Issue Brief

Potentially Avoidable Hospitalizations

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The Methodist Le Bonheur Center for Healthcare Economics

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Introduction

Tennesseans spend more on hospital care than any other medical treatment, with hospital costs accounting for more than a third of all dollars spent on health care in 2007[1]. In many cases these costly hospitalizations could be avoided. This Issue Brief begins with an overview of hospital services in Tennessee followed by a detailed look at potentially avoidable hospitalizations (PAHs). It then examines differences in PAHs by gender, age, race, and ends with a comparison of the four most populous counties in the state. While there are many different types of hospitals, this report focuses only on short-term general and critical access hospitals. Of all non-maternal adult discharges from Tennessee hospitals, about 11% were for out-of-state patients, mostly from Virginia, Mississippi, and Georgia. These patients are excluded from all analyses.

Tennessee Hospitalizations

In 2007, Tennessee hospitals discharged about 572,000 adult patients, resulting in an estimated expenditure of $4,840 million. Total days of inpatient treatment were almost 2.9 million, and the average expenditure per day was about $1,680. Table 1 shows the number of discharges in each major diagnostic category, total inpatient days, and estimated expenditures for each[2]. Expenditures are the total of the amounts paid by patients and third-party payers (e.g. insurance companies) for hospital care . They are estimated from the reported hospital charges. On average, expenditures were about 33% of total charges in 2007[3].

Table 1: Tennessee Inpatient Discharges, Days, and Expenditures by MDC

Major Diagnostic Category	Discharges	Days	Expenditures[a]
Diseases & Disorders of the Circulatory System	122,787	229,852	1,250.0
Diseases & Disorders of the Respiratory System	81,821	2,280	603.0
Diseases & Disorders of the Digestive System	63,120	18,772	472.0
Diseases & Disorders of the Musculoskeletal System & Connective Tissue	58,535	457,203	701.0
Diseases & Disorders of the Nervous System	43,860	535,405	367.0
Diseases & Disorders of the Kidney & Urinary Tract	33,168	320,434	213.0
Endocrine, Nutritional & Metabolic Diseases & Disorders	23,603	108,641	117.0
Diseases & Disorders of the Hepatobiliary System & Pancreas	21,169	249,124	176.0
Mental Diseases & Disorders	21,033	77,598	96.1
Infectious & Parasitic Diseases	19,405	89,176	224.0
Diseases & Disorders of the Skin, Subcutaneous Tissue & Breast	17,311	158,511	88.8
Diseases & Disorders of the Female Reproductive System	13,808	11,735	82.7
Injuries, Poisonings & Toxic Effects of Drugs	10,192	40,366	61.9
Factors Influencing Health Status & Other Contacts with Health Services	10,122	37,135	72.1
Diseases & Disorders of Blood, Blood Forming Organs, and Immunological Disorders	8,320	38,136	52.3
Diseases & Disorders of the Ear, Nose, Mouth & Throat	5,304	148,634	34.3
Myeloproliferative Diseases & Disorders, Poorly Differentiated Neoplasm	4,723	164,321	70.1
Diseases & Disorders of the Male Reproductive System	4,276	17,617	26.4
Alcohol/Drug Use & Alcohol/Drug Induced Organic Mental Disorders	4,120	37,056	13.7
Multiple Significant Trauma	2,168	4,808	73.5
Human Immunodeficiency Virus Infections	1,607	100,579	18.4
Diseases & Disorders of the Eye	667	22,551	3.6
Burns	560	12,942	14.8
Pre-MDC/Unassigned	558	3,785	4.9

[a] Estimated from hospital-reported charges

What is a Potentially Avoidable Hospitalization?

Hospitalizations for ambulatory care sensitive conditions (ACSCs) are called potentially avoidable hospitalizations (PAHs) because they can be prevented with high quality and timely preventive care. A PAH is not an unnecessary hospitalization; the patient truly needs hospital care.

The Agency for Healthcare Research and Quality (AHRQ) defines the specifications for determining which hospitalizations are potentially avoidable. Each discharge is classified based on diagnoses codes and procedures performed, if any. Collectively, the rates of PAHs are called Prevention Quality Indicators (PQIs). AHRQ recommends these quality indicators as an measure of quality of care in the ambulatory setting, meaning care provided in physicians' offices and urgent care clinics[4].

It is important to note that while PAHs suggest a lack of access to effective primary care in the outpatient setting, many other factors can also contribute to the rate of PAHs in a community, including individuals' health status, when they seek treatment, and individuals' willingness to engage in health-promoting behaviors.

It is important, too, to note that the terms "ambulatory care sensitive condition," "potentially avoidable hospitalization," and "prevention quality indicator" should not be used interchangeably. ACSC refers specifically to the principal diagnosis while PAH, by contrast, refers to the hospitalization resulting from the ACSC. Finally, a PQI is the community-wide rate of PAHs, generally measured per 100,000 people.

PAHs can be classified as a chronic or acute condition. Chronic ACSCs require certain preventive health services and regular maintenance visits to a primary care physician. By contrast, acute ACSCs are those not requiring ongoing management but are still sensitive to primary care treatment. Chronic ACSCs are diabetes, hypertension, congestive heart failure (CHF), angina (if no cardiac procedure is performed), asthma, and chronic obstructive pulmonary disease (COPD).

Acute PQIs are measured using hospitalizations for the following ACSCs: dehydration, bacterial pneumonia, urinary tract infection, and perforated appendix. The perforated appendix PQI is measured differently from all of the others. It is calculated per appendicitis admission rather than at the population level. Because it has a different denominator, the peforated appendix PQI is treated separately and not included in summary rates for this Issue Brief.

State-Wide Rates of Potentially Avoidable Hospitalizations

Our application of the PQI software to the Tennessee inpatient discharge data for 2007 shows that of the total discharges in Tennessee, about 17% of these hospitalizations might have been avoided with adequate primary care, saving an estimated $491 million (10% of costs for all hospitalizations). The majority of PAHs are for chronic conditions (59%). Of the chronic conditions, most hospitalizations are for CHF followed by COPD.

Table 2 shows the number of PAHs and the rate per 100,000 adults in the general population for each of the different ACSCs. Expected rates of PAH by type are also shown in Table 2. Expected rates represent what Tennessee's rates would be if Tennessee had the same rate of PAHs as the rest of the nation given its popualation. They are calculated by the AHRQ software using adjustments for age, gender, and poverty status[5].

Table 2: Potentially Avoidable Hospitalizations by ACSC

	PAHs	Observed Rate[a]	Expected Rate[b]
Chronic ACSCs	**54,781**	**1,179.9**	**928.4**
Short-term diabetes complications (PQI 1)	3,176	68.4	54.7
Long-term diabetes complications (PQI 3)	5,643	121.5	115.2
Uncontrolled diabetes (PQI 14)	1,154	24.9	20.5
Lower extremity amputations due to diabetes (PQI 16)	1,650	35.5	32.6
Hypertension (PQI 7)	3,424	73.7	57.8
Congestive heart failure (PQI 8)	20,996	452.2	352.1
Angina without procedure (PQI 13)	1,032	22.2	26.2
Chronic pulmonary obstructive disease (PQI 5)	13,311	286.7	180.4
Adult asthma (PQI 15)	5,218	112.4	106.2
Acute ACSCs	**39,602**	**852.9**	**576.6**
Dehydration (PQI 10)	6,148	132.4	94.5
Bacterial pneumonia (PQI 11)	22,580	486.3	319.9
Urinary tract infection (PQI 12)	10,874	234.2	161.1
Perforated Appendix (PQI 10)	1,071	33.8	30.9
Chronic and Acute ACSCs[c]	**94,381**	**2,032.8**	**1,509.4**

[a] Per 100,000 adults, except perforated appendix; perforated appendix shown per 100 appendicitis admissions
[b] Expected rate given state sociodemographic characteristics
[c] Excludes perforated appendix

For almost all types of PAHs, Tennessee's 2007 rates are above the expected rates given the demographic characteristics of the state's population. The difference between observed and expected rates may be explained by lower quality primary care in Tennessee than in the rest of the nation, poorer average health, Tennesseans delaying or seeking care from inappropriate places, or some combination of these factors.

Gender and Age Differences

Considerable variations in PAHs exist among Tennesseans of different gender, age, and race groups. Table 3 shows the rates per 100,000 adults for men and women and the difference between women and men. Overall, women have 2,327 PAHs per 100,000 adults, 609 more PAHs than men, or 1.4 times as many. For chronic conditions, the rates are closer—women have 1.2 times as many PAHs as men. Most of the difference, however, comes from acute conditions—women have 377 more acute PAHs per 100,000 than men, or 1.6 times as many.

PAHs become more common as individuals grow older. This is in part due to greater disease burden and likelihood of any admission as people get older. However, disparity amongst age groups may also be an indication that older

Table 3: Rates of PAHs per 100,000 Adults by Gender and Age

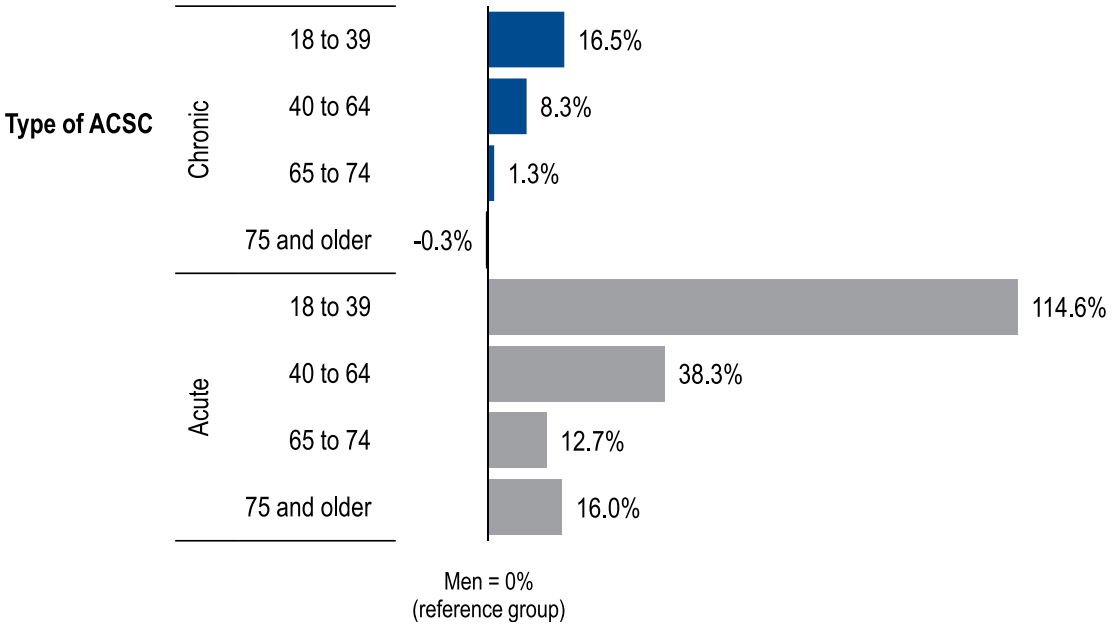
	Men	Women	Difference
Chronic ACSCs	**1,059.3**	**1,291.9**	**232.6**
18 to 39	131.8	282.9	151.1
40 to 64	463.1	640.4	177.3
65 to 74	1,657.5	1,867.5	210.0
75 and older	4,297.4	4,986.6	689.2
Acute ACSCs[a]	**657.3**	**1,034.7**	**377.4**
18 to 39	240.1	279.7	39.6
40 to 64	989.9	1,072.3	82.4
65 to 74	2,711.2	2,746.2	35.0
75 and older	4,851.9	4,836.9	-15.0
Chronic and Acute ACSCs[a]	**1,716.6**	**2,326.5**	**609.9**
18 to 39	371.9	562.7	190.8
40 to 64	1,453.0	1,712.6	259.6
65 to 74	4,368.8	4,613.7	244.9
75 and older	9,149.3	9,823.1	673.8

[a] Excludes perforated appendix

Tennesseans are not getting the high-quality preventive care they need.

As shown in Table 3, men 75 years and older in Tennessee have about 9,150 PAHs per 100,000 while young men ages 18 to 39 years old have just 372 PAHs per 100,000. The oldest men experience nearly 25 PAHs for every one PAH experienced by young men. For women, the age difference, though smaller, is still

Figure 1: Gender Differences in PAH Rates



substantial—17 PAHs for the oldest women for every one PAH for young women.

Women in Tennessee are older than men on average. The median age for women is about 39 years, compared to 36 years for men. In the oldest age group (75 and older), women outnumber men two to one[6]. However, the gender difference in PAH rates seems unrelated to women being older. Figure 1 shows the differences between women and men as a percentage of men's PAHs by type of ACSC[7]. It is clear that women have much higher PAH rates than men for acute ACSCs, regardless of age. Young women, especially, fare worse than men of the same age group. This is particularly true for acute conditions where the rate of PAHs for young women is about 115% higher than that of young men.

Race, Gender, and Age Differences

As seen in the previous section, men generally have lower rates of PAHs than women. This section expands the analysis to differences among whites, African-Americans, and Hispanics. Table 4 shows the observed and expected PAH rates by race or ethnicity. Population and number of PAHs are also shown for reference.

The rate of PAHs for African-Americans is about 26% higher than their white counterparts: 2,352 compared to 1,868 per 100,000 adults. This is due largely to PAHs for chronic conditions, where the rate is nearly 70% higher for African-Americans than for whites. The rate of PAHs for acute conditions is lower in the African-American population than in the white population by a substantial 24.3%.

The overall rate of PAHs in the Hispanic population is about 6.5% lower than whites. For chronic ACSCs, the rate of PAHs for Hispanics was about 6.8% lower than that for whites.

Table 4: Observed and Expected PAH Rates by Race or Ethnicity

	Adult Population	PAHs[a]	Observed Rate[b]	Expected Rate[c]
Chronic ACSCs				
White/Caucasian	4,725,137	37,901	1,024.3	981.1
Black/African-American	1,015,129	12,118	1,713.3	767.1
Hispanic/Latino/Latina	195,614	1,248	955.1	455.6
Acute ACSCs				
White/Caucasian	4,725,137	31,229	844.0	613.2
Black/African-American	1,015,129	4,520	639.0	460.6
Hispanic/Latino/Latina	195,614	1,038	791.5	260.5
Chronic and Acute ACSCs				
White/Caucasian	4,725,137	69,129	1,868.3	1,594.2
Black/African-American	1,015,129	16,637	2,352.2	1,227.7
Hispanic/Latino/Latina	195,614	2,286	1,746.6	716.3

[a] Excluding perforated appendix
[b] Per 100,000 adults
[c] Expected rate given age, gender, and socioeconomic composition

The difference was nearly the same for acute ACSCs—6.2% lower in the Hispanic population.

The comparison of observed disparity rates, though useful, is distorted inherently by differences in gender, in age, and in poverty rates that vary dramatically among different racial and ethnic groups. It is therefore also important to compare observed rates to expected rates, which are adjusted for age, gender, and socioeconomic status.

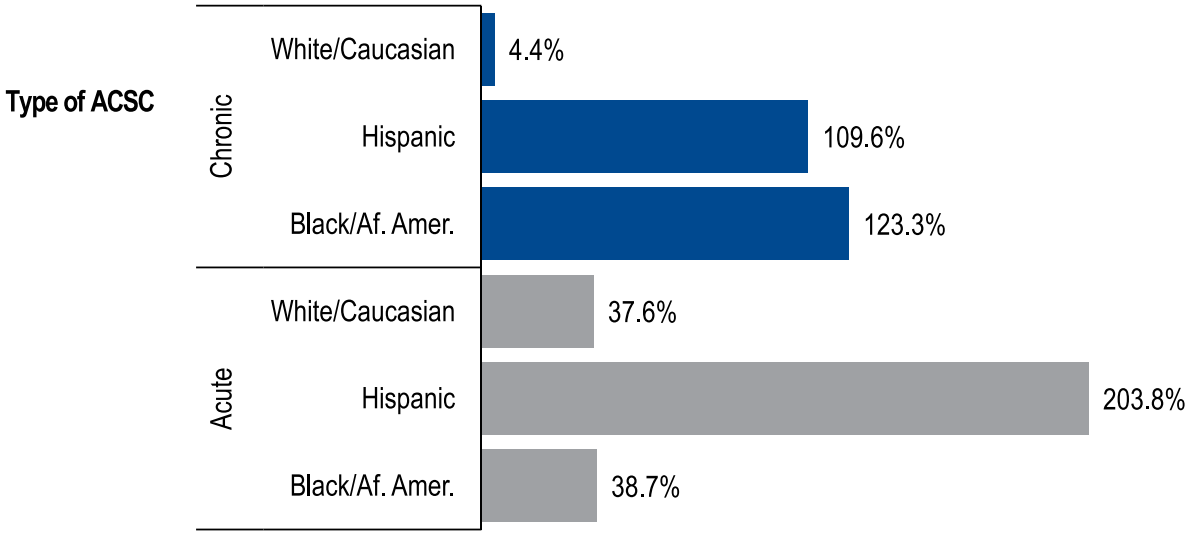
The expected rates of PAHs shown in the last column of Table 4 reveal a different pattern of racial and ethnic disparities than that of the observed rates. Figure 2 presents this comparison by calculating the excess PAHs for race or ethnicity group. "Excess" PAHs are calculated as the ratio of observed rates to expected rates and shown as percentages. For chronic and acute ACSCs, the difference between the observed and expected rates is smallest for white Tennesseans. There are substantial differences in excess rates between chronic and acute ACSCs.

For chronic ACSCs collectively, the observed PAH rate exceeds the expected rate by less than 5% for whites. This means that white Tennesseeans' experience PAHs for chronic condtions about as frequently as we would expect given their gender, age, and socioeconomic characteristics. For African-Americans, the observed rate of PAHs for chronic ACSCs is more than 120% higher than the expected rate. It is plausible that the higher rates of chronic PAHs experienced by African-Americans are the consequence of the higher prevalence of chronic diseases in this population. However, this may also indicate that African-Americans may have challenges managing their chronic diseases that are not experienced by whites.

For Hispanics, the observed rate of PAHs for chronic ACSCs is slightly more than 100% higher than the expected rate, similar to the experience of African-Americans. As noted in Table 4, Hispanics have similar observed rates of PAHs to those of whites. However, their expected rates are lower. Thus, even though the observed rates are comparable to those of whites, ambulatory care may be deficient in the Hispanic population.

PAH rates for chronic ACSCs reflect disease prevelance, self-management, and the cumulative primary care experience of patients. Therefore, while still affected by current

Figure 2: Excess PAHs by Race or Ethnicity



primary care treatment, they are less sensitive to it than PAH rates for acute ACSCs. In this regard, acute ACSCs may tell us more about differences in care currently received by various groups of Tennesseans.

For whites, the rate of PAHs for acute ACSCs was about 37.6% above the expected value. The rate of acute PAHs for African-Americans was about 38.7% above the expected rate, nearly equal to the difference between observed and expected for whites. The greatest disparity between expected and observed rates for acute ACSC PAHs is seen in the Hispanic population—200% higher than expected. This may indicate that Hispanics are less able to seek primary care in a timely manner or less likely to receive care from high-quality providers than other Tennesseans, a phenomenon not revealed by simply comparing the observed rates.

County Differences

Tennessee has 95 counties. In addition to demographic differences, there are also wide variations in rates of PAHs amongst the various counties in the state. For small counties, reliable rates of PAHs cannot be reported for a single year. Therefore, this report only examines the four most populous counties in Tennessee: Davidson, Hamilton, Knox, and Shelby. These four counties account for more than a third of Tennessee's population.

Table 5 provides a summary of the differences between each county and the state in the overall rate of PAHs. Rates of PAHs are highest in Shelby County and lowest in Knox County. In addition, the PAH rate was lower in all four urban counties than in the state as a whole. Because PAH rates reflect, in part, access to care, it is logical to infer that the lower PAH rates in urban areas are the result of greater primary care supply there.

Knox County had the lowest PAH rate of the four metro counties in 2007, while Shelby County had the highest rate. More detailed comparisons of observed and expected rates for the four counties are presented in Tables 6 – 8.

Table 5: PAHs of Four Major Counties

	Adult Population	PAHs[a]	Observed Rate[b]	Relative to State[c]
Davidson County	445,192	7,713	1,732.5	-14.8%
Hamilton County	244,542	4,087	1,671.3	-17.8%
Knox County	324,023	4,761	1,469.3	-27.7%
Shelby County	663,452	11,777	1,775.1	-12.7%

[a] Chronic and acute ACSCs, excluding perforated appendix
[b] Per 100,000 adults
[c] Percent higher (+) or lower (-) than the state-wide observed PAH rate

Davidson County

Davidson County is in the northern part of Middle Tennessee and contains the state capital, Nashville. The county is second in the state for population and thirty-seventh for land area. Overall, access to healthcare is high in Davidson County. It ranks third in the state for access to physicians and fourth in the state for access to hospitals. It has one of the lowest all-cause mortality rates in the state[8].

Population

The residents of Davidson County are slightly younger than the state as a whole. The median age is 36.5 years compared to 37.5 years statewide. Women outnumber men in Davidson County, making up about 51% of the population, which is comparable to the state. The county is more racially diverse than the state. About 39% of the population is Hispanic or a non-white race; 7% of the population is Hispanic. This compares to 22% and 3%, respectively, for the state. Davidson County is relatively affluent with median household income about $46,800 compared to $43,700 for the state. However, the individual poverty rate is the same for Davidson County and the state[9].

Hospitalizations

Adult residents of Davidson County experienced 50,643 hospitalizations, amounting to about 8.9% of all adult hospitalizations in the state. This is slightly lower than Davidson County's share of the State's adult population, 9.6%. The average expenditure per inpatient day was about $1,844, or about $200 more than the statewide amount. The most common causes of hospitalizations for Davidson County were diseases and disorders of the circulatory and respiratory systems.

Davidson County Tennessee and Surrounding Counties

PAHs

Of the total discharges in Davidson County, about 15.2% were PAHs. This is a smaller percentage than that of the state. As at the state level, the majority of PAHs were for chronic conditions (63%). Table 6 shows the number, incidence, and expected rates of the different types of PAHs for Davidson County. As with the state, observed rates exceeded expected rates given the population of Davidson County.

Table 6: PAH Rates for Davidson County

	PAHs	Observed Rate[a]	Expected Rate[b]
Chronic ACSCs	4,841	1,087.4	877.7
Acute ACSCs[c]	2,872	645.1	548.7
Chronic and Acute ACSCs[c]	**7,713**	**1,732.5**	**1,426.5**

[a] Per 100,000 adults
[b] Expected rate given age, gender, and socioeconomic composition
[c] Excluding perforated appendix

Hamilton County Tennessee and Surrounding Counties

Hamilton County

Hamilton County is in the southeast corner of Tennessee and contains Chattanooga. The county is fourth in the state for population and twenty-seventh for land area. Overall, access to healthcare is high in Hamilton County. It ranks seventh in the state for access to physicians and fifth in the state for access to hospitals . The all-cause mortality rate in Hamilton County is slightly higher than the state average (10.3 compared to 9.5 deaths per 1,000 residents)[10].

Population

The residents of Hamilton County are slightly older on average than the state as a whole. The median age is 39.5 years compared to 37.5 years statewide. Women outnumber men in Hamilton County, making up about 52% of the population, comparable to the state. The county is also racially similar to the state. About 26% of the population is Hispanic or non-white; 3% of the population is Hispanic. This compares to 22% and 3%, respectively, for the state. Hamilton County is relatively affluent with median household income about $46,500 compared to $43,700 for the state . The individual poverty rate is slightly lower in Hamilton County compared to the state (13.5% and 15.7% respectively)[9].

Hospitalizations

Adult residents of Hamilton County experienced 28,547 hospitalizations, or about 5.0% of all adult hospitalizations in the state, proportionate to the county's 5.2% share of the state population. The average expenditure per inpatient day was about $1,828, or about $200 more than the statewide amount. The most common causes of hospitalizations for Hamilton County were diseases and disorders of the circulatory and respiratory systems.

PAHs

Of the total discharges in Hamilton County, about 14.3% were PAHs. This is a smaller percentage than that of the state. As at the state level, the majority of PAHs were for chronic conditions (63%). Table 7 shows the number, incidence, and expected rates of the different types of PAHs for Hamilton County. Unlike the state, observed rates are relatively close to the expected rates, with acute rates slightly below expected and chronic rates slightly above expected.

Table 7: PAH Rates for Hamilton County

	PAHs	Observed Rate[a]	Expected Rate[b]
Chronic ACSCs	2,577	1,053.8	1,014.7
Acute ACSCs[c]	1,510	617.5	644.0
Chronic and Acute ACSCs[c]	**4,087**	**1,671.3**	**1,658.6**

[a] Per 100,000 adults
[b] Expected rate given age, gender, and socioeconomic composition
[c] Excluding perforated appendix

Knox County

Knox County is located in East Tennessee and is home to the state's largest university, The University of Tennessee. Knox County is third in the state for population and thirty-sixth for land area . Overall, access to healthcare is high in Knox County. It ranks sixth in the state for access to physicians and seventh in the state for access to hospitals . The all-cause mortality rate in Knox County is equivalent to the state average[11].

Population

The residents of Knox County have the same median age as the state . As in the rest of the state, women slightly outnumber men in Knox County, making up about 51.5% of the population. The county is much less racially diverse than the state. About 14% of the population is Hispanic or non-white; 3% of the population is Hispanic. This compares to 28% and 3%, respectively, for the state. Knox County is relatively affluent with median household income about $46,700 compared to $43,700 for the state . Additionally, the individual poverty rate is lower the state's rate (13.1% compared to 15%)[9].

Hospitalizations

Adult residents of Knox County experienced 35,411 hospitalizations, amounting to about 6.2% of all adult hospitalizations in the state. This is in contrast to having 6.8% of the State's population. The average expenditure per inpatient day was about $1,443, or about $200 less than the statewide amount. The most common causes of hospitalizations for Knox County were diseases and disorders of the circulatory and respiratory systems.

Knox County Tennessee and Surrounding Counties

PAHs

Of the total discharges in Knox County, about 13.4% were PAHs. This is a substantially smaller percentage than that of the state. As at the state level, the majority of PAHs were for chronic conditions (59%). Table 8 shows the number, incidence, and expected rates of the different types of PAHs for Knox County. Observed rates are close to the expected rates of PAHs in Knox County. This is in contrast to the state where the observed rates exceed expected rates by large amounts.

Table 8: PAH Rates for Knox County

	PAHs	Observed Rate[a]	Expected Rate[b]
Chronic ACSCs	2,828	872.8	888.6
Acute ACSCs[c]	1,933	596.6	561.5
Chronic and Acute ACSCs[c]	**4,761**	**1,469.3**	**1,452.3**

[a] Per 100,000 adults
[b] Expected rate given age, gender, and socioeconomic composition
[c] Excluding perforated appendix

Shelby County Tennessee and Surrounding Counties

Shelby County

Shelby County is located in the southwest corner of Tennessee along the Mississippi River and is home to the state's largest city, Memphis. Shelby County is the largest and most populous county in Tennessee. Access to healthcare is high in Shelby County, though it is lower than those in the other 3 major counties in the state. Shelby County ranks eighth in the state for access to physicians and twelfth in the state for access to hospitals. The all-cause mortality rate in Shelby County is lower than the state average—8.1 compared to 9.5 deaths per 1,000[12].

Population

The residents of Shelby County are younger on average than other Tennesseans. The median age in Shelby County is 35.4 years, compared to 37.5 years statewide. Women outnumber men in Shelby County, making up 52.3% of the population, a higher proportion than observed in the rest of state. Shelby County is the most racially diverse county in Tennessee and is the state's only majority minority county. Approximately 52% of residents are Hispanic or non-white and 4.3% are Hispanic. This compares to 22% and 3%, respectively, for the state.

Hospitalizations

Adult residents of Shelby County experienced 73,608 hospitalizations, amounting to about 12.9% of all adult hospitalizations in the state. This is lower than Shelby County's 15% share of the State's adult population. The average expenditure per inpatient day was about $1,538, or about $100 less than the statewide amount. The most common causes of hospitalizations for Shelby County were diseases and disorders of the circulatory and respiratory systems[9].

PAHs

Of the total discharges in Shelby County, about 16% were PAHs. This is a slightly smaller percentage than that of the state. As at the state level, the majority of PAHs were for chronic conditions (67%). Table 9 shows the number, incidence, and expected rates of the different types of PAHs for Shelby County. As with the state, observed rates exceeded expected rates, a difference most pronounced for PAHs resulting from chronic ACSCs where the rate is about 25% higher than expected.

Table 9: PAH Rates for Shelby County

	PAHs	Observed Rate[a]	Expected Rate[b]
Chronic ACSCs	7,919	1,193.6	950.0
Acute ACSCs[c]	3,859	581.7	556.5
Chronic and Acute ACSCs[c]	**11,777**	**1,775.1**	**1,506.3**

[a] Per 100,000 adults
[b] Expected rate given age, gender, and socioeconomic composition
[c] Excluding perforated appendix

Notes

1. Kaiser Family Foundation's State Health Facts project http://statehealthfacts.org/profileind.jsp?ind=593&cat=5&rgn=44 [Accessed 3/29/2010]
2. Expenditures were calculated based on each hospital's revenue to charges ratio using data from the Joint Annual Report of Hospitals, which is available by request from the State of Tennessee.
3. Estimation of expenditures was done using each hospital's reported revenue and charges from Tennessee's Joint Annual Report of Hospitals. We calculated a revenue-to-charge ratio and multiplied that number by charges for each discharge for a given hospital.
4. For information about the development of the PQIs, the technical specifications, and other types of AHRQ quality indicators, please visit the AHRQ website: http://www.qualityindicators.ahrq.gov.
5. We used Version 4.1 of the AHRQ PQI software for this report. It can be accessed for free from http://www.qualityindicators.ahrq.gov/software.htm.
6. U.S. Census Bureau, 2007 American Community Survey. http://factfinder.census.gov/ [Accessed 5/17/2010]
7. [PAH rate (women) – PAH rate (men)] ÷ PAH rate (men)
8. Tennessee Advisory Commission on Intergovernmental Relations, Davidson County, Tennessee County Profile
9. U.S. Census Bureau, 2006-2008 American Community Survey. http://factfinder.census.gov/ [Accessed 5/17/2010]
10. Tennessee Advisory Commission on Intergovernmental Relations, Hamilton County, Tennessee County Profile
11. Tennessee Advisory Commission on Intergovernmental Relations, Knox County, Tennessee County Profile
12. Tennessee Advisory Commission on Intergovernmental Relations, Shelby County, Tennessee County Profile

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