

# PUBLIC HEALTH

Since 1960, the infant mortality rate in the U.S. has been worsening. In 2005, 6.9 babies of every 1,000 live births died within their first year, placing the country near the bottom of developed nations. For full-term infants, the U.S. rate was still among the highest at 2.4 per 1,000 live births. Since 1960, the infant mortality has been worsening in the U.S.

National perinatal death rate data for 2004 indicate that, among U.S. states, S.C. has the third highest death rate for infants of less than 28 days of age and fetal deaths of 20 weeks or more gestation.

Only three counties in the state had higher infant mortality rates than Cherokee County, 2004-2006 (Table PH1). In fact, the infant mortality rate in Cherokee County increased by 32.2% from 1994-96 to 2004-06. Throughout the state, infant mortality is markedly greater for African American babies than for white babies; however the percentage increase in infant mortality from 1994-96 to 2004-06 was somewhat less for African-Americans (30.2%) than for whites (33.1%).

**Table PH1. Infant Mortality Rate per 1,000 during 2004-2006**

<i>County Rank</i>	<i>County</i>	<i>All</i>	<i>White</i>	<i>AA &amp; Other</i>
43	Cherokee	16.1	13.0	5.0
42	Greenwood	15.8	8.7	28.2
39	Laurens	13.5	8.0	25.9
	S.C.	9.0	6.4	13.9

*SC Kids Count*

These data indicate that within the world, the U.S. has among the highest infant mortality rates, within the U.S., South Carolina has among the highest infant mortality rates, and within South Carolina, Cherokee County has among the highest infant mortality rates.

According to the Centers for Disease control (2009), the high percentage of preterm babies born in the U.S. is the primary cause of the high infant mortality rate. In 2005, one in eight U.S. births was preterm, a rate much higher than in other developed countries, and a rate that is considered a major public health problem.

## PH2. Birth Weight as Percentage of All Births, 2006

	Total	Low Birth Weight		Total	Very Low Birth Weight	
		White	AA/Other		White	AA/Other
Cherokee	10.0%	8.8%	13.2%	2.9%	2.8%	3.3%
Greenwood	13.4%	9.1%	20.2%	2.8%	1.6%	4.9%
Laurens	12.8%	10.6%	17.4%	1.8%	1.2%	3.2%
SC	10.2%	7.6%	14.8%	2.0%	1.3%	3.3%

*SC Kids Count*



Children who had low birth weight or were preterm infants evidence higher incidence of physical disabilities and behavior problems, poorer cognitive performance, increased incidence of learning disabilities, and academic difficulties in the early school years.

Low birth weight of less than 5.5 pounds and very low birth weight of less than 3.3 pounds is associated with health risks in the newborn, developmental delays, and continuing health problems as the child ages. Low birth weight is associated with teenage mothers and older mothers, multiple births, low education, single motherhood, maternal smoking and maternal stress or abuse. Cherokee County ranks higher than the national average for many of these risk factors.

In 2006, 10% of all babies born in Cherokee County were born with low birth weight: 13% of African-American other minority race babies and 9% of white babies. The cost of hospitalization for these babies is extremely high compared to normal birth weight babies. The average hospitalization charges for each newborn low birth weight baby in the county during 2004-2006 were \$14,131 (\$191,816 for each very low birth weight baby). The total cost for low birth weight babies born in the county during 2004-2006 was \$4,341,192 (S.C. Kids Count). From the data reported in Table PH2, it is evident that Cherokee County, as compared to peer counties and the state, does not have a high percentage of low birth weight babies; however, Cherokee County has the highest percentage of very low birth weight babies. Low birth weight rates for all peer counties and for S.C. were above the national low birth weight rate of 8.3% in 2006.

# PUBLIC HEALTH

Just as low birth weight is the primary predictor of infant mortality, poor prenatal care is the primary predictor of low birth weight. In Cherokee County in 2006, 28.4% (196) of pregnant women received no prenatal care in the first three months of pregnancy. The same year 31.3% (212) of pregnant women received less than adequate prenatal care, and 8 women who gave birth received no prenatal care at all. Table PH3 illustrates that Cherokee County and its peer counties do better than the state average on this indicator. The data also illustrate a disparity between white women and African-American and other minority race women on this indicator.

**Table PH3. Measures of Prenatal Care, 2006**

County	Rank	% of women who received less than adequate prenatal care in 2006			% of women who received no prenatal care in the first trimester in 2006	Rank
		All	White	AA & Other		
Cherokee	11	31.3	28.3	39.2	28.4	13
Greenwood	7	27.8	25.0	32.5	24.6	6
Laurens	12	31.6	28.9	37.5	29.4	15
S.C.		37.8	35.0	43.0	32.7	
U.S.		Approximately 25%				

*SC Kids Count*

Primary variables that impact prenatal care include maternal age and payer source. Other variables include geography and maternal access to a “medical home.”

Cherokee County adults report higher rates of smoking and sedentary lifestyle than the state average, as well as lower rates of daily fruit and vegetable consumption.

Subject matter experts have identified a “health crisis” rather than a “healthcare crisis.” They project that if individuals increased their health-promoting behaviors, access to care would dramatically increase and cost would dramatically decrease.

Two other primary risk factors for chronic health conditions are especially pertinent to Cherokee County are educational level and income. Both are strongly positively correlated with health status. That is, the higher the educational level, the better health status. Likewise, the higher the income, the better the health status. These factors alone are predictors for poor health status in Cherokee County, as the county evidences both lower educational attainment and lower per capita income, household median income, and median family income than peer counties, the state and the nation.

South Carolina Behavior Risk Factor Surveillance System (BRFSS) results for 2008 indicate that when Cherokee county adults were asked about their general health status, 84% reported having excellent, very good, or good health. This finding equated to the state average of 84%. Although these findings are positive, residents of South Carolina generally have higher risk for chronic health conditions. Approximately 80% of medical expenditures are related to chronic disease. Further, the Centers for Disease Control and Prevention have determined that 50% of an individual’s health status is determined by behaviors, 20% is determined by genetics, 20% is determined by environment and 10% is determined by access to health care.

The primary risk factors that contribute to poor health, chronic conditions, and death are smoking, sedentary lifestyle, obesity and high cholesterol. Prevalence of these risk factors for Cherokee County residents, compared with residents of peer counties and the state composite, is illustrated in Table PH4.

**PH 4. Risk Factors for Chronic Conditions, 2008**

	<b>Cherokee</b>	<b>Laurens</b>	<b>Greenwood</b>	<b>S.C.</b>
Current smoking	22%	19%	26%	20%
Sedentary lifestyle	29%	26%	34%	27%
Overweight	60%	71%	56%	66%
High Cholesterol	41%	38%	42%	43%
Less than 5 servings of fruits/vegetables per day (2007)	83%	83%	81%	81%

*SC BRFSS*

# PUBLIC HEALTH

The cost of insurance has made it unaffordable for increasing numbers of U.S. residents. Although most individuals who have health insurance are covered through employer-sponsored health plans, increasingly fewer employers are offering this benefit, from 69% in 2000 to 59% in 2007. Accordingly, the numbers of uninsured U.S. employees rose from 39 million in 2000 to 47 million in 2007. During the same time period, the average wage increased by 24%, but health insurance premiums increased by 98% (although inflation increased by 21%). Clearly, the cost of health insurance coverage is generally outpacing the ability to afford it.

Table PH5 indicates that uninsured rates in 2006 in Cherokee County are comparable to uninsured rates in peer counties. All three counties fare better than the state average in every age group.

**Table PH5. Number and Percentage Uninsured, 2006**

	Under age 65		Under age 19		18 to 64 years		40 to 64 years	
Cherokee County	8,544	18.1%	1,520	10.7%	7,173	21.2%	2,972	16.5%
Laurens County	9,667	16.4%	1,806	10.6%	8,017	18.7%	3,400	14.4%
Greenwood County	10,524	18.4%	1,916	10.9%	8,746	21.5%	3,633	17.0%
SC	726,846	19.2%	143,706	12.8%	595,689	22.0%	258,379	17.8%

*S.C. Budget and Control Board*

Although 2008 data is available for Laurens and Greenwood Counties, it is not available for Cherokee County. However, according to the U.S. Census Bureau, in 2008, in Congressional District SC-04, in which Cherokee County resides, 20.1% of residents under age 65 were uninsured. This is an increase of 2 percentage points over the 2006 county rate. Moreover, 14.9% of District SC-04 residents under age 18 were uninsured in 2008. Rates for peer counties, the state and the nation are reported in table PH6.

**Table PH6. Percent Uninsured by Age Group, 2008**

	All Ages	Under 18 Years	18 to 64 Years	Under 65 Years	65 Years or Over*
Laurens	13.7%	8.2%	18.8%	16.0%	0.0%
Greenwood	13.6%	8.2%	19.2%	16.0%	0.0%
S.C.	17.4	12.6	22.7	19.9	1.0
U.S.	15.1	9.9	19.8	17.0	1.4

**\*Most Americans age 65 and older are insured by Medicare**

*S.C. Public Health Institute*

**Table PH7. Number of Cherokee County Children Enrolled in Medicaid, June 2008**

	White	African-American	Hispanic	Other	Total
Children under 1	263	168	37	29	497
Children 1-5	972	540	94	99	1,705
Children 6-14	1,424	783	72	160	2,439
Children 15-18	604	381	12	58	1,005
Total	3,263	1,872	215	346	5,696

*SC Kids Count*

*“Having a job provides no guarantee of health insurance, and it is no longer just small businesses struggling to afford health insurance for their workers – total premiums for all employer plans have risen an average of six to eight times as fast as wages over the last decade.”*

*SC Public Health Institute*



Persons who do not have any source of health insurance and go without primary care often end up being treated as emergency patients – a much more costly mode of treatment than prevention or primary care. A 2009 study by the SC Rural Health Research Center found that, in 2007, uninsured Spartanburg County residents sought treatment in emergency rooms at a higher rate (30.4%) than uninsured residents in other parts of the state (24.7%). Further, a higher proportion of visits to emergency rooms were for avoidable conditions that could be treated at a much lower cost in non-emergency settings. Although it is likely that the same phenomenon holds true for other Upstate counties, these data for Cherokee County alone are not available.

It should be noted that access to public transportation is a determinant of public health - lack of good public transportation limits access to health care. Residents who do not have reliable transportation are frequently unable to keep routine medical appointments, forgo prevention efforts, and delay treatment until conditions become acute or necessitate emergency treatment.

As a result of aggressive enrollment initiatives in place since 1997, enrollment of eligible Cherokee County children in Medicaid has increased by 92.9% from June 1997 to June 2008. As a result, 42.6% of all children in the county were served by Medicaid in 2008. This was somewhat above the Laurens County rate and somewhat below the Greenwood County rate. The average statewide expenditure in state fiscal year 2008 was \$2,238 per child enrolled. Thus, the approximate Medicaid expenditures for children in the county were \$12.3 million in state fiscal year 2008.

In June 2008, the total number of children in Cherokee County, birth through 18, enrolled in Medicaid was 5,696. Table PH7 provides data disaggregated by age and race.

# PUBLIC HEALTH

Although there is no way to accurately estimate the full scope of substance abuse in Cherokee County, numbers of county residents who received services (“admissions”) through the S.C. Department of Drug, Alcohol, and Other Drug Abuse Services (DAODAS) are reported in Table PH8. Clearly, the preponderance of admissions were for alcohol abuse, followed by marijuana and cocaine.

**Table PH8. SC DAODAS Cherokee County Number of Admissions by Primary Problem**

	2003	2004	2005	2006	2007	2008
Alcohol	192	161	180	157	199	199
Cocaine	19	28	30	60	75	79
Marijuana	85	104	120	129	159	176
Methamphetamine	15	14	19	30	28	28
Opiates	12	9	20	16	14	30
Other Drug**	16	14	13	15	32	30
Other related problem*	8	12	25	29	14	19

SC DAODAS

\*\* includes methadone, barbiturates, sedatives, amphetamines, stimulants, hallucinogens, inhalants, OTC drugs, benzodiazepines, other tranquilizers, PCP and other drugs

\* includes marital, family, legal financial, medical, psychological, employment, physical or sexual abuse, behavioral, educational, gambling, nicotine and co-dependency problem types

The S.C. Department of Alcohol and Other Drug Abuse Services reports a generally increasing trend in numbers of clients served since 2005. However, these numbers are not keeping pace with the S.C. population growth, as there was an 8% growth in S.C. population between 2005 and 2007, while there was only a 2% growth in DAODAS services

Substance abuse is a contributory to a number of social issues, including crime. In 2006, the S.C. Department of Corrections classified 43% of the state’s inmate population as chemical-dependent based on the Texas Christian University Drug Dependency Screen. This equated to 10,576 inmates.

Maternal substance abuse during pregnancy, including smoking, is linked to cognitive, physical and social development retardation, fetal alcohol syndrome, and low birth weight in children. Childhood exposure to addicted parents in the home is correlated with behavioral and social difficulties.

There are numerous related risk factors associated with substance abuse, including low socio-economic status, lower maternal age, poor maternal nutrition and health, poor prenatal care, disturbed family relationships, and housing uncertainties.

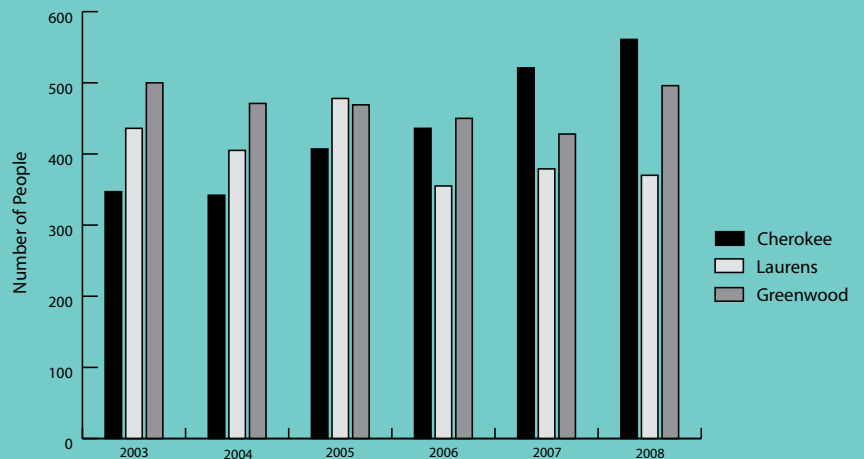
The S.C. Supreme Court holds that a viable fetus is a “person” under the state’s criminal child-endangerment statute and that “maternal acts endangering or likely to endanger the life, comfort, or health of a viable fetus” constitute child abuse. According to the 2007 Annual Report of the Seventh Circuit Solicitor’s Office, 30 mothers within the circuit completed Spartanburg Area Drug and Alcohol Center’s treatment program for mothers who give birth to babies with illegal drugs in their system. Dozens more are in treatment and others face criminal charges for refusing treatment.

A 1991 study by the SC Council on Maternal Infant, and Child Health found that over 15,000 infants are born each year in South Carolina to mothers who use alcohol, illegal drugs or non-prescription drugs. This represents 1 in 4 infants. Based on meconium testing, 22.4% of delivering women used alcohol or drugs prior to giving birth.

According to the SC DHEC Pregnancy Risk Assessment Monitoring System (PRAMS), 7.4% of SC women who gave birth in 2008 used alcohol during pregnancy (9.2% white, 3.8% black, 8.0% other race).

Figure PH1 demonstrates an increasing number of admissions each year since 2003 in Cherokee County. By comparison, Greenwood County demonstrates a generally decreasing trend, and Laurens County demonstrates a mixed / decreasing trend.

**Figure PH1. Admissions by County**

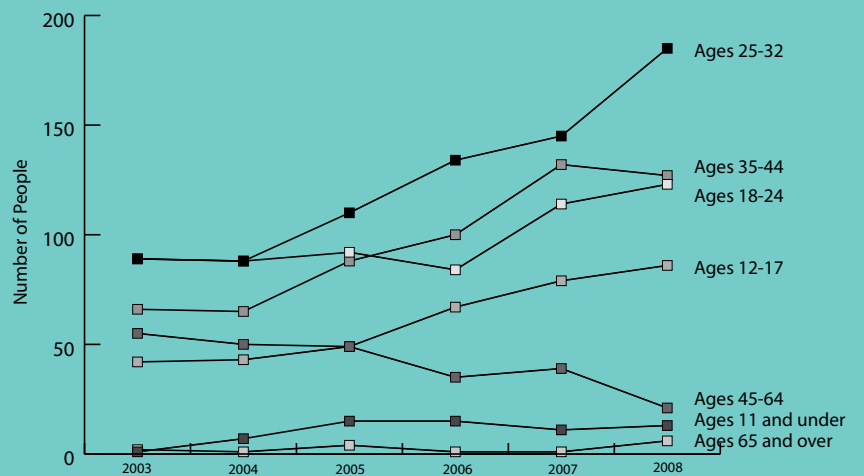


SC DAODAS

When examined by age group (Figure PH2), the data show that drug and alcohol admissions for Cherokee County have:

- increased significantly for the age 25-34 group in an unbroken trend since 2004
- increased significantly for ages 18-24, 35-44, and 45-64 since 2004
- decreased for ages 12-17 almost continuously since 2003
- maintained fairly constant trends for ages 11 and under and 65 and over

**Figure PH2. Cherokee County Admissions by Age Group**



SC DAODAS

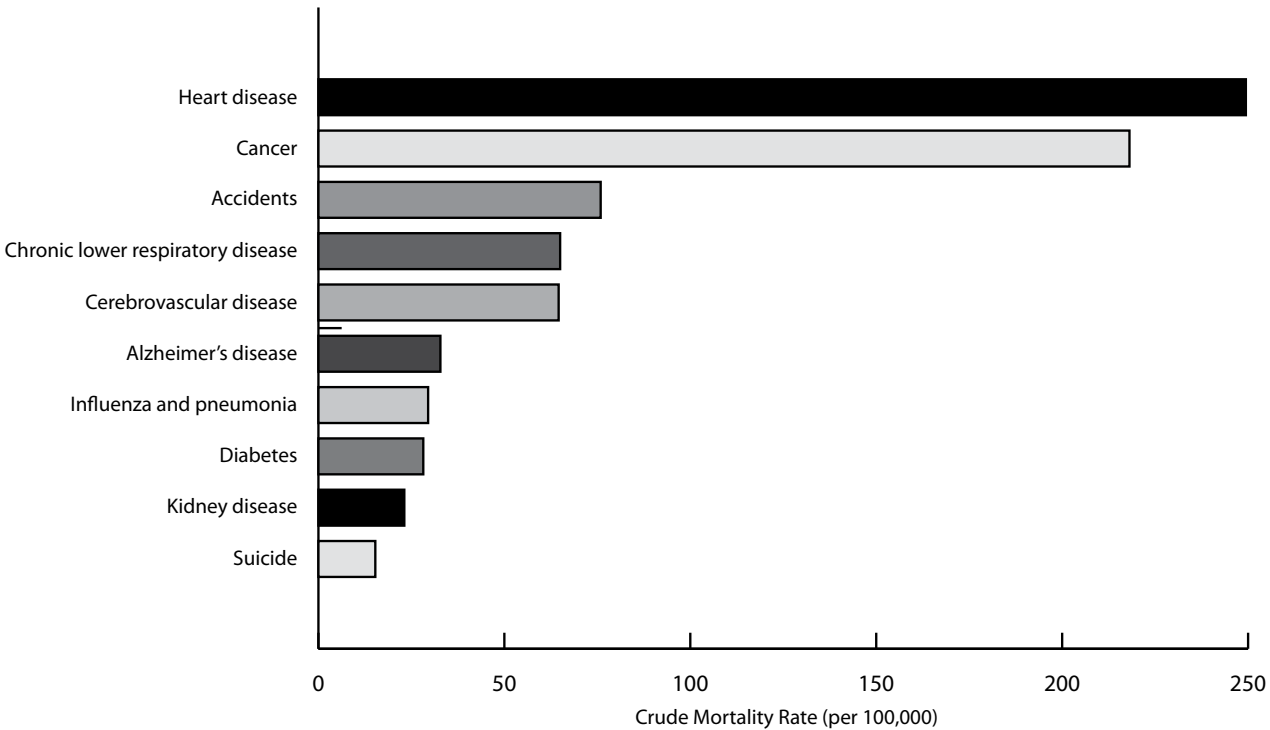
# PUBLIC HEALTH

In 2007, the leading causes of death among South Carolinians were heart disease, cancer, stroke, accidents, chronic lower respiratory disease, Alzheimer’s disease, diabetes, kidney disease, pneumonia and influenza, and septicemia.

The leading 10 causes of death (2007) in Cherokee County for all ages are indicated in Figure PH3. Causes of death for the county basically mirror the causes of death for the state, although in somewhat different order and with the exception of the tenth leading cause (suicide for Cherokee County and septicemia for the state).

In 2007, the Cherokee County death rate was 10.6 (per 1,000 population). This was higher than the state death rate of 8.9. Both Laurens and Greenwood had death rates of 10.3. Causes of death differ significantly by age and differ somewhat by sex and race.

**Figure PH3. Top Ten Leading Causes of Death, All Ages, Cherokee County, 2007**



SC DHEC

National data indicate that, in 2006, 76% of children ages 2-17 had a dental visit in the past year. This percentage has remained relatively constant since 1997, ranging from 73% to 76%. Among children living in families with incomes less than 200% of the poverty threshold, 68% had a dental visit in the past year, compared with 82% of children in families with incomes of 200% or more of the poverty threshold.

In 2007, patients sought treatment at the emergency department at Spartanburg Regional Healthcare System 942 times for primary diagnoses of dental disorders. In fact, dental disorders ranked 7th of the top diagnostic categories among self-pay emergency department patients from July 2006 to June 2007. Dental disorders ranked as the 5th largest diagnostic group for self-pay patients with at least 10 visits to the emergency department annually. These 942 visits represented \$357,045 in charges.

State-level data provided by the South Carolina Department of Health and Environmental Control (DHEC) demonstrates that:

- as of 2007, South Carolina third graders were still less likely to have sealants on their molars than third graders in other states
- South Carolina's third graders are more likely to have experienced tooth decay than other third graders in the United States
- low income, non-white and Hispanic children are significantly more likely to experience dental problems and are less likely to have dental care

However, more positive data from the same source and time period demonstrates that:

- South Carolina has exceeded the goal of having 75% of those on public water systems receive fluoridated water; it ranks 11th in the nation, with 92% of public water systems dispensing fluoridated water
- South Carolina's Comprehensive Health Education Act of 1988 (CHEA) includes dental health as a part of the kindergarten to grade five module

Behavior Risk Factor Surveillance Survey 2008 data for oral health (Table PH12) indicates that respondents in the Appalachia III Health District (inclusive of Cherokee County) visited a dentist / dental clinic in the last 12 months at a rate somewhat lower than the state average. The District also had a higher rate than the state average of visits to a dentist five years ago or longer. Over 53% of respondents from the District had lost some or all teeth to tooth decay – higher than in the other comparison districts and higher than the state rate.

**Table PH12. BRFSS Survey Results for Oral Health, 2008**

**How long has it been since you last visited a dentist or a dental clinic for any reason?**

	Within past year	Within past 2 years	Within past 5 years	5 or more years ago	Never
Appalachia III	65.5%	11.2%	10.0%	12.6%	0.6%
Appalachia II	71.5%	12.1%	6.6%	9.3%	0.5%
Appalachia I	62.9%	12.1%	10.2%	14.1%	0.7%
S.C. Aggregate	65.7%	12.4%	10.0%	11.2%	0.7%

**How many of your permanent teeth have been removed because of tooth decay or gum disease?**

	1 to 5	6 or more	All	None
Appalachia III	29.0%	17.9%	6.4%	46.7%
Appalachia II	32.0%	12.6%	6.5%	49.0%
Appalachia I	28.6%	12.0%	10.3%	49.1%
S.C. Aggregate	30.4%	13.9%	6.6%	49.1%

*S.C. BRFSS*

Especially pertinent to Cherokee County is the fact that people in low income families bear a disproportionate burden from oral diseases and conditions. For example, despite progress in reducing tooth decay in the United States, children and adolescents in families living below the poverty level experience more dental decay than do children who are economically better off. Furthermore, the decay seen in individuals of all ages from poor families is more likely to be untreated than decay in those living above the poverty level (DHEC, 2007). High uninsured rates also covary with poor dental outcomes.

# PUBLIC HEALTH

According to the SC Department of Mental Health’s Accountability Report for fiscal year 2009, the Department served 88,999 people in the state’s community mental health centers (unduplicated count). The Department also reported 2,012 admissions to its adult psychiatric hospitals at an average cost of \$436 per day. School-based mental health counselors served nearly 13,000 children in 429 schools throughout the state. In total, the Department served 17.3 South Carolina residents per 1,000 population in state fiscal year 2009 (the national average is 17.9 per 1,000).

For state fiscal year 2010 (July1, 2009 – June 30, 2010), 316 residents of Cherokee County were admitted for treatment at the community Mental Health Center. Of this number, 45 were admitted in the month of February, 2010.

Data collected in the 2008 Behavior Risk Factor Surveillance System indicate that for residents in the Appalachia III Health District (Cherokee, Spartanburg and Union Counties), 65% report having good mental health in the last 30 days. This was fairly representative of state residents. For comparison purposes, data from two additional Upstate health districts is provided in Table PH9.

**Table PH9. BRFSS Survey Results for Mental Health, 2008**

	For how many days during the past 30 days was your mental health not good?				
	None	1-2 days	3-7 days	8-29 days	30 days
Appalachia III	65.2%	10.1%	8.5%	8.1%	8.1%
Appalachia II	67.5%	9.7%	11.7%	5.1%	6.0%
Appalachia I	62.6%	7.6%	14.7%	9.2%	5.9%
S.C. Aggregate	66.6%	8.6%	10.5%	8.3%	6.0%

S.C.BRFSS

In addition, 17,959 residents of the state were discharged as inpatients from acute care hospitals in the state. Some of these individuals may also have received services through the Department of Mental Health. Table PH10 provides data for these hospital discharges, including costs.

**Table PH10. Inpatient Discharges for Mental Disorders\* from Acute Care Hospitals, 2008**

	# Discharges	Average Charge	Total Charge
Cherokee	128	\$27,280	\$3,374,554
Laurens	208	\$22,864	\$4,641,788
Greenwood	455	\$15,122	\$7,692,044
S.C. All Counties	17,959	\$16,041	\$318,832,149

\* includes alcohol dependence syndromes, anxiety states, drug dependence, non-dependent use of drugs, organic psychotic conditions, schizophrenic disorders, neuroses and personality disorders, psychoses, other mental disorders

SC Office of Research and Statistics

Subject matter experts report that the state’s behavioral health system is in crisis. Although the state is required by statute to provide a statewide system for delivering mental health services, budget cuts have led to reductions in the number of psychiatric beds in state-run mental health facilities. Community-based services are inadequate and there is significant concern regarding the lack of parity between treatment for medical issues and treatment for mental illness. The shortage of facilities for long-term treatment of mental illness has resulted in increased burden on jails, EMS, law enforcement agencies, emergency rooms, and short term inpatient units ill-equipped to treat chronic major mental illness.

For example, depressive disorders ranked 17th of the top diagnostic groups for self-pay patients visiting the emergency room at Spartanburg Regional Medical Center (located in neighboring Spartanburg County) from July 2006 to June 2007, constituting 323 visits. Patients have remained in hospital emergency rooms for days or weeks waiting for psychiatric beds to become available in appropriate facilities. Most patients presenting with psychiatric disorders at the emergency room, however, are discharged to their homes. Five years ago, most of these patients would have been admitted for behavioral health treatment (see Table PH11).

Mental health issues are frequently contributory to a number of social issues. As of June 30, 2009, the SC Department of Corrections housed 2,953 inmates classified as being mentally ill. This constituted 12% of the total inmate population (11% of the male inmate population and 31% of the female inmate population). Further, 43% of inmates are classified as chemically dependent. Mental health problems and substance abuse are frequently co-morbid conditions. Because inmates do not have access to a full range of treatment services, untreated mental illness may be contributory to recidivism rates.

**Table PH11. Top 10 Dispositions of Emergency Room Psychiatric Patients, SRHS**

2002		#	%	2007		#	%
1	Admitted	516	19.4%	Home	1304	38.8%	
2	Mental Health Clinic	512	19.2%	Admitted	649	19.3%	
3	P. Harris Hospital	226	8.5%	Detox Spartanburg	209	6.2%	
4	Detox Spartanburg	222	8.3%	P. Harris Hospital	181	5.4%	
5	SADAC	191	7.2%	Disposition pending	179	5.3%	
6	Other	173	6.5%	Mental Health Clinic	168	5.0%	
7	Private physician	137	5.2%	Carolina Center for Behavioral Health	135	4.0%	
8	Home	115	4.3%	Admitted for Medical Care	91	2.7%	
9	Carolina Center for Behavioral Health	92	3.5%	Other	75	2.2%	
10	Outpatient Psych	84	3.2%	SADAC	62	1.8%	

*Spartanburg Regional Healthcare System*