TUBE DIS.	.	.	.	.	1	0.2	.	.
ALL AGES	VII.DIS OF CIRCULATORY SYS	ALL CONDITIONS	8210	362.5	397.0	0.91	5151	327.1	345.7	0.95
		ESSENTIAL HYPERTENSION	87	5.9	3.2	1.84	52	4.1	3.2	1.28
		HYPERTENSIVE HEART DIS	228	17.1	7.5	2.28	116	13.2	5.6	2.36
		ACUTE MYOCARDIAL INFARCTION	2150	83.4	109.7	0.76	1231	67.6	86.6	0.78
		ACUTE ISCHEMIC HEART DIS	87	4.5	3.9	1.15	77	7.5	4.2	1.79
		ANGINA PECTORIS	7	0.4	0.3	1.33	6	.	0.5	.
		ARTERIOSCLEROTIC HEART DIS	508	17.2	27.2	0.63	348	19.3	24.4	0.79
		CHRONIC ISCHEMIC HEART DIS	1016	33.1	55.0	0.60	680	27.9	51.4	0.54
		PULMONARY HEART DIS	135	6.6	6.2	1.06	87	9.1	4.5	2.02
		CARDIAC DYSRHYTHMIAS	474	25.0	20.9	1.20	223	14.0	15.0	0.93
		CONGESTIVE HEART FAILURE	474	21.0	22.9	0.92	238	14.0	16.4	0.85
		CARDIOVASCULAR DIS	368	15.4	18.2	0.85	310	14.4	22.8	0.63
		OTHER HEART DIS	484	25.5	21.3	1.20	373	27.9	23.4	1.19
		INTRACRANIAL HEMORRHAGE	345	19.3	14.6	1.32	218	17.6	13.2	1.33
		OCCCLUSION OF CEREBRAL ART.	129	4.9	6.6	0.74	99	6.7	6.5	1.03
		TRANSIENT CEREBRAL ISCHEMIA	1	.	0.1	.	.	.	.	.
		ACUTE CEREBROVASCULAR DIS	1046	51.3	48.0	1.07	624	50.1	37.9	1.32
		OTHER CEREBROVASCULAR DIS	175	8.6	8.0	1.08	147	9.4	9.8	0.96

		ATHEROSCLEROSIS	72	2.1	4.0	0.53	45	2.4	3.2	0.75
		ANEURYSM	162	4.9	8.9	0.55	95	2.4	7.8	0.31
		OTHER DIS OF ARTERIES	80	4.1	3.6	1.14	75	6.3	4.5	1.40
		PHLEBITIS & THROMBOPHLEBITIS	6	0.6	0.1	6.00	7	1.4	0.1	14.00
		VARICOSE VEINS,LOWER EXTREM.	.	.	.	.	1	0.2	.	.
		OTHER DIS OF CIRC. SYS.	176	11.4	6.7	1.70	99	11.6	4.7	2.47
ALL AGES	VIII.DIS OF THE RESP.SYS.	ALL CONDITIONS	1804	54.6	99.7	0.55	1116	47.2	83.9	0.56
1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1										
RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE										
NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE										
				RURAL	RURAL			URBAN	URBAN	
				AA	WH	RURAL		AA	WH	URBAN
				DEATH	DEATH	RATIO	URBAN	DEATH	DEATH	RATIO
AGE	GENDIAG	DIAGCAT1	RURAL	AA	WH	AA:WH	CASES	RATE	RATE	AA:WH
			CASES	DEATH	DEATH	RATIO	CASES	RATE	RATE	AA:WH
ALL AGES	VIII.DIS OF THE RESP.SYS.	ACUTE BRONCHITIS & -IOLITIS	2	0.1	0.1	1.00	6	0.2	0.5	0.40
		ACUTE UPPER RESP.INFECTIONS	.	.	.	.	2	0.2	0.1	2.00
		PNEUMONIA, ALL FORMS	555	21.3	28.4	0.75	362	19.5	25.6	0.76
		INFLUENZA	2	.	0.1	.	2	.	0.2	.
		BRONCHITIS,CHRONIC/UNSPEC.	30	1.0	1.6	0.63	9	0.5	0.6	0.83
		EMPHYSEMA	128	2.3	7.9	0.29	107	2.4	8.8	0.27
		ASTHMA	50	4.4	1.3	3.38	41	3.9	2.3	1.70
		PLEURISY	16	0.7	0.8	0.88	5	0.2	0.4	0.50
		OTHER DIS OF THE RESP.SYSTEM	1021	24.8	59.5	0.42	582	20.2	45.4	0.44
ALL AGES	IX.DIS OF THE DIGESTIVE SYS	ALL CONDITIONS	730	33.9	34.5	0.98	462	29.6	30.9	0.96
		OTHER DIS OF TEETH/JAW/MOUTH	1	.	0.1	.	.	.	.	.
		DIS OF THE ESOPHAGUS	19	0.8	0.9	0.89	19	0.7	1.5	0.47
		GASTRIC ULCER	8	0.7	0.2	3.50	7	0.7	0.4	1.75
		DUODENAL ULCER	13	0.4	0.7	0.57	3	0.2	0.2	1.00
		OTHER & UNSPEC. PEPTIC ULCER	16	0.3	1.0	0.30	8	0.2	0.6	0.33
		GASTRITIS & DUODENITIS	3	0.1	0.1	1.00	1	.	0.1	.
		OTHER DIS OF THE STOMACH	11	0.3	0.6	0.50	5	0.5	0.3	1.67
		OTHER DIS OF THE APPENDIX	5	0.3	0.2	1.50	5	0.5	0.3	1.67
		INGUINAL HERNIA	.	.	.	.	2	0.2	0.1	2.00
		OTHER HERNIA,ABDOMINAL CAVITY	6	0.6	0.1	6.00	8	0.2	0.6	0.33

		REG. ENTERITIS/PEOCTOCOLITIS	6	0.6	0.1	6.00	2	.	0.2	.
		G-ENTERITIS/COLITIS, NONINFECT.	7	0.1	0.4	0.25	10	1.4	0.4	3.50
		INTESTINAL OBSTRUCT.W/O HERNIA	63	2.8	3.0	0.93	23	1.9	1.4	1.36
		DIVERTICULA OF INTESTINE	31	0.6	1.9	0.32	19	0.5	1.6	0.31
		FUNCTIONAL DISORDERS, INTESTINES	3	.	0.2	.	.	.	.	.
		ANAL FISSURE/FISTULA/ABSCESS	1	0.1	.	.	.	.	.	.
		OTHER DIS, INTESTINE/PERITONEUM	115	4.8	5.7	0.84	69	5.1	4.4	1.16
		CHRONIC LIVER DIS/CIRRHOSIS	215	10.0	10.1	0.99	155	10.6	10.1	1.05
		OTHER DIS OF THE LIVER	68	3.9	2.8	1.39	36	2.2	2.5	0.88
		CHOLELITHIASIS	9	0.1	0.6	0.17	3	0.2	0.2	1.00
		CHOLECYSTITIS	12	0.7	0.5	1.40	11	1.0	0.6	1.67
		OTHER DIS, GALL BLADDER/DUCTS	9	0.4	0.4	1.00	2	.	0.2	.
		DIS OF THE PANCREAS	38	2.5	1.4	1.79	19	1.0	1.4	0.71
		GI HEMORRHAGE/INTEST. MALABS.	71	3.5	3.2	1.09	55	2.4	4.1	0.59
ALL AGES	X.DIS OF GENITOURINARY SYS	ALL CONDITIONS	416	25.4	16.6	1.53	228	18.5	13.8	1.34
		NEPHRITIS & NEPHROSIS	196	13.3	7.2	1.85	85	7.9	4.7	1.68
		INFECTIONS OF KIDNEY	8	0.7	0.2	3.50	2	0.2	0.1	2.00
		CALCULUS OF KIDNEY/URETER	.	.	.	.	1	.	0.1	.
		OTHER DIS OF URINARY SYS	199	11.1	8.4	1.32	133	9.4	8.6	1.09
		HYPERPLASIA OF PROSTATE	2	0.1	0.1	1.00	2	0.5	.	.
		OTHER DIS OF MALE GEN.ORGANS	8	.	0.6	.	3	0.2	0.2	1.00
		INFLAM. DIS, FEM. PELV. ORG.	2	0.1	0.1	1.00	.	.	.	.
		OTHER DIS/FEMALE GENITAL ORGAN	1	.	0.1	.	2	0.2	0.1	2.00
ALL AGES	XI.COMPL.OF PREG./BIRTH/PUER.	ALL CONDITIONS	2	0.1	0.1	1.00	2	0.2	0.1	2.00
		ANTEPARTUM HEMORRHAGE	1	.	0.1	.	.	.	.	.
		PREG. WITH HYPERTENSION	1	0.1	.	.	1	.	0.1	.
		DELIVERY WITH COMPLICATIONS	.	.	.	.	1	0.2	.	.
ALL AGES	XII.DIS OF SKIN/SUBCUT.TISSUE	ALL CONDITIONS	37	3.2	1.0	3.20	21	3.1	0.7	4.43
		CELLULITIS & ABSCESS	1	.	0.1	.	7	0.7	0.4	1.75
		INFECTIONS, SKIN/SUBCUT.TISSUE	3	.	0.2	.	.	.	.	.
		OTHER DIS, SKIN/SUBCUT.TISSUE	33	3.2	0.7	4.57	14	2.4	0.4	6.00
ALL AGES	XIII.MUSCULOSKELETAL/CONN.TI.	ALL CONDITIONS	95	4.2	4.6	0.91	73	6.0	4.4	1.36
		RHEUMATOID ARTHRITIS	20	0.7	1.1	0.64	14	0.7	1.0	0.70
		OSTEOARTHRITIS/ALLIED COND.	5	0.4	0.1	4.00	6	0.5	0.4	1.25

		OTHER ARTHROPATHOTIES	29	2.0	1.1	1.82	30	3.9	1.3	3.00
		SPONDYLOSIS/ALLIED DISORDERS	1	.	0.1	.	1	.	0.1	.
		DISPLACEMENT/INTERVERT.DISC	1	.	0.1	.	.	.	.	.
		DISORDERS OF BONE & CARTILAGE	25	0.6	1.5	0.40	11	0.2	0.9	0.22
		OTHER DIS/MUSCULOSKELETAL SYS.	14	0.6	0.7	0.86	11	0.7	0.7	1.00
ALL AGES	XIV.CONGENITAL ANOMALIES	ALL CONDITIONS	110	5.5	5.0	1.10	55	4.3	3.4	1.26
		HEART & CIRC. SYSTEM	43	2.1	2.0	1.05	19	1.7	1.1	1.55
		OTHER CONGENITAL ANOMALIES	67	3.4	3.0	1.13	36	2.6	2.3	1.13
ALL AGES	XVI.SYMPTOMS/ILL-DEFINED COND.	ALL CONDITIONS	196	11.8	7.9	1.49	97	10.3	4.9	2.10
		CONVULSIONS	18	1.4	0.6	2.33	8	1.4	0.2	7.00
		OTHER SYMPTOMS	178	10.4	7.3	1.42	89	8.9	4.7	1.89
ALL AGES	XVII.ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	1532	76.4	69.7	1.10	828	67.1	50.1	1.34
		FRACTURE/VERTEBRAL COLUMN	7	0.4	0.3	1.33	2	0.2	0.1	2.00

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1  
RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL AA DEATH RATE	RURAL WH DEATH RATE	RURAL RATIO AA:WH	URBAN CASES	URBAN AA DEATH RATE	URBAN WH DEATH RATE	URBAN RATIO AA:WH
ALL AGES	XVII.ACCIDENTS/POISON/VIOLENCE	FRACTURE/RADIUS & ULNA	12	0.8	0.4	2.00	5	0.5	0.3	1.67
		FRACTURE/OTHER	600	30.6	27.0	1.13	258	19.7	16.0	1.23
		DISLOCATION WITHOUT FRACTURE	16	0.8	0.7	1.14	7	0.5	0.5	1.00
		CONCUSSION	14	0.1	0.9	0.11	8	0.2	0.6	0.33
		INTRACRANIAL INJ.(EXC.SKULL)	3	0.1	0.1	1.00	2	0.2	0.1	2.00
		INTERNAL INJ,CHEST/ABD/PELVIS	14	0.4	0.8	0.50	14	1.4	0.7	2.00
		LAC/OPEN WOUND,EYE/EAR/HEAD	1	0.1	.	.	.	.	.	.
		LAC/OPEN WOUND,OTHER	211	11.7	9.0	1.30	96	6.0	6.5	0.92
		LATE EFFECTS	5	0.3	0.2	1.50	1	0.2	.	.
		BURNS	3	0.1	0.1	1.00	1	.	0.1	.
		OTHER INJURIES	440	16.2	22.9	0.71	284	16.6	19.6	0.85
		POISONING/MEDICAL AGENTS	201	14.2	7.0	2.03	144	20.9	5.2	4.02
		POISONING/CHEM. & EXT. CAUSES	5	0.3	0.2	1.50	6	0.5	0.4	1.25

0	ALL CONDITIONS	ALL CONDITIONS	34	99.3	115.4	0.86	21	73.8	104.5	0.71
0	III.ENDOCRINE,NUTRIT.& META.	ALL CONDITIONS	.	.	.	.	1	.	7.0	.
		NUTRIT.DEFIC.& META. DIS	.	.	.	.	1	.	7.0	.
0	IV.BLOOD & BL-FORMING ORGANS	ALL CONDITIONS	.	.	.	.	1	.	7.0	.
		OTHER	.	.	.	.	1	.	7.0	.
0	VII.DIS OF CIRCULATORY SYS	ALL CONDITIONS	1	7.6	.	.	1	.	7.0	.
		CARDIAC DYSRHYTHMIAS	1	7.6	.	.	.	.	.	.
		OTHER DIS OF CIRC. SYS.	.	.	.	.	1	.	7.0	.
0	XIV.CONGENITAL ANOMALIES	ALL CONDITIONS	33	91.7	115.4	0.79	17	73.8	76.6	0.96
		HEART & CIRC. SYSTEM	4	7.6	16.5	0.46	1	12.3	.	.
		OTHER CONGENITAL ANOMALIES	29	84.0	98.9	0.85	16	61.5	76.6	0.80
0	XVII.ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	.	.	.	.	1	.	7.0	.
		POISONING/MEDICAL AGENTS	.	.	.	.	1	.	7.0	.
01 - 05	ALL CONDITIONS	ALL CONDITIONS	177	141.9	92.1	1.54	114	168.7	64.0	2.64
01 - 05	I.INFECTIVE & PARASITIC DIS	ALL CONDITIONS	14	13.7	5.5	2.49	10	19.8	2.8	7.07
		VIRAL DIS	4	3.1	2.2	1.41	4	7.4	1.4	5.29
		OTHER INFECT.& PARASITIC DIS	10	10.7	3.3	3.24	6	12.4	1.4	8.86
01 - 05	II.NEOPLASMS	ALL CONDITIONS	6	3.1	4.4	0.70	5	2.5	5.6	0.45
		BONE,CONN.& SOFT TISSUE,SKIN	1	.	1.1	.	.	.	.	.
		LEUKEMIA	1	.	1.1	.	1	.	1.4	.
		OTHER & UNSPECIFIED SITES	4	3.1	2.2	1.41	3	.	4.2	.
		OTHER BENIGN NEOPLASMS	.	.	.	.	1	2.5	.	.
01 - 05	III.ENDOCRINE,NUTRIT.& META.	ALL CONDITIONS	6	1.5	5.5	0.27	5	2.5	5.6	0.45
		OTHER ENDOCRINE DIS	2	.	2.2	.	.	.	.	.
		NUTRIT.DEFIC.& META. DIS	4	1.5	3.3	0.45	5	2.5	5.6	0.45
01 - 05	IV.BLOOD & BL-FORMING ORGANS	ALL CONDITIONS	1	.	1.1	.	1	2.5	.	.
		ANEMIAS	1	.	1.1	.	1	2.5	.	.

01 - 05	VI.NERVOUS SYS.& SENSE ORGANS	ALL CONDITIONS	8	4.6	5.5	0.84	5	7.4	2.8	2.64
		EPILEPSY	1	.	1.1	.	1	.	1.4	.
		DIS OF CENTRAL NERVOUS SYSTEM	6	4.6	3.3	1.39	4	7.4	1.4	5.29
		DIS OF NERVES & PERI. GANGLIA	1	.	1.1	.	.	.	.	.
01 - 05	VII.DIS OF CIRCULATORY SYS	ALL CONDITIONS	13	7.6	8.8	0.86	9	14.9	4.2	3.55
		CHRONIC ISCHEMIC HEART DIS	.	.	.	.	1	2.5	.	.
		PULMONARY HEART DIS	3	1.5	2.2	0.68	1	.	1.4	.
		CARDIAC DYSRHYTHMIAS	2	1.5	1.1	1.36	4	7.4	1.4	5.29
		CONGESTIVE HEART FAILURE	1	1.5	.	.	1	.	1.4	.
		OTHER HEART DIS	4	1.5	3.3	0.45	1	2.5	.	.
		OTHER CEREBROVASCULAR DIS	1	.	1.1	.	.	.	.	.
		OTHER DIS OF ARTERIES	.	.	.	.	1	2.5	.	.
		OTHER DIS OF CIRC. SYS.	2	1.5	1.1	1.36	.	.	.	.
01 - 05	VIII.DIS OF THE RESP.SYS.	ALL CONDITIONS	11	10.7	4.4	2.43	8	12.4	4.2	2.95
		ACUTE BRONCHITIS & -IOLITIS	.	.	.	.	1	.	1.4	.
		ACUTE UPPER RESP.INFECTIONS	.	.	.	.	1	.	1.4	.
		PNEUMONIA, ALL FORMS	4	4.6	1.1	4.18	3	5.0	1.4	3.57
		BRONCHITIS,CHRONIC/UNSPEC.	1	.	1.1	.	.	.	.	.
		ASTHMA	1	.	1.1	.	.	.	.	.
		OTHER DIS OF THE RESP.SYSTEM	5	6.1	1.1	5.55	3	7.4	.	.

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1

RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL AA DEATH RATE	RURAL WH DEATH RATE	RURAL RATIO AA:WH	URBAN CASES	URBAN AA DEATH RATE	URBAN WH DEATH RATE	URBAN RATIO AA:WH
01 - 05	IX.DIS OF THE DIGESTIVE SYS	ALL CONDITIONS	7	9.2	1.1	8.36	4	9.9	.	.
		OTHER DIS OF THE STOMACH	.	.	.	.	1	2.5	.	.
		OTHER HERNIA,ABDOMINAL CAVITY	1	1.5	.	.	.	.	.	.
		G-ENTERITIS/COLITIS,NONINFECT.	.	.	.	.	1	2.5	.	.
		INTESTINAL OBSTRUCT.W/O HERNIA	1	.	1.1	.	.	.	.	.
		OTHER DIS, INTESTINE/PERITONEUM	1	1.5	.	.	.	.	.	.

		OTHER DIS OF THE LIVER	4	6.1	.	.	1	2.5	.	.
		GI HEMORRHAGE/INTEST. MALABS.	.	.	.	.	1	2.5	.	.
01 - 05	X.DIS OF GENITOURINARY SYS	ALL CONDITIONS	1	1.5	.	.	2	2.5	1.4	1.79
		NEPHRITIS & NEPHROSIS	1	1.5	.	.	2	2.5	1.4	1.79
01 - 05	XIV.CONGENITAL ANOMALIES	ALL CONDITIONS	35	22.9	21.9	1.05	14	19.8	8.4	2.36
		HEART & CIRC. SYSTEM	17	7.6	13.2	0.58	6	7.4	4.2	1.76
		OTHER CONGENITAL ANOMALIES	18	15.3	8.8	1.74	8	12.4	4.2	2.95
01 - 05	XVI.SYMPTOMS/ILL-DEFINED COND.	ALL CONDITIONS	36	29.0	18.6	1.56	25	39.7	12.5	3.18
		OTHER SYMPTOMS	36	29.0	18.6	1.56	25	39.7	12.5	3.18
01 - 05	XVII.ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	39	38.1	15.3	2.49	26	34.7	16.7	2.08
		FRACTURE/OTHER	12	12.2	4.4	2.77	9	12.4	5.6	2.21
		CONCUSSION	1	1.5	.	.	.	.	.	.
		LAC/OPEN WOUND,OTHER	8	6.1	4.4	1.39	3	2.5	2.8	0.89
		OTHER INJURIES	13	13.7	4.4	3.11	9	9.9	7.0	1.41
		POISONING/MEDICAL AGENTS	5	4.6	2.2	2.09	5	9.9	1.4	7.07
06 - 12	ALL CONDITIONS	ALL CONDITIONS	50	24.9	20.7	1.20	14	15.3	6.1	2.51
06 - 12	I.INFECTIVE & PARASITIC DIS	ALL CONDITIONS	1	1.1	.	.	1	1.9	.	.
		OTHER INFECT.& PARASITIC DIS	1	1.1	.	.	1	1.9	.	.
06 - 12	II.NEOPLASMS	ALL CONDITIONS	5	3.3	1.5	2.20	.	.	.	.
		LEUKEMIA	2	1.1	0.8	1.38	.	.	.	.
		OTHER HEMATOPOIETIC TISSUE	1	1.1	.	.	.	.	.	.
		OTHER & UNSPECIFIED SITES	1	.	0.8	.	.	.	.	.
		OTHER BENIGN NEOPLASMS	1	1.1	.	.	.	.	.	.
06 - 12	VI.NERVOUS SYS.& SENSE ORGANS	ALL CONDITIONS	3	2.2	0.8	2.75	.	.	.	.
		DIS OF CENTRAL NERVOUS SYSTEM	3	2.2	0.8	2.75	.	.	.	.
06 - 12	VII.DIS OF CIRCULATORY SYS	ALL CONDITIONS	3	3.3	.	.	2	1.9	1.0	1.90
		OTHER HEART DIS	2	2.2	.	.	2	1.9	1.0	1.90
		INTRACRANIAL HEMORRHAGE	1	1.1	.	.	.	.	.	.

06 - 12	VIII.DIS OF THE RESP.SYS.	ALL CONDITIONS	3	2.2	0.8	2.75	2	1.9	1.0	1.90
		PNEUMONIA, ALL FORMS	1	1.1	.	.	.	.	.	.
		ASTHMA	.	.	.	.	2	1.9	1.0	1.90
		OTHER DIS OF THE RESP.SYSTEM	2	1.1	0.8	1.38	.	.	.	.
06 - 12	IX.DIS OF THE DIGESTIVE SYS	ALL CONDITIONS	1	1.1	.	.	.	.	.	.
		INTESTINAL OBSTRUCT.W/O HERNIA	1	1.1	.	.	.	.	.	.
06 - 12	XIV.CONGENITAL ANOMALIES	ALL CONDITIONS	2	1.1	0.8	1.38	.	.	.	.
		HEART & CIRC. SYSTEM	1	1.1	.	.	.	.	.	.
		OTHER CONGENITAL ANOMALIES	1	.	0.8	.	.	.	.	.
06 - 12	XVI.SYMPTOMS/ILL-DEFINED COND.	ALL CONDITIONS	1	.	0.8	.	1	.	1.0	.
		OTHER SYMPTOMS	1	.	0.8	.	1	.	1.0	.
06 - 12	XVII.ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	31	10.8	16.1	0.67	8	9.5	3.0	3.17
		FRACTURE/RADIUS & ULNA	1	.	0.8	.	.	.	.	.
		FRACTURE/OTHER	15	4.3	8.4	0.51	5	7.6	1.0	7.60
		DISLOCATION WITHOUT FRACTURE	1	.	0.8	.	.	.	.	.
		LAC/OPEN WOUND,OTHER	3	2.2	0.8	2.75	.	.	.	.
		OTHER INJURIES	10	4.3	4.6	0.93	1	1.9	.	.
		POISONING/MEDICAL AGENTS	1	.	0.8	.	1	.	1.0	.
		POISONING/CHEM. & EXT. CAUSES	.	.	.	.	1	.	1.0	.
13 - 24	ALL CONDITIONS	ALL CONDITIONS	361	157.5	129.9	1.21	203	167.0	98.3	1.70
13 - 24	I.INFECTIVE & PARASITIC DIS	ALL CONDITIONS	6	3.9	1.3	3.00	4	5.4	0.9	6.00
		VIRAL DIS	1	1.0	.	.	.	.	.	.
		OTHER INFECT.& PARASITIC DIS	5	2.9	1.3	2.23	4	5.4	0.9	6.00
13 - 24	II.NEOPLASMS	ALL CONDITIONS	24	8.8	9.7	0.91	12	5.4	8.0	0.68

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1

RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

	RURAL	RURAL		URBAN	URBAN	
	AA	WH	RURAL	AA	WH	URBAN
	DEATH	DEATH	RATIO	DEATH	DEATH	RATIO

AGE	GENDIAG	DIAGCAT1	CASES	RATE	RATE	AA:WH	CASES	RATE	RATE	AA:WH
13 - 24	II.NEOPLASMS	LIP, ORAL CAVITY & PHARYNX	1	1.0	.	.	1	1.8	.	.
		LARGE INTESTINE & RECTUM	1	1.0	.	.	.	.	.	.
		BONE,CONN.& SOFT TISSUE,SKIN	8	.	5.2	.	2	.	1.8	.
		FEMALE GENITAL ORGANS	2	.	1.3	.	.	.	.	.
		LEUKEMIA	5	2.9	1.3	2.23	5	1.8	3.6	0.50
		OTHER HEMATOPOIETIC TISSUE	1	.	0.6	.	2	1.8	0.9	2.00
		OTHER & UNSPECIFIED SITES	4	2.0	1.3	1.54	1	.	0.9	.
		OTHER BENIGN NEOPLASMS	2	2.0	.	.	1	.	0.9	.
13 - 24	III.ENDOCRINE,NUTRIT.& META.	ALL CONDITIONS	12	5.9	3.9	1.51	2	1.8	0.9	2.00
		DIABETES MELLITUS W/O COMP.	1	1.0	.	.	.	.	.	.
		DIABETES MELLITUS W/COMP.	2	1.0	0.6	1.67	2	1.8	0.9	2.00
		OBESITY	1	1.0	.	.	.	.	.	.
		NUTRIT.DEFIC.& META. DIS	8	2.9	3.2	0.91	.	.	.	.
13 - 24	IV.BLOOD & BL-FORMING ORGANS	ALL CONDITIONS	1	1.0	.	.	2	3.6	.	.
		ANEMIAS	1	1.0	.	.	2	3.6	.	.
13 - 24	V.MENTAL DISORDERS	ALL CONDITIONS	1	.	0.6	.	2	1.8	0.9	2.00
		ORGANIC PSYCHOTIC CONDITIONS	.	.	.	.	1	.	0.9	.
		NONDEPENDENT USE OF DRUGS	.	.	.	.	1	1.8	.	.
		OTHER MENTAL DISORDERS	1	.	0.6	.	.	.	.	.
13 - 24	VI.NERVOUS SYS.& SENSE ORGANS	ALL CONDITIONS	7	2.0	3.2	0.63	5	5.4	1.8	3.00
		EPILEPSY	2	.	1.3	.	1	.	0.9	.
		DIS OF CENTRAL NERVOUS SYSTEM	3	1.0	1.3	0.77	3	3.6	0.9	4.00
		DIS OF NERVES & PERI. GANGLIA	2	1.0	0.6	1.67	1	1.8	.	.
13 - 24	VII.DIS OF CIRCULATORY SYS	ALL CONDITIONS	16	8.8	4.5	1.96	16	16.2	6.3	2.57
		ACUTE MYOCARDIAL INFARCTION	.	.	.	.	1	.	0.9	.
		PULMONARY HEART DIS	3	1.0	1.3	0.77	4	7.2	.	.
		CARDIAC DYSRHYTHMIAS	3	2.0	0.6	3.33	2	.	1.8	.
		CONGESTIVE HEART FAILURE	1	1.0	.	.	.	.	.	.
		CARDIOVASCULAR DIS	1	1.0	.	.	1	.	0.9	.
		OTHER HEART DIS	4	2.9	0.6	4.83	5	5.4	1.8	3.00
		INTRACRANIAL HEMORRHAGE	2	1.0	0.6	1.67	1	.	0.9	.

		OCCLUSION OF CEREBRAL ART.	.	.	.	.	1	1.8	.	.
		ACUTE CEREBROVASCULAR DIS	1	.	0.6	.	.	.	.	.
		OTHER DIS OF ARTERIES	1	.	0.6	.	1	1.8	.	.
13 - 24	VIII.DIS OF THE RESP.SYS.	ALL CONDITIONS	4	2.0	1.3	1.54	5	5.4	1.8	3.00
		ACUTE BRONCHITIS & -IOLITIS	.	.	.	.	1	1.8	.	.
		ACUTE UPPER RESP.INFECTIONS	.	.	.	.	1	1.8	.	.
		PNEUMONIA, ALL FORMS	1	.	0.6	.	2	1.8	0.9	2.00
		ASTHMA	2	1.0	0.6	1.67	.	.	.	.
		OTHER DIS OF THE RESP.SYSTEM	1	1.0	.	.	1	.	0.9	.
13 - 24	IX.DIS OF THE DIGESTIVE SYS	ALL CONDITIONS	4	2.9	0.6	4.83	3	5.4	.	.
		DIS OF THE ESOPHAGUS	2	1.0	0.6	1.67	.	.	.	.
		GASTRIC ULCER	.	.	.	.	1	1.8	.	.
		OTHER DIS OF THE APPENDIX	1	1.0	.	.	.	.	.	.
		OTHER DIS, INTESTINE/PERITONEUM	.	.	.	.	1	1.8	.	.
		CHOLECYSTITIS	.	.	.	.	1	1.8	.	.
		OTHER DIS, GALL BLADDER/DUCTS	1	1.0	.	.	.	.	.	.
13 - 24	XI.COMPL.OF PREG./BIRTH/PUER.	ALL CONDITIONS	1	.	0.6	.	1	.	0.9	.
		ANTEPARTUM HEMORRHAGE	1	.	0.6	.	.	.	.	.
		PREG. WITH HYPERTENSION	.	.	.	.	1	.	0.9	.
13 - 24	XIII.MUSCULOSKELETAL/CONN.TI.	ALL CONDITIONS	.	.	.	.	2	.	1.8	.
		DISORDERS OF BONE & CARTILAGE	.	.	.	.	1	.	0.9	.
		OTHER DIS/MUSCULOSKELETAL SYS.	.	.	.	.	1	.	0.9	.
13 - 24	XIV.CONGENITAL ANOMALIES	ALL CONDITIONS	6	2.9	1.9	1.53	3	3.6	0.9	4.00
		HEART & CIRC. SYSTEM	5	2.9	1.3	2.23	3	3.6	0.9	4.00
		OTHER CONGENITAL ANOMALIES	1	.	0.6	.	.	.	.	.
13 - 24	XVI.SYMPTOMS/ILL-DEFINED COND.	ALL CONDITIONS	2	2.0	.	.	3	1.8	1.8	1.00
		CONVULSIONS	1	1.0	.	.	.	.	.	.
		OTHER SYMPTOMS	1	1.0	.	.	3	1.8	1.8	1.00
13 - 24	XVII.ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	277	117.4	102.0	1.15	143	111.3	72.4	1.54
		FRACTURE/VERTEBRAL COLUMN	2	.	1.3	.	.	.	.	.
		FRACTURE/RADIUS & ULNA	3	2.9	.	.	3	1.8	1.8	1.00



		OTHER BENIGN NEOPLASMS	5	1.2	0.4	3.00	2	0.6	0.2	3.00
25 - 49	III.ENDOCRINE,NUTRIT.& META.	ALL CONDITIONS	66	12.3	6.7	1.84	33	10.9	3.5	3.11
		DIABETES MELLITUS W/O COMP.	34	6.5	3.4	1.91	8	3.0	0.7	4.29
		DIABETES MELLITUS W/COMP.	14	2.7	1.4	1.93	15	6.0	1.2	5.00
		OTHER ENDOCRINE DIS	1	0.4	.	.	1	.	0.2	.
		OBESITY	4	0.8	0.4	2.00	5	1.2	0.7	1.71
		NUTRIT.DEFIC.& META. DIS	13	1.9	1.6	1.19	4	0.6	0.7	0.86
25 - 49	IV.BLOOD & BL-FORMING ORGANS	ALL CONDITIONS	14	4.6	0.4	11.50	7	3.0	0.5	6.00
		ANEMIAS	8	3.1	.	.	5	2.4	0.2	12.00
		OTHER	6	1.5	0.4	3.75	2	0.6	0.2	3.00
25 - 49	V.MENTAL DISORDERS	ALL CONDITIONS	40	9.2	3.2	2.88	26	3.6	4.7	0.77
		ORGANIC PSYCHOTIC CONDITIONS	3	1.2	.	.	2	.	0.5	.
		SCHIZOPHRENIC DISORDERS	.	.	.	.	1	.	0.2	.
		ALCOHOL DEPENDENCE SYNDROME	27	6.5	2.0	3.25	13	1.2	2.6	0.46
		NONDEPENDENT USE OF DRUGS	7	1.2	0.8	1.50	6	1.8	0.7	2.57
		OTHER MENTAL DISORDERS	3	0.4	0.4	1.00	4	0.6	0.7	0.86
25 - 49	VI.NERVOUS SYS.& SENSE ORGANS	ALL CONDITIONS	47	7.3	5.5	1.33	21	6.0	2.6	2.31
		EPILEPSY	9	2.3	0.6	3.83	3	1.2	0.2	6.00
		DIS OF CENTRAL NERVOUS SYSTEM	33	4.6	4.2	1.10	16	3.6	2.3	1.57
		DIS OF NERVES & PERI. GANGLIA	5	0.4	0.8	0.50	1	0.6	.	.
		OTITIS MEDIA/EUST. TUBE DIS.	.	.	.	.	1	0.6	.	.
25 - 49	VII.DIS OF CIRCULATORY SYS	ALL CONDITIONS	492	97.2	47.3	2.05	307	88.6	37.5	2.36
		ESSENTIAL HYPERTENSION	7	2.3	0.2	11.50	3	1.2	0.2	6.00
		HYPERTENSIVE HEART DIS	10	2.7	0.6	4.50	8	3.0	0.7	4.29
		ACUTE MYOCARDIAL INFARCTION	121	18.1	14.6	1.24	79	14.5	12.9	1.12
		ACUTE ISCHEMIC HEART DIS	11	1.5	1.4	1.07	11	1.8	1.9	0.95
		ARTERIOSCLEROTIC HEART DIS	32	6.1	3.2	1.91	30	7.8	4.0	1.95
		CHRONIC ISCHEMIC HEART DIS	28	4.2	3.4	1.24	23	6.6	2.8	2.36
		PULMONARY HEART DIS	16	4.2	1.0	4.20	12	6.0	0.5	12.00
		CARDIAC DYSRHYTHMIAS	44	9.6	3.8	2.53	13	4.2	1.4	3.00
		CONGESTIVE HEART FAILURE	10	2.7	0.6	4.50	4	1.8	0.2	9.00
		CARDIOVASCULAR DIS	10	0.8	1.6	0.50	10	1.8	1.6	1.13
		OTHER HEART DIS	87	18.8	7.5	2.51	45	16.3	4.2	3.88

INTRACRANIAL HEMORRHAGE	49	11.9	3.6	3.31	35	10.9	4.0	2.73
OCCLUSION OF CEREBRAL ART.	8	0.8	1.2	0.67	3	1.2	0.2	6.00
ACUTE CEREBROVASCULAR DIS	23	4.6	2.2	2.09	9	4.2	0.5	8.40
OTHER CEREBROVASCULAR DIS	4	0.4	0.6	0.67	2	0.6	0.2	3.00
ATHEROSCLEROSIS	1	0.4	.	.	.	.	.	.
ANEURYSM	9	1.2	1.2	1.00	5	0.6	0.9	0.67
OTHER DIS OF ARTERIES	4	1.2	0.2	6.00	5	1.2	0.7	1.71
PHLEBITIS & THROMBOPHLEBITIS	2	0.4	0.2	2.00	.	.	.	.
OTHER DIS OF CIRC. SYS.	16	5.4	0.4	13.50	10	4.8	0.5	9.60

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1

RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL	RURAL	RURAL RATIO AA:WH	URBAN CASES	URBAN	URBAN	URBAN RATIO AA:WH
				AA DEATH RATE	WH DEATH RATE			AA DEATH RATE	WH DEATH RATE	
25 - 49	VIII.DIS OF THE RESP.SYS.	ALL CONDITIONS	74	13.1	7.9	1.66	41	10.2	5.6	1.82
		PNEUMONIA, ALL FORMS	26	5.0	2.6	1.92	22	6.0	2.8	2.14
		EMPHYSEMA	5	0.8	0.6	1.33	2	.	0.5	.
		ASTHMA	14	3.1	1.2	2.58	4	1.2	0.5	2.40
		PLEURISY	1	0.4	.	.	1	.	0.2	.
		OTHER DIS OF THE RESP.SYSTEM	28	3.8	3.6	1.06	12	3.0	1.6	1.88
25 - 49	IX.DIS OF THE DIGESTIVE SYS	ALL CONDITIONS	116	23.4	10.9	2.15	75	17.5	10.8	1.62
		DIS OF THE ESOPHAGUS	.	.	.	.	4	1.2	0.5	2.40
		GASTRIC ULCER	2	0.8	.	.	.	.	.	.
		OTHER & UNSPEC. PEPTIC ULCER	2	.	0.4	.	1	0.6	.	.
		GASTRITIS & DUODENITIS	1	0.4	.	.	.	.	.	.
		OTHER HERNIA,ABDOMINAL CAVITY	1	.	0.2	.	1	.	0.2	.
		REG. ENTERITIS/PEOCTOCOLITIS	1	0.4	.	.	.	.	.	.
		G-ENTERITIS/COLITIS,NONINFECT.	.	.	.	.	1	.	0.2	.
		INTESTINAL OBSTRUCT.W/O HERNIA	3	0.8	0.2	4.00	2	0.6	0.2	3.00
		FUNCTIONAL DISORDERS,INTESTINES	1	.	0.2	.	.	.	.	.
		ANAL FISSURE/FISTULA/ABSCESS	1	0.4	.	.	.	.	.	.
		OTHER DIS, INTESTINE/PERITONEUM	5	1.5	0.2	7.50	4	1.8	0.2	9.00
		CHRONIC LIVER DIS/CIRRHOSIS	59	10.8	6.1	1.77	46	9.6	7.0	1.37

		OTHER DIS OF THE LIVER	21	4.2	2.0	2.10	9	1.8	1.4	1.29
		CHOLECYSTITIS	1	.	0.2	.	1	0.6	.	.
		OTHER DIS, GALL BLADDER/DUCTS	2	0.4	0.2	2.00	1	.	0.2	.
		DIS OF THE PANCREAS	8	2.3	0.4	5.75	4	1.2	0.5	2.40
		GI HEMORRHAGE/INTEST. MALABS.	8	1.5	0.8	1.88	1	.	0.2	.
25 - 49	X.DIS OF GENITOURINARY SYS	ALL CONDITIONS	27	5.8	2.4	2.42	10	2.4	1.4	1.71
		NEPHRITIS & NEPHROSIS	14	2.7	1.4	1.93	8	2.4	0.9	2.67
		INFECTIONS OF KIDNEY	1	0.4	.	.	.	.	.	.
		OTHER DIS OF URINARY SYS	10	2.3	0.8	2.88	2	.	0.5	.
		INFLAM. DIS, FEM. PELV. ORG.	2	0.4	0.2	2.00	.	.	.	.
25 - 49	XI.COMPL.OF PREG./BIRTH/PUER.	ALL CONDITIONS	1	0.4	.	.	1	0.6	.	.
		PREG. WITH HYPERTENSION	1	0.4	.	.	.	.	.	.
		DELIVERY WITH COMPLICATIONS	.	.	.	.	1	0.6	.	.
25 - 49	XII.DIS OF SKIN/SUBCUT.TISSUE	ALL CONDITIONS	1	0.4	.	.	.	.	.	.
		OTHER DIS,SKIN/SUBCUT.TISSUE	1	0.4	.	.	.	.	.	.
25 - 49	XIII.MUSCULOSKELETAL/CONN.TI.	ALL CONDITIONS	12	2.7	1.0	2.70	10	3.6	0.9	4.00
		OTHER ARTHROPATOTIES	10	2.7	0.6	4.50	7	3.6	0.2	18.00
		DISORDERS OF BONE & CARTILAGE	.	.	.	.	1	.	0.2	.
		OTHER DIS/MUSCULOSKELETAL SYS.	2	.	0.4	.	2	.	0.5	.
25 - 49	XIV.CONGENITAL ANOMALIES	ALL CONDITIONS	9	0.8	1.4	0.57	4	0.6	0.7	0.86
		HEART & CIRC. SYSTEM	4	0.8	0.4	2.00	2	0.6	0.2	3.00
		OTHER CONGENITAL ANOMALIES	5	.	1.0	.	2	.	0.5	.
25 - 49	XVI.SYMPTOMS/ILL-DEFINED COND.	ALL CONDITIONS	40	6.9	4.4	1.57	17	5.4	1.9	2.84
		CONVULSIONS	10	1.2	1.4	0.86	3	1.2	0.2	6.00
		OTHER SYMPTOMS	30	5.8	3.0	1.93	14	4.2	1.6	2.63
25 - 49	XVII.ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	623	86.5	78.7	1.10	357	71.7	55.8	1.28
		FRACTURE/VERTEBRAL COLUMN	4	0.8	0.4	2.00	2	0.6	0.2	3.00
		FRACTURE/RADIUS & ULNA	5	0.8	0.6	1.33	2	0.6	0.2	3.00
		FRACTURE/OTHER	253	40.3	29.3	1.38	119	19.3	20.4	0.95
		DISLOCATION WITHOUT FRACTURE	13	1.9	1.6	1.19	2	.	0.5	.
		CONCUSSION	10	.	2.0	.	7	0.6	1.4	0.43

		INTRACRANIAL INJ.(EXC.SKULL)	2	.	0.4	.	2	0.6	0.2	3.00
		INTERNAL INJ,CHEST/ABD/PELVIS	8	0.8	1.2	0.67	8	3.0	0.7	4.29
		LAC/OPEN WOUND,OTHER	35	7.3	3.2	2.28	15	3.6	2.1	1.71
		LATE EFFECTS	4	0.4	0.6	0.67	1	0.6	.	.
		BURNS	1	0.4	.	.	.	.	.	.
		OTHER INJURIES	167	13.4	26.1	0.51	118	13.9	22.3	0.62
		POISONING/MEDICAL AGENTS	117	19.6	13.1	1.50	79	28.3	7.5	3.77
		POISONING/CHEM. & EXT. CAUSES	4	0.8	0.4	2.00	2	0.6	0.2	3.00
50 - 64	ALL CONDITIONS	ALL CONDITIONS	3621	1390.8	851.2	1.63	2057	1316.9	687.8	1.91
50 - 64	I.INFECTIVE & PARASITIC DIS	ALL CONDITIONS	70	40.0	11.8	3.39	46	50.5	9.7	5.21
		VIRAL DIS	24	13.7	4.1	3.34	14	20.6	1.5	13.73
		OTHER INFECT.& PARASITIC DIS	46	26.3	7.8	3.37	32	29.9	8.1	3.69
50 - 64	II.NEOPLASMS	ALL CONDITIONS	1205	405.0	303.6	1.33	723	396.6	259.8	1.53
		LIP, ORAL CAVITY & PHARYNX	29	20.0	3.7	5.41	16	13.1	4.6	2.85

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1  
RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL	RURAL	RURAL RATIO AA:WH	URBAN CASES	URBAN	URBAN	URBAN RATIO AA:WH
				AA	WH			DEATH RATE	DEATH RATE	
50 - 64	II.NEOPLASMS	LARGE INTESTINE & RECTUM	108	27.4	30.4	0.90	58	39.3	18.8	2.09
		OTHER DIG.ORGANS & PERITONEUM	162	72.6	34.4	2.11	98	74.8	29.5	2.54
		TRACHEA, BRONCHUS & LUNG	411	106.3	114.8	0.93	256	101.0	102.7	0.98
		BONE,CONN.& SOFT TISSUE,SKIN	35	9.5	9.6	0.99	25	5.6	11.2	0.50
		BREAST	115	47.3	25.9	1.83	68	44.9	22.4	2.00
		FEMALE GENITAL ORGANS	48	18.9	11.1	1.70	34	15.0	13.2	1.14
		PROSTATE	30	16.8	5.2	3.23	13	15.0	2.5	6.00
		URINARY ORGANS	38	13.7	9.3	1.47	34	11.2	14.2	0.79
		LEUKEMIA	35	9.5	9.6	0.99	14	3.7	6.1	0.61
		OTHER HEMATOPOIETIC TISSUE	64	25.2	14.8	1.70	39	33.7	10.7	3.15
		OTHER & UNSPECIFIED SITES	124	34.7	33.7	1.03	62	33.7	22.4	1.50
		BONE & CONNECTIVE TISSUE	1	1.1	.	.	.	.	.	.

		OTHER BENIGN NEOPLASMS	5	2.1	1.1	1.91	6	5.6	1.5	3.73
50 - 64	III.ENDOCRINE,NUTRIT.& META.	ALL CONDITIONS	188	96.8	35.5	2.73	103	93.5	26.9	3.48
		DIS OF THYROID GLAND	1	.	0.4	.	1	.	0.5	.
		DIABETES MELLITUS W/O COMP.	101	54.7	18.1	3.02	47	46.8	11.2	4.18
		DIABETES MELLITUS W/COMP.	58	31.6	10.4	3.04	38	37.4	9.2	4.07
		OTHER ENDOCRINE DIS	1	1.1	.	.	1	.	0.5	.
		OBESITY	7	1.1	2.2	0.50	2	.	1.0	.
		NUTRIT.DEFIC.& META. DIS	20	8.4	4.4	1.91	14	9.4	4.6	2.04
50 - 64	IV.BLOOD & BL-FORMING ORGANS	ALL CONDITIONS	9	4.2	1.9	2.21	6	5.6	1.5	3.73
		ANEMIAS	2	2.1	.	.	3	3.7	0.5	7.40
		OTHER	7	2.1	1.9	1.11	3	1.9	1.0	1.90
50 - 64	V.MENTAL DISORDERS	ALL CONDITIONS	37	18.9	7.0	2.70	26	16.8	8.6	1.95
		ORGANIC PSYCHOTIC CONDITIONS	7	3.2	1.5	2.13	2	3.7	.	.
		OTHER PSYCHOSES	2	.	0.7	.	2	.	1.0	.
		ALCOHOL DEPENDENCE SYNDROME	20	11.6	3.3	3.52	16	9.4	5.6	1.68
		NONDEPENDENT USE OF DRUGS	5	2.1	1.1	1.91	4	1.9	1.5	1.27
		OTHER MENTAL DISORDERS	3	2.1	0.4	5.25	2	1.9	0.5	3.80
50 - 64	VI.NERVOUS SYS.& SENSE ORGANS	ALL CONDITIONS	46	16.8	11.1	1.51	38	18.7	14.2	1.32
		EPILEPSY	3	2.1	0.4	5.25	5	7.5	0.5	15.00
		DIS OF CENTRAL NERVOUS SYSTEM	41	14.7	10.0	1.47	30	9.4	12.7	0.74
		DIS OF NERVES & PERI. GANGLIA	2	.	0.7	.	3	1.9	1.0	1.90
50 - 64	VII.DIS OF CIRCULATORY SYS	ALL CONDITIONS	1330	543.9	301.0	1.81	704	482.6	226.7	2.13
		ESSENTIAL HYPERTENSION	16	8.4	3.0	2.80	9	7.5	2.5	3.00
		HYPERTENSIVE HEART DIS	37	27.4	4.1	6.68	12	15.0	2.0	7.50
		ACUTE MYOCARDIAL INFARCTION	472	149.4	122.2	1.22	229	129.1	81.3	1.59
		ACUTE ISCHEMIC HEART DIS	25	8.4	6.3	1.33	18	22.4	3.1	7.23
		ANGINA PECTORIS	.	.	.	.	2	.	1.0	.
		ARTERIOSCLEROTIC HEART DIS	66	18.9	17.8	1.06	35	26.2	10.7	2.45
		CHRONIC ISCHEMIC HEART DIS	150	56.8	35.5	1.60	94	37.4	37.6	0.99
		PULMONARY HEART DIS	20	6.3	5.2	1.21	15	9.4	5.1	1.84
		CARDIAC DYSRHYTHMIAS	69	31.6	14.4	2.19	27	18.7	8.6	2.17
		CONGESTIVE HEART FAILURE	42	20.0	8.5	2.35	24	7.5	10.2	0.74
		CARDIOVASCULAR DIS	37	16.8	7.8	2.15	25	15.0	8.6	1.74

		OTHER HEART DIS	89	38.9	19.3	2.02	60	50.5	16.8	3.01
		INTRACRANIAL HEMORRHAGE	94	49.4	17.4	2.84	49	41.2	13.7	3.01
		OCCLUSION OF CEREBRAL ART.	14	5.3	3.3	1.61	10	5.6	3.6	1.56
		ACUTE CEREBROVASCULAR DIS	120	70.5	19.6	3.60	50	54.2	10.7	5.07
		OTHER CEREBROVASCULAR DIS	8	6.3	0.7	9.00	9	9.4	2.0	4.70
		ATHEROSCLEROSIS	7	3.2	1.5	2.13	1	.	0.5	.
		ANEURYSM	23	6.3	6.3	1.00	9	1.9	4.1	0.46
		OTHER DIS OF ARTERIES	15	8.4	2.6	3.23	10	13.1	1.5	8.73
		PHLEBITIS & THROMBOPHLEBITIS	.	.	.	.	2	3.7	.	.
		OTHER DIS OF CIRC. SYS.	26	11.6	5.6	2.07	14	15.0	3.1	4.84
50 - 64	VIII.DIS OF THE RESP.SYS.	ALL CONDITIONS	253	72.6	68.1	1.07	141	65.5	53.9	1.22
		ACUTE BRONCHITIS & -IOLITIS	.	.	.	.	1	.	0.5	.
		PNEUMONIA, ALL FORMS	52	23.1	11.1	2.08	32	26.2	9.2	2.85
		INFLUENZA	1	.	0.4	.	.	.	.	.
		BRONCHITIS,CHRONIC/UNSPEC.	2	.	0.7	.	2	1.9	0.5	3.80
		EMPHYSEMA	24	2.1	8.1	0.26	19	3.7	8.6	0.43
		ASTHMA	16	14.7	0.7	21.00	10	9.4	2.5	3.76
		PLEURISY	2	1.1	0.4	2.75	1	.	0.5	.
		OTHER DIS OF THE RESP.SYSTEM	156	31.6	46.7	0.68	76	24.3	32.0	0.76
50 - 64	IX.DIS OF THE DIGESTIVE SYS	ALL CONDITIONS	150	51.5	37.4	1.38	102	63.6	34.6	1.84
		DIS OF THE ESOPHAGUS	2	1.1	0.4	2.75	1	.	0.5	.
		GASTRIC ULCER	3	2.1	0.4	5.25	.	.	.	.
		DUODENAL ULCER	3	1.1	0.7	1.57	.	.	.	.

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1

RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL AA DEATH RATE	RURAL WH DEATH RATE	RURAL RATIO AA:WH	URBAN CASES	URBAN AA DEATH RATE	URBAN WH DEATH RATE	URBAN RATIO AA:WH
50 - 64	IX.DIS OF THE DIGESTIVE SYS	OTHER & UNSPEC. PEPTIC ULCER	2	.	0.7	.	.	.	.	.
		GASTRITIS & DUODENITIS	.	.	.	.	1	.	0.5	.
		OTHER DIS OF THE STOMACH	1	.	0.4	.	1	.	0.5	.
		OTHER DIS OF THE APPENDIX	.	.	.	.	1	1.9	.	.

		INGUINAL HERNIA	.	.	.	.	1	1.9	.	.
		OTHER HERNIA, ABDOMINAL CAVITY	3	2.1	0.4	5.25	.	.	.	.
		REG. ENTERITIS/PEOCTOCOLITIS	1	1.1	.	.	.	.	.	.
		G-ENTERITIS/COLITIS, NONINFECT.	1	.	0.4	.	3	5.6	.	.
		INTESTINAL OBSTRUCT. W/O HERNIA	3	1.1	0.7	1.57	1	1.9	.	.
		DIVERTICULA OF INTESTINE	4	.	1.5	.	3	1.9	1.0	1.90
		FUNCTIONAL DISORDERS, INTESTINES	1	.	0.4	.	.	.	.	.
		OTHER DIS, INTESTINE/PERITONEUM	16	4.2	4.4	0.95	13	11.2	3.6	3.11
		CHRONIC LIVER DIS/CIRRHOSIS	72	27.4	17.0	1.61	49	29.9	16.8	1.78
		OTHER DIS OF THE LIVER	17	6.3	4.1	1.54	13	3.7	5.6	0.66
		CHOLECYSTITIS	1	1.1	.	.	.	.	.	.
		OTHER DIS, GALL BLADDER/DUCTS	2	.	0.7	.	1	.	0.5	.
		DIS OF THE PANCREAS	11	1.1	3.7	0.30	5	1.9	2.0	0.95
		GI HEMORRHAGE/INTEST. MALABS.	7	3.2	1.5	2.13	9	3.7	3.6	1.03
50 - 64	X.DIS OF GENITOURINARY SYS	ALL CONDITIONS	52	29.5	8.9	3.31	28	29.9	6.1	4.90
		NEPHRITIS & NEPHROSIS	33	16.8	6.3	2.67	15	15.0	3.6	4.17
		INFECTIONS OF KIDNEY	2	2.1	.	.	1	.	0.5	.
		OTHER DIS OF URINARY SYS	15	10.5	1.9	5.53	11	13.1	2.0	6.55
		OTHER DIS OF MALE GEN.ORGANS	2	.	0.7	.	.	.	.	.
		OTHER DIS/FEMALE GENITAL ORGAN	.	.	.	.	1	1.9	.	.
50 - 64	XII.DIS OF SKIN/SUBCUT.TISSUE	ALL CONDITIONS	3	1.1	0.7	1.57	.	.	.	.
		INFECTIONS, SKIN/SUBCUT.TISSUE	1	.	0.4	.	.	.	.	.
		OTHER DIS, SKIN/SUBCUT.TISSUE	2	1.1	0.4	2.75	.	.	.	.
50 - 64	XIII.MUSCULOSKELETAL/CONN.TI.	ALL CONDITIONS	21	10.5	4.1	2.56	19	18.7	4.6	4.07
		RHEUMATOID ARTHRITIS	4	1.1	1.1	1.00	2	1.9	0.5	3.80
		OSTEOARTHRITIS/ALLIED COND.	1	.	0.4	.	.	.	.	.
		OTHER ARTHROPATOTIES	10	6.3	1.5	4.20	12	11.2	3.1	3.61
		SPONDYLOSIS/ALLIED DISORDERS	1	.	0.4	.	1	.	0.5	.
		DISORDERS OF BONE & CARTILAGE	2	1.1	0.4	2.75	2	1.9	0.5	3.80
		OTHER DIS/MUSCULOSKELETAL SYS.	3	2.1	0.4	5.25	2	3.7	.	.
50 - 64	XIV.CONGENITAL ANOMALIES	ALL CONDITIONS	9	3.2	2.2	1.45	3	.	1.5	.
		HEART & CIRC. SYSTEM	5	2.1	1.1	1.91	3	.	1.5	.
		OTHER CONGENITAL ANOMALIES	4	1.1	1.1	1.00	.	.	.	.

50 - 64	XVI.SYMPTOMS/ILL-DEFINED COND.	ALL CONDITIONS	30	13.7	6.3	2.17	5	5.6	1.0	5.60
		CONVULSIONS	4	3.2	0.4	8.00	3	3.7	0.5	7.40
		OTHER SYMPTOMS	26	10.5	5.9	1.78	2	1.9	0.5	3.80
50 - 64	XVII.ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	218	83.1	51.5	1.61	113	69.2	38.6	1.79
		FRACTURE/RADIUS & ULNA	2	1.1	0.4	2.75	.	.	.	.
		FRACTURE/OTHER	80	27.4	20.0	1.37	32	28.1	8.6	3.27
		DISLOCATION WITHOUT FRACTURE	1	1.1	.	.	3	3.7	0.5	7.40
		CONCUSSION	2	.	0.7	.	.	.	.	.
		INTRACRANIAL INJ.(EXC.SKULL)	1	1.1	.	.	.	.	.	.
		INTERNAL INJ,CHEST/ABD/PELVIS	2	.	0.7	.	3	1.9	1.0	1.90
		LAC/OPEN WOUND,OTHER	27	22.1	2.2	10.05	13	7.5	4.6	1.63
		LATE EFFECTS	1	1.1	.	.	.	.	.	.
		OTHER INJURIES	79	20.0	22.2	0.90	49	20.6	19.3	1.07
		POISONING/MEDICAL AGENTS	23	9.5	5.2	1.83	13	7.5	4.6	1.63
65 - 74	ALL CONDITIONS	ALL CONDITIONS	4317	3227.7	2381.8	1.36	2798	3647.9	2300.6	1.59
65 - 74	I.INFECTIVE & PARASITIC DIS	ALL CONDITIONS	61	46.8	33.3	1.41	45	108.6	25.7	4.23
		VIRAL DIS	36	24.6	20.6	1.19	27	69.1	14.5	4.77
		OTHER INFECT.& PARASITIC DIS	25	22.2	12.7	1.75	18	39.5	11.2	3.53
65 - 74	II.NEOPLASMS	ALL CONDITIONS	1316	901.8	752.5	1.20	888	1090.9	745.3	1.46
		LIP, ORAL CAVITY & PHARYNX	16	9.9	9.5	1.04	10	.	11.2	.
		LARGE INTESTINE & RECTUM	118	93.6	63.4	1.48	85	108.6	70.4	1.54
		OTHER DIG.ORGANS & PERITONEUM	175	165.1	85.5	1.93	110	182.6	81.6	2.24
		TRACHEA, BRONCHUS & LUNG	483	231.6	308.1	0.75	313	266.6	289.4	0.92
		BONE,CONN.& SOFT TISSUE,SKIN	29	14.8	18.2	0.81	19	9.9	19.0	0.52
		BREAST	67	51.7	36.4	1.42	47	103.7	29.1	3.56
		FEMALE GENITAL ORGANS	58	56.7	27.7	2.05	46	64.2	36.9	1.74
		PROSTATE	95	103.5	42.0	2.46	56	128.3	33.5	3.83
		URINARY ORGANS	43	22.2	26.9	0.83	48	34.6	45.8	0.76
		LEUKEMIA	24	22.2	11.9	1.87	32	34.6	27.9	1.24

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1

RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

RURAL RURAL

URBAN URBAN

AGE	GENDIAG	DIAGCAT1	RURAL CASES	AA DEATH RATE	WH DEATH RATE	RURAL RATIO AA:WH	URBAN CASES	AA DEATH RATE	WH DEATH RATE	URBAN RATIO AA:WH
65 - 74	II.NEOPLASMS	OTHER HEMATOPOIETIC TISSUE	80	46.8	48.3	0.97	47	49.4	41.3	1.20
		OTHER & UNSPECIFIED SITES	118	81.3	67.3	1.21	70	98.7	55.9	1.77
		DIGESTIVE SYSTEM	.	.	.	.	1	4.9	.	.
		OTHER BENIGN NEOPLASMS	10	2.5	7.1	0.35	4	4.9	3.4	1.44
65 - 74	III.ENDOCRINE,NUTRIT.& META.	ALL CONDITIONS	174	209.4	70.5	2.97	128	306.1	73.7	4.15
		DIS OF THYROID GLAND	1	2.5	.	.	1	.	1.1	.
		DIABETES MELLITUS W/O COMP.	99	120.7	39.6	3.05	64	172.8	32.4	5.33
		DIABETES MELLITUS W/COMP.	49	64.1	18.2	3.52	34	88.9	17.9	4.97
		OTHER ENDOCRINE DIS	1	.	0.8	.	2	.	2.2	.
		OBESITY	4	7.4	0.8	9.25	3	9.9	1.1	9.00
65 - 74	IV.BLOOD & BL-FORMING ORGANS	NUTRIT.DEFIC.& META. DIS	20	14.8	11.1	1.33	24	34.6	19.0	1.82
		ALL CONDITIONS	15	17.2	6.3	2.73	7	4.9	6.7	0.73
		ANEMIAS	7	7.4	3.2	2.31	5	4.9	4.5	1.09
65 - 74	V.MENTAL DISORDERS	OTHER	8	9.9	3.2	3.09	2	.	2.2	.
		ALL CONDITIONS	37	37.0	17.4	2.13	35	24.7	33.5	0.74
		ORGANIC PSYCHOTIC CONDITIONS	18	14.8	9.5	1.56	20	9.9	20.1	0.49
		SCHIZOPHRENIC DISORDERS	1	2.5	.	.	.	.	.	.
		OTHER PSYCHOSES	6	.	4.8	.	8	4.9	7.8	0.63
		ALCOHOL DEPENDENCE SYNDROME	7	12.3	1.6	7.69	5	9.9	3.4	2.91
		NONDEPENDENT USE OF DRUGS	2	2.5	0.8	3.13	2	.	2.2	.
65 - 74	VI.NERVOUS SYS.& SENSE ORGANS	OTHER MENTAL DISORDERS	3	4.9	0.8	6.13	.	.	.	.
		ALL CONDITIONS	68	34.5	42.8	0.81	50	44.4	45.8	0.97
		DIS OF CENTRAL NERVOUS SYSTEM	65	34.5	40.4	0.85	48	39.5	44.7	0.88
65 - 74	VII.DIS OF CIRCULATORY SYS	DIS OF NERVES & PERI. GANGLIA	3	.	2.4	.	2	4.9	1.1	4.45
		ALL CONDITIONS	1820	1451.2	975.1	1.49	1117	1510.5	906.2	1.67
		ESSENTIAL HYPERTENSION	25	32.0	9.5	3.37	10	14.8	7.8	1.90
		HYPERTENSIVE HEART DIS	44	66.5	13.5	4.93	29	59.2	19.0	3.12
		ACUTE MYOCARDIAL INFARCTION	570	399.2	323.2	1.24	303	345.5	260.3	1.33
		ACUTE ISCHEMIC HEART DIS	24	24.6	11.1	2.22	16	34.6	10.1	3.43

		ANGINA PECTORIS	2	2.5	0.8	3.13	1	.	1.1	.
		ARTERIOSCLEROTIC HEART DIS	97	66.5	55.4	1.20	54	74.0	43.6	1.70
		CHRONIC ISCHEMIC HEART DIS	266	140.4	165.5	0.85	176	138.2	165.4	0.84
		PULMONARY HEART DIS	34	34.5	15.8	2.18	21	49.4	12.3	4.02
		CARDIAC DYSRHYTHMIAS	83	93.6	35.6	2.63	54	59.2	46.9	1.26
		CONGESTIVE HEART FAILURE	82	71.5	42.0	1.70	49	69.1	39.1	1.77
		CARDIOVASCULAR DIS	50	27.1	30.9	0.88	45	69.1	34.6	2.00
		OTHER HEART DIS	97	78.8	51.5	1.53	72	108.6	55.9	1.94
		INTRACRANIAL HEMORRHAGE	81	71.5	41.2	1.74	55	79.0	43.6	1.81
		OCCLUSION OF CEREBRAL ART.	23	14.8	13.5	1.10	16	24.7	12.3	2.01
		ACUTE CEREBROVASCULAR DIS	186	197.1	84.0	2.35	117	236.9	77.1	3.07
		OTHER CEREBROVASCULAR DIS	40	46.8	16.6	2.82	32	49.4	24.6	2.01
		ATHEROSCLEROSIS	11	4.9	7.1	0.69	8	.	8.9	.
		ANEURYSM	57	27.1	36.4	0.74	28	34.6	23.5	1.47
		OTHER DIS OF ARTERIES	12	4.9	7.9	0.62	14	14.8	12.3	1.20
		PHLEBITIS & THROMBOPHLEBITIS	1	.	0.8	.	2	9.9	.	.
		OTHER DIS OF CIRC. SYS.	35	46.8	12.7	3.69	15	39.5	7.8	5.06
65 - 74	VIII.DIS OF THE RESP.SYS.	ALL CONDITIONS	420	194.6	270.1	0.72	288	197.5	277.1	0.71
		ACUTE BRONCHITIS & -IOLITIS	1	2.5	.	.	1	.	1.1	.
		PNEUMONIA, ALL FORMS	85	54.2	49.9	1.09	56	59.2	49.2	1.20
		BRONCHITIS,CHRONIC/UNSPEC.	11	7.4	6.3	1.17	1	.	1.1	.
		EMPHYSEMA	40	9.9	28.5	0.35	40	19.7	40.2	0.49
		ASTHMA	7	12.3	1.6	7.69	13	24.7	8.9	2.78
		OTHER DIS OF THE RESP.SYSTEM	276	108.4	183.8	0.59	177	93.8	176.5	0.53
65 - 74	IX.DIS OF THE DIGESTIVE SYS	ALL CONDITIONS	147	118.3	78.4	1.51	98	128.3	80.4	1.60
		DIS OF THE ESOPHAGUS	3	4.9	0.8	6.13	4	4.9	3.4	1.44
		GASTRIC ULCER	1	.	0.8	.	1	.	1.1	.
		DUODENAL ULCER	4	.	3.2	.	1	.	1.1	.
		OTHER & UNSPEC. PEPTIC ULCER	3	2.5	1.6	1.56	1	.	1.1	.
		OTHER DIS OF THE STOMACH	2	.	1.6	.	.	.	.	.
		OTHER DIS OF THE APPENDIX	1	2.5	.	.	2	.	2.2	.
		REG. ENTERITIS/PEOCTOCOLITIS	2	2.5	0.8	3.13	2	.	2.2	.
		G-ENTERITIS/COLITIS,NONINFECT.	.	.	.	.	3	4.9	2.2	2.23
		INTESTINAL OBSTRUCT.W/O HERNIA	8	9.9	3.2	3.09	3	4.9	2.2	2.23
		DIVERTICULA OF INTESTINE	6	2.5	4.0	0.63	2	.	2.2	.
		OTHER DIS, INTESTINE/PERITONEUM	28	19.7	15.8	1.25	18	34.6	12.3	2.81

CHRONIC LIVER DIS/CIRRHOSIS	48	27.1	29.3	0.92	33	44.4	26.8	1.66
OTHER DIS OF THE LIVER	12	14.8	4.8	3.08	6	4.9	5.6	0.88
CHOLELITHIASIS	2	.	1.6	.	1	.	1.1	.

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1

RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL AA DEATH RATE	RURAL WH DEATH RATE	RURAL RATIO AA:WH	URBAN CASES	URBAN AA DEATH RATE	URBAN WH DEATH RATE	URBAN RATIO AA:WH
65 - 74	IX.DIS OF THE DIGESTIVE SYS	CHOLECYSTITIS	.	.	.	.	1	4.9	.	.
		OTHER DIS, GALL BLADDER/DUCTS	2	2.5	0.8	3.13	.	.	.	.
		DIS OF THE PANCREAS	6	12.3	0.8	15.38	4	.	4.5	.
		GI HEMORRHAGE/INTEST. MALABS.	19	17.2	9.5	1.81	16	24.7	12.3	2.01
65 - 74	X.DIS OF GENITOURINARY SYS	ALL CONDITIONS	85	93.6	37.2	2.52	42	88.9	26.8	3.32
		NEPHRITIS & NEPHROSIS	47	61.6	17.4	3.54	17	29.6	12.3	2.41
		INFECTIONS OF KIDNEY	1	2.5	.	.	.	.	.	.
		OTHER DIS OF URINARY SYS	33	29.6	16.6	1.78	23	54.3	13.4	4.05
		OTHER DIS OF MALE GEN.ORGANS	4	.	3.2	.	2	4.9	1.1	4.45
65 - 74	XII.DIS OF SKIN/SUBCUT.TISSUE	ALL CONDITIONS	7	14.8	0.8	18.50	5	19.7	1.1	17.91
		CELLULITIS & ABSCESS	.	.	.	.	1	4.9	.	.
		INFECTIONS,SKIN/SUBCUT.TISSUE	1	.	0.8	.	.	.	.	.
		OTHER DIS,SKIN/SUBCUT.TISSUE	6	14.8	.	.	4	14.8	1.1	13.45
65 - 74	XIII.MUSCULOSKELETAL/CONN.TI.	ALL CONDITIONS	12	4.9	7.9	0.62	9	14.8	6.7	2.21
		RHEUMATOID ARTHRITIS	6	4.9	3.2	1.53	2	4.9	1.1	4.45
		OTHER ARTHROPATOTIES	4	.	3.2	.	4	9.9	2.2	4.50
		DISPLACEMENT/INTERVERT.DISC	1	.	0.8	.	.	.	.	.
		DISORDERS OF BONE & CARTILAGE	.	.	.	.	1	.	1.1	.
		OTHER DIS/MUSCULOSKELETAL SYS.	1	.	0.8	.	2	.	2.2	.
65 - 74	XIV.CONGENITAL ANOMALIES	ALL CONDITIONS	6	2.5	4.0	0.63	4	4.9	3.4	1.44
		HEART & CIRC. SYSTEM	3	2.5	1.6	1.56	2	.	2.2	.
		OTHER CONGENITAL ANOMALIES	3	.	2.4	.	2	4.9	1.1	4.45

65 - 74	XVI.SYMPTOMS/ILL-DEFINED COND.	ALL CONDITIONS	19	14.8	10.3	1.44	5	4.9	4.5	1.09
		CONVULSIONS	2	4.9	.	.	.	.	.	.
		OTHER SYMPTOMS	17	9.9	10.3	0.96	5	4.9	4.5	1.09
65 - 74	XVII.ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	130	86.2	75.2	1.15	77	98.7	63.7	1.55
		FRACTURE/VERTEBRAL COLUMN	1	2.5	.	.	.	.	.	.
		FRACTURE/RADIUS & ULNA	1	.	0.8	.	.	.	.	.
		FRACTURE/OTHER	43	29.6	24.6	1.20	23	34.6	17.9	1.93
		DISLOCATION WITHOUT FRACTURE	.	.	.	.	1	.	1.1	.
		CONCUSSION	.	.	.	.	1	.	1.1	.
		INTERNAL INJ,CHEST/ABD/PELVIS	2	2.5	0.8	3.13	.	.	.	.
		LAC/OPEN WOUND,OTHER	29	27.1	14.3	1.90	18	24.7	14.5	1.70
		BURNS	1	.	0.8	.	.	.	.	.
		OTHER INJURIES	47	19.7	30.9	0.64	30	29.6	26.8	1.10
		POISONING/MEDICAL AGENTS	6	4.9	3.2	1.53	4	9.9	2.2	4.50
75+	ALL CONDITIONS	ALL CONDITIONS	9315	6131.3	5492.0	1.12	6070	6720.0	5440.6	1.24
75+	I.INFECTIVE & PARASITIC DIS	ALL CONDITIONS	164	135.0	88.0	1.53	83	123.8	67.3	1.84
		VIRAL DIS	120	105.0	62.4	1.68	60	87.7	49.1	1.79
		OTHER INFECT.& PARASITIC DIS	44	30.0	25.6	1.17	23	36.1	18.3	1.97
75+	II.NEOPLASMS	ALL CONDITIONS	1642	1147.3	946.8	1.21	1126	1361.5	983.8	1.38
		LIP, ORAL CAVITY & PHARYNX	17	10.0	10.4	0.96	17	20.6	14.8	1.39
		LARGE INTESTINE & RECTUM	186	117.5	111.2	1.06	132	159.9	115.3	1.39
		OTHER DIG.ORGANS & PERITONEUM	232	190.0	124.9	1.52	152	242.4	119.8	2.02
		TRACHEA, BRONCHUS & LUNG	380	192.5	242.5	0.79	265	257.9	245.4	1.05
		BONE,CONN.& SOFT TISSUE,SKIN	38	15.0	25.6	0.59	23	10.3	24.0	0.43
		BREAST	99	65.0	58.4	1.11	72	82.5	63.9	1.29
		FEMALE GENITAL ORGANS	80	72.5	40.8	1.78	37	51.6	30.8	1.68
		PROSTATE	196	230.0	83.2	2.76	124	247.6	86.7	2.86
		URINARY ORGANS	63	42.5	36.8	1.15	54	51.6	50.2	1.03
		LEUKEMIA	80	42.5	50.4	0.84	44	41.3	41.1	1.00
		OTHER HEMATOPOIETIC TISSUE	105	62.5	64.0	0.98	79	77.4	73.0	1.06
		OTHER & UNSPECIFIED SITES	139	97.5	80.0	1.22	112	103.1	105.0	0.98
DIGESTIVE SYSTEM	.	.	.	.	1	.	1.1	.		
OTHER BENIGN NEOPLASMS	27	10.0	18.4	0.54	14	15.5	12.6	1.23		

75+	III.ENDOCRINE,NUTRIT.& META.	ALL CONDITIONS	399	407.4	188.9	2.16	248	479.6	176.9	2.71
		DIS OF THYROID GLAND	10	5.0	6.4	0.78	3	5.2	2.3	2.26
		DIABETES MELLITUS W/O COMP.	207	210.0	98.4	2.13	130	273.3	87.9	3.11
		DIABETES MELLITUS W/COMP.	63	80.0	24.8	3.23	47	123.8	26.3	4.71
		OTHER ENDOCRINE DIS	5	10.0	0.8	12.50	8	15.5	5.7	2.72
		OBESITY	3	2.5	1.6	1.56	.	.	.	.
		NUTRIT.DEFIC.& META. DIS	111	100.0	56.8	1.76	60	61.9	54.8	1.13
75+	IV.BLOOD & BL-FORMING ORGANS	ALL CONDITIONS	36	22.5	21.6	1.04	38	51.6	32.0	1.61
		ANEMIAS	22	15.0	12.8	1.17	20	20.6	18.3	1.13

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1

RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL	RURAL	RURAL RATIO AA:WH	URBAN CASES	URBAN	URBAN	URBAN RATIO AA:WH
				AA	WH			DEATH RATE	DEATH RATE	
75+	IV.BLOOD & BL-FORMING ORGANS	OTHER	14	7.5	8.8	0.85	18	30.9	13.7	2.26
75+	V.MENTAL DISORDERS	ALL CONDITIONS	319	152.5	206.5	0.74	252	216.6	239.7	0.90
		ORGANIC PSYCHOTIC CONDITIONS	182	62.5	125.7	0.50	164	113.5	162.1	0.70
		SCHIZOPHRENIC DISORDERS	1	.	0.8	.	3	10.3	1.1	9.36
		OTHER PSYCHOSES	100	57.5	61.6	0.93	76	82.5	68.5	1.20
		ALCOHOL DEPENDENCE SYNDROME	9	7.5	4.8	1.56	5	10.3	3.4	3.03
		NONDEPENDENT USE OF DRUGS	1	.	0.8	.	.	.	.	.
75+	VI.NERVOUS SYS.& SENSE ORGANS	ALL CONDITIONS	257	120.0	167.3	0.72	168	144.4	159.8	0.90
		EPILEPSY	1	2.5	.	.	1	5.2	.	.
		DIS OF CENTRAL NERVOUS SYSTEM	252	117.5	164.1	0.72	164	134.1	157.5	0.85
		DIS OF NERVES & PERI. GANGLIA	4	.	3.2	.	3	5.2	2.3	2.26
75+	VII.DIS OF CIRCULATORY SYS	ALL CONDITIONS	4535	2981.9	2674.8	1.11	2995	3259.4	2696.9	1.21
		ESSENTIAL HYPERTENSION	39	37.5	19.2	1.95	30	41.3	25.1	1.65
		HYPERTENSIVE HEART DIS	137	152.5	60.8	2.51	67	154.7	42.2	3.67

		ACUTE MYOCARDIAL INFARCTION	987	599.9	597.9	1.00	619	608.6	571.8	1.06
		ACUTE ISCHEMIC HEART DIS	27	25.0	13.6	1.84	32	46.4	26.3	1.76
		ANGINA PECTORIS	5	5.0	2.4	2.08	3	.	3.4	.
		ARTERIOSCLEROTIC HEART DIS	313	152.5	201.7	0.76	229	196.0	218.0	0.90
		CHRONIC ISCHEMIC HEART DIS	572	282.4	367.4	0.77	386	288.8	376.6	0.77
		PULMONARY HEART DIS	59	35.0	36.0	0.97	34	46.4	28.5	1.63
		CARDIAC DYSRHYTHMIAS	272	200.0	153.7	1.30	123	134.1	110.7	1.21
		CONGESTIVE HEART FAILURE	338	230.0	196.9	1.17	160	190.8	140.4	1.36
		CARDIOVASCULAR DIS	270	197.5	152.9	1.29	229	180.5	221.4	0.82
		OTHER HEART DIS	201	142.5	115.2	1.24	188	180.5	174.6	1.03
		INTRACRANIAL HEMORRHAGE	118	70.0	72.0	0.97	78	87.7	69.6	1.26
		OCCLUSION OF CEREBRAL ART.	84	55.0	49.6	1.11	69	87.7	59.3	1.48
		TRANSIENT CEREBRAL ISCHEMIA	1	.	0.8	.	.	.	.	.
		ACUTE CEREBROVASCULAR DIS	716	512.4	409.0	1.25	448	639.5	369.8	1.73
		OTHER CEREBROVASCULAR DIS	122	87.5	69.6	1.26	104	118.6	92.4	1.28
		ATHEROSCLEROSIS	53	22.5	35.2	0.64	36	51.6	29.7	1.74
		ANEURYSM	73	37.5	46.4	0.81	53	5.2	59.3	0.09
		OTHER DIS OF ARTERIES	48	40.0	25.6	1.56	44	61.9	36.5	1.70
		PHLEBITIS & THROMBOPHLEBITIS	3	7.5	.	.	3	10.3	1.1	9.36
		VARICOSE VEINS,LOWER EXTREM.	.	.	.	.	1	5.2	.	.
		OTHER DIS OF CIRC. SYS.	97	90.0	48.8	1.84	59	123.8	39.9	3.10
75+	VIII.DIS OF THE RESP.SYS.	ALL CONDITIONS	1039	484.9	676.3	0.72	631	489.9	611.7	0.80
		ACUTE BRONCHITIS & -IOLITIS	1	.	0.8	.	2	.	2.3	.
		PNEUMONIA, ALL FORMS	386	225.0	236.9	0.95	247	216.6	234.0	0.93
		INFLUENZA	1	.	0.8	.	2	.	2.3	.
		BRONCHITIS,CHRONIC/UNSPEC.	16	10.0	9.6	1.04	6	5.2	5.7	0.91
		EMPHYSEMA	59	20.0	40.8	0.49	46	20.6	47.9	0.43
		ASTHMA	10	7.5	5.6	1.34	12	15.5	10.3	1.50
		PLEURISY	13	7.5	8.0	0.94	3	5.2	2.3	2.26
		OTHER DIS OF THE RESP.SYSTEM	553	215.0	373.8	0.58	313	226.9	307.0	0.74
75+	IX.DIS OF THE DIGESTIVE SYS	ALL CONDITIONS	305	180.0	186.5	0.97	180	139.2	174.6	0.80
		OTHER DIS OF TEETH/JAW/MOUTH	1	.	0.8	.	.	.	.	.
		DIS OF THE ESOPHAGUS	12	5.0	8.0	0.63	10	.	11.4	.
		GASTRIC ULCER	2	2.5	0.8	3.13	5	10.3	3.4	3.03
		DUODENAL ULCER	6	5.0	3.2	1.56	2	5.2	1.1	4.73
		OTHER & UNSPEC. PEPTIC ULCER	9	2.5	6.4	0.39	6	.	6.8	.

GASTRITIS & DUODENITIS	2	.	1.6	.	.	.	.	.
OTHER DIS OF THE STOMACH	8	5.0	4.8	1.04	3	5.2	2.3	2.26
OTHER DIS OF THE APPENDIX	3	.	2.4	.	2	5.2	1.1	4.73
INGUINAL HERNIA	.	.	.	.	1	.	1.1	.
OTHER HERNIA,ABDOMINAL CAVITY	1	2.5	.	.	7	5.2	6.8	0.76
REG. ENTERITIS/PEOCTOCOLITIS	2	2.5	0.8	3.13	.	.	.	.
G-ENTERITIS/COLITIS,NONINFECT.	6	2.5	4.0	0.63	2	5.2	1.1	4.73
INTESTINAL OBSTRUCT.W/O HERNIA	47	30.0	28.0	1.07	17	25.8	13.7	1.88
DIVERTICULA OF INTESTINE	21	7.5	14.4	0.52	14	5.2	14.8	0.35
FUNCTIONAL DISORDERS,INTESTINES	1	.	0.8	.	.	.	.	.
OTHER DIS, INTESTINE/PERITONEUM	65	42.5	38.4	1.11	33	20.6	33.1	0.62
CHRONIC LIVER DIS/CIRRHOSIS	36	15.0	24.0	0.63	27	15.5	27.4	0.57
OTHER DIS OF THE LIVER	14	2.5	10.4	0.24	7	10.3	5.7	1.81
CHOLELITHIASIS	7	2.5	4.8	0.52	2	5.2	1.1	4.73
CHOLECYSTITIS	10	10.0	4.8	2.08	8	5.2	8.0	0.65
OTHER DIS, GALL BLADDER/DUCTS	2	.	1.6	.	.	.	.	.
DIS OF THE PANCREAS	13	15.0	5.6	2.68	6	5.2	5.7	0.91
GI HEMORRHAGE/INTEST. MALABS.	37	27.5	20.8	1.32	28	10.3	29.7	0.35

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1

RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL	RURAL	RURAL RATIO AA:WH	URBAN CASES	URBAN	URBAN	URBAN RATIO AA:WH
				AA	WH			DEATH RATE	DEATH RATE	
75+	X.DIS OF GENITOURINARY SYS	ALL CONDITIONS	251	245.0	122.5	2.00	146	196.0	123.3	1.59
		NEPHRITIS & NEPHROSIS	101	112.5	44.8	2.51	43	72.2	33.1	2.18
		INFECTIONS OF KIDNEY	4	2.5	2.4	1.04	1	5.2	.	.
		CALCULUS OF KIDNEY/URETER	.	.	.	.	1	.	1.1	.
		OTHER DIS OF URINARY SYS	141	127.5	72.0	1.77	97	108.3	86.7	1.25
		HYPERPLASIA OF PROSTATE	2	2.5	0.8	3.13	2	10.3	.	.
		OTHER DIS OF MALE GEN.ORGANS	2	.	1.6	.	1	.	1.1	.
		OTHER DIS/FEMALE GENITAL ORGAN	1	.	0.8	.	1	.	1.1	.
75+	XII.DIS OF SKIN/SUBCUT.TISSUE	ALL CONDITIONS	26	37.5	8.8	4.26	16	46.4	8.0	5.80
		CELLULITIS & ABSCESS	1	.	0.8	.	6	10.3	4.6	2.24

		INFECTIONS, SKIN/SUBCUT. TISSUE	1	.	0.8	.	.	.	.	
		OTHER DIS, SKIN/SUBCUT. TISSUE	24	37.5	7.2	5.21	10	36.1	3.4	10.62
75+	XIII. MUSCULOSKELETAL/CONN. TI.	ALL CONDITIONS	50	27.5	31.2	0.88	33	30.9	30.8	1.00
		RHEUMATOID ARTHRITIS	10	5.0	6.4	0.78	10	5.2	10.3	0.50
		OSTEOARTHRITIS/ALLIED COND.	4	7.5	0.8	9.38	6	10.3	4.6	2.24
		OTHER ARTHROPATOTIES	5	2.5	3.2	0.78	7	10.3	5.7	1.81
		DISORDERS OF BONE & CARTILAGE	23	7.5	16.0	0.47	6	.	6.8	.
		OTHER DIS/MUSCULOSKELETAL SYS.	8	5.0	4.8	1.04	4	5.2	3.4	1.53
75+	XIV. CONGENITAL ANOMALIES	ALL CONDITIONS	10	5.0	6.4	0.78	10	.	11.4	.
		HEART & CIRC. SYSTEM	4	.	3.2	.	2	.	2.3	.
		OTHER CONGENITAL ANOMALIES	6	5.0	3.2	1.56	8	.	9.1	.
75+	XVI. SYMPTOMS/ILL-DEFINED COND.	ALL CONDITIONS	68	65.0	33.6	1.93	41	67.0	32.0	2.09
		CONVULSIONS	1	2.5	.	.	2	10.3	.	.
		OTHER SYMPTOMS	67	62.5	33.6	1.86	39	56.7	32.0	1.77
75+	XVII. ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	214	120.0	132.9	0.90	103	113.5	92.4	1.23
		FRACTURE/OTHER	51	25.0	32.8	0.76	15	5.2	16.0	0.33
		LAC/OPEN WOUND, EYE/EAR/HEAD	1	2.5	.	.	.	.	.	.
		LAC/OPEN WOUND, OTHER	100	52.5	63.2	0.83	46	41.3	43.4	0.95
		BURNS	1	.	0.8	.	.	.	.	.
		OTHER INJURIES	59	37.5	35.2	1.07	34	51.6	27.4	1.88
		POISONING/MEDICAL AGENTS	1	2.5	.	.	8	15.5	5.7	2.72
		POISONING/CHEM. & EXT. CAUSES	1	.	0.8	.	.	.	.	.
50+	ALL CONDITIONS	ALL CONDITIONS	17253	2895.0	2334.3	1.24	10925	2949.3	2187.9	1.35
50+	I. INFECTIVE & PARASITIC DIS	ALL CONDITIONS	295	63.2	35.3	1.79	174	78.4	27.0	2.90
		VIRAL DIS	180	37.0	22.1	1.67	101	45.1	15.8	2.85
		OTHER INFECT. & PARASITIC DIS	115	26.2	13.2	1.98	73	33.3	11.2	2.97
50+	II. NEOPLASMS	ALL CONDITIONS	4163	688.9	566.5	1.22	2737	748.6	545.7	1.37
		LIP, ORAL CAVITY & PHARYNX	62	15.4	6.7	2.30	43	11.8	8.6	1.37
		LARGE INTESTINE & RECTUM	412	63.2	57.7	1.10	275	79.5	53.8	1.48
		OTHER DIG. ORGANS & PERITONEUM	569	120.7	68.5	1.76	360	133.2	63.1	2.11
		TRACHEA, BRONCHUS & LUNG	1274	154.9	192.2	0.81	834	169.7	180.8	0.94

		BONE,CONN.& SOFT TISSUE,SKIN	102	12.0	15.5	0.77	67	7.5	16.0	0.47
		BREAST	281	52.4	36.3	1.44	187	65.5	33.7	1.94
		FEMALE GENITAL ORGANS	186	39.9	22.3	1.79	117	33.3	23.0	1.45
		PROSTATE	321	85.4	32.8	2.60	193	88.1	29.7	2.97
		URINARY ORGANS	144	22.2	20.1	1.10	136	24.7	30.2	0.82
		LEUKEMIA	139	19.9	20.0	1.00	90	18.3	19.5	0.94
		OTHER HEMATOPOIETIC TISSUE	249	38.7	34.7	1.12	165	46.2	32.6	1.42
		OTHER & UNSPECIFIED SITES	381	59.8	52.9	1.13	244	62.3	49.8	1.25
		DIGESTIVE SYSTEM	.	.	.	.	2	1.1	0.3	3.67
		BONE & CONNECTIVE TISSUE	1	0.6	.	.	.	.	.	.
		OTHER BENIGN NEOPLASMS	42	4.0	6.7	0.60	24	7.5	4.5	1.67
50+	III.ENDOCRINE,NUTRIT.& META.	ALL CONDITIONS	761	193.6	80.8	2.40	479	220.2	73.3	3.00
		DIS OF THYROID GLAND	12	1.7	1.7	1.00	5	1.1	1.1	1.00
		DIABETES MELLITUS W/O COMP.	407	105.3	42.6	2.47	241	121.4	34.2	3.55
		DIABETES MELLITUS W/COMP.	170	50.1	15.7	3.19	119	66.6	15.2	4.38
		OTHER ENDOCRINE DIS	7	2.8	0.4	7.00	11	3.2	2.1	1.52
		OBESITY	14	2.8	1.7	1.65	5	2.1	0.8	2.63
		NUTRIT.DEFIC.& META. DIS	151	30.7	18.6	1.65	98	25.8	19.8	1.30
50+	IV.BLOOD & BL-FORMING ORGANS	ALL CONDITIONS	60	11.4	7.7	1.48	51	15.0	9.9	1.52
		ANEMIAS	31	6.3	3.8	1.66	28	7.5	5.6	1.34
		OTHER	29	5.1	3.8	1.34	23	7.5	4.3	1.74
50+	V.MENTAL DISORDERS	ALL CONDITIONS	393	53.5	57.4	0.93	313	60.1	68.7	0.87
		ORGANIC PSYCHOTIC CONDITIONS	207	19.4	33.2	0.58	186	27.9	42.8	0.65

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1

RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE

NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL CASES	RURAL	RURAL	RURAL RATIO AA:WH	URBAN CASES	URBAN	URBAN	URBAN RATIO AA:WH
				DEATH RATE	DEATH RATE			DEATH RATE	DEATH RATE	
50+	V.MENTAL DISORDERS	SCHIZOPHRENIC DISORDERS	2	0.6	0.2	3.00	3	2.1	0.3	7.00
		OTHER PSYCHOSES	108	13.1	16.3	0.80	86	18.3	18.5	0.99
		ALCOHOL DEPENDENCE SYNDROME	36	10.8	3.3	3.27	26	9.7	4.5	2.16

		NONDEPENDENT USE OF DRUGS	8	1.7	1.0	1.70	6	1.1	1.3	0.85
		OTHER MENTAL DISORDERS	32	8.0	3.5	2.29	6	1.1	1.3	0.85
50+	VI.NERVOUS SYS.& SENSE ORGANS	ALL CONDITIONS	371	44.4	56.2	0.79	256	50.5	55.9	0.90
		EPILEPSY	4	1.7	0.2	8.50	6	5.4	0.3	18.00
		DIS OF CENTRAL NERVOUS SYSTEM	358	42.7	54.3	0.79	242	41.9	54.3	0.77
		DIS OF NERVES & PERI. GANGLIA	9	.	1.7	.	8	3.2	1.3	2.46
50+	VII.DIS OF CIRCULATORY SYS	ALL CONDITIONS	7685	1308.9	1033.2	1.27	4816	1284.5	968.3	1.33
		ESSENTIAL HYPERTENSION	80	20.5	8.4	2.44	49	16.1	9.1	1.77
		HYPERTENSIVE HEART DIS	218	64.9	20.0	3.25	108	53.7	15.5	3.46
		ACUTE MYOCARDIAL INFARCTION	2029	309.7	284.9	1.09	1151	276.0	239.1	1.15
		ACUTE ISCHEMIC HEART DIS	76	15.9	9.2	1.73	66	30.1	10.2	2.95
		ANGINA PECTORIS	7	1.7	0.8	2.13	6	.	1.6	.
		ARTERIOSCLEROTIC HEART DIS	476	60.3	71.0	0.85	318	72.0	67.1	1.07
		CHRONIC ISCHEMIC HEART DIS	988	127.5	146.6	0.87	656	111.7	147.7	0.76
		PULMONARY HEART DIS	113	19.4	15.2	1.28	70	25.8	12.3	2.10
		CARDIAC DYSRHYTHMIAS	424	84.3	52.9	1.59	204	51.6	41.7	1.24
		CONGESTIVE HEART FAILURE	462	79.7	61.8	1.29	233	59.1	47.6	1.24
		CARDIOVASCULAR DIS	357	60.3	48.2	1.25	299	61.2	64.7	0.95
		OTHER HEART DIS	387	71.7	50.1	1.43	320	90.2	63.1	1.43
		INTRACRANIAL HEMORRHAGE	293	59.2	36.3	1.63	182	59.1	34.0	1.74
		OCCLUSION OF CEREBRAL ART.	121	18.8	16.9	1.11	95	26.9	18.7	1.44
		TRANSIENT CEREBRAL ISCHEMIA	1	.	0.2	.	.	.	.	.
		ACUTE CEREBROVASCULAR DIS	1022	200.4	128.5	1.56	615	215.9	110.7	1.95
		OTHER CEREBROVASCULAR DIS	170	34.2	21.1	1.62	145	40.8	28.6	1.43
		ATHEROSCLEROSIS	71	8.0	10.9	0.73	45	10.7	9.4	1.14
		ANEURYSM	153	18.2	23.2	0.78	90	9.7	21.7	0.45
		OTHER DIS OF ARTERIES	75	14.8	9.4	1.57	68	23.6	12.3	1.92
		PHLEBITIS & THROMBOPHLEBITIS	4	1.7	0.2	8.50	7	6.4	0.3	21.33
		VARICOSE VEINS,LOWER EXTREM.	.	.	.	.	1	1.1	.	.
		OTHER DIS OF CIRC. SYS.	158	37.6	17.6	2.14	88	43.0	12.8	3.36
50+	VIII.DIS OF THE RESP.SYS.	ALL CONDITIONS	1712	194.7	262.8	0.74	1060	182.6	238.1	0.77
		ACUTE BRONCHITIS & -IOLITIS	2	0.6	0.2	3.00	4	.	1.1	.
		PNEUMONIA, ALL FORMS	523	76.3	74.6	1.02	335	73.0	71.4	1.02
		INFLUENZA	2	.	0.4	.	2	.	0.5	.
		BRONCHITIS,CHRONIC/UNSPEC.	29	4.0	4.2	0.95	9	2.1	1.9	1.11

		EMPHYSEMA	123	8.0	20.9	0.38	105	10.7	25.4	0.42
		ASTHMA	33	12.5	2.1	5.95	35	14.0	5.9	2.37
		PLEURISY	15	2.3	2.1	1.10	4	1.1	0.8	1.38
		OTHER DIS OF THE RESP.SYSTEM	985	91.1	158.3	0.58	566	81.6	131.1	0.62
50+	IX.DIS OF THE DIGESTIVE SYS	ALL CONDITIONS	602	96.2	83.1	1.16	380	93.4	78.4	1.19
		OTHER DIS OF TEETH/JAW/MOUTH	1	.	0.2	.	.	.	.	.
		DIS OF THE ESOPHAGUS	17	2.8	2.3	1.22	15	1.1	3.7	0.30
		GASTRIC ULCER	6	1.7	0.6	2.83	6	2.1	1.1	1.91
		DUODENAL ULCER	13	1.7	1.9	0.89	3	1.1	0.5	2.20
		OTHER & UNSPEC. PEPTIC ULCER	14	1.1	2.3	0.48	7	.	1.9	.
		GASTRITIS & DUODENITIS	2	.	0.4	.	1	.	0.3	.
		OTHER DIS OF THE STOMACH	11	1.1	1.7	0.65	4	1.1	0.8	1.38
		OTHER DIS OF THE APPENDIX	4	0.6	0.6	1.00	5	2.1	0.8	2.63
		INGUINAL HERNIA	.	.	.	.	2	1.1	0.3	3.67
		OTHER HERNIA,ABDOMINAL CAVITY	4	1.7	0.2	8.50	7	1.1	1.6	0.69
		REG. ENTERITIS/PEOCTOCOLITIS	5	1.7	0.4	4.25	2	.	0.5	.
		G-ENTERITIS/COLITIS,NONINFECT.	7	0.6	1.2	0.50	8	5.4	0.8	6.75
		INTESTINAL OBSTRUCT.W/O HERNIA	58	9.7	7.9	1.23	21	7.5	3.7	2.03
		DIVERTICULA OF INTESTINE	31	2.3	5.2	0.44	19	2.1	4.5	0.47
		FUNCTIONAL DISORDERS,INTESTINES	2	.	0.4	.	.	.	.	.
		OTHER DIS, INTESTINE/PERITONEUM	109	16.5	15.3	1.08	64	18.3	12.6	1.45
		CHRONIC LIVER DIS/CIRRHOSIS	156	24.5	21.7	1.13	109	30.1	21.7	1.39
		OTHER DIS OF THE LIVER	43	7.4	5.8	1.28	26	5.4	5.6	0.96
		CHOLELITHIASIS	9	0.6	1.5	0.40	3	1.1	0.5	2.20
		CHOLECYSTITIS	11	2.8	1.2	2.33	9	2.1	1.9	1.11
		OTHER DIS, GALL BLADDER/DUCTS	6	0.6	1.0	0.60	1	.	0.3	.
		DIS OF THE PANCREAS	30	6.8	3.5	1.94	15	2.1	3.5	0.60
		GI HEMORRHAGE/INTEST. MALABS.	63	12.0	8.1	1.48	53	9.7	11.8	0.82
50+	X.DIS OF GENITOURINARY SYS	ALL CONDITIONS	388	93.4	43.0	2.17	216	77.3	38.5	2.01
		NEPHRITIS & NEPHROSIS	181	49.0	18.2	2.69	75	30.1	12.6	2.39
		INFECTIONS OF KIDNEY	7	2.3	0.6	3.83	2	1.1	0.3	3.67
		CALCULUS OF KIDNEY/URETER	.	.	.	.	1	.	0.3	.

1997 DEATH RATES PER 100,000 POPULATION BY GENDIAG1 & DIAGCAT1  
RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE  
NOTE: URBAN & RURAL RATIOS ARE OF AFRICAN AMERICAN RATE TO WHITE RATE

AGE	GENDIAG	DIAGCAT1	RURAL				URBAN			
			CASES	AA DEATH RATE	WH DEATH RATE	RATIO AA:WH	CASES	AA DEATH RATE	WH DEATH RATE	RATIO AA:WH
50+	X.DIS OF GENITOURINARY SYS	OTHER DIS OF URINARY SYS	189	41.6	22.3	1.87	131	41.9	24.6	1.70
		HYPERPLASIA OF PROSTATE	2	0.6	0.2	3.00	2	2.1	.	.
		OTHER DIS OF MALE GEN.ORGANS	8	.	1.5	.	3	1.1	0.5	2.20
		OTHER DIS/FEMALE GENITAL ORGAN	1	.	0.2	.	2	1.1	0.3	3.67
50+	XII.DIS OF SKIN/SUBCUT.TISSUE	ALL CONDITIONS	36	12.5	2.7	4.63	21	14.0	2.1	6.67
		CELLULITIS & ABSCESS	1	.	0.2	.	7	3.2	1.1	2.91
		INFECTIONS,SKIN/SUBCUT.TISSUE	3	.	0.6	.	.	.	.	.
		OTHER DIS,SKIN/SUBCUT.TISSUE	32	12.5	1.9	6.58	14	10.7	1.1	9.73
50+	XIII.MUSCULOSKELETAL/CONN.TI.	ALL CONDITIONS	83	13.1	11.5	1.14	61	20.4	11.2	1.82
		RHEUMATOID ARTHRITIS	20	2.8	2.9	0.97	14	3.2	2.9	1.10
		OSTEOARTHRITIS/ALLIED COND.	5	1.7	0.4	4.25	6	2.1	1.1	1.91
		OTHER ARTHROPATOTIES	19	4.0	2.3	1.74	23	10.7	3.5	3.06
		SPONDYLOSIS/ALLIED DISORDERS	1	.	0.2	.	1	.	0.3	.
		DISPLACEMENT/INTERVERT.DISC	1	.	0.2	.	.	.	.	.
		DISORDERS OF BONE & CARTILAGE	25	2.3	4.0	0.58	9	1.1	2.1	0.52
OTHER DIS/MUSCULOSKELETAL SYS.	12	2.3	1.5	1.53	8	3.2	1.3	2.46		
50+	XIV.CONGENITAL ANOMALIES	ALL CONDITIONS	25	3.4	3.6	0.94	17	1.1	4.3	0.26
		HEART & CIRC. SYSTEM	12	1.7	1.7	1.00	7	.	1.9	.
		OTHER CONGENITAL ANOMALIES	13	1.7	1.9	0.89	10	1.1	2.4	0.46
50+	XVI.SYMPTOMS/ILL-DEFINED COND.	ALL CONDITIONS	117	25.6	13.8	1.86	51	18.3	9.1	2.01
		CONVULSIONS	7	3.4	0.2	17.00	5	4.3	0.3	14.33
		OTHER SYMPTOMS	110	22.2	13.6	1.63	46	14.0	8.8	1.59
50+	XVII.ACCIDENTS/POISON/VIOLENCE	ALL CONDITIONS	562	92.2	76.7	1.20	293	84.8	57.2	1.48
		FRACTURE/VERTEBRAL COLUMN	1	0.6	.	.	.	.	.	.
		FRACTURE/RADIUS & ULNA	3	0.6	0.4	1.50	.	.	.	.
		FRACTURE/OTHER	174	27.3	24.2	1.13	70	24.7	12.6	1.96
		DISLOCATION WITHOUT FRACTURE	1	0.6	.	.	4	2.1	0.5	4.20
		CONCUSSION	2	.	0.4	.	1	.	0.3	.

INTRACRANIAL INJ.(EXC.SKULL)	1	0.6	.	.	.	.	.	.
INTERNAL INJ,CHEST/ABD/PELVIS	4	0.6	0.6	1.00	3	1.1	0.5	2.20
LAC/OPEN WOUND,EYE/EAR/HEAD	1	0.6	.	.	.	.	.	.
LAC/OPEN WOUND,OTHER	156	30.2	19.8	1.53	77	18.3	16.0	1.14
LATE EFFECTS	1	0.6	.	.	.	.	.	.
BURNS	2	.	0.4	.	.	.	.	.
OTHER INJURIES	185	23.9	27.4	0.87	113	29.0	23.0	1.26
POISONING/MEDICAL AGENTS	30	6.8	3.5	1.94	25	9.7	4.3	2.26
POISONING/CHEM. & EXT. CAUSES	1	.	0.2	.	.	.	.	.

**Appendix C**

**INPATIENT HOSPITALIZATION RATES PER 100,000 POPULATION  
RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE**

**October 1997 – September 1998**

**Appendix D**

**EMERGENCY DEPARTMENT VISIT RATES PER 100,000 POPULATION  
RESIDENTS OF SOUTH CAROLINA BY RACE AND AGE**

**Calendar year 1998**

**Appendix E**

**RURAL MEDICAID CLIENT UTILIZATION DISPARITIES  
OUTPATIENT VISIT RATES PER 100,000 POPULATION  
1998**

## **Appendix F**

### **POLICY COMMITTEE RECOMMENDATIONS**

The South Carolina Rural Health Association Board of Directors has approved the following organizational policy positions:

1. Increase access to primary and preventive health care services for school aged children.
2. Support the development of a comprehensive, statewide Emergency Medical Service (EMS) system.
3. Encourage the Governor and federal and state legislators to secure funding for rural health activities.
4. Identify gaps in service, duplication of services, and barriers to access in rural areas and encourage the coordination of resources on the state, county, and local level.
5. Support the creation and increased coordination of cultural competency programs among health care agencies, educational institutions and organizations.
6. Support increased funding for educational institutions providing health professions training to develop comprehensive programs of study focusing on interdisciplinary rural health care.

## Appendix G

### Selective Literature Search – Specific Disease Conditions

A literature search was completed on the following topics: asthma, dermatitis and dermatological conditions, bronchitis, anemia, chest pain, and attention deficit disorder. The most extensive information was found regarding attention deficit disorder and asthma. Within this information, however, there was little to no information regarding rural/urban differentials in these conditions but there were some race differentials reported. Regarding asthma, there were several articles regarding race differentials in urban areas that were not included here. Also interesting to note was that there were a few studies suggesting co-morbidity between several of the disease conditions of interest.

#### 1. Asthma

- Asthma is the most common chronic illness among children (Miller 2000; Goodman et al. 1998; Heaman and Estes 1997)
- African American children reported a 20% higher prevalence than white children (Halfon and Newacheck 1993).
- African Americans, males, children from families with incomes below \$20,000, and those aged 5-8 years had slightly higher rates of asthma prevalence (Fowler et al. 1992).
- The prevalence of asthma increased through the school years and declined in adolescents (Halfon and Newacheck 1993).
- African American children were more likely to have ED asthma care even after controlling for doctor visits, anti-inflammatory medications, and demographic variables. Authors suggest that racial differences in ED utilization for asthma could be due to a higher prevalence of uncontrolled or under treated disease among African American children not receiving specialty care (suggesting that a true racial difference in asthma severity may exist) (Joseph et al. 1997).
- Poverty and African American race were overwhelmingly the most important determinants of emergency room use for asthma (Miller 2000).
- Poor children with asthma had 40% fewer doctor visits in the past year but were 40% more likely to have been hospitalized. There was also greater use of the ED by poor children (Halfon and Newacheck 1993).
- Asthma hospitalizations were six times higher among African Americans than whites and hospital discharge rates for asthma among those aged 0-17 years were higher in low income zip codes (Goodman et al. 1998). [Study conducted in four NE states: Maine, New Hampshire, Vermont, and New York]
- Ten year trends in discharge rates indicate increases in asthma rates in low-income zip codes, Hispanics, and African American children and decreases in rates for whites and those in non-metropolitan areas (Goodman et al. 1998).

- Goodman et al. (1998) recommend examining in greater detail those groups who experienced upward trends (ie., minorities and the poor) and also on a smaller scale (ie., the state and community level).
- Childhood asthma hospitalization rates are increasing. However, this increase seems to be limited to younger children, aged 0-4 years. This increase is not shared equally across the races, as African American children suffer the most (Gergen and Weiss 1990).
- Diminished accessibility to appropriate outpatient health services (ie., a doctor's office rather than a neighborhood health center, hospital clinic, or ED) for poor children with asthma was associated with increased morbidity and bed days (Halfon and Newacheck 1993).
- During the period 1980-1993, death rates for asthma consistently were highest among African Americans aged 15-24 years and hospitalization rates were consistently highest among African Americans (DHHS 1996).
- In 1993, among children 0-4 years, African Americans were six times more likely to die from asthma than whites and among children 5-14 years, African Americans were four times more likely than whites to die from asthma (DHHS 1996).
- In a study of exercise induced asthma in rural Alabama, findings revealed no race distinctions but do note (descriptively) that children below the poverty level were likely to be in the exercise intolerant group (Heaman and Estes 1997).
- Insurance category was the most influential factor predicting asthma treatment site (outpatient clinic, emergency department, or hospital), suggesting that economic status may be the most important determinant of higher morbidity. Children were treated predominantly in acute care settings (Apter et al. 1997).
- In a study of 499 families in Boston with a history of asthma, results revealed that a large proportion of the racial/ethnic differences in asthma prevalence in the study is explained by factors related to income, living in high poverty areas, and level of education (Litonjua et al. 1999).
- Children from poor families were 10% more likely to have asthma, with the poor-nonpoor differential being greater for white children than for African Americans (Halfon and Newacheck 1993).
- Children with asthma had almost twice the rate of learning disabilities and slightly higher rates of grade failure (Fowler et al. 1992).
- Among children with asthma, reported ill health was associated with African American race, female gender, and low income (Fowler et al. 1992).

## 2.ADD (ADHD)

- Prevalence of ADHD has been estimated at 3-5% (LaFever et al. 1999; Bussing et al. 1998; Szatmari et al. 1989).
- Doctor visits by children with ADHD have doubled from 1990 to 1995. The number of girls diagnosed has increased four-fold and there have been dramatic increases in the number of children prescribed with Ritalin (Robinson et al. 1999).
- Among Medicaid youths, African Americans were 2.5 times less likely to receive Ritalin than Caucasian youths (Zito et al. 1997).

- Minority children may be less likely to receive services for ADHD. This under-service may be due to several factors: fewer African American than white parents had ever heard of ADHD, African American parents were more likely to attribute ADHD to excessive sugar in the diet than whites, and African American parents reported less use of (and preference for) written informational materials than white parents (Bussing et al. 1998).
- A pilot study revealed that ADHD and related disorders are familial in African Americans (Samuel, VJ et al. 1999).
- In a study of pre-school and school age children in Manizales, Columbia, symptoms were found to be more frequent in 6-11 year olds (of 4-17 year olds), low SES, and males (Pineda et al. 1999).

### 3. Sickle cell

- In the time periods 1968-1980 and 1981-1992, South Carolina children aged 1-4 years old had a mortality rate that was lower than the national rate (Davis et al. 1997).

### 4. Anemia

- Among a sample of WIC participants, results revealed an increased likelihood of mild or moderate mental retardation associated with anemia, independent of birth weight, maternal education, sex, race-ethnicity, the mother's age, or the child's entry into the WIC program (Hurtado et al. 1999).

### 5. Dermatological conditions

- Prevalence of atopic dermatitis is increasing in North America and Europe but the reason is elusive (Branch 1999).
- London-born African American Caribbean children appear to be at an increased risk of having atopic dermatitis (Williams et al. 1995).

### 6. Comorbidities

#### 1. Asthma and atopic dermatitis:

- Asthma and atopic dermatitis are commonly associated; a UK study revealed that \_ of children with atopic dermatitis had a history of wheezing (Salob et al. 1993).

#### 2. Sickle cell and airway hyperreactivity

- High prevalence of airway hyperreactivity in children with sickle cell disease and that airway hyperreactivity may exist in patients with sickle cell disease even in the absence of the clinical symptoms of reactive airway disease (Leong et al. 1997).

#### 3. ADHD and asthma