Hospital Discharge Data, 2002

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Potentially Avoidable Hospitalizations in Tennessee, 2002

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Research suggests that hospitalizations for certain conditions called Ambulatory Care Sensitive Conditions (ACSCs) may be preventable.[1,2,3] These hospitalizations can be prevented when clinicians deliver timely and effective outpatient treatment to individuals who actively participate in their own care, follow a healthy life style, and engage in responsible personal behavior.[4] Nationally, nearly five million inpatient admissions to U.S. hospitals in 2000 involved treatment for one or more of these ACSCs, resulting in a total cost of more than $26.5 billion.[5] Thus, high rates of hospitalizations for these conditions present opportunities for improving health system effectiveness and efficiency in an environment of rising demand for scarce resources.

This report analyzes Tennessee hospitalization records for potentially avoidable admissions. These include specific ACSCs in three major diagnostic categories: (1) *chronic conditions* such as diabetes (including uncontrolled diabetes, short-term diabetes complications, long-term diabetes complications, and lower-extremity amputations among patients with diabetes), circulatory diseases (congestive heart failure, hypertension, and angina without procedure), and respiratory diseases (adult asthma, pediatric asthma, and chronic obstructive pulmonary disease); (2) *acute conditions* including dehydration, bacterial pneumonia, urinary tract infection, perforated appendix, and pediatric gastroenteritis; and (3) *birth outcomes* including low birth weight birth.[4] Selected summary results of the prevalence of ACSC hospitalizations for Tennessee are presented here.

Method: Tennessee law (Tennessee Code Annotated (TCA), Section 68-1-108) requires that every licensed hospital report all claims data found on the UB-92 Form to the Tennessee Department of Health. The Division of Health Statistics in the Office of Policy Planning and Assessment of the Department of Health has established a Hospital Discharge Data System (HDDS) to collect, compile, and disseminate patient-level discharge information since 1997.[6] The data presented in this report contain excerpts from the 2002 HDDS dataset. For better comparability, the data used are only from acute-care general hospitals, including general medical and surgical hospitals, women's or OB/GYN hospitals, and pediatric hospitals. Excluded are long-term care hospitals, psychiatric hospitals, rehabilitation hospitals, and other specialty hospitals. The data cover the period from January 1, 2002, through December 31, 2002.

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A critical first step in the analysis of the prevalence of potentially avoidable hospitalizations involves the identification of diseases or conditions for which timely and effective primary care can prevent the need for hospitalization. Lists of preventable admissions have been determined and reported by panels of experts.[1-3] Recently, the Agency for Healthcare Quality (AHRQ) asked researchers from the Evidence-Based Practice Center at the University of California San Francisco and Stanford University to review the literature and use validation tests to determine a narrow set of inpatient admissions with ACSC conditions. The results were reported in a recent AHRQ publication under the Prevention Quality Indicators (PQIs) project.[4]

For this report, we used the AHRQ definitions and combined the four diabetes-related ACSCs categories ("uncontrolled diabetes," "short-term diabetes complications," "long-term diabetes complications," and "lower-extremity amputations among patients with diabetes") into a single condition, Diabetes, thus reducing the number of ACSCs from 16 to 13. The specific definitions of the ACSCs and their corresponding ICD-9 CM Codes can be found in AHRQ Publication, *AHRQ Quality Indicators - Guide to Prevention Quality Indicators: Hospital Admission for Ambulatory Care Sensitive Conditions,* Pub. No. 02-RO203, November 24, 2004.

Results: In 2002, a total of 132,973 ACSC hospitalizations occurred in Tennessee (Table 1), representing about 16% of all inpatient discharges at acute-care hospitals. The leading ACSC was bacterial pneumonia, accounting for 31,722 (24% of total) ACSC hospitalizations, followed by congestive heart failure (25,969 or 19.5% of total), and chronic obstructive pulmonary disease (18,353 or 13.8% of total). Across all ACSCs, Tennesseans experienced a higher rate of hospitalizations than did the U.S., with Tennessee exceeding the U.S. by a large margin in congestive heart failure, hypertension, bacterial pneumonia, pediatric gastroenteritis, and low birth weight birth.

Table 1. Potentially Avoidable Hospitalizations in 2002 - TN and the U.S.

	Tennessee		U.S.
Primary Diagnosis	Total No. of Discharges	Discharge Rate[1]	Discharge Rate[1]
Diabetes	11,486	270.6	224.5
Congestive Heart Failure	25,969	610.7	457.7
Hypertension	2,753	64.7	44.4
Angina, without procedure	2,291	53.9	55.1
Adult Asthma	4,987	117.3	110.9
Pediatric Asthma	3,123	224.3	188.8
Chronic Obstructive Pulmonary Disease	18,353	325.1	248.6
Dehydration	11,012	195.1	139.9
Bacterial Pneumonia	31,722	562.0	349.7
Urinary Tract Infection	11,832	209.6	137.9
Perforated Appendix [a]	1,576	36.5	30.5
Pediatric Gastroenteritis	1,846	132.6	87.7
Low Birth Weight Birth [b]	6,023	8.0	5.9
Total	132,973		

[1] Rates are per 100,000 population. For Diabetes, CHF, hypertension, angina, and adult asthma the population is all persons 18 years and older. For pediatric conditions, the population is all persons 0 through 17 years. The rates for COPD, dehydration, bacterial pneumonia, and urinary tract infection the population is all state residents. The U.S. rates were taken from AHRQ publication No. 02-RO203, AHRQ Quality Indicators: Guide to Prevention Quality Indicators: Hospital Admission for Ambulatory Care Sensitive Conditions. Rockville, MD: Agency for Healthcare Research and Quality. Revision 4 (November 24, 2004).

[a] The rate for perforated appendix is calculated per 100 admissions for appendicitis.

[b] The rate for low birth weight birth (less than 2500 grams) is calculated per 100 births.

Female patients were responsible for 77,289 (58.1% of total) hospitalizations for ACSCs, while males were responsible for the remaining 55,682 (41.9% of total). There appeared to be little gender difference in ACSC hospitalizations as a percentage of total hospitalizations in Tennessee in 2002.

Table 2 - Discharges for ACSCs by Gender, 2002

Gender	All Discharges	ACSC Discharges	Percent ACSC of Total
Female	504,982	77,289	15.3%
Male	338,881	55,682	16.4%
Unknown	19	2	10.5%
Total	843,882	132,973	15.8%

Table 3 summarizes ACSC hospitalizations by race. In 2002, Black and White Tennesseans reported 133,064 (16% of total) and 650,576 (77% of total) inpatient hospitalizations, respectively, for all conditions. Black patients appeared to have a slightly higher rate of ACSC hospitalizations than White patients, while Hispanics and other small racial groups, such as Asians, Native Americans, and Pacific Islanders, exhibited much lower rates than either the White or Black population subgroup.

Table 3 - Discharges for ACSCs by Race, 2002

Race	All Discharges	ACSC Discharges	Percent ACSC of Total
White	650,576	102,432	15.7%
Black	133,064	23,421	17.6%
Hispanic	7,505	615	8.2%
Other	12,929	1,966	15.2%
Unknown	39,808	4,539	11.4%
Total	843,882	132,973	15.8%

Table 4 reports ACSC hospitalizations by major payer group. There appeared to be substantial inter-group differences. Medicare led the proportion of ACSC hospitalizations, with 22.3% of its inpatient discharges being potentially preventable in 2002. In comparison, only 13.3% of hospitalizations paid by TennCare (Tennessee's managed-care Medicaid program) were for ACSCs while the same percentage for Commercial and BlueCross BlueShield plans were only 9.8%.

The Self Insured/Self Pay category includes mostly patients who reported that they had no insurance coverage at the time of admission and, therefore, can be considered as uninsured. About 12.8% of Self Insured/Self Pay patients' hospitalizations were for ACSCs. Finally, the "Other" category, which includes Champus (military) and Workers Compensation, reported a rate of hospitalizations for ACSC conditions of 10.2%, lower than the state average of about16%.

Table 4 - Discharges for ACSCs by Payer Group, 2002

Payer	All Discharges	ACSC Discharges	Percent ACSC of Total
Medicare	346,601	77,402	22.3%
TennCare	172,353	22,904	13.3%
Commercial and BC/BS	262,829	25,671	9.8%
Self Insured/Self Pay	26,169	3,353	12.8%
Other	21,337	2,168	10.2%
Unknown	14,593	1,475	10.1%
Total	843,882	132,973	15.8%

Discussion. In Tennessee, admissions for ACSC conditions comprised 16% of hospitalizations for all conditions in 2002. There appeared to be little gender difference in the percentage of ACSCs, and the same can also be said about the Black and White population subgroups. However, Medicare exhibited a much higher proportion of ACSC hospitalizations than the state average because of the aged population it serves, while TennCare accounted for a proportionately smaller share of ACSCs. The other insurance categories reported still lower percentages of ACSCs than the two major public-sector insurance programs.

Hospitalizations for ACSCs have been referred to as potentially avoidable hospitalizations. They are believed to be a reliable indicator of the access to and quality of the ambulatory care system that serves the general population. Thus, the higher prevalence of ACSCs in Tennessee adds urgency for improving the adequacy and quality of the primary care system that serves the general population. Similarly, the reported high rates of ACSCs among the Medicare population deserve further scrutiny by both federal authorities and state and local health care decision makers. The elimination of even a portion of these expensive hospitalizations should free substantial resources for other health care services and can even reduce the pressure on health care costs in a state that is struggling with many health care challenges.

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