



Issue Brief

From The University of Memphis

Methodist Le Bonheur Center for Healthcare Economics

August 4, 2011

Non-Urgent ED Use in Tennessee, 2008

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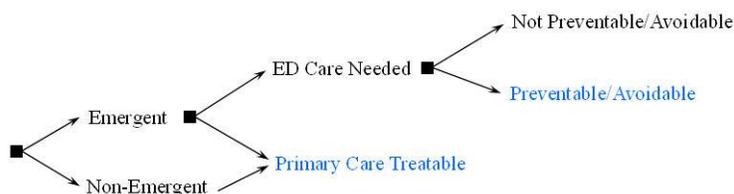
Why is this issue important?

Excessive use of the Emergency Department (ED) for non-urgent care places financial and logistic burdens on the hospitals that provides this service.^{1,2} It also contributes to overcrowding, which compromises patient safety and adversely affects the ability of ED staff to provide a timely response.^{3,4} To manage ED use, a first step is to collect reliable data and discern observable patterns of utilization. More importantly, an examination of the characteristics of patients who use the ED for non-urgent care can assist in the assessment of the effectiveness and accessibility of the primary care system in providing routine, preventive care to residents in an area.^{2,5}

What is a non-urgent ED visit?

The probability of an ED visit being non-urgent is determined in this Issue Brief by applying a computerized algorithm devised by J.D. Billings et al. at New York University⁶ to outpatient discharge data based on the primary diagnosis (ICD-9 code). This widely-used and empirically verified algorithm, called the ED Use Profiling Algorithm,^{7,8} places ED visits that do not result in an admission into the following four categories:

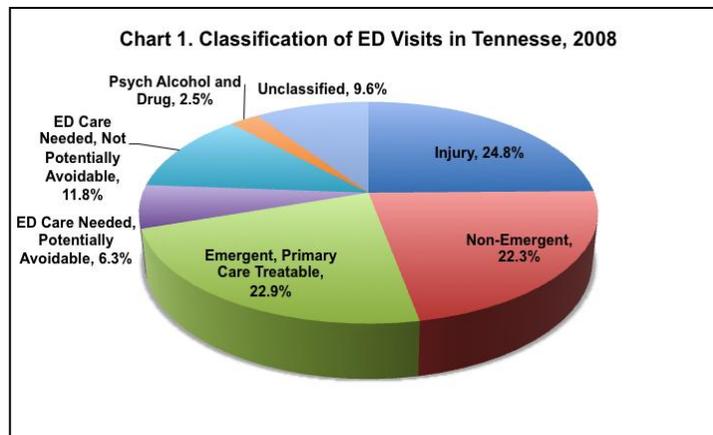
1. Non-Emergent – Treatment not needed within 12 hours;
2. Emergent But Primary Care Treatable – Treatment needed within 12 hours, but care could have been provided in a primary care setting;
3. ED Care Needed, Preventable/Avoidable – Care needed but condition may have been preventable had effective primary care been delivered; and
4. ED Care Needed, Not Preventable/Avoidable – ED care needed and could not have been prevented.



Summary of Findings

- In 2008, Tennesseans made 2,621,203 visits to the emergency departments of their local hospitals and 1,349,140 (51.5%) of these were non-urgent.
- Tennessee hospitals charged third-party payers more than \$4.4 billion for ED services in 2008 and more than \$2 billion (45.1%) of the total charges were incurred by non-urgent visits. In Tennessee, about one-third of the charges represents the actual costs of providing the care.
- More than \$1.1 billion of total ED charges (25.5%) were incurred by TennCare patients in 2008.
- TennCare patients made up 35.0% of all ED visits, and 59.3% of these were non-urgent. Uninsured patients, in contrast, made up 17.5% of all ED visits, and 52.0% of these were non-urgent.
- Female patients tend to have a higher percentage of non-urgent visits than males, 55.8% versus 45.7%.
- About 57.0% of African American patients' ED visits were non-urgent while the percentage of non-urgent visits for Hispanic and Caucasian patients were about 53.0% and 49.0%, respectively.
- Patients younger than five years of age are most likely to be presented to the hospital for non-urgent treatment than any other age groups.
- Shelby County hospitals reported fewer overall ED visits per 100 county residents than hospitals in other major urban counties in Tennessee.

Following the method of Billing et al., we define an ED visit as “non-urgent” and, therefore, potentially avoidable, if a visit meets the definition of any of the first three types of ED visit defined above. As shown in Chart 1, these three categories of non-urgent ED visits comprised (1) non-emergent, 22.3% of total ED visits, (2) emergent but primary care treatable, 22.9% of total, and (3) ED care needed but potentially avoidable, 6.3% of total. Together, these categories accounted for 51.5% of total ED visits in Tennessee in 2008.



The category labeled “ED Care Needed, Not Potentially Avoidable” comprises cases defined as “urgent” by the NYU definition. The remaining categories such as ED visits for psychological disorders, alcohol and drug-related visits, injury, and other unspecified diagnoses are also urgent but they are tracked as a separate group following the example of Billing et al.

What are the key questions?

1. How much did hospitals charge for ED visits in 2008?
2. How much did hospitals charge for non-urgent ED visits in 2008?
3. Which demographic groups are more likely to use the ED for non-urgent visits? Specifically, do race, age, and gender influence the likelihood of a non-urgent ED visit?
4. Is the patient’s insurance provider correlated with the likelihood of making a non-urgent visit?
5. Is the likelihood of an ED visit different among the four major urban counties in Tennessee?

The data

Data were drawn from the annual Hospital Discharge Data Set (HDDS) for 2008, an electronic database compiled by the Division of Health Statistics of the Tennessee Department of Health. We selected from this patient-level database all hospital outpatient discharges that capture admission details of Tennessee residents who sought outpatient care in any of the licensed hospitals in Tennessee for the period 1/1/2008 to 12/31/2008.

Key findings

(1) Total ED Visits and Hospital Charges in 2008

Our application of the NYU ED Use Algorithm to the 2008 HDDS data showed that Tennesseans made a total of 2,621,203 urgent and non-urgent visits depicted in Chart 1 to hospital emergency departments. Among the major insurance payers, 35.0% of all ED visits were made by patients covered by TennCare, 25.9% by commercially insured patients, 16.6% by Medicare patients, and 17.5% by uninsured patients. Patients with other types of insurance or with an unknown insurance type comprised the remaining 5.0%

of total ED visits (Table 1).

Table 1. Total ED Visits and Hospital Charges

Payer	Total Visits	Percent	Total Charges (\$Millions)	Percent
Commercial	678,339	25.9%	\$1,349.6	30.6%
TennCare	917,251	35.0%	1,123.3	25.5%
Medicare	435,547	16.6%	988.3	22.4%
Uninsured	459,746	17.5%	742.8	16.8%
Other	130,319	5.0%	206.2	4.7%
Total	2,621,203	100.0%	\$4,410.2	100.0%

The hospitals that provided the ED services charged insurance payers and patients more than \$4.41 billion in 2008. Of those, TennCare patients accounted for more than \$1.12 billion (25.5%) while \$1.35 billion (30.6%) were incurred by commercially insured patients, \$988.3 million (22.4%) by Medicare patients, and \$742.8 million (16.8%) by uninsured patients. Those patients with unknown or other insurance such as Department of Defense's TRICARE, state workman's compensation, or federal inmate insurance accounted for \$206.2 million (4.7%) of total ED charges.

In Tennessee as it is in the rest of the United States, hospitals rarely receive in full the amount billed for each discharge. They receive from third-party payers barely enough to cover their costs of care in most years. In recent years, the total costs of providing hospital services are about one-third of the total amounts charged in Tennessee based on our analysis of hospital cost-to-charge ratios.

(2) Non-Urgent ED Visits

Our application of the NYU ED Use Profiling Algorithm to the hospital outpatient discharge data showed that 1,349,140 of the total ED visits (or 51.5%) were non-urgent in 2008. This percentage is slightly higher than the finding using the same NYU methodology for New Jersey,⁹ and Utah,¹⁰ similar to the finding for Arizona,¹¹ but slightly lower than the findings for Houston and Texas.¹²

Table 2. Total Non-Urgent ED Visits and Hospital Charges

Payer	Total Visits	Percent	Total Charges (\$Millions)	Percent
Commercial	320,128	23.7%	\$ 584.7	29.4%
TennCare	544,274	40.3%	586.7	29.5%
Medicare	199,522	14.8%	416.8	21.0%
Uninsured	238,978	17.7%	33.8	16.6%
Other	46,237	3.4%	70.6	3.5%
Total	1,349,140	100.0%	\$1,989.7	100.0%

Hospitals charged insurance payers and patients close to \$2 billion for non-urgent ED visits (Table 2). These charges were about 45.0% of total ED charges for all visits in 2008. Out of the \$2.0 billion of total non-urgent ER charges for 2008, 29.5% (\$586.7 million) were incurred by TennCare patients, 29.4% (\$584.7 million) by patients covered by commercial health plans, 21.0% (\$416.8 million) by Medicare, and 16.6% (\$330.8 million) by uninsured patients. Patients with other/unknown insurance incurred 3.5% (\$70.6 million) of total non-urgent ED charges.

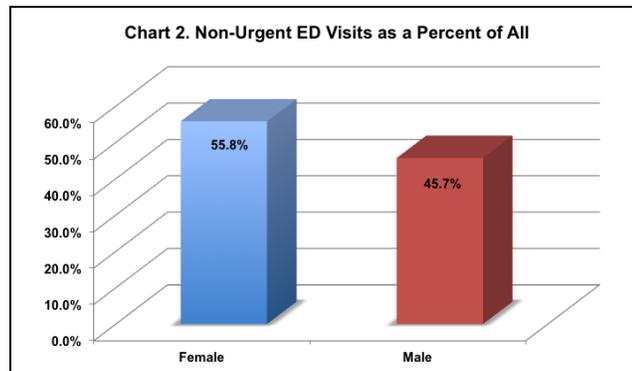
Table 3 presents average charges incurred for all ED visits and for non-urgent ED visits. For all ED visits, average billable charges were the highest for Medicare patients (\$2,269 per visit), followed by commercially insured (\$1,990), Uninsured (\$1,615), and TennCare patients (\$1,225). Average hospital charges for non-urgent visits followed a similar pattern among the major insurers and were slightly lower than those for total visits.

Table 3. ED Charges Per Visit

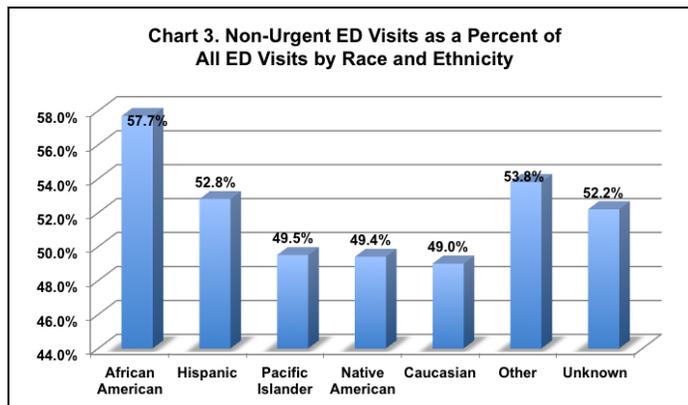
Payer	Total Visits	Non-Urgent Visits
Commercial	\$1,990	\$1,827
TennCare	1,225	1,079
Medicare	2,269	2,090
Uninsured	1,615	1,384
Other	1,578	1,507
All Payer Average	\$1,682	\$1,475

(3) Variations of Non-Urgent ED Visits as a Percent of All ED Visits

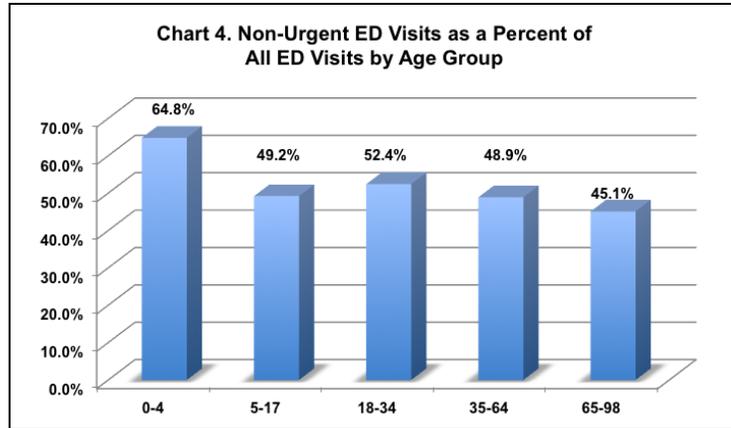
By Gender. Within Tennessee, female patients tend to have a higher percentage of non-urgent visits than males, 55.8% versus 45.7% (Chart 2).



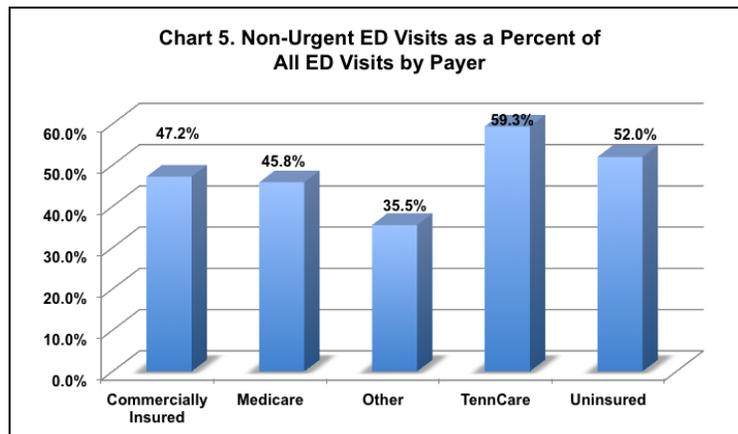
By Race and Ethnicity. Race and ethnicity also appear to have an influence on the probability of an ED visit being non-urgent (Chart 3). Among the different racial groups, 57.7% of African American patients' ED visits were non-urgent, while the percentage of non-urgent visits for Hispanic and Caucasian patients were 52.8% and 49.0%, respectively.



By Age Group. Among the different age groups, children under 5 years of age had the highest rate of non-urgent use at 64.8% while adults over age 65 had the lowest rate at 45.1% (Chart 4). The rates for other age groups hover around 50%, with those in the 18–34 range having a slightly higher rate.

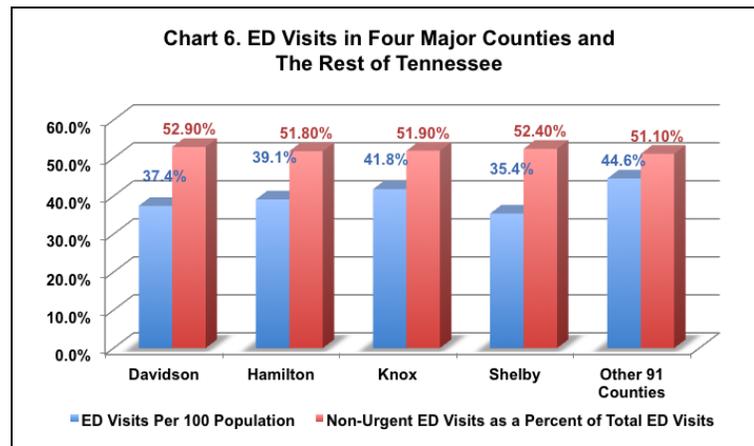


By Insurance Payer. TennCare patients were more likely to make a non-urgent ED visit, with 59.3% of all TennCare visits classified as non-urgent (Chart 5). In comparison, commercial patients had a non-urgent visit rate of 47.2%, and Medicare and uninsured patients' rates of non-urgent ED visits were 45.8% and 52.0%, respectively. TennCare patients are, by definition, lower-income patients. Their higher tendency to use ED service is consistent with findings in other states such as New Jersey, Utah, and Texas, and suggests opportunities for improving the delivery of primary care for this large segment of the insured population.



By Major Urban Counties. Among the four major urban counties in Tennessee, non-urgent ED visits as a percentage of all ED visits were remarkably similar in 2008 hovering around 51.0%–52.0% (see the red series of bars on the right in Chart 6). Chart 6 also presents population-based ED visits for all diagnoses regardless whether they were urgent or not. Shelby County, the state's most populous county with the highest concentration poverty and African American population, had the lowest population-based ED use rate of 35.4 visits per 100 persons in 2008. Knox, Hamilton, and Davidson counties all had slightly higher ED use rates of 41.8%, 39.1%, and 37.4% per 100 persons, respectively. This lower ED use rate found for a large urban county with a concentration of high-need population contradicts the convention wisdom

of public health that sicker patients use more health care. There are two competing interpretations of this anomaly and they have very different policy implications. The first is that the rate of ED use in Shelby County is normal while the other three major urban counties over use ED services. The lower rates in Shelby County may also reflect the existence of a well-functioning primary care system that has been effective in preventing unnecessary ED visits. A second and less sanguine interpretation is that Shelby County residents, whether insured or uninsured, are reluctant to seek care due to a variety of real or perceived barriers. Some of these barriers are associated with supplied-side factors, such as a shrinking number of hospitals with an emergency department or inconveniently located hospitals and clinics,) while others are related to demand-side factors including a lack of transportation or patient aversion to seeking health care). Further research and better data are needed.



Summary

In 2008, 51.5% of all ED visits in Tennessee were non-urgent, a rate similar to that of Houston, Texas, New Jersey, Arizona and Utah when measured by the ED Use Profiling Algorithm of New York University. Rates of non-urgent use vary according to demographic characteristics, with younger age (0–4 years of age), female gender, TennCare patient status and Black and Hispanic races being associated with higher rates of non-urgent ED use. Financially, Tennessee hospitals charged insurance payers and patients more than \$4.4 billion for ED services in 2008 and almost \$2 billion were for non-urgent ED visits.

Further research into the reasons for such high non-urgent use is needed to target the causes and enable providers to deliver effective primary care in the ambulatory care setting. Effective educational campaigns are needed to inform healthcare users of the resources available to them. Research into the financial implications for the healthcare system is also needed to measure the extent of the financial impact of these potentially avoidable ED visits.

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Suggested Citation:

Chang, C. F., Pope, R. A. and Lubiani, G. G. *Non-Urgent ED Use in Tennessee, 2008*. Methodist Le Bonheur Center for Healthcare Economics Issue Brief, August 4, 2011. The University of Memphis, Memphis, TN.

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This Issue Brief is a publication of The Methodist Le Bonheur Center for Healthcare Economics at the University of Memphis. Established in 2003 with a grant from Methodist Le Bonheur Healthcare, Inc., the Center is dedicated to addressing complex healthcare issues facing Memphis, Shelby County, and the State of Tennessee. The views expressed in this Issue Brief are those of the authors and do not necessarily reflect those of Methodist Le Bonheur Healthcare, Inc. or the University of Memphis.

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