



**MISSISSIPPI STATE DEPARTMENT OF HEALTH**

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**Hospital Inpatient Discharge Data  
Annual Report**

**2010**

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## INTRODUCTION

Hospital discharge data are one of the richest and most valuable sources of health-related information. These data present an invaluable opportunity to study a vast number of diseases and health conditions in as complete and thorough a manner as possible. Beginning in 2009, reporting hospital discharge data became mandatory for all licensed hospitals in Mississippi. The goal of the Mississippi State Department of Health is to collect, compile, and disseminate patient-level discharge data as well as to analyze and interpret that data. In accordance with this goal, this report aims to establish major current trends in hospital-level care and to pinpoint impending public health issues in Mississippi. More importantly, our goal is to make our findings available to public health officials, health care providers, policy makers, and the general public in a comprehensive, easily understandable, and readily available way. Finally, we hope that this report will establish a base for future longitudinal studies of trends in major diseases and the cost of their treatment in Mississippi.

This report summarizes the 2010 hospital inpatient discharge data for patients treated in Mississippi's hospitals. Presented are summary statistics and rates of inpatient hospital discharges stratified by patients' demographic characteristics, payer groups, clinical diagnoses, medical procedures, types of hospitals, and locations. Diagnoses and procedures in the hospital discharge data were coded using the International Classification of Diseases, 9<sup>th</sup> Revision, Clinical Modification (ICD-9-CM). For data management and analytical purposes, we have used the Clinical Classification Software (CCS) developed by the Agency for Healthcare Quality and Research. This software groups over 14,000 diagnoses and 3,900 procedures from the ICD-9-CM into a manageable number of clinically meaningful categories. This "clinical grouper" is widely used by federal and state organizations and its use allows us to aggregate and evaluate clinical conditions and medical procedures in a more comprehensive way.

The findings in this report are based on inpatient discharge data from all reporting hospitals in Mississippi during 2010. Reporting hospitals are short-term general hospitals, specialty hospitals, and long-term healthcare facilities such as psychiatric hospitals and chemical dependency treatment facilities. Federal health care facilities are excluded from reporting requirements and their data are not included in this report.

Rates were calculated using the April 2010 population estimates of the United States Census Bureau. The unit of analysis is a hospital inpatient discharge, a term that denotes inpatient settings of hospital-level care and this term is used interchangeably with the term hospitalization throughout this report. It is also important to note that some patients might have multiple hospital admissions and discharges within a single year. In addition, while all inpatient hospital discharges occurred within 2010, some admissions might have started before the beginning of the calendar year. The major findings are presented here as brief descriptions, tables, graphs and figures.

## MISSISSIPPI HOSPITAL DISCHARGE DATA 2010 HIGHLIGHTS

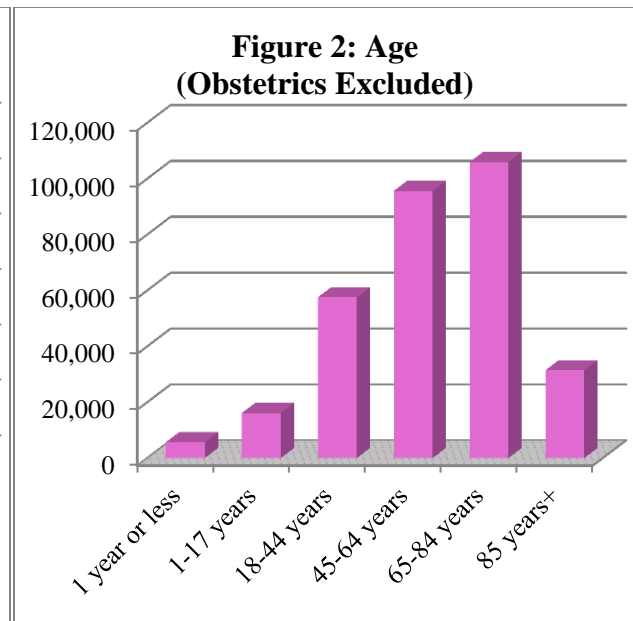
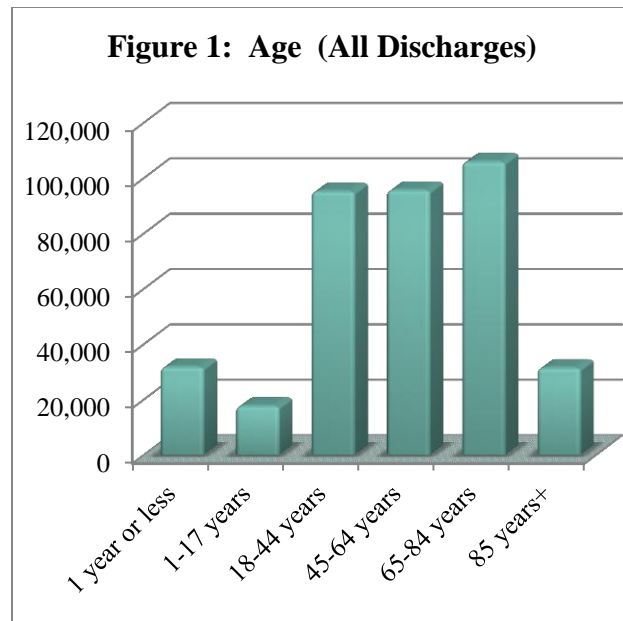
- There were 377,528 inpatient hospital discharges reported in Mississippi during 2010. Mississippi residents accounted for 362,835 (96.1%) and non-residents accounted for 14,693 (3.9%) of all hospital discharges.
- The total amount of charges reached \$9,627,515,098 and the total patient days were 2,070,037.
- The average length of stay (LOS) was 5.5 days, the average charges per stay were \$25,502, and average charges per day were \$4,397.
- After exclusion of obstetric-related discharges, there were 1.3 hospitalized women for every hospitalized man.
- The crude hospitalization rates for Caucasian and African-American patients were almost identical: 1,284 Caucasian and 1,287 African-American patients were hospitalized per 10,000 persons.
- Medicare and Medicaid were billed for 64% of all hospital stays in the state. All together publicly funded payers were charged for almost 66% of all hospital stays.
- An overwhelming 42.3% of all Mississippi hospital admissions were classified as emergencies and another 17.8% were classified as urgent hospitalizations.
- In-hospital deaths occurred in 2.3% of hospitalized patients.
- Excluding delivery/childbirth, the principal diagnosis with the highest number of discharges was pneumonia, followed by mood disorders, and congestive heart failure.
- Excluding procedures related to delivery/childbirth, the top three principal procedures performed during 2010 were blood transfusion, respiratory intubation/mechanical ventilation, and immunizations.
- There were 155,629 (41.2%) discharges due to chronic conditions in 2010.
- Mental health conditions led to 8.4% of all hospital stays in Mississippi during 2010.
- A quarter of all hospital discharges (95,811) were reported from facilities located in the Jackson metropolitan area and nearly 20% (70,015) of all hospitalized patients resided in this metropolitan area.
- The five counties with the highest rate of hospital discharges in Mississippi were Webster, Lawrence, Yalobusha, Neshoba, and Jefferson.
- Forrest General Hospital in Hattiesburg was the facility experiencing the highest volume of inpatient hospitalizations (7.5%).

## DEMOGRAPHIC CHARACTERISTICS OF HOSPITALIZED PATIENTS AGE

Hospitalizations were most prevalent among elderly patients age 65 years and older while children between 1 and 17 years of age were least likely to undergo hospitalization. Adults between 18 and 44 years of age accounted for 25% of all discharges, but that percentage dropped to 18% after obstetric-related discharges were excluded (Table 1, Figure 1 and Figure 2).

**Table 1: Age**

All Discharges			Obstetrics Excluded		
Age	Discharges	Percent	Age	Discharges	Percent
1 year or less	31,739	8.4	1 year or less	5,667	1.8
1-17 years	17,642	4.7	1-17 years	16,113	5.2
18-44 years	95,210	25.2	18-44 years	57,490	18.4
45-64 years	95,638	25.3	45-64 years	95,596	30.6
65-84 years	105,893	28.1	65-84 years	105,891	33.9
85 years+	31,406	8.3	85 years+	31,405	10.1



## DEMOGRAPHIC CHARACTERISTICS OF HOSPITALIZED PATIENTS GENDER

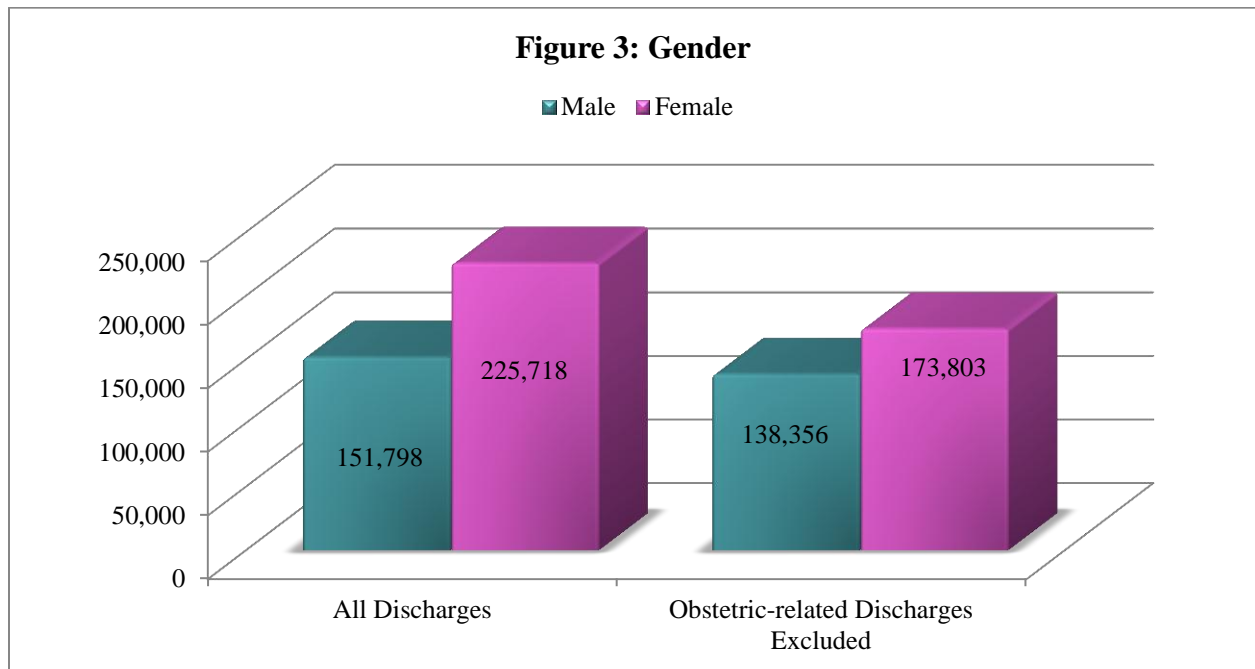
Females comprised the majority of hospitalized patients in Mississippi, even after obstetric-related discharges were excluded. The percent of female patients (59.8%) was almost 20 points higher than the percent of male patients (40.2%). In other words, for every hospitalized man there were 1.5 hospitalized women. When obstetric-related hospitalizations were excluded, however, this difference decreased to 12 points so that for every hospitalized man there were 1.3 hospitalized women (Table 2, Figure 3).

**Table 2: Gender**

All Discharges				Obstetrics Excluded			
Gender	Discharges	%	Rate per 10,000	Gender	Discharges	%	Rate per 10,000
Female	225,718	59.8	1,479	Female	173,803	55.7	1,139
Male	151,798	40.2	1,053	Male	138,356	44.3	960
Unknown	12	0.0		Unknown*			
All	377,528	100.0		All	312,159	100.0	

\*Discharges with unknown gender were excluded from obstetric-related data.

**Figure 3: Gender**



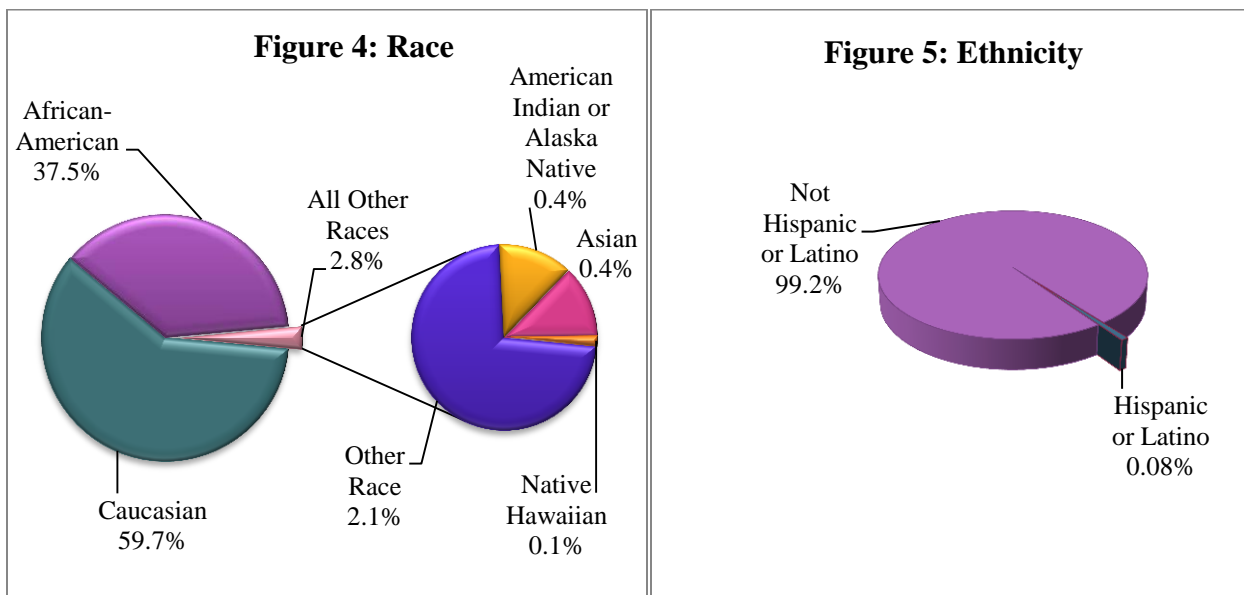
## DEMOGRAPHIC CHARACTERISTICS OF HOSPITALIZED PATIENTS RACE

The majority of Mississippi inpatient discharges (59.7%) occurred among Caucasian patients. African-Americans were the second largest group with 37.5% of all discharges. The remaining racial groups contributed to less than 3% of all hospitalizations (Table 3 and Figure 4). The crude rates for African-American and Caucasian patients were almost identical: 1,284 Caucasians and 1,287 African-American patients were hospitalized per 10,000 persons. Patients of Hispanic or Latino ethnicity were a miniscule part of the hospitalized patients in the state (Figure 5).

**Table 3: Race**

Race	Discharges	Percent	Rate per 10,000
Caucasian	225,228	59.7	1,284
African-American	141,373	37.5	1,287
Other Race*	7,954	2.1	1,101
American Indian or Alaska Native	1,410	0.4	938
Asian	1,384	0.4	538
Native Hawaiian or Other Pacific Islander	179	0.1	1,508
All	377,528	100.0	1,272

\*Other race includes any racial group that could not be categorized under one of the main racial categories or the race is unknown /undetermined.



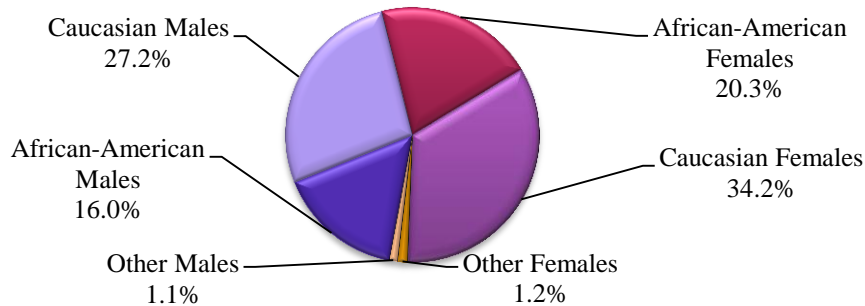


## DISTRIBUTION OF SELECTED DEMOGRAPHIC CHARACTERISTICS

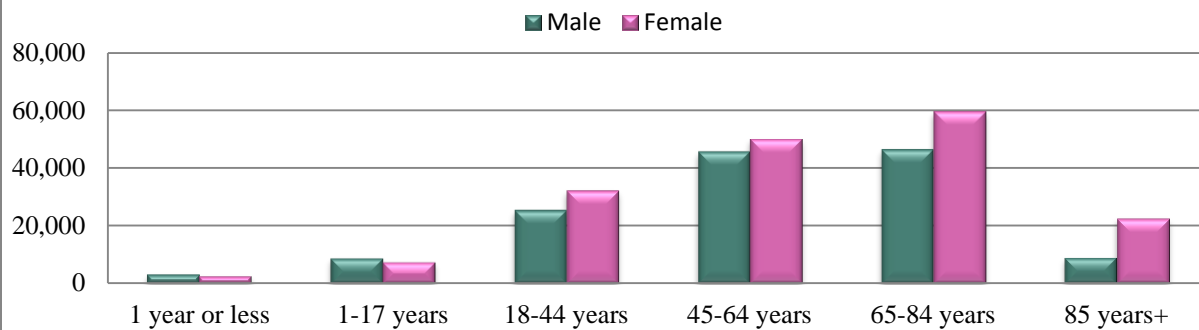
In order to obtain a better understanding of hospital utilization by different demographic groups we calculated the distribution of gender and race and gender and age. For the purpose of this analysis we decided to exclude obstetric-related discharges. Over one third of all hospital discharges occurred among Caucasian females (34.2%), followed by Caucasian males (27.2%), African-American females (20.3%), and African-American males (16.0%). The combined hospital discharges among the rest of the racial groups were 2.3%, and they were almost equally distributed between genders (Figure 6).

There were more infant males (52.3%) than infant females (47.7%) hospitalized during 2010, but this trend reversed after the first year of age. The female-male ratio difference became especially prominent as the age increased. Among patients 85 and older, a group comprising 10% of all hospitalizations, there were 71.5% females and 28.5% males, a distribution reflecting the lower life expectancy among males. Gender disparities were smallest among the patients between 45 and 64 years of age, of whom 52.2% were females and 47.8% were males (Figure 7).

**Figure 6: Gender and Race Distribution**



**Figure 7: Gender and Age Distribution**



## DEMOGRAPHIC CHARACTERISTIC: RESOURCE UTILIZATION

Patients 85 years of age or older had the longest average length of stay (7.6 days). The average length of stay was slightly longer for males (5.9 days) than females (5.2 days), and slightly longer for African-American patients (5.7 days) than for Caucasians (5.4 days). Overall, average charges per stay and per day increased with the patient's age. For example, infants had the lowest and children between 1 and 17 years of age had the second lowest charges per stay and per day. Patients between 65 and 84 years of age had the highest charges per stay, while patients between 45 and 64 years of age had the highest charges per day and the highest total charges. On average, males were charged \$28,332 per hospital stay, which was almost \$5,000 more than the average charge for females of \$23,599. In terms of race, the average charges per stay and per day were higher for Caucasian patients than for African-American patients (Table 4).

**Table 4: Resource Utilization among Different Demographic Groups**

CHARACTERISTIC	DISCHARGES		AVERAGE			TOTAL	
	Number	%	LOS (days)	Charges per stay	Charges per day	LOS (days)	Charges
<b>Age Group</b>							
1 year or less	31,739	8.4	5.0	\$8,938	\$1,788	158,966	\$283,675,362
1-17 years	17,642	4.7	6.4	\$15,009	\$2,345	112,434	\$264,792,005
18-44 years	95,210	25.2	3.9	\$18,881	\$4,841	371,182	\$1,797,620,634
45-64 years	95,638	25.3	5.4	\$31,641	\$5,859	520,858	\$3,026,047,207
65-84 years	105,893	28.0	6.3	\$32,662	\$5,184	666,783	\$3,458,676,084
85 years+	31,406	8.3	7.6	\$25,368	\$3,338	239,814	\$796,703,806
<b>Gender</b>							
Female	225,718	59.8	5.2	\$23,599	\$4,538	1,178,404	\$5,326,634,254
Male	151,798	40.2	5.9	\$28,332	\$4,802	891,562	\$4,300,786,006
Unknown	12	0.0	5.9	\$7,903	\$1,340	71	\$94,838
<b>Race</b>							
Caucasian	225,228	59.7	5.4	\$26,275	\$4,866	1,211,902	\$5,917,930,053
African-American	141,373	37.4	5.7	\$24,266	\$4,257	805,302	\$3,430,470,871
Other Race	7,954	2.1	4.8	\$24,525	\$5,109	38,187	\$195,071,362
American Indian or Alaska Native	1,410	0.4	4.8	\$21,252	\$4,428	6,715	\$29,965,960
Asian	1,384	0.4	5.3	\$35,568	\$6,711	7,294	\$49,226,209
Native Hawaiian or Other Pacific Islander	179	0.0	3.6	\$27,099	\$7,528	637	\$4,850,643
<b>All</b>	<b>377,528</b>	<b>100.0</b>	<b>5.5</b>	<b>\$25,502</b>	<b>\$4,637</b>	<b>2,070,037</b>	<b>\$9,627,515,098</b>

**PRIMARY EXPECTED PAYER  
NUMBER OF DISCHARGES**

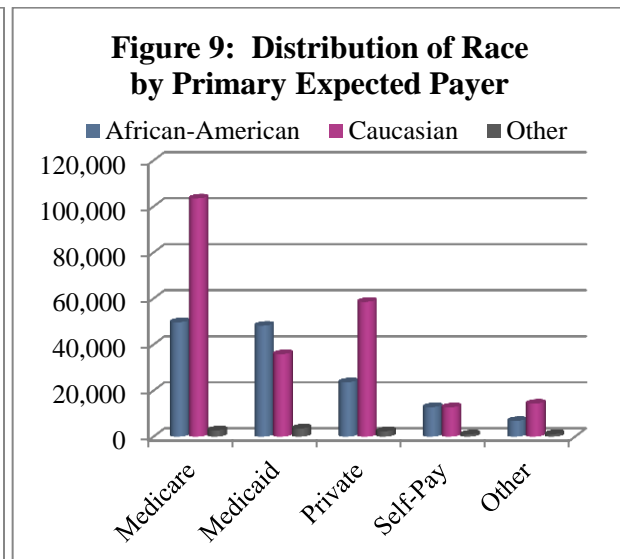
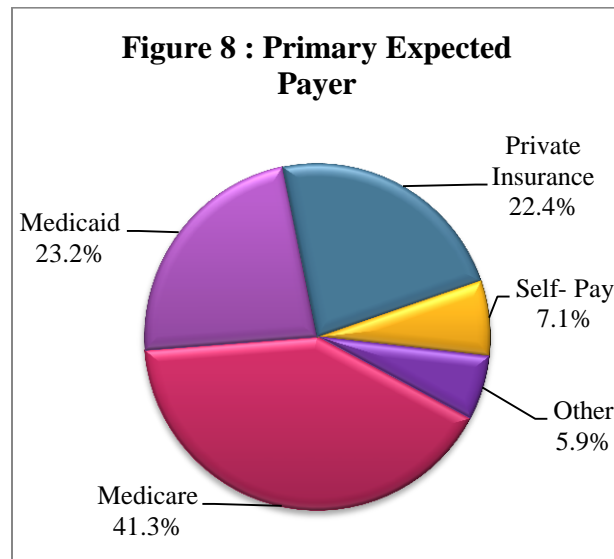
Medicare was billed for the highest number of discharges in Mississippi - 156,085 discharges or 41.3%. Medicaid and private insurances were each billed for around 23% of all discharges and uninsured patients were responsible for 7.1% of all hospitalizations. Cumulatively, Medicare and Medicaid received the bills for 64.5% of all hospitalizations. Overall, the percent of charges directed towards publicly-funded payers rose to almost 66%, when other smaller governmental payers were added to Medicare and Medicaid (Table 5 and Figure 8). There were over twice as many Caucasian patients billed under Medicare or private insurance than African-American patients. However, there were 34% more African-American patients covered under Medicaid than Caucasian patients. Uninsured patients were equally distributed between the two races (Figure 9).

**Table 5: Primary Expected Payer**

Primary Expected Payer	Discharges		Race		
	Number	Percent	Caucasian	African-American	Other
Medicare	156,085	41.3	103,553	49,749	2,783
Medicaid	87,738	23.2	35,901	48,229	3,608
Private	84,692	22.5	58,627	23,682	2,383
Self-Pay (Uninsured)	26,667	7.1	12,781	12,855	1,031
Other	22,346	5.9	14,366	6,858	1,122

\*Includes Blue Cross Blue Shield, Commercial Insurance, HMOs, PPOs, and other "unidentified" private insurers

†Includes Workers' Compensation, Champus, Department of Rehabilitation Services and other governmental programs. Included in this group are also 8,761 (2.2%) discharges with non-identified primary payer as well as 478 charges directed to charity.

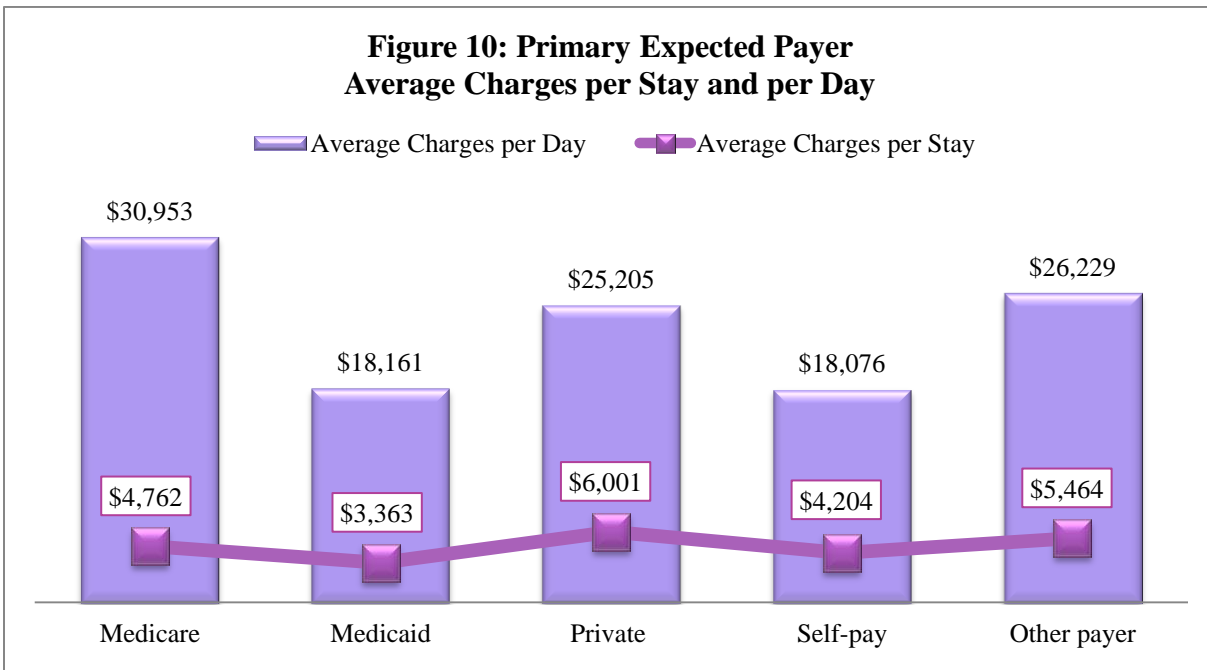


**PRIMARY EXPECTED PAYER  
LENGTH OF STAY AND CHARGES**

Medicare patients had the longest average length of stay (6.5 days). Patients with Medicare had the highest average charges per stay, while patients under Medicaid and uninsured patients had the lowest average charges per stay. However, the highest charges per day were among people with private insurance, while the lowest charges per day were among Medicaid patients (Table 6, Figure 10). Note that the primary payer might not be responsible for the entire amount of hospital charges.

**Table 6: Length of Stay, Average, and Total Charges for Different Payers**

Primary Expected Payer	AVERAGE			Total charges
	Length of stay (days)	Charges per stay	Charges per day	
Medicare	6.5	\$30,953	\$4,762	\$4,831,309,343
Medicaid	5.4	\$18,161	\$3,363	\$1,593,395,818
Private Insurance	4.2	\$25,205	\$6,001	\$2,134,667,470
Self-pay (Uninsured)	4.3	\$18,076	\$4,204	\$482,020,076
Other payer	4.8	\$26,229	\$5,464	\$586,122,391
All	5.5	\$25,502	\$4,637	\$9,627,515,098



## TYPE OF HOSPITAL ADMISSION

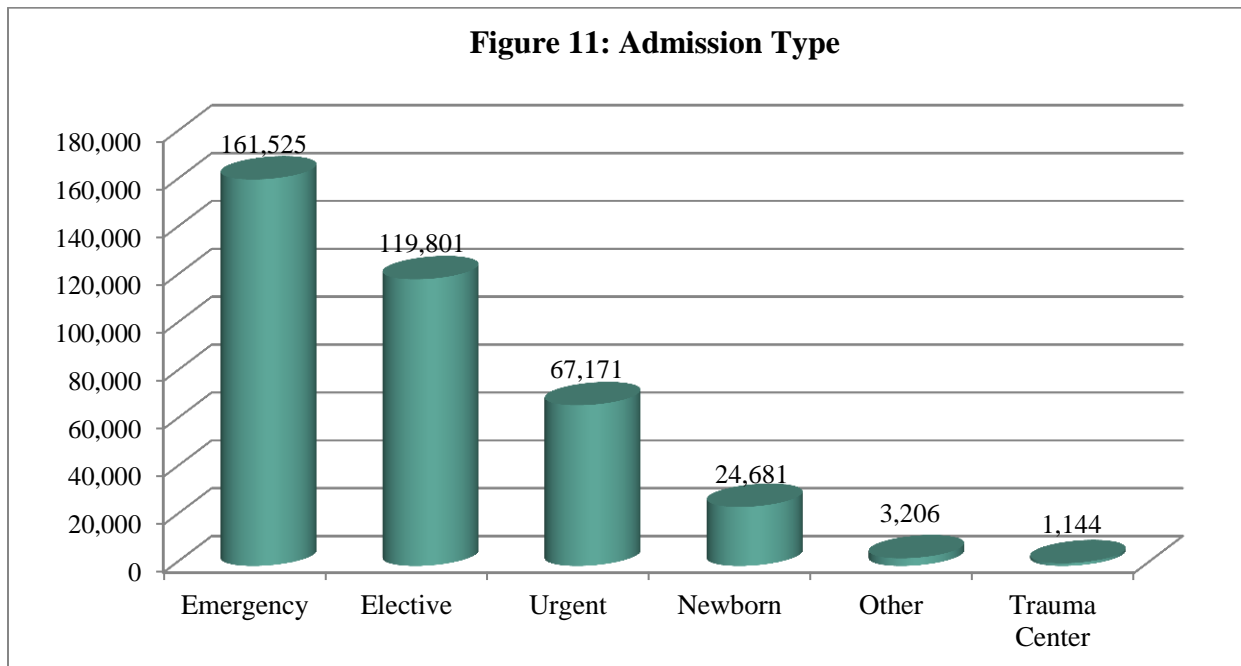
An overwhelming 42.3% of all Mississippi hospital admissions were classified as emergencies and another 17.8% were classified as urgent hospitalizations, two types of admission that require immediate medical attention. Elective hospitalizations allow for enough time to schedule hospital services and, collectively, they accounted for 31.7% of all Mississippi hospitalizations. Finally, newborn hospitalizations were 6.5% of the state total (Table 7 and Figure 11).

**Table 7: Admission Type**

Admission	Discharges	Percent
Emergency	161,525	42.8
Elective	119,801	31.7
Urgent	67,171	17.8
Newborn	24,681	6.5
Other*	3,206	0.9
Trauma Center	1,144	0.3

\*Other includes unspecified and undetermined types of hospitalizations.

**Figure 11: Admission Type**



**SOURCE OF HOSPITAL ADMISSION**

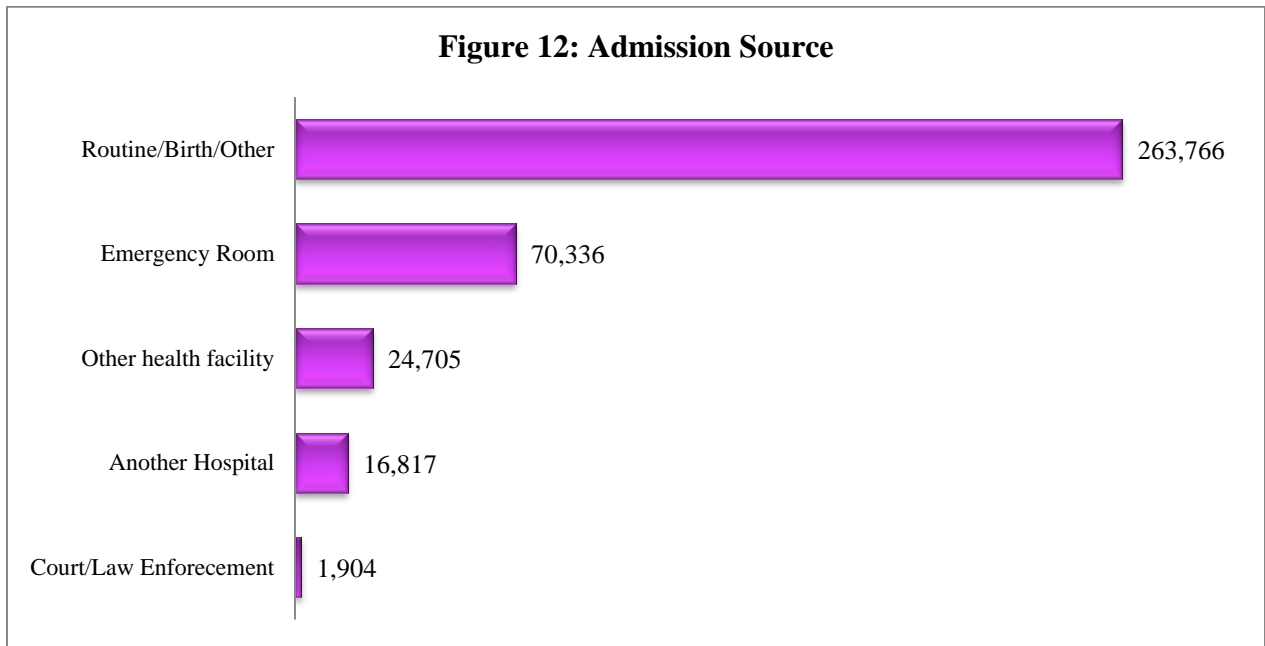
Seventy percent of all Mississippi hospitalizations occurred after a physician referral, clinical referral, delivery, or other type of routine admission. Physician referrals accounted for 223,632 (59.2%) and clinical referrals for 32,517 (8.6%) of all hospital discharges. Transfers from the emergency rooms led to 18.6% of all hospitalizations, while transfer of patients from long-term care facilities accounted for 6.5%. Transfers from other facilities occurred in 4.5% of all stays (Table 8, Figure 12).

**Table 8: Admission Source**

Source of Hospital Admission	Discharges	Percent
Routine/Birth/Other*	263,766	69.9
Emergency Room	70,336	18.6
Other health facility including long-term care	24,705	6.5
Another Hospital	16,817	4.5
Court/Law Enforcement	1,904	0.5

\*The source of hospital admission was not specified in 7,573 records. These records are grouped here under other sources of routine hospital admission and they account for 0.02% of all hospital discharges.

**Figure 12: Admission Source**



## PATIENT DISCHARGE STATUS

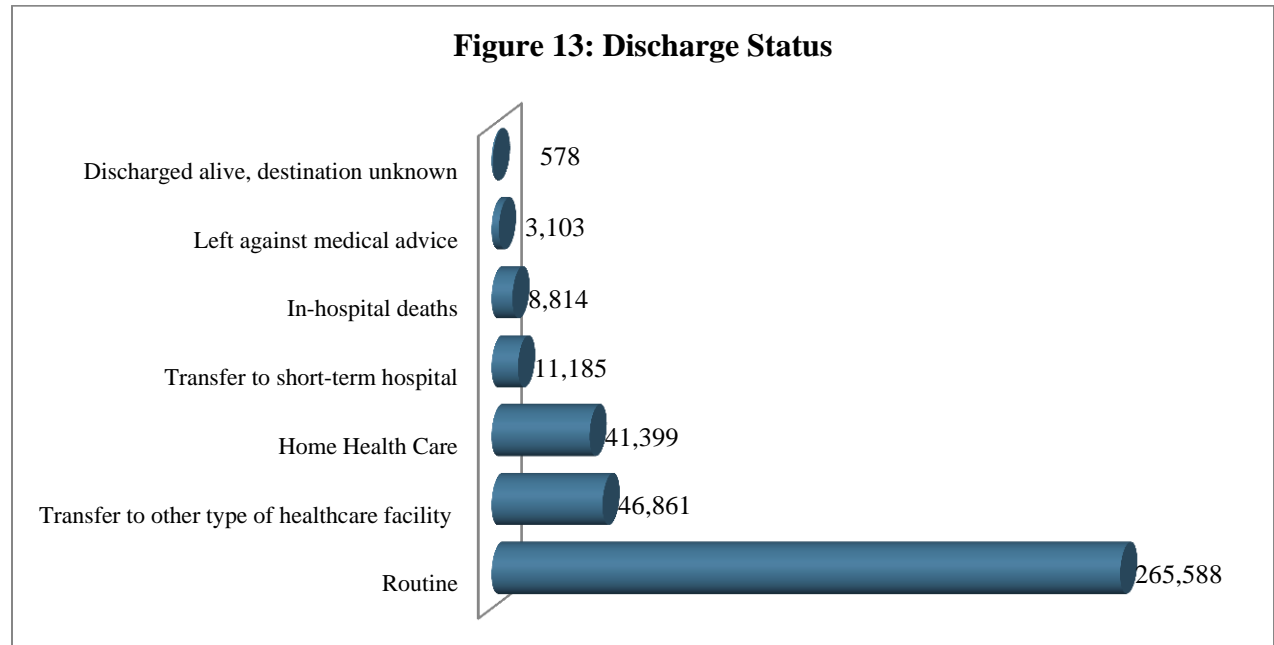
A little over seventy percent of all of Mississippi hospital stays were discharged to home or self-care. Slightly more than 12% of all hospitalized patients were transferred to various long-term health care facilities, and another 11% were under home health care after leaving the hospital. In-hospital mortality was recorded for 2.3% of all hospitalized patients and less than 1% of all hospitalized patients left against medical advice (Table 9, Figure 13).

**Table 9: Discharge Status**

Discharge status	Discharges	Percent
Routine	265,588	70.4
Transfer to other type of healthcare facility *	46,861	12.4
Home Health Care	41,399	11.0
Transfer to short-term hospital	11,185	3.0
In-hospital deaths	8,814	2.3
Left against medical advice	3,103	0.8
Discharged alive, destination unknown	578	0.2

\*Includes Skilled Nursing Facility (SNF), Intermediate Care Facility (ICF), Hospices, and Various Other Long-term Health Facilities

**Figure 13: Discharge Status**



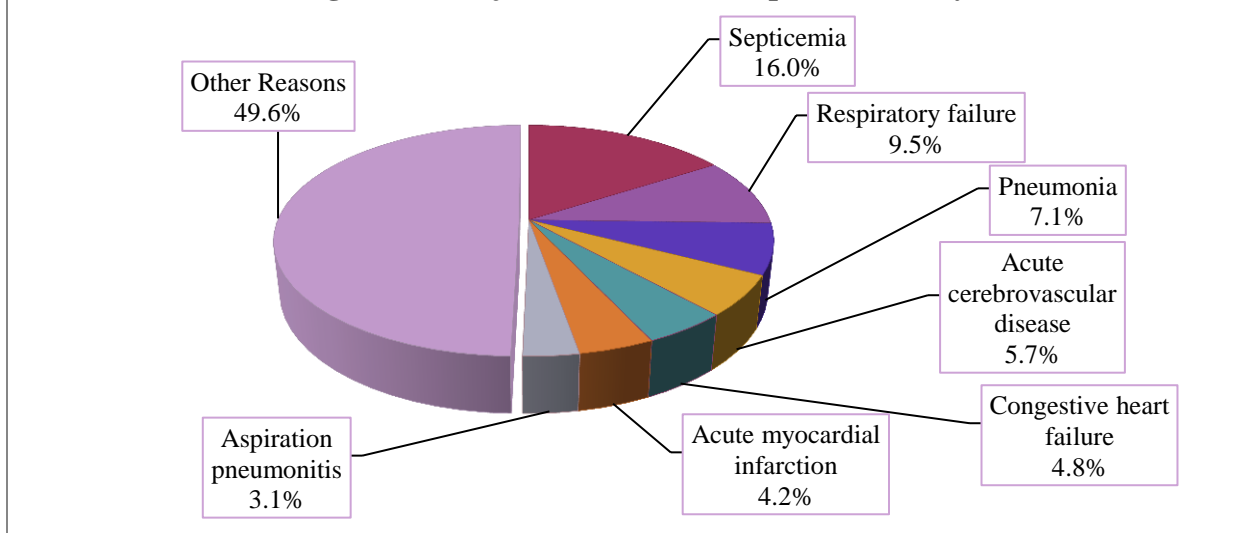
## IN-HOSPITAL MORTALITY

There were 8,814 in-hospital deaths in 2010 and the crude in-hospital mortality rate was 2.3%. Male patients had a slightly higher mortality rate (2.7%) than females (2.1%). Patients over 85 years of age had the highest in-hospital mortality rate, while children between the age of 1 and 17 years had the lowest rate. Male patients had higher in-hospital mortality compared to female patients until age 65, but after this age the trend reversed (Table 10). Septicemia led to 16% of all in-hospital deaths, followed by respiratory failure and pneumonias, which accounted, respectively, for 9.5% and 7.1% of all deaths that occurred in Mississippi's hospitals. Acute cerebrovascular disease (5.7%), congestive heart failure (4.8%), and acute myocardial infarction (4.2%) were the number four, five, and six causes of in-hospital deaths. Aspiration pneumonitis was the seventh leading cause, resulting in 275 (3.1%) in-hospital deaths. Together, these seven clinical conditions led to 50.4% of all in-hospital deaths (Figure 14).

**Table 10: Number and Rate of In-hospital Deaths**

Gender (Crude Rate)	AGE GROUP						Total In-hospital Deaths
	1 year or less	1-17 years	18-44 years	45-64 years	65-84 years	85 years+	
Female Deaths (2.1%)	72	14	178	881	2,128	1,390	4,663
Male Deaths (2.7%)	77	17	242	1,054	2,092	669	4,151
All In-hospital Deaths	149	31	420	1,935	4,220	2,059	8,814
<b>Crude In-hospital Mortality Rate (%)</b>	<b>0.5</b>	<b>0.2</b>	<b>0.4</b>	<b>2.0</b>	<b>4.0</b>	<b>6.6</b>	<b>2.3</b>

**Figure 14: Major Causes of In-hospital Mortality**





## THE TOP 20 PRIMARY CLINICAL CONDITIONS REQUIRING HOSPITALIZATION

There are one primary and up to ten secondary diagnoses recorded in hospital discharge data. Primary (principal) diagnosis is the chief reason for hospital admission and the secondary diagnoses are the co-existing clinical conditions. Table 11 lists the twenty most frequent principal diagnoses. These clinical conditions accounted for 45% of all Mississippi hospital stays in 2010. Newborn infants topped the ranking and pneumonia was the second most common diagnosis, accounting for 3.8% of all hospital discharges. Mood disorders, congestive heart failure, and chronic obstructive pulmonary disease followed closely with each contributing about 3% of all discharges. Five circulatory diseases - congestive heart failure, coronary atherosclerosis, cardiac dysrhythmias, acute cerebrovascular disease, and acute myocardial infarction were among the top twenty most frequent clinical conditions and they contributed to 10% of all hospitalizations.

**Table 11: The Twenty Most Frequent Reasons for Hospitalization**

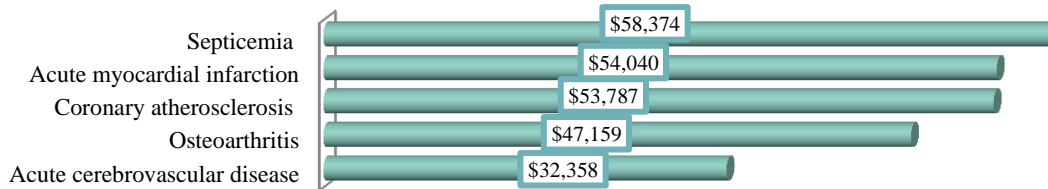
#	Primary Diagnosis	DISCHARGES		AVERAGE			Total Charges
		Number	%	LOS (days)	Charges per stay	Charges per day	
1	Live birth*	24,674	6.5	4.0	\$7,198	\$1,800	\$177,613,843
2	Pneumonia	14,160	3.8	5.7	\$25,258	\$4,431	\$357,646,967
3	Mood disorders	11,884	3.2	9.6	\$14,871	\$1,549	\$176,732,863
4	Congestive heart failure	11,230	3.0	5.4	\$25,179	\$4,663	\$282,762,247
5	Chronic obstructive pulmonary disease	9,760	2.6	4.7	\$19,894	\$4,233	\$194,163,115
6	Urinary tract infections	7,985	2.1	4.5	\$15,958	\$3,546	\$127,422,503
7	Skin and subcutaneous tissue infections	7,465	2.0	4.6	\$17,963	\$3,905	\$134,091,159
8	Septicemia	7,388	2.0	9.4	\$58,374	\$6,210	\$431,268,990
9	Coronary atherosclerosis	7,106	1.9	4.3	\$53,787	\$12,509	\$382,208,820
10	Diabetes mellitus with complications	6,848	1.8	5.5	\$24,753	\$4,501	\$169,505,737
11	Other complications of pregnancy	6,369	1.7	2.4	\$11,259	\$4,691	\$71,707,541
12	Cardiac dysrhythmias	6,355	1.7	3.9	\$23,327	\$5,981	\$148,240,609
13	Acute cerebrovascular disease	6,330	1.7	6.2	\$32,358	\$5,219	\$204,827,483
14	Acute myocardial infarction	6,218	1.7	4.7	\$54,040	\$11,498	\$336,018,546
15	Fluid and electrolyte disorders	6,196	1.6	3.7	\$12,817	\$3,464	\$79,411,218
16	Osteoarthritis	6,121	1.6	3.7	\$47,159	\$12,746	\$288,662,758
17	Schizophrenia and other psychotic disorders	5,952	1.6	17.3	\$16,925	\$978	\$100,739,103
18	Rehabilitation care	5,725	1.5	14.7	\$32,211	\$2,191	\$184,373,792
19	Other complications of birth	5,719	1.5	2.9	\$13,949	\$4,810	\$79,773,278
20	Nonspecific chest pain	5,651	1.5	2.0	\$15,754	\$7,877	\$89,023,629

\*The number of neonatal discharges with the diagnosis "live birth" is less than the estimated number of newborns in the state since some newborns might be recorded on the same administrative claim as the mother.

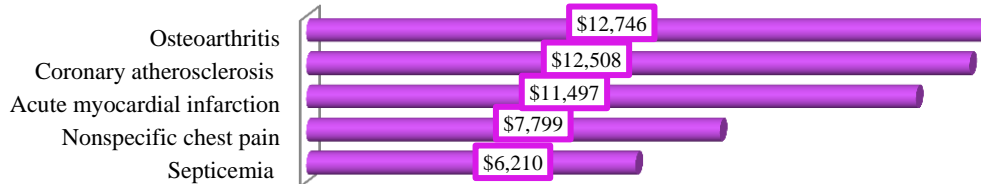
**RANKING AMONG THE TOP 20 PRIMARY CLINICAL CONDITIONS  
(THE TOP 5 AMONG THE TOP 20)**

Among the top twenty most frequent clinical conditions in Mississippi, septicemia had the highest average charges per stay, followed by myocardial infarction, coronary atherosclerosis, and osteoarthritis (Figure 15). Osteoarthritis had the highest average charges per day (Figure 16), while septicemia had the highest total charges among the top twenty most frequent medical diagnoses in 2010 (Figure 17). In the same classification, mental health conditions and rehabilitative care were the two leading conditions in terms of length of stay (Figure 18).

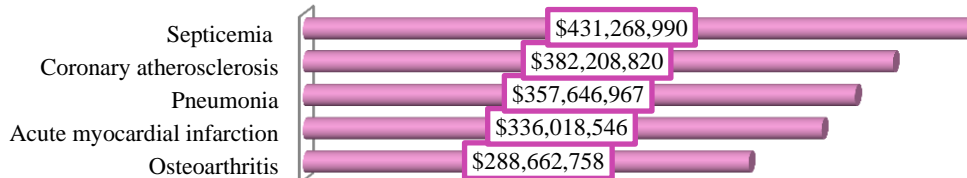
**Figure 15: Average Charges per Stay**



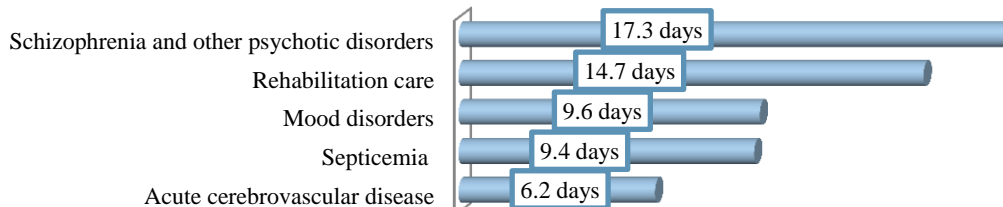
**Figure 16: Average Charges per Day**



**Figure 17: Total Charges**



**Figure 18: Average Length of Stay**



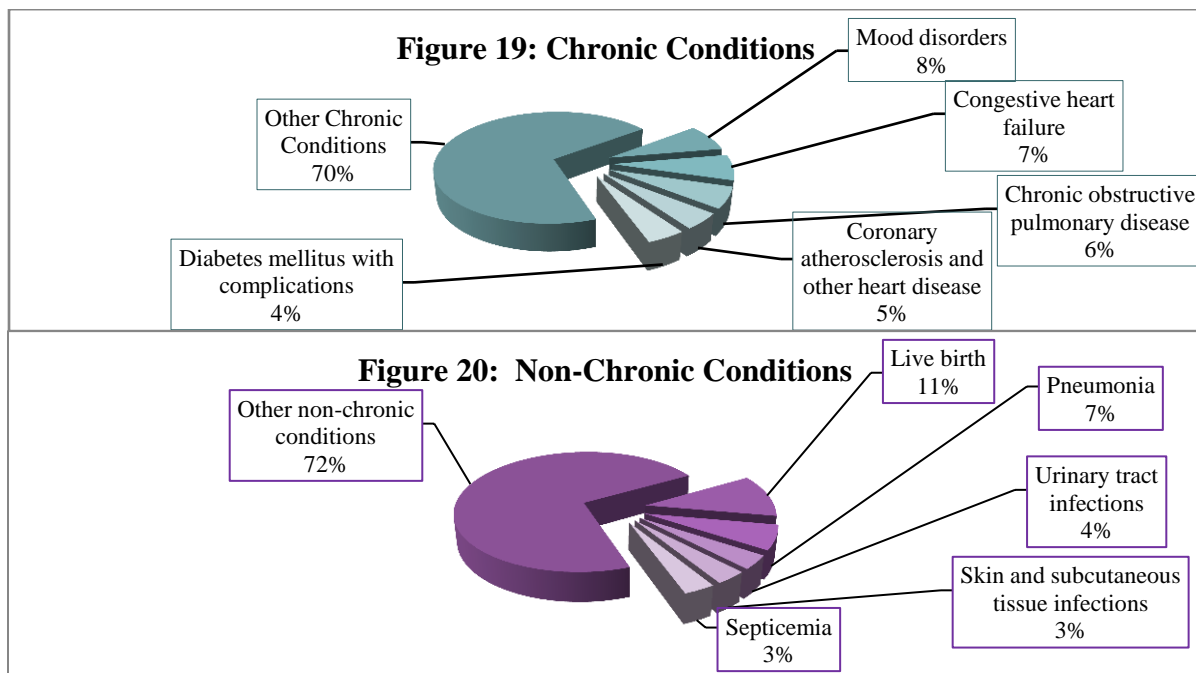
## CHRONIC VERSUS NON-CHRONIC CONDITIONS: THE MISSISSIPPI PICTURE

During a time of changing morbidity patterns and epidemic obesity, chronic conditions such as diabetes, different forms of cardiovascular disease, and many mental health conditions are of increasing importance. To categorize conditions as chronic and not chronic, we implemented the Agency for Health Care Quality and Research's Chronic Condition Indicator Software, a clinical grouper that classifies ICD-9-CM diagnoses into two mutually exclusive groups, chronic and non-chronic conditions. A chronic condition in this classification system is defined as any medical condition that lasts for 12 months or more, and might result in limitations on self-care and/or ongoing medical intervention. There were 155,629 (41.2%) discharges due to chronic conditions in 2010. Among them, mood disorders were the most prevalent group, followed by congestive heart failure, and chronic obstructive pulmonary disease (Figure 19). Non-chronic conditions led to 58.8% of all hospitalizations and among them live birth was the most predominant diagnosis, followed by various infections (Table 12, Figure 20).

**Table 12: Chronic and Non-chronic Conditions**

Clinical conditions group	DISCHARGES		AVERAGE		TOTAL	
	Number*	%	LOS (days)	Charges	LOS (days)	Charges
Non-chronic conditions	221,831	58.8	4.8	\$22,469	1,070,169	\$4,984,270,081
Chronic condition	155,629	41.2	6.4	\$29,829	998,134	\$4,642,226,484

\*There were 68 discharges that were not grouped.

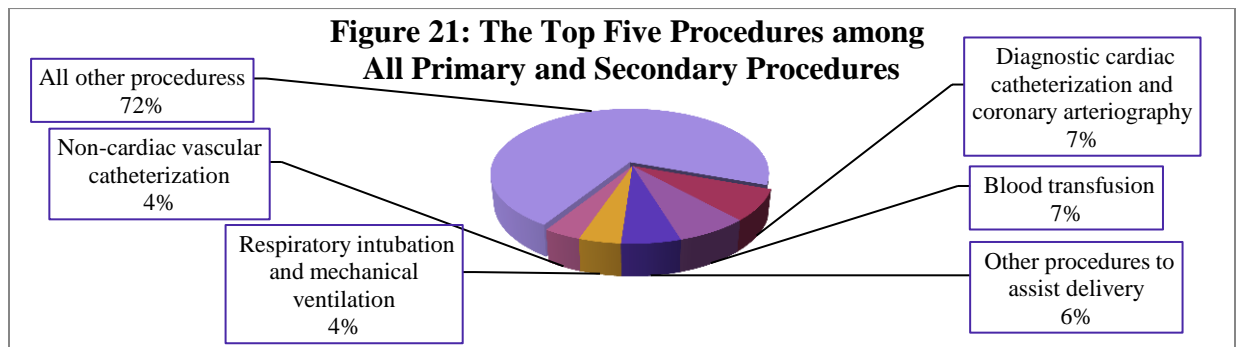


## PRIMARY AND SECONDARY MEDICAL PROCEDURES

Hospital discharge data in Mississippi contains one primary (main) and up to five secondary procedures. There were 203,435 primary procedures performed during 2010. Excluding procedures related to delivery/childbirth, the top three primary procedures performed during 2010 were blood transfusion, respiratory intubation/mechanical ventilation, and immunizations (Table 13). When all listed procedures, primary and secondary were added together, the number of procedures performed during 2010 was 402,824. Among all listed procedures, diagnostic cardiac catheterization and coronary arteriography were the top procedures performed in 2010, followed by blood transfusion, and delivery-related procedures (Figure 21). Note that the charges presented in Table 13 are the total charges per hospital stay and these charges may include services for multiple procedures.

**Table 13: The Top Ten Most Frequent Primary Procedures Performed in Mississippi**

#	Primary Procedure	Number	AVERAGE			Total charges
			LOS (days)	Charges per stay	Charges per day	
1	Other procedures to assist delivery	15,999	2.4	\$10,225	\$4,260	\$163,586,119
2	Cesarean section	12,476	3.3	\$17,950	\$5,439	\$223,941,941
3	Blood transfusion	11,326	6.0	\$27,118	\$4,520	\$307,135,715
4	Respiratory intubation and mechanical ventilation	8,315	10.4	\$64,611	\$6,213	\$537,242,987
5	Prophylactic vaccinations and inoculations	6,209	3.1	\$5,652	\$1,823	\$35,093,291
6	Upper gastrointestinal endoscopy; biopsy	5,911	5.1	\$27,313	\$5,355	\$161,445,685
7	Other vascular catheterization	5,840	9.4	\$43,700	\$4,649	\$255,210,704
8	Diagnostic cardiac catheterization; coronary arteriography	5,685	3.5	\$30,131	\$8,609	\$171,297,519
9	Percutaneous transluminal coronary angioplasty	5,312	3.3	\$59,812	\$18,124	\$317,720,112
10	Circumcision	4,883	2.8	\$3,862	\$1,379	\$18,857,478



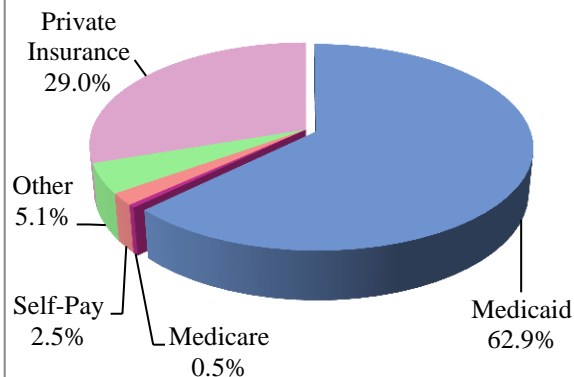
## MATERNAL AND NEONATAL DISCHARGE DATA

Among Mississippi's hospital discharges there were 39,359 maternal discharges and 26,007 neonatal discharges. Note that maternal discharges include delivery-related hospitalizations as well as any hospital stay that occurs during pregnancy. Additionally, newborns might be recorded on the same administrative claim as the mother, which may explain the discrepancy between maternal and neonatal discharge data. While the majority of deliveries in Mississippi were manually assisted, 37% were cesarean deliveries. Medicaid was the primary payer, responsible for almost 63% of all charges (Figure 22). The private insurer Blue Cross and Blue Shield accounted for 20% of all charges. Table 14 lists the top 10 principal diagnoses among all maternal discharges. These 10 clinical conditions accounted for 86.6% of all maternal discharges. In terms of absolute numbers, there were more African-American maternal discharges among younger women, but after the age of 24 this trend reversed (Figure 23).

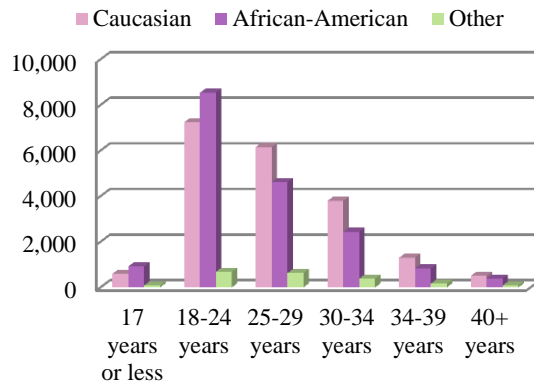
**Table 14: Top 10 Primary Diagnoses among All Maternal Discharges**

#	Clinical Condition	Discharges	%
1	Other complications of pregnancy	6,369	16.2
2	Other complications of birth and puerperium affecting management of mother	5,719	14.5
3	Previous C-section	5,174	13.2
4	Obstetric-related trauma to perineum and vulva	4,268	10.9
5	Hypertension complicating pregnancy, childbirth, and the puerperium	3,070	7.8
6	Normal pregnancy and/or delivery	2,743	7.0
7	Early or threatened labor	2,461	6.3
8	Umbilical cord complication	1,462	3.7
9	Fetal distress and abnormal forces of labor	1,415	3.6
10	Polyhydramnios and other problems of amniotic cavity	1,383	3.5

**Figure 22: Major Payers for Maternal Discharges**



**Figure 23: Age and Race Distribution of Maternal Discharges**



## EMERGENCY-TYPE HOSPITALIZATIONS

Emergency type of hospitalization means that the patient required immediate medical attention as a result of severe, life-threatening or potentially disabling conditions. Despite the fact that many emergency-type hospitalizations occur via the emergency room route, emergency-type hospitalizations are not synonymous with an emergency room visit. Instead, this term is used to indicate the priority of the hospital admission.

The number of emergency-type hospitalizations was 161,525 discharges, which is 42.3% of all hospital stays. The top twenty leading causes for emergency hospitalization accounted for half of all emergency type of hospitalizations in Mississippi and are presented in Table 15. The number one condition was pneumonia, followed by non-hypertensive congestive heart failure, and chronic obstructive pulmonary disease.

**Table 15: The Top Twenty Clinical Conditions Resulting in Emergency Hospitalizations**

Rank	Clinical Condition	Discharges	Percent
1	Pneumonia	8,188	5.1
2	Congestive heart failure; non hypertensive	7,176	4.4
3	Chronic obstructive pulmonary disease	5,933	3.7
4	Urinary tract infections	5,102	3.2
5	Septicemia (except in labor)	4,981	3.1
6	Acute cerebrovascular disease	4,330	2.7
7	Nonspecific chest pain	4,215	2.6
8	Diabetes mellitus with complications	4,163	2.6
9	Mood disorders	4,115	2.6
10	Acute myocardial infarction	4,039	2.5
11	Skin and subcutaneous tissue infections	3,941	2.4
12	Cardiac dysrhythmias	3,796	2.4
13	Fluid and electrolyte disorders	3,638	2.3
14	Coronary atherosclerosis and other heart disease	3,116	1.9
15	Asthma	2,829	1.8
16	Chronic renal failure	2,515	1.6
17	Respiratory failure; insufficiency; arrest (adult)	2,502	1.6
18	Gastrointestinal hemorrhage	2,494	1.5
19	Biliary tract disease	2,369	1.5
20	Pancreatic disorders (not diabetes)	2,329	1.4

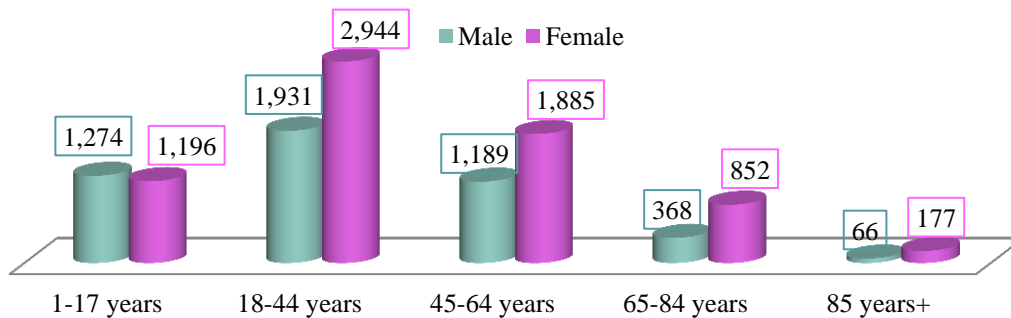
## MENTAL HEALTH

Mental health conditions led to 8.4% (31,808) of all hospital stays in Mississippi during 2010 (Table 16). Mood disorders, the leading group of mental health disorders, encompass conditions such as depressive affective disorder, manic disorder, and bipolar disorder. The majority of Mississippi patients with mood disorders were women (60%). The average length of stay was 9.5 days and the average charge per stay was \$14,871. Depicted in figure 24 are the gender and age distribution of mood disorders.

**Table 16: Mental Health Conditions**

Rank	Mental Health Condition	Discharges	Percent
1	Mood disorders	11,884	37.3
2	Schizophrenia and other psychotic disorders	5,952	18.7
3	Delirium, dementia, and amnestic and other cognitive disorders	3,694	11.6
4	Substance-related disorders	3,251	10.2
5	Alcohol-related disorders	2,314	7.3
6	Attention-deficit, conduct, and disruptive behavior disorders	1,316	4.1
7	Adjustment disorders	1,227	3.9
8	Anxiety disorders	807	2.5
9	Screening and history of mental health and substance abuse	445	1.4
10	Miscellaneous disorders	405	1.3
11	Impulse control disorders, NEC	248	0.8
12	Disorders usually diagnosed in infancy, childhood, or adolescence	92	0.3
13	Personality disorders	77	0.2
14	Suicide and intentional self-inflicted injury	55	0.2
15	Developmental disorders	41	0.1
<b>All</b>		<b>31,808</b>	<b>100.0</b>

**Fig. 24: Mood Disorders: Gender and Age Distribution**

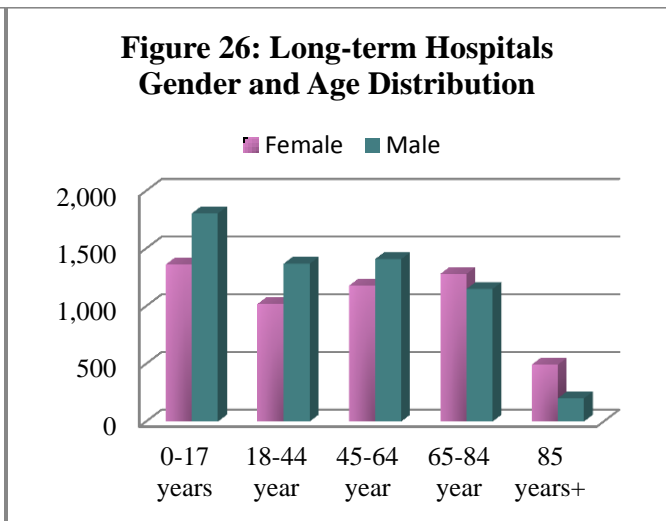
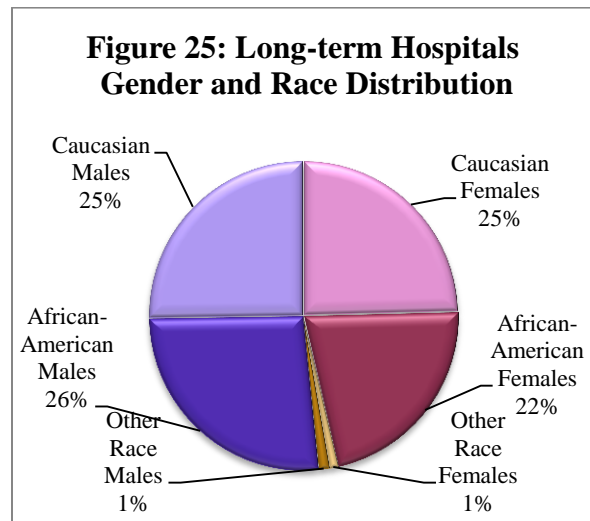


**HOSPITALIZATIONS ACCORDING TO TYPE OF HEALTH CARE FACILITY**

There were 109 reporting facilities in 2010. We stratified all reporting hospitals into two mutually exclusive groups, short and long-term healthcare facilities. Short-term hospitals include general and specialty hospitals such as obstetric facilities. Long-term healthcare hospitals include psychiatric hospitals, chemical dependency treatment facilities, and rehabilitation centers. The average length of stay was 22.6 days for the long-term and 5.0 days for the short-term hospitals. The in-hospital mortality rate was higher for the long-term (4.7%) than for the short-term hospitals (2.3%). In contrast to short-term hospitals, hospitalizations in long-term hospitals were more prevalent among male patients than female patients, a trend that reversed after the age of 65 (Table 17, Figure 25 and Figure 26). Thirty percent of all hospitalizations in long-term hospitals were due to mood disorders, followed by schizophrenia and other psychotic disorders (14.3%).

**Table 17: Resource Utilization According to the Type of Facility**

Facility	DISCHARGES		AVERAGE		TOTAL		In-hospital deaths (%)
	Number	%	LOS (days)	Charges	LOS (days)	Charges	
Short-term care	366,267	97.0	5.0	\$24,751	1,815,722	\$9,065,324,277	2.3
Long-term care	11,261	3.0	22.6	\$49,928	254,315	\$562,190,820	4.7
All	377,528	100.0	5.5	\$25,502	2,070,037	\$9,627,515,098	2.3





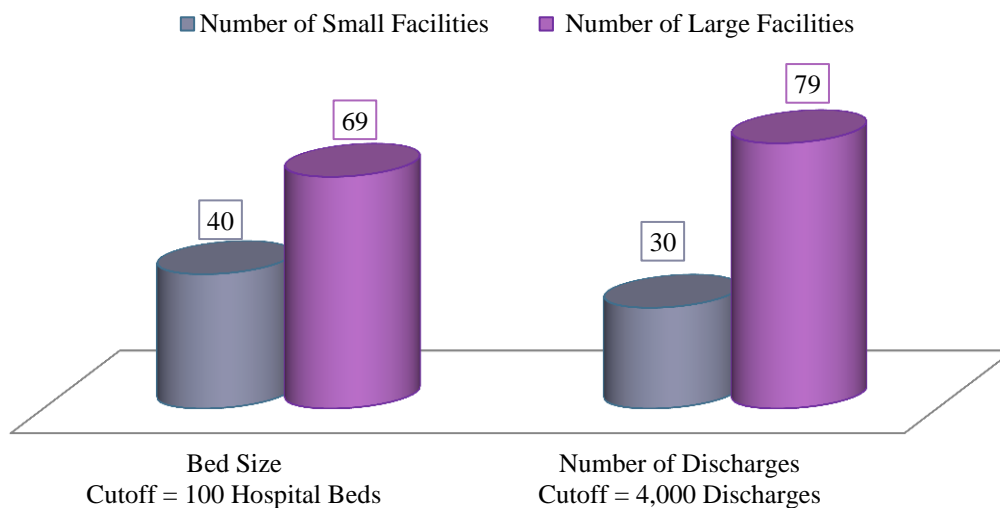
## HOSPITALIZATIONS ACCORDING TO HOSPITAL SIZE

Using criteria created by the American Hospital Association, we defined each facility that has greater than 100 hospital beds or more than 4,000 discharges as large and each facility that has fewer than 100 hospital beds or fewer than 4,000 discharges as small. Under these definitions, Mississippi had more large facilities than small facilities. In addition, these larger facilities tended to have higher average charges than their smaller counterparts (Table 18, Figure 27).

**Table 18: Stratification of Facilities by Number of Hospital Beds and by Inpatient Discharges**

FACILITY TYPE	NUMBER		AVERAGE			Total Charges
	Facility	Discharges	LOS (days)	Charges per stay	Charges per day	
<b>HOSPITAL BEDS</b>						
Large > 100 beds	69	319,215	5.1	\$26,962	\$5,286	\$8,580,928,801
Small ≤ 100 beds	40	58,313	7.8	\$17,508	\$2,244	\$1,046,586,297
<b>DISCHARGES</b>						
Large > 4,000 discharges	79	297,779	4.7	\$27,232	\$5,794	\$8,109,153,504
Small ≤ 4,000 discharges	30	79,749	8.4	\$19,039	\$2,267	\$1,518,361,594

**Figure 27: Facilities' Stratification by Number of Hospital Beds and by Number of Discharges**

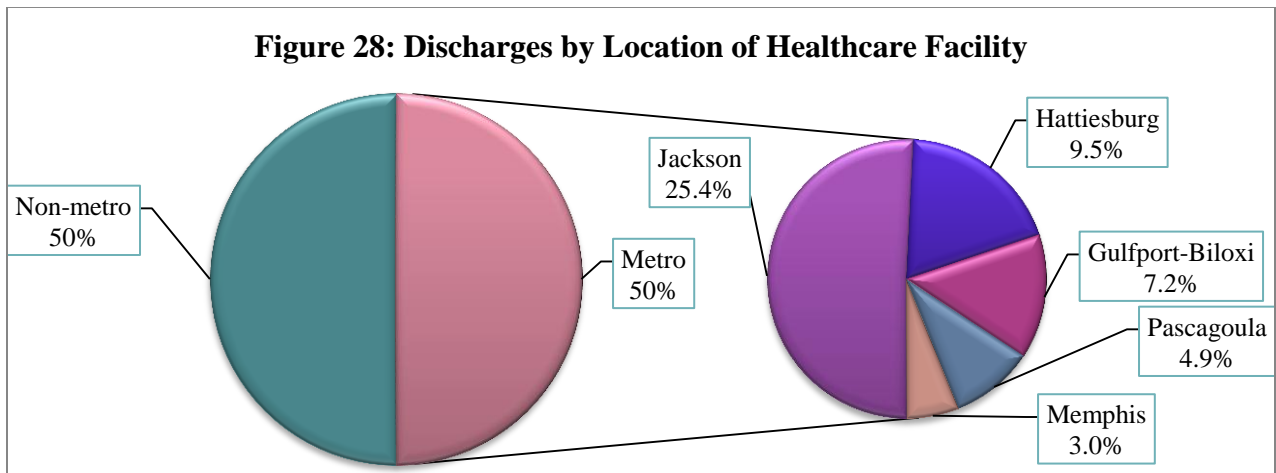


**HOSPITALIZATIONS ACCORDING TO HOSPITAL LOCATION**

There are five metropolitan areas in Mississippi, all of them encompassing a different number of counties. Facilities located within the state’s five metropolitan areas reported half of all hospital discharges. Over a quarter of all hospital discharges were reported from facilities located in the Jackson metropolitan area. Besides being the state’s largest metro area, Jackson metro has the highest concentration of health care facilities. Facilities located in Hattiesburg metro area had the second highest number of discharges (35,904 or 9.5%). Facilities located in the rest of the metro areas, Gulfport-Biloxi, Pascagoula, and Memphis, had smaller numbers of discharges due, in part, to the close proximity of these metro areas to other out-of-state major urban centers (Table 19, Figure 28).

**Table 19: Number of Facilities, Discharges, and Charges according to Hospital Location**

Facility location	DISCHARGES		AVERAGE		TOTAL	
	Number	%	LOS (days)	Charges per stay	LOS (days)	Charges
Metro areas						
Jackson	95,811	25.4	6.0	\$30,425	571,431	\$2,915,044,608
Hattiesburg	35,904	9.5	4.9	\$23,007	174,382	\$826,053,583
Gulfport-Biloxi	27,166	7.2	5.2	\$44,050	142,488	\$1,196,670,080
Pascagoula	18,283	4.9	4.2	\$39,258	77,697	\$717,760,504
Memphis	11,261	3.0	4.4	\$20,601	49,512	\$231,988,268
Non-metro Areas	189,103	50.0	5.6	\$19,778	1,054,527	\$3,739,998,055
<b>All</b>	<b>377,528</b>	<b>100.0</b>	<b>5.5</b>	<b>\$25,502</b>	<b>2,070,037</b>	<b>\$9,627,515,098</b>

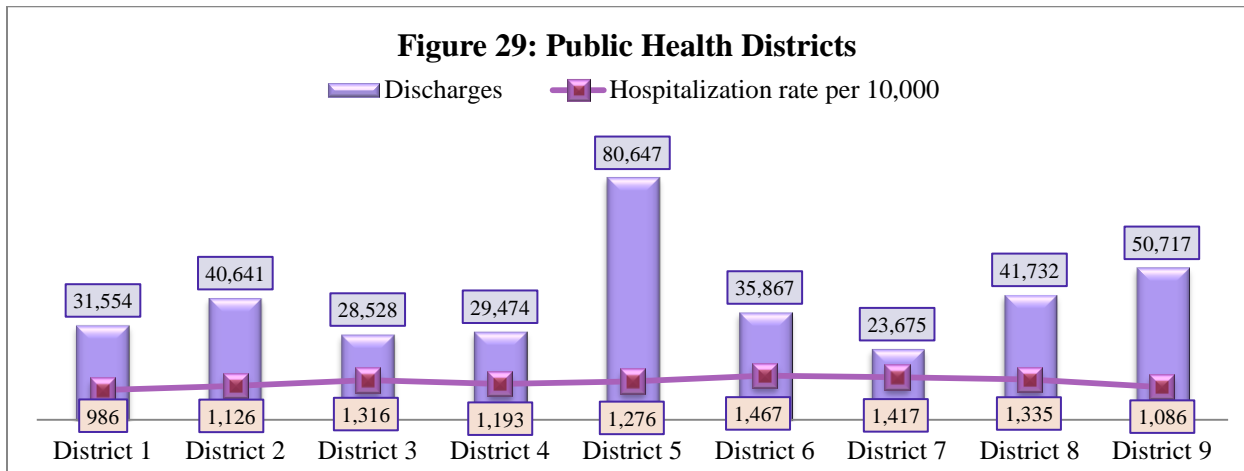


**PATIENT RESIDENCE PATTERNS: COUNTIES AND DISTRICTS**

Table 20 depicts the ranking of all Mississippi counties by hospitalization rate. The statewide rate was 1,223 hospitalizations per 10,000 persons and hospitalization rates varied extensively among different counties (Table 20). District 5, the most densely populated district in the state (21.2% of the state’s population), had the highest percent of hospital discharges (22.2%). District 7 had the lowest percent of discharges (6.6%), reflecting its small size in the overall state population (5.6%). District 6 had the highest hospitalization rate with 1,467, followed closely by District 7 with 1,417 hospitalizations per 10,000 (Figure 29).

**Table 20: County Ranking by Rate of Hospital Discharges (per 10,000 persons)**

#	County	Rate	#	County	Rate	#	County	Rate	#	County	Rate
1	Webster	2,023	22	Bolivar	1,466	43	Tunica	1,322	64	Jackson	1,072
2	Lawrence	2,017	23	Tallahatchie	1,457	44	Union	1,297	65	Smith	1,067
3	Yalobusha	1,955	24	Tishomingo	1,452	45	Lincoln	1,294	66	Choctaw	1,064
4	Neshoba	1,889	25	Perry	1,433	46	Yazoo	1,270	67	Pontotoc	1,038
5	Jefferson	1,842	26	Covington	1,415	47	Prentiss	1,258	68	Tate	1,019
6	Forrest	1,802	27	Jefferson Davis	1,407	48	Calhoun	1,258	69	Madison	1,006
7	Montgomery	1,762	28	Monroe	1,404	49	Sunflower	1,243	70	Amite	970
8	Coahoma	1,761	29	Franklin	1,403	50	Carroll	1,237	71	Washington	960
9	Clarke	1,713	30	Marion	1,403	51	Winston	1,221	72	Wilkinson	920
10	Noxubee	1,704	31	Jasper	1,400	52	Itawamba	1,198	73	Benton	916
11	Adams	1,625	32	Rankin	1,393	53	Clay	1,169	74	Pearl River	904
12	Scott	1,574	33	Lauderdale	1,387	54	Harrison	1,167	75	Hancock	844
13	Chickasaw	1,551	34	Newton	1,387	55	Wayne	1,141	76	Marshall	836
14	Pike	1,550	35	Sharkey	1,367	56	Lowndes	1,124	77	Greene	809
15	Humphreys	1,548	36	Jones	1,362	57	Walthall	1,114	78	Lafayette	745
16	Alcorn	1,538	37	Quitman	1,360	58	George	1,104	79	Lamar	712
17	Stone	1,502	38	Holmes	1,355	59	Lee	1,092	80	Oktibbeha	688
18	Leake	1,483	39	Panola	1,351	60	Warren	1,082	81	Issaquena	626
19	Leflore	1,478	40	Tippah	1,347	61	Kemper	1,076	82	Desoto	602
20	Attala	1,475	41	Copiah	1,337	62	Grenada	1,072			
21	Simpson	1,470	42	Hinds	1,334	63	Claiborne	1,072		<b>Mississippi</b>	<b>1,223</b>

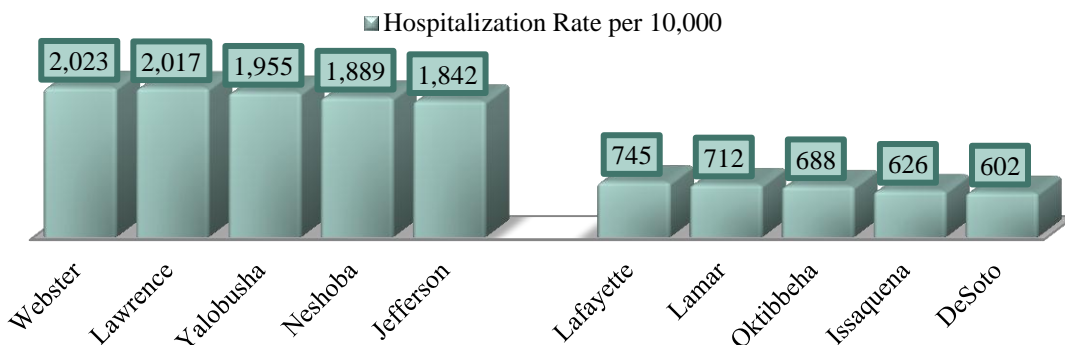


## PATIENT RESIDENCE PATTERNS COUNTY RANKING AND INFLUENCING FACTORS

While examining the predictors of hospitalization among Mississippi's residents is beyond the scope of this report, some important factors that might influence the hospitalization rate, such as median age and racial demographics, are listed in Table 21 (See next page). Socioeconomic status, educational level, and access to primary healthcare and inpatient hospital services are other crucial determinants of the population's health status and hospital utilization. In addition, three out of the five metropolitan areas in the state are located in close proximity to out-of-state urban centers, which may artificially decrease the hospitalization rate within certain regions and counties due to patient "crossover." All of these factors and their interplay should be taken into consideration when interpreting hospitalization rates.

The five counties with the highest rate of hospital discharges in Mississippi were Webster, Lawrence, Yalobusha, Neshoba, and Jefferson (Figure 30). The median age of the population in all of these counties, except Yalobusha, was in the range 35-39 years. The median age of the population in Yalobusha was 40.6 years. Additionally, all of these counties, except Jefferson, had a higher proportion of Caucasian population and the Caucasian population in Webster was four times higher than the African-American population. On the opposite end of the spectrum were DeSoto, Issaquena, Oktibbeha, Lamar, and Lafayette. The low rate of hospital discharges in DeSoto might be due to the close proximity of this county to Memphis. Issaquena, on the other hand, is a very sparsely populated area. It is worth mentioning that Issaquena, a county with a high prison population, is also one of the five counties in Mississippi without access to hospital services. The median age of the population in Lafayette and Oktibbeha was in the range 25-29 years, and the population in Lamar County, a relatively prosperous Mississippi county, was in the range 30-34 years. All of these counties, except Issaquena, also had a higher proportion of Caucasians in their population.

**Figure 30: The Fifth Highest and the Fifth Lowest Rates of Hospitalization per County of Patient's Residence**



**PATIENT RESIDENCE PATTERNS: HOSPITAL DISCHARGES, HOSPITALIZATION RATES, MEDIAN AGE AND RACIAL MAKEUP**

**Table 21: Number and Rate of Hospital Discharges by Patient's County of Residence\***

Patient's District and County of Residence	DISCHARGES		HOSPITALIZATION RATE (per 10,000 persons)			COUNTY'S MEDIAN AGE		RACIAL RATIO
	Number	%	All Races Rate	Caucasian Rate	African-American Rate	Median Age	Median Age Group (Age Range) †	Caucasian/African-American
<b>DISTRICT 1</b>	<b>31,554</b>	<b>8.8</b>	<b>986</b>	<b>946</b>	<b>1,134</b>			
Coahoma	4,606	1.3	1,761	1,565	1,828	32.8	2 (30 - 34 years)	0.3
DeSoto	9,707	2.7	602	655	561	35.0	3 (35 - 39 years)	3.3
Grenada	2,348	0.7	1,072	1,093	1,061	39.4	3 (35 - 39 years)	1.4
Panola	4,689	1.3	1,351	1,512	1,204	36.5	3 (35 - 39 years)	1.0
Quitman	1,118	0.3	1,360	1,735	1,207	37.3	3 (35 - 39 years)	0.4
Tallahatchie	2,240	0.6	1,457	1,735	1,333	35.0	3 (35 - 39 years)	0.7
Tate	2,943	0.8	1,019	978	1,188	36.0	3 (35 - 39 years)	2.2
Tunica	1,425	0.4	1,322	1,375	1,348	32.1	2 (30 - 34 years)	0.3
Yalobusha	2,478	0.7	1,955	2,296	1,478	40.6	4 (40 - 45 years)	1.6
<b>DISTRICT 2</b>	<b>40,641</b>	<b>11.4</b>	<b>1,126</b>	<b>1,191</b>	<b>1,032</b>			
Alcorn	5,701	1.6	1,538	1,531	1,805	39.2	3 (35 - 39 years)	7.5
Benton	800	0.2	916	1,130	612	39.4	3 (35 - 39 years)	1.6
Itawamba	2,804	0.8	1,198	1,167	1,905	38.5	3 (35 - 39 years)	15.5
Lafayette	3,528	1.0	745	698	955	27.7	1 (25 - 29 years)	3.0
Lee	9,056	2.5	1,092	1,161	1,020	36.4	3 (35 - 39 years)	2.5
Marshall	3,107	0.9	836	784	926	38.3	3 (35 - 39 years)	1.1
Pontotoc	3,109	0.9	1,038	1,168	707	36.4	3 (35 - 39 years)	5.8
Prentiss	3,179	0.9	1,258	1,354	774	38.5	3 (35 - 39 years)	6.1
Tippah	2,994	0.8	1,347	1,443	1,148	38.0	3 (35 - 39 years)	5.0
Tishomingo	2,845	0.8	1,452	1,493	1,252	42.0	4 (40 - 45 years)	35.7
Union	3,518	1.0	1,297	1,332	1,443	37.5	3 (35 - 39 years)	5.6
<b>DISTRICT 3</b>	<b>28,528</b>	<b>7.9</b>	<b>1,316</b>	<b>1,452</b>	<b>1,255</b>			
Attala	2,886	0.8	1,475	1,533	1,412	39.6	3 (35 - 39 years)	1.3
Bolivar	5,006	1.4	1,466	1,591	1,417	34.0	2 (30 - 34 years)	0.5
Carroll	1,311	0.4	1,237	1,052	1,612	43.3	4 (40 - 45 years)	2.0
Holmes	2,601	0.7	1,355	1,966	1,242	32.8	2 (30 - 34 years)	0.2
Humphreys	1,451	0.4	1,548	1,212	1,659	34.4	2 (30 - 34 years)	0.3
Leflore	4,777	1.3	1,478	1,785	1,392	32.8	2 (30 - 34 years)	0.3
Montgomery	1,925	0.5	1,762	1,693	1,870	41.4	4 (40 - 45 years)	1.2
Sunflower	3,660	1.0	1,243	1,417	1,171	33.5	2 (30 - 34 years)	0.3
Washington	4,911	1.4	960	1,122	894	35.3	3 (35 - 39 years)	0.4
<b>DISTRICT 4</b>	<b>29,474</b>	<b>8.2</b>	<b>1,193</b>	<b>1,217</b>	<b>1,200</b>			
Calhoun	1,882	0.5	1,258	1,307	1,253	39.7	3 (35 - 39 years)	2.4
Chickasaw	2,697	0.7	1,551	1,706	1,456	37.7	3 (35 - 39 years)	1.3
Choctaw	909	0.3	1,064	960	1,317	41.9	4 (40 - 45 years)	2.3
Clay	2,412	0.7	1,169	1,363	1,052	37.8	3 (35 - 39 years)	0.7
Lowndes	6,717	1.9	1,124	1,164	1,103	36.0	3 (35 - 39 years)	1.2
Monroe	5,192	1.4	1,404	1,477	1,264	39.5	3 (35 - 39 years)	2.2
Noxubee	1,967	0.5	1,704	1,688	1,720	36.3	3 (35 - 39 years)	0.4
Oktibbeha	3,280	0.9	688	574	902	25.4	1 (25 - 29 years)	1.6
Webster	2,074	0.6	2,023	1,940	2,456	39.9	3 (35 - 39 years)	4.0
Winston	2,344	0.7	1,221	1,304	1,139	39.5	3 (35 - 39 years)	1.1

<b>DISTRICT 5</b>	<b>80,647</b>	<b>22.2</b>	<b>1,276</b>	<b>1,336</b>	<b>1,246</b>			
Claiborne	1,030	0.3	1,072	1,478	998	33.3	2 (30 - 34 years)	0.2
Copiah	3,938	1.1	1,337	1,564	1,148	36.7	3 (35 - 39 years)	0.9
Hinds	32,725	9.0	1,334	1,395	1,322	33.1	2 (30 - 34 years)	0.4
Issaquena	88	0.0	626	432	728	38.4	3 (35 - 39 years)	0.5
Madison	9,582	2.6	1,006	985	1,083	35.8	3 (35 - 39 years)	1.5
Rankin	19,727	5.4	1,393	1,419	1,395	36.2	3 (35 - 39 years)	4.1
Sharkey	672	0.2	1,367	1,985	1,129	39.5	3 (35 - 39 years)	0.4
Simpson	4,043	1.1	1,470	1,639	1,200	37.9	3 (35 - 39 years)	1.8
Warren	5,279	1.5	1,082	1,150	1,032	37.7	3 (35 - 39 years)	1.1
Yazoo	3,563	1.0	1,270	1,450	1,169	35.1	3 (35 - 39 years)	0.7
<b>DISTRICT 6</b>	<b>35,867</b>	<b>9.9</b>	<b>1,467</b>	<b>1,574</b>	<b>1,336</b>			
Clarke	2,867	0.8	1,713	1,729	1,728	40.5	4 (40 - 45 years)	1.9
Jasper	2,388	0.7	1,400	1,438	1,302	40.6	4 (40 - 45 years)	0.9
Kemper	1,125	0.3	1,076	1,231	1,053	38.5	3 (35 - 39 years)	0.6
Lauderdale	11,130	3.1	1,387	1,528	1,232	37.0	3 (35 - 39 years)	1.3
Leake	3,530	1.0	1,483	1,832	1,130	33.2	2 (30 - 34 years)	1.2
Neshoba	5,605	1.5	1,889	2,036	1,743	35.3	3 (35 - 39 years)	2.9
Newton	3,013	0.8	1,387	1,314	1,523	37.1	3 (35 - 39 years)	2.1
Scott	4,450	1.2	1,574	1,765	1,441	34.9	2 (30 - 34 years)	1.4
Smith	1,759	0.5	1,067	942	1,488	39.1	3 (35 - 39 years)	3.3
<b>DISTRICT 7</b>	<b>23,675</b>	<b>6.6</b>	<b>1,417</b>	<b>1,281</b>	<b>1,489</b>			
Adams	5,249	1.5	1,625	880	1,818	41.1	4 (40 - 45 years)	0.8
Amite	1,274	0.4	970	895	1,058	43.7	4 (40 - 45 years)	1.4
Franklin	1,139	0.3	1,403	1,227	1,519	40.1	4 (40 - 45 years)	1.9
Lawrence	2,608	0.7	2,017	2,010	2,149	38.9	3 (35 - 39 years)	2.2
Lincoln	4,513	1.2	1,294	1,250	1,416	37.8	3 (35 - 39 years)	2.3
Pike	6,263	1.7	1,550	1,598	1,534	36.9	3 (35 - 39 years)	0.9
Walthall	1,720	0.5	1,114	1,153	1,099	38.0	3 (35 - 39 years)	1.2
Wilkinson	909	0.3	920	681	987	37.5	3 (35 - 39 years)	0.4
<b>DISTRICT 8</b>	<b>41,732</b>	<b>11.6</b>	<b>1,335</b>	<b>1,347</b>	<b>1,340</b>			
Covington	2,768	0.8	1,415	1,511	1,282	37.6	3 (35 - 39 years)	1.8
Forrest	13,503	3.7	1,802	1,851	1,794	31.3	2 (30 - 34 years)	1.7
Greene	1,165	0.3	809	829	760	36.6	3 (35 - 39 years)	2.8
Jefferson	1,423	0.4	1,842	1,283	1,890	37.6	3 (35 - 39 years)	0.2
Jefferson Davis	1,757	0.5	1,407	1,583	1,308	41.0	4 (40 - 45 years)	0.6
Jones	9,232	2.5	1,362	1,413	1,260	36.8	3 (35 - 39 years)	2.4
Lamar	3,961	1.1	712	804	426	33.0	2 (30 - 34 years)	4.0
Marion	3,801	1.1	1,403	1,436	1,320	37.7	3 (35 - 39 years)	2.0
Perry	1,755	0.5	1,433	1,505	1,224	38.7	3 (35 - 39 years)	3.9
Wayne	2,367	0.7	1,141	1,115	1,197	37.2	3 (35 - 39 years)	1.5
<b>DISTRICT 9</b>	<b>50,717</b>	<b>13.9</b>	<b>1,086</b>	<b>1,084</b>	<b>1,167</b>			
George	2,492	0.7	1,104	1,077	1,394	36.4	3 (35 - 39 years)	11.1
Hancock	3,709	1.0	844	787	876	40.7	4 (40 - 45 years)	12.4
Harrison	21,828	6.0	1,167	1,206	1,181	35.3	3 (35 - 39 years)	3.1
Jackson	14,969	4.1	1,072	1,064	1,178	37.2	3 (35 - 39 years)	3.4
Pearl Rive	5,047	1.4	904	888	1,074	38.9	3 (35 - 39 years)	6.8
Stone	2,672	0.7	1,502	1,576	1,222	35.9	3 (35 - 39 years)	4.1
<b>Mississippi</b>	<b>362,835</b>	<b>100.0</b>	<b>1,223</b>	<b>1,233</b>	<b>1,243</b>	<b>36</b>	<b>3 (35 - 39 years)</b>	<b>1.6</b>

\*This table lists discharges and rates only for Mississippi residents. Mississippi residents accounted for 362,835 and non-residents accounted for 14,693 of all hospital discharges.

† We have created four different range groups based on the county's median age: 1 (25 - 29 years), 2 (30 - 34 years), 3 (35 - 39 years), and 4 (40 - 45 years).

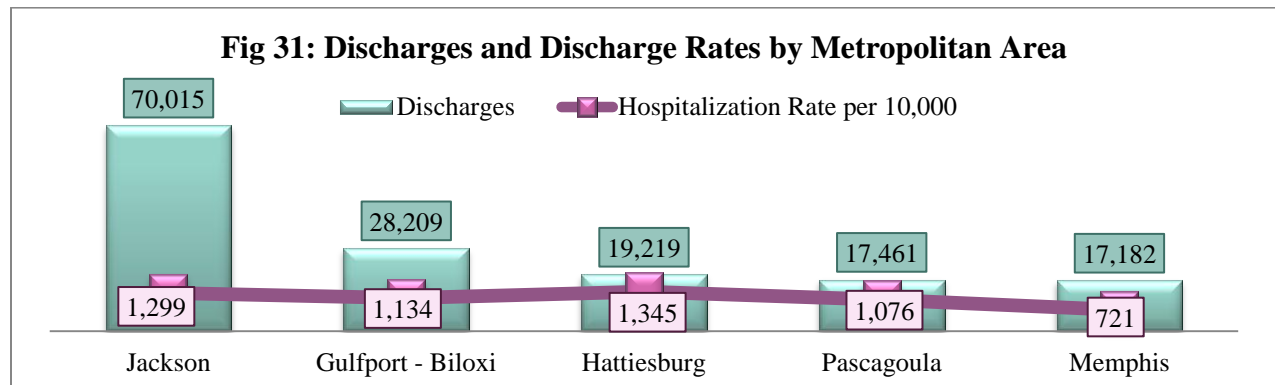
## PATIENT RESIDENCE PATTERNS: METROPOLITAN AREAS

Jackson metropolitan area had the highest absolute number of discharges, but the Hattiesburg metropolitan area had the highest rate of hospitalizations. Four counties in Mississippi, DeSoto, Marshall, Tate, and Tunica, are a part of the Memphis Metropolitan area, which encompasses three states – Tennessee, Mississippi, and Arkansas. The Memphis metro area had the lowest absolute number of discharges and the lowest rates of discharges (Table 22 and Figure 31).

**Table 22: Hospital Discharges by Metropolitan Areas**

METROPOLITAN AREA	Discharges	%	Population	Rate per 10,000
<b>Jackson, MS Metropolitan Statistical Area</b>	<b>70,015</b>	<b>19.3</b>	<b>539,057</b>	<b>1,299</b>
Copiah	3,938	1.1	29,449	1,337
Hinds	32,725	9.0	245,285	1,334
Madison	9,582	2.6	95,203	1,006
Rankin	19,727	5.4	141,617	1,393
Simpson	4,043	1.1	27,503	1,470
<b>Gulfport – Biloxi, MS Metropolitan Statistical Area</b>	<b>28,209</b>	<b>2.6</b>	<b>248,820</b>	<b>1,134</b>
Hancock	3,709	1.0	43,929	844
Harrison	21,828	6.0	187,105	1,167
Stone	2,672	0.7	17,786	1,502
<b>Hattiesburg, MS Metropolitan Statistical Area</b>	<b>19,219</b>	<b>5.3</b>	<b>142,842</b>	<b>1,345</b>
Forrest	13,503	3.7	74,934	1,802
Lamar	3,961	1.1	55,658	712
Perry	1,755	0.5	12,250	1,433
<b>Pascagoula, MS Metropolitan Statistical Area</b>	<b>17,461</b>	<b>4.8</b>	<b>162,246</b>	<b>1,076</b>
George	2,492	0.7	22,578	1,104
Jackson	14,969	4.1	139,668	1,072
<b>Memphis, TN-MS-AR Metropolitan Statistical Area</b>	<b>17,182</b>	<b>4.7</b>	<b>238,060</b>	<b>721</b>
DeSoto	9,707	2.7	161,252	602
Marshall	3,107	0.9	37,144	836
Tate	2,943	0.8	28,886	1,019
Tunica	1,425	0.4	10,778	1,322
<b>All Metropolitan Areas</b>	<b>152,086</b>	<b>42.0</b>	<b>1,331,025</b>	<b>1,142</b>
<b>Non-metropolitan Areas</b>	<b>210,749</b>	<b>58.0</b>	<b>1,636,272</b>	<b>1,288</b>

**Fig 31: Discharges and Discharge Rates by Metropolitan Area**



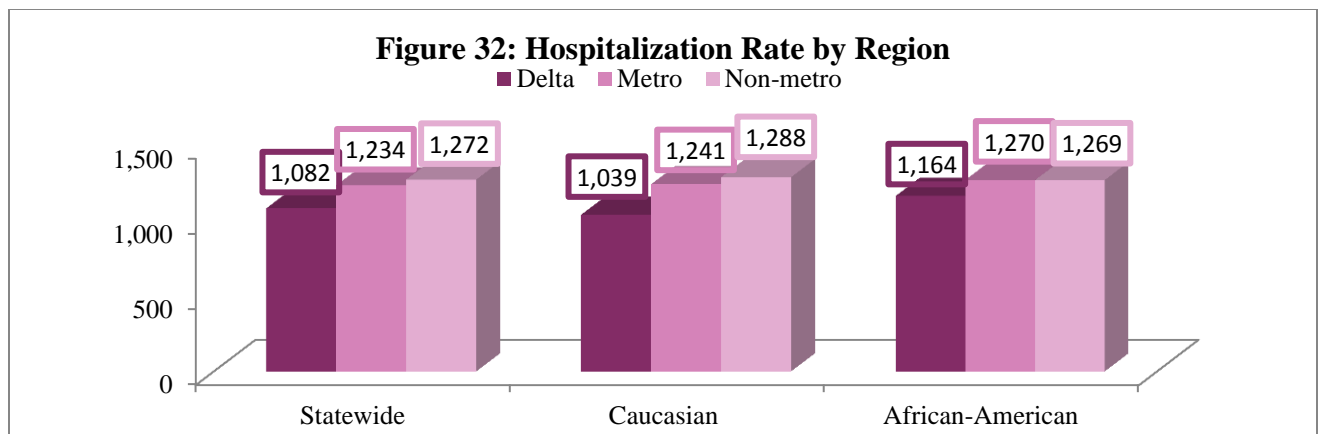


## PATIENT RESIDENCE PATTERNS: THE DELTA

The Mississippi Delta is a region of eighteen counties in the northwestern part of the state. In order to evaluate the patterns of hospitalizations in the Delta, we created three mutually exclusive groups: the Delta region, the metro region, and the non-metro region. For the purpose of this analysis, the metro region included only four out of the five metro areas, namely Jackson, Hattiesburg, Gulfport-Biloxi, and Pascagoula metro areas. We excluded the Memphis metro area since some of the counties within this metro area are part of the Mississippi Delta. The Delta region, home to 19% of the population in Mississippi, accounted for 16.4% of all hospitalizations. This region had 1,082 hospitalizations per 10,000 persons, and this rate was higher for African-Americans (1,164) than for Caucasians (1,039). The overall hospitalization rates in metro and non-metro regions were similar and both regions had higher hospitalization rates than the Delta (Table 23, Figure 32). After excluding DeSoto, a Mississippi county adjacent to Memphis, Tennessee, the hospitalization rate for the Delta increased from 1,082 to 1,279 per 10,000 persons (1,349 for Caucasians and 1,251 for African-Americans). This increase in the rate demonstrates the impact of this major suburban county, home to 16% of the Delta's population, on the region's hospitalization rate.

**Table 23: Number of Discharges and Hospitalization Rate**

Regions	DISCHARGES				HOSPITALIZATION RATE (per 10,000 persons)			RATIO
	Number (All Races)	%	Caucasian Race	African- American Race	All Races	Caucasian Race	African- American Race	Caucasian/ African- American
Delta	60,047	16.4	27,049	32,113	1,082	1,039	1,164	0.9
Metro	134,904	37.0	82,652	47,923	1,234	1,241	1,270	1.8
Non-metro	167,884	46.6	106,664	56,472	1,272	1,288	1,269	1.9





### VOLUME OF HOSPITALIZATIONS PER FACILITY: THE TOP 20 FACILITIES

The top 20 health care facilities in terms of total number of discharges, their average length of stay, and their average and total charges are depicted in Table 24. These top twenty facilities contributed to 66% of all inpatient hospitalizations and 72% of the total hospitalization charges in 2010. Forrest General Hospital in Hattiesburg was the facility experiencing the highest volume of inpatient hospitalizations (7.5%) during 2010. The highest average charges per hospitalization occurred at Memorial Hospital in Gulfport (\$51,927) and the highest average charges per day occurred at Ocean Springs Hospital (\$10,810). The lowest average charges per stay and per day occurred at South Central Regional Medical Center, \$13,369 and \$2,906 respectively. The average length of stay ranged from 3.5 days for Southwest Mississippi Regional Medical to 6.4 for University Hospitals & Health System.

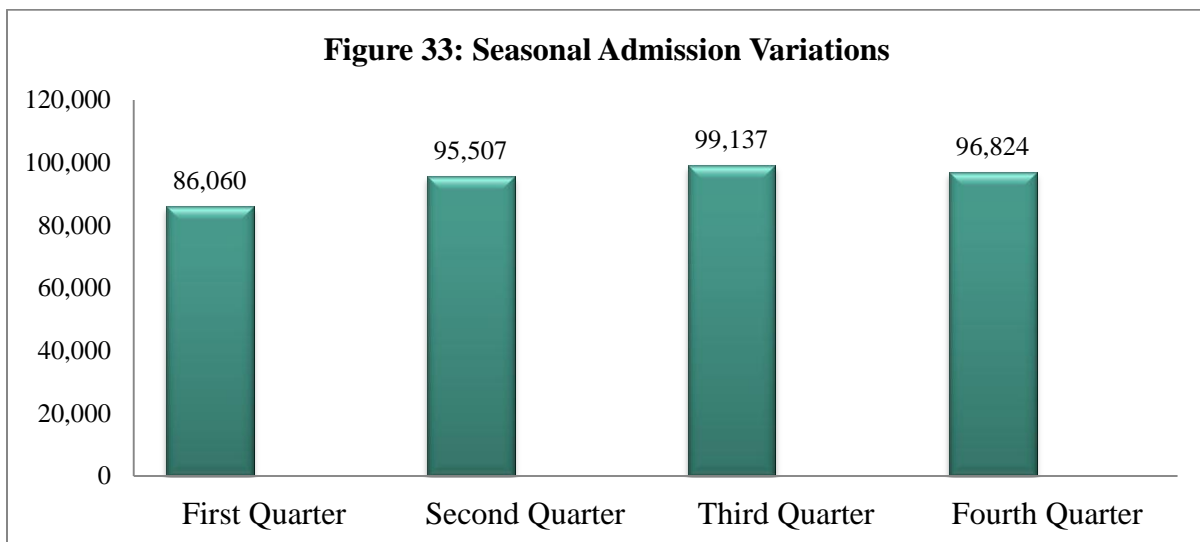
**Table 24: Number of Discharges, Mean LOS, Mean and Total Charges: The Top 20 Facilities**

#	Facility	Discharges	AVERAGE			Total charges
			LOS	Charges per stay	Charges per day	
All		377,528	5.5	\$25,502	\$4,637	\$9,627,515,098
1	Forrest General Hospital	28,270	4.8	\$17,390	\$3,622	\$491,601,503
2	North Mississippi Medical Center	21,974	5.0	\$23,748	\$4,750	\$521,827,596
3	St. Dominic - Jackson Memorial Hospital	21,223	5.4	\$26,584	\$4,923	\$564,186,911
4	Mississippi Baptist Medical Center	20,456	4.3	\$22,641	\$5,265	\$463,137,266
5	Baptist Memorial Hospital - Desoto	18,198	4.3	\$23,316	\$5,422	\$424,298,276
6	University Hospitals & Health System	16,897	6.4	\$36,617	\$5,721	\$618,725,693
7	Memorial Hospital at Gulfport	13,187	5.5	\$51,927	\$9,441	\$684,756,711
8	Central Mississippi Medical Center	11,385	5.0	\$43,780	\$8,756	\$498,440,024
9	Anderson Regional Medical Center	10,493	4.9	\$23,101	\$4,714	\$242,396,273
10	Baptist Memorial Hospital - North Mississippi	9,202	4.6	\$21,784	\$4,736	\$200,453,333
11	Singing River Hospital	8,687	4.1	\$37,465	\$9,138	\$325,462,466
12	Baptist Memorial Hospital - Golden Triangle	8,361	4.8	\$19,586	\$4,080	\$163,755,717
13	Magnolia Regional Health Center	8,295	4.7	\$26,835	\$5,709	\$222,599,971
14	Ocean Springs Hospital	8,141	4.3	\$46,484	\$10,810	\$378,427,244
15	River Oaks Hospital	8,126	3.5	\$33,587	\$9,596	\$272,928,482
16	South Central Regional Medical Center	7,654	4.6	\$13,369	\$2,906	\$102,324,770
17	Biloxi Regional Medical Center	7,247	4.7	\$35,941	\$7,647	\$260,468,029
18	Wesley Medical Center	7,245	4.2	\$40,176	\$9,566	\$291,072,334
19	Greenwood Leflore Hospital	6,900	4.5	\$21,167	\$4,704	\$146,054,333
20	Southwest Mississippi Regional Medical	6,620	3.5	\$14,925	\$4,264	\$98,805,465

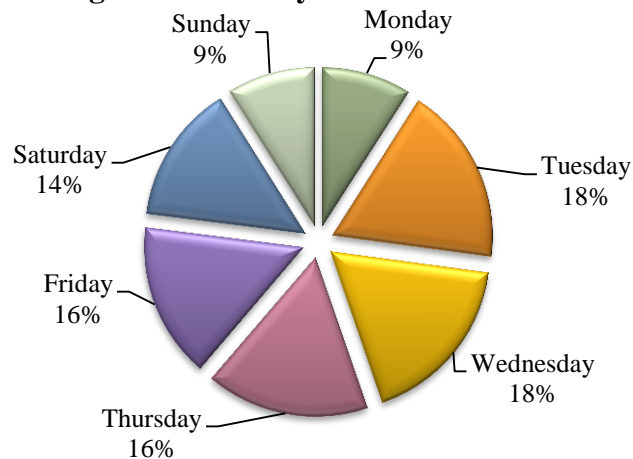
## SEASONAL AND WEEKLY VARIATIONS IN HOSPITAL DISCHARGES

The first quarter of 2010 had the lowest number of admissions in Mississippi, while the third quarter had the highest number of admissions. August was the busiest month for Mississippi hospitals with 34,818 hospital stays or 9.2% of all hospitalizations. On the opposite end was February with 26,439 hospital stays or 7% of all hospitalizations. Monday and Sunday had the fewest admissions, while Tuesday and Wednesday were the busiest days of the week (Figure 33 and Figure 34).

**Figure 33: Seasonal Admission Variations**



**Figure 34: Weekly Admission Pattern**



## TERMS AND DEFINITIONS

**Admission source:** The admission source (physician referral, emergency room, another hospital, another type of facility, and/or correction facility) is the point of patient origin for the admission.

**Admission type:** The admission type indicates the priority of the hospital admission and/or the conditions under which the patient was admitted. There are five major types of admission: emergency, urgent, elective, newborn (intramural), and trauma center.

**Diagnoses:** Diagnosis denotes a clinical condition and all diagnoses (conditions) are assigned ICD-9-CM codes. Each hospital stay has one primary and up to ten secondary diagnoses.

**Primary:** The primary diagnosis is the clinical condition established to be chiefly responsible for the admission.

**Secondary:** Secondary diagnoses are all coexisting clinical conditions at the time of admission or any conditions that develop during the hospitalization.

**Discharge Status:** The discharge status indicates the disposition of the patient at the end of the service. The discharge status includes six categories: routine (to home), transfer to another short-term hospital, transfer to other facilities, home health care, left against medical advice, and in-hospital death.

**Hospital Charges:** Hospital charges are the amount of money that the hospital bills for the entire hospital stay and for all the services and interventions performed during that stay. They may not represent the actual amount that the hospital collects and the actual cost of the services provided.

**Hospital Discharge:** Hospital discharge is a hospital stay that ends with the patient's release from the hospital (or with the patient's in-hospital death). A patient might have multiple discharges within a year.

**Maternal Discharge:** Maternal discharges are all pregnancy and delivery-related discharges.

**Metropolitan Hospital:** We have defined any hospital located within a metropolitan area as a metropolitan hospital, regardless of its size and type. A metropolitan area contains a specific number of counties as defined by the United States Census Bureau.

**Neonatal Discharge:** Neonatal discharges are all newborn-related discharges.

**Primary Payer:** Primary payer is the expected source of payment. A hospital stay might have additional sources of payment (secondary payers).

**Procedure:** A surgical or non-surgical medical intervention. Each hospital stay can have multiple procedures. Discharge data has one primary and up to five secondary procedures.