



OFFICE OF HEALTH CARE ACCESS

*Planning tomorrow's health care system today.*

December 2010

**ISSUE BRIEF: PROFILE OF EMERGENCY DEPARTMENT VISITS  
NOT REQUIRING INPATIENT ADMISSION  
TO A CONNECTICUT ACUTE CARE HOSPITAL  
Fiscal Year 2006 - 2009**

The Department of Public Health's Office of Health Care Access (OHCA) Issue Briefs are periodic publications that examine health care topics relevant to public policy or public interest. This report, the first in a series on Emergency Department (ED) utilization in Connecticut, examines ED use by those patients that received care at an ED but did not require hospital admission (non-admits) for inpatient care.

**INTRODUCTION**

Emergency Departments are a critical component of Connecticut's health care system and also serves as a safety net for many who may not have access to other resources. All 30 acute care hospitals and five satellite EDs in Connecticut provide their communities with emergency care. Connecticut and out-of-state residents utilize the state's EDs twenty-four hours a day, seven days a week. This Issue Brief profiles the non-admit use of the ED from Fiscal Year (FY) 2006 to 2009,<sup>1</sup> comprising 85.4% of the overall number of visits made during the four years. Appendix 1 provides more detailed percentages by payer, age group, gender, patient race/ethnicity, and type of care needed. FY 2009 non-admits were also analyzed with respect to town of origin, time and reasons for ED visits. This Issue Brief also expands the statewide analysis of ED care provided in the report "HEALTH CARE SERVICES IN CONNECTICUT: Availability, Utilization and Access," issued by OHCA in June 2010 and available at <http://www.ct.gov/ohca>.

**DATA SOURCES, METHODS, AND LIMITATIONS**

**Data Sources**

This publication used data from four sources: the Connecticut Hospital Association (CHA) Chime, Inc. Emergency Department Database; data provided directly from Sharon Hospital to OHCA; the University of Connecticut State Data Center (CtSDC) and the U.S. Census Bureau.

Because the information used from the Chime database<sup>2</sup> and Sharon Hospital data submission differ in format, Sharon Hospital data were only used in calculating town use rates reported in Appendix 2 and have been excluded from other analyses, to avoid the introduction of variances in the results due to the two different formats.<sup>3</sup> It should be noted that data from facilities that offer emergency services, such as urgent care centers or private physician offices, were not available for use in this report.

## Town Groups

The large degree of socioeconomic variation among towns and regions of the state warrants the need for a meaningful level of analysis. In this report, OHCA uses the town groups developed by the CtSDC, the official state liaison to the US Census Bureau. CtSDC distributes Connecticut towns into five distinct groups: rural, suburban, urban periphery, urban core and wealthy, based on similar socioeconomic characteristics -- population density, median family income and poverty level -- rather than location.<sup>4</sup> More than half of the state's population resides in either urban core (18%) or urban periphery towns (36%).<sup>5</sup>

## Visit Classification

Although there are many reasons people visit the ED, a large percentage of those visits may be avoidable, where patients could have been treated in a primary care setting, such as a community health center, a private physician's office or an urgent care center. To better understand the use of EDs in Connecticut, OHCA used an algorithm developed by New York University's Center for Health and Public Service Research.<sup>6</sup> The NYU algorithm, developed by panel of ED physicians and based on data abstracted from a sample of ED records, categorized each ED visit into the following classifications:

- **Non-emergent** - The patient's presenting condition or symptoms at time of visit did not need immediate medical care within 12 hours;
- **Emergent - Primary Care Treatable** – The patient's care could have been provided in a primary care setting;
- **Emergent - ED Care Needed - Preventable/Avoidable** – The patient's visit required ED care, but it could have been avoided with timely and effective care in a primary care setting;
- **Emergent - ED Care Needed - Not Preventable/Avoidable** – The patient required ED care and the visit could not have been avoided.
- **Injury** – The patient's visit involved an injury;
- **Drug or Alcohol** – The patient was treated for drug or alcohol related symptoms;
- **Psychiatric Care** – The patient was treated for a psychiatric condition; and
- **Unclassified** – The patient's symptoms or illness could not be classified into one of the other seven categories.

A percentage of health conditions or symptoms appropriately required emergency care, while that *same* condition or symptom in another patient may be preventable or avoidable with timely primary care. Consequently, an ED visit could fall into one or more of the eight classifications. Each record of the ED data provided by Chime was assigned a percentage value in one or more categories based on the NYU algorithm to be emergent, primary care preventable or avoidable or non-urgent. In addition, visits due to an injury, drug or alcohol use or the need for psychiatric care were separated out and each assigned a percentage of 100%. Certain conditions were also considered unclassified, due to the inability to assign percentages using the standard categories. These unclassified visits were assigned a percentage of 100%. The non-urgent care percentage is the total percentage of non-emergent, primary care treatable, and preventable/avoidable care visits.

## Data Limitations

The algorithm is not intended as a triage tool. Since few diagnostic categories are clear-cut in all cases, the algorithm assigns cases based on a percentage basis, reflecting potential variation and uncertainty. This study is intended to examine trends in ED utilization, and is not meant to be a means of assessing appropriateness of ED utilization or the need for specific programs or services. Assumptions regarding ED use at specific hospitals should not be inferred.

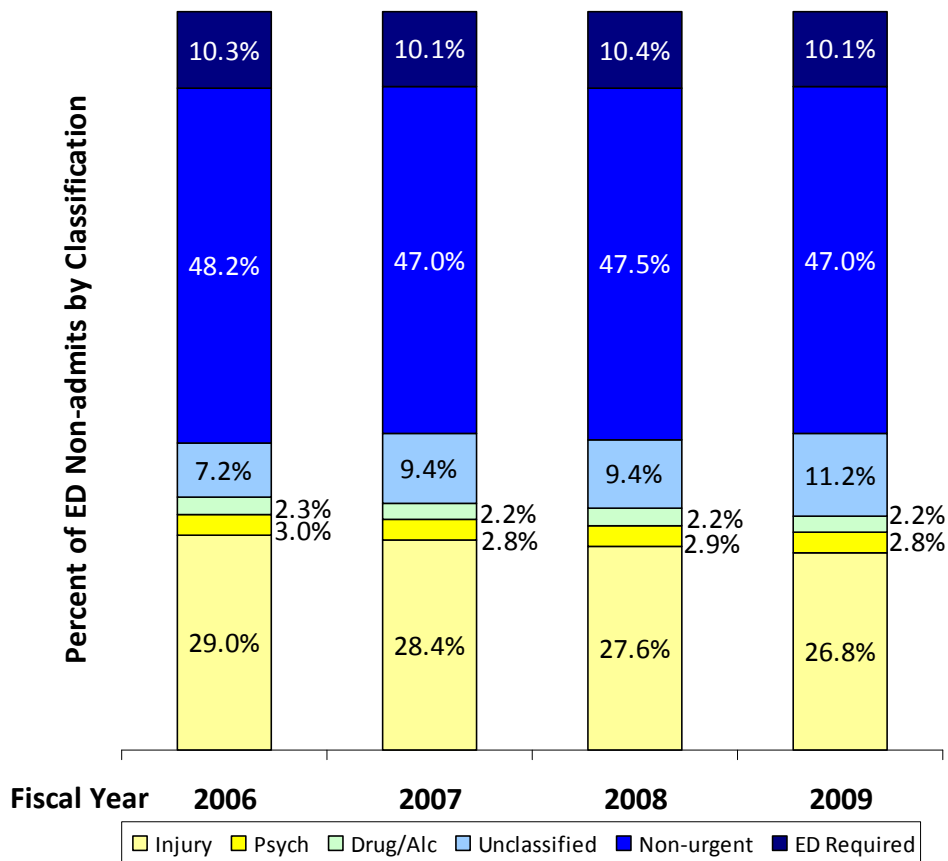
Information is presented by hospital fiscal year. The four years of data were utilized to demonstrate three-year trends.

## ED USAGE AND PATIENT DEMOGRAPHICS FOR FYs 2006 to 2009

In 2009, there were 1,616,004 ED visits reported by the state's acute care hospitals, including satellite EDs, an overall increase of 9.8% since 2006. Eighty-five percent of 2009 ED visits did not require inpatient care and are commonly referred to as ED non-admits.

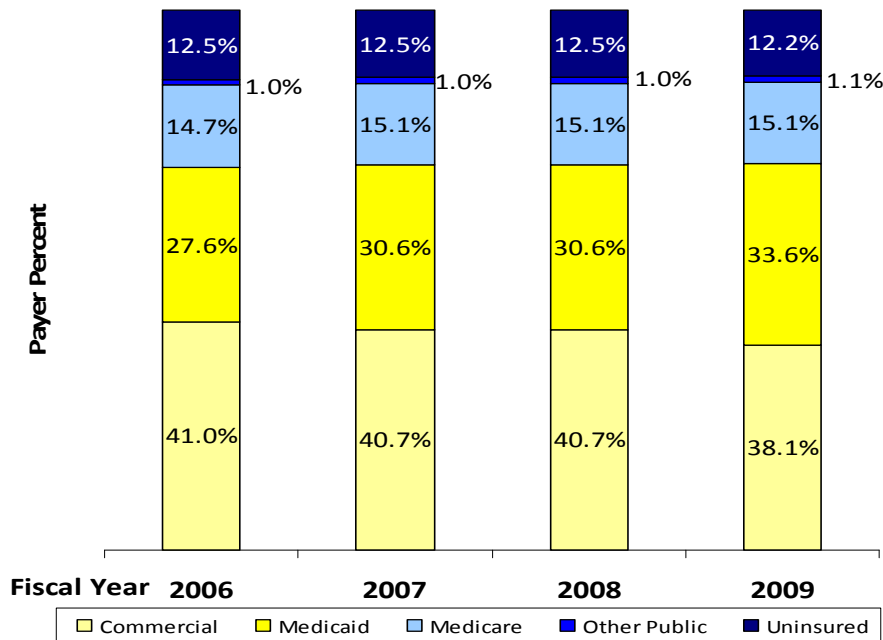
From FY 2006 to 2009, approximately 47% of ED non-admits were for non-urgent visits. ED care that was not preventable or avoidable was required in approximately 10% of the visits made each year. Injuries represented approximately 28% of ED non-admits each year. (Chart 1).

**Chart 1: Percent of ED Non-admit Visits by Classification**



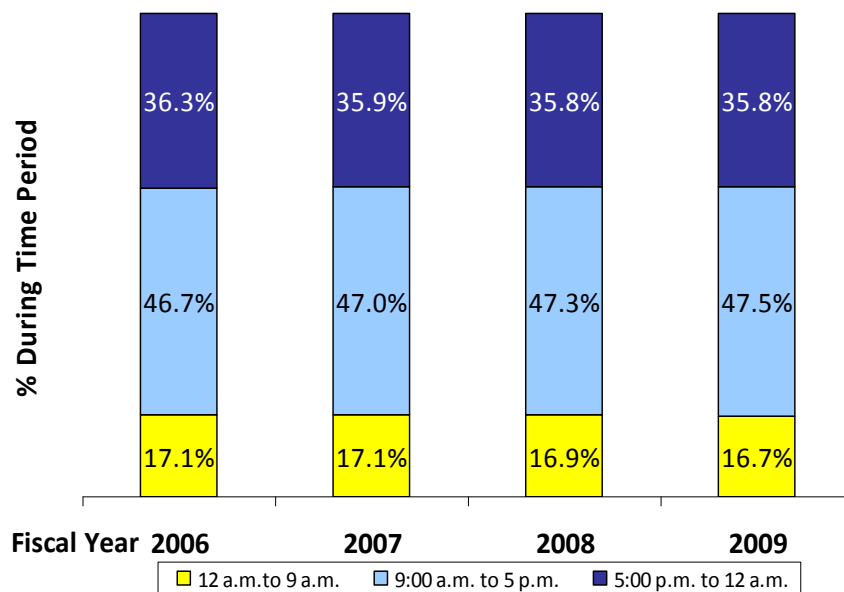
While the number of visits by primary payer<sup>7</sup> did not change significantly from 2006 to 2009, commercial payers' share declined slightly as Medicaid-covered visits increased. (Chart 2).

**Chart 2: Percent by Primary Payer of ED Services Provided**



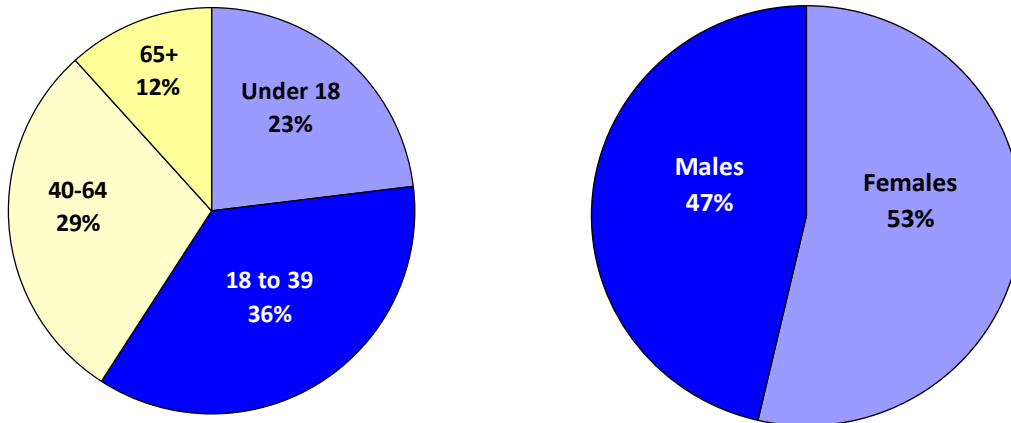
Almost 50% of the visits to the ED in 2009 occurred between the hours of 9:00 a.m. and 5:00 p.m. and includes visits made on weekdays and weekends. Most physician offices and community health centers are open and staffed with appropriate professional personnel Monday through Friday and many also have office hours on Saturdays. (Chart 3).

**Chart 3: Percent of ED Visits by Time Period**



From FY 2006 to 2009 there was very little variability in the age or sex of persons admitted and discharged from the ED. The following two charts show the four-year average by age group and gender.

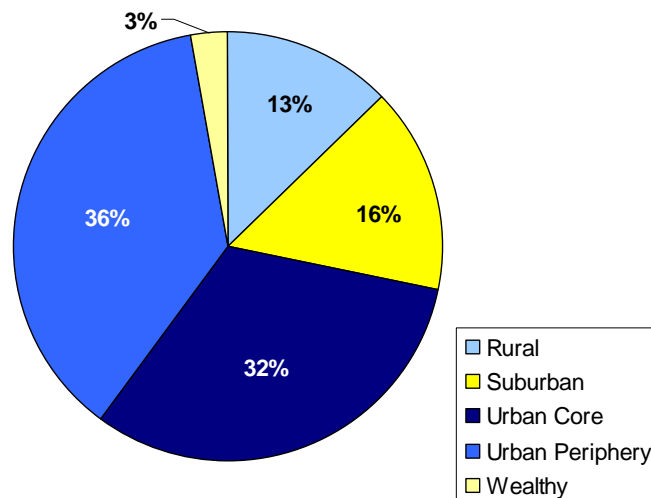
**Chart 4: Percent of ED Non-admits by Age Group    Chart 5: Percent of ED Non-admits by Gender**



#### **ED USAGE BY TOWN GROUPS**

From FY 2006 to 2009 there was little variability in the percentage of persons admitted and discharged from the ED by town group. Chart 6 illustrates the four-year average percentage of the total number of ED non-admit visits by town group. The urban core and urban periphery were the largest groups, with 36% and 32% of the visits, respectively.

**Chart 6: Percent of Total ED Non-admits by Town Group**

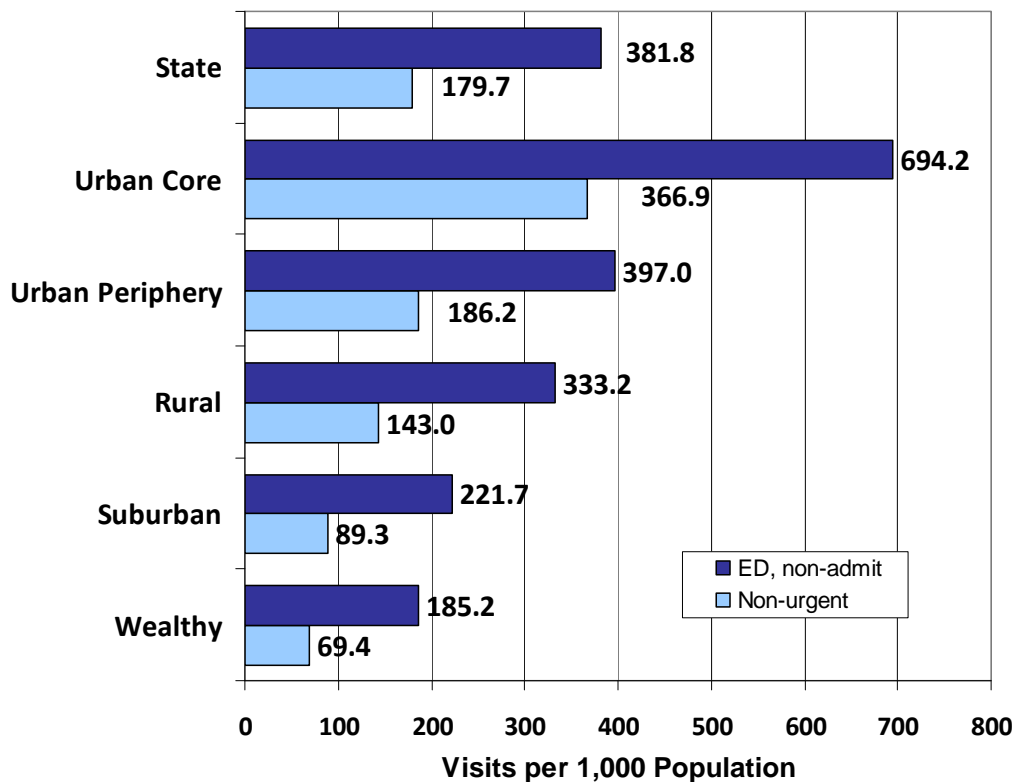


## FY 2009 ED USE BY TOWN GROUP

Categorizing patients' primary diagnosis for each ED visit and aggregating the visits by the CtSDC town groups provides additional information on ED use in Connecticut. This section provides a profile of the town groups by the NYU categories, the type of visits, the time of day the visits were made, payers and reasons for the ED visits.

Chart 7 depicts the rate of visits for ED non-admits during FY 2009 by town group. It also shows the rate of the ED non-admits categorized as non-urgent, i.e., treatment may have been appropriately received in a primary care setting. The ED non-admit and the non-urgent rates are reported based on visits per 1,000 persons within the stated town group. For comparison, the rates for the state as a whole are also included. The towns that make up the urban core group, i.e., Bridgeport, West Haven, New Haven, Waterbury, New Britain, Hartford, and New London, utilized ED services at almost twice the state's rate, 694.2 visits versus 381.8 visits per 1,000. The lowest rates were in the wealthy town group. The non-urgent use rate, ED use rate, and estimated town population in 2010 are provided for each town by town group in Appendix 2.

**Chart 7: Percent of ED non-admits and Non-urgent Visits by Town Group and State**



People visit the ED for many reasons, e.g., car accidents, influenza, and lacerations requiring suturing. But people also use the ED for non-urgent care, i.e., not true emergencies. Chart 8 shows that, depending on town group, 38% to 53% of the ED visits were non-urgent and may have been appropriately treated by a lower level of care. Generally, residents of urban (core and periphery) or rural towns were more likely to use EDs for non-urgent care than those from suburban or wealthy towns.

**Chart 8: Percent of ED Non-admits by Town Group and Visit Classification**

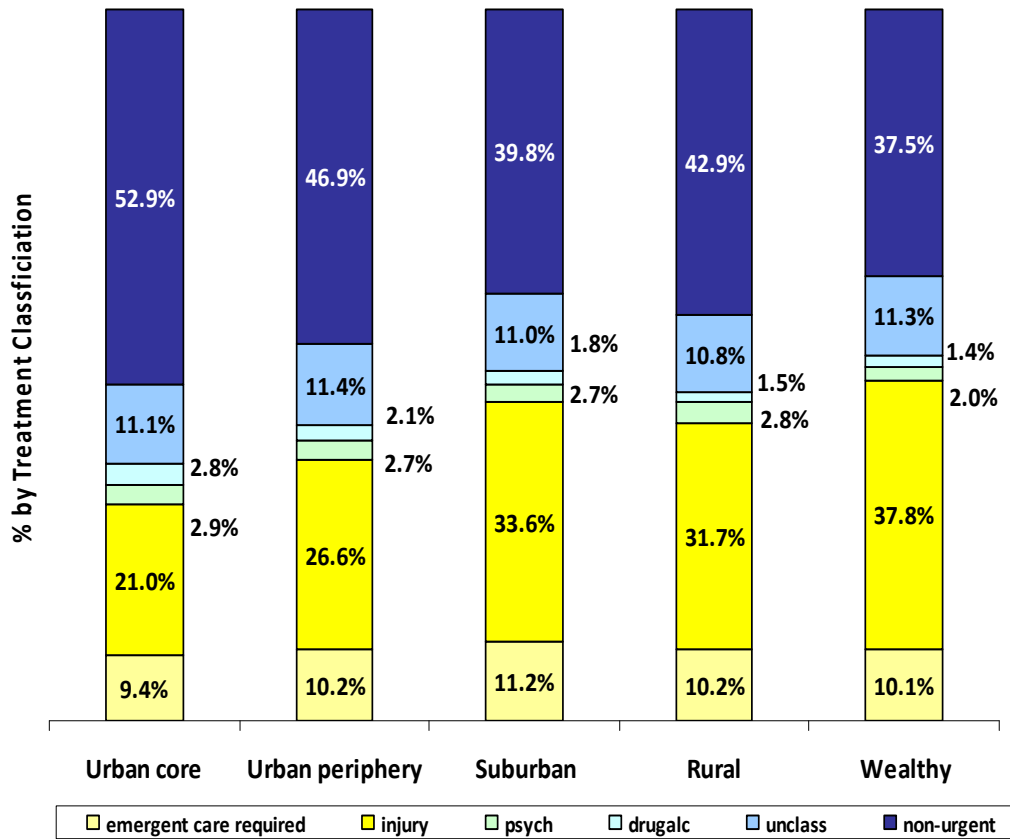
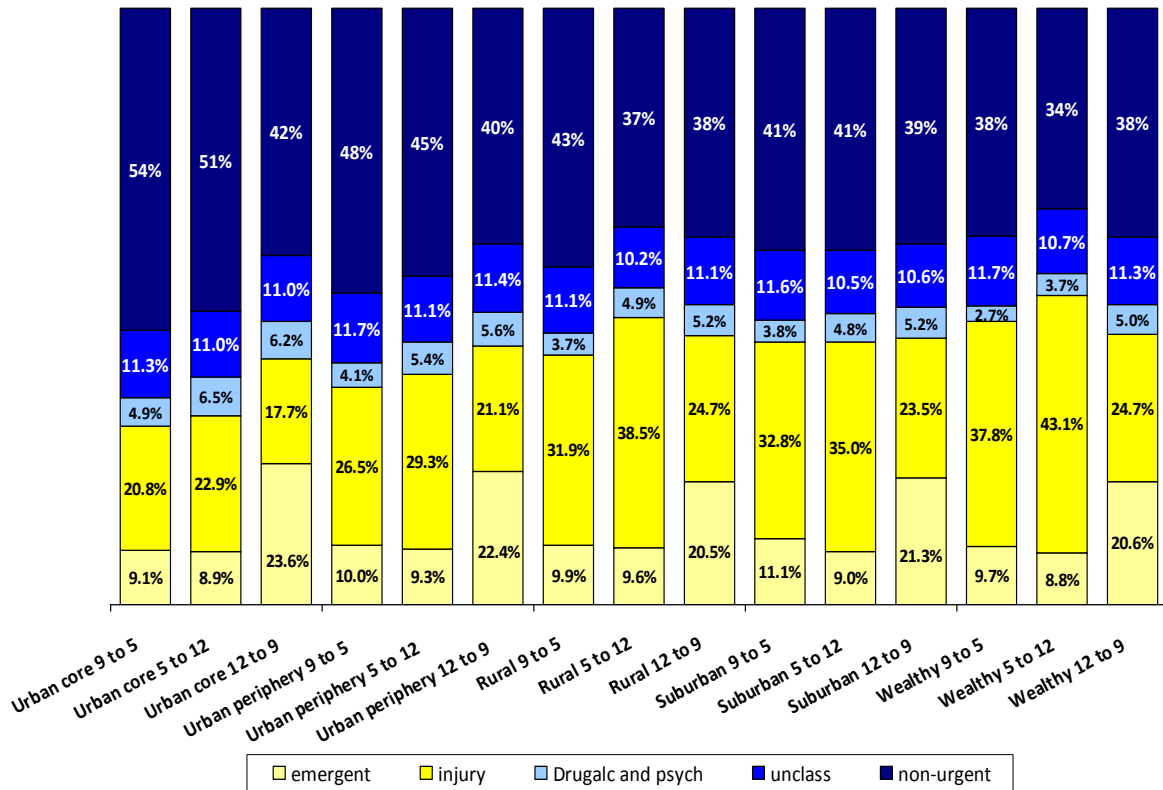


Chart 9 illustrates the time of ED visits by one of three time periods, 9:00 a.m. to 4:59 p.m., 5:00 p.m. to midnight, or midnight to 8:59 a.m., by visit classification and town group.<sup>8</sup> The percentage of non-emergent visits was higher during the 9:00 a.m. to 4:59 p.m. time period than the other two time periods, although ambulatory care facilities are open and staffed during these hours.

**Chart 9: Percent of ED Non-admit Visits by Time Period, Town Group, and Visit Classification**

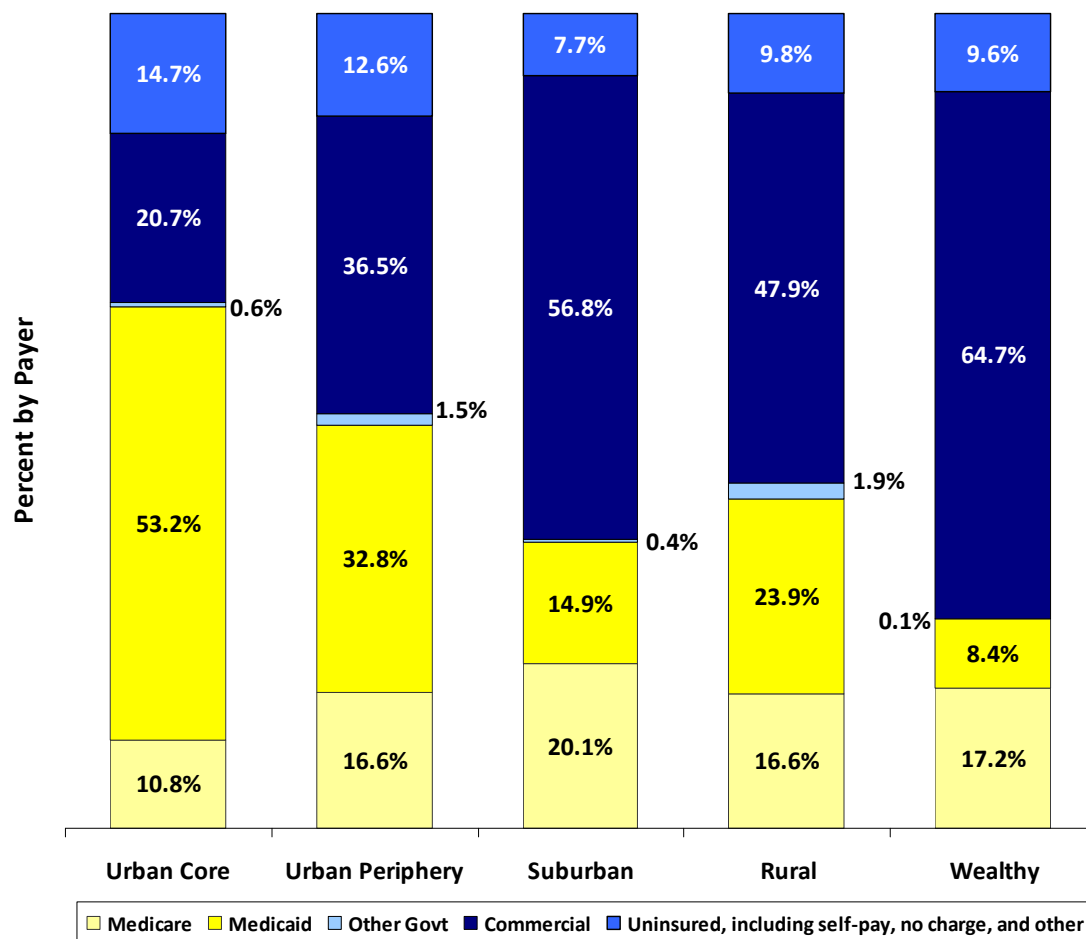




There is no Connecticut state law that requires hospitals to treat patients regardless of their ability to pay, however, under federal tax law, hospitals with tax-exempt status, i.e., non-profit, are required to treat patients coming to the ED without prejudice to their ability to pay. Many uninsured or underinsured patients may postpone seeking treatment for a condition or illness until there is no choice but to go to an ED. The delay in treatment may be due, in part, to the inability of some patients to access care or the need for additional primary care providers.

Chart 10 shows the primary payer by town group. In 2009, residents of urban core towns visiting the ED had the lowest share of commercial health insurance coverage; 53.2% had Medicaid as their primary healthcare payer. Furthermore, the urban core town group was the only group where Medicaid coverage exceeded commercial health insurance coverage. Residents of urban core towns with federal or state government sponsored health care coverage may be using EDs for treatment instead of visiting primary health care facilities.

**Chart 10: Percent of ED Non-admits by Primary Payer and Town Group for FY 2009**



Patients came to the ED in FY 2009 for many different reasons. Respiratory infections or inflammation (including pneumonia, bronchitis and asthma), cellulitis or abscesses, chest pain, back pain, sprains and strains of the legs and knees, and open wounds were the top conditions or symptoms for each town group. Additional common issues that brought patients to the ED included viral and bacterial infections, bone fractures, middle ear infections, abdominal pain and gastroenteritis, headaches (including migraines), contusions, alcohol intoxication, and dental problems.

## **SUMMARY**

Since 2006, the overall number of ED visits in Connecticut has increased by almost 10%. Hospital EDs act as a safety net for those people who have no other access to care. Nearly 50% of the persons that visited an ED and did not require inpatient care received care that was non-emergent. Over 50% of the visits were by persons living in an urban setting and during daytime hours. These potentially avoidable visits may have been attended to by a primary care provider in a setting such as a community health center, a private physician's office or an urgent care center.

Future briefs in this series will focus on demographics of patients that come to the ED multiple times, primary payers, average cost per visit and additional information on town groups.

**Appendix 1: ED Volume by Fiscal Year for Visits Not Requiring Inpatient Admission  
Connecticut Residents**

<b>Fiscal Year</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Total volume	1,192,042	1,230,944	1,266,675	1,317,824
% Increase from Previous Year	-	3.3%	2.9%	4.0%
Total Increase since 2006 - 10.6%				
<u>Percentage of Volume by Payer:</u>				
Medicare	15.3%	15.3%	15.2%	15.2%
Medicaid	29.4%	30.0%	31.5%	34.6%
Other Government (Public)	1.0%	0.9%	1.0%	1.0%
Commercial	41.5%	41.3%	39.9%	37.3%
Uninsured	12.8%	1.3%	12.3%	12.0%
<u>Percentage of Volume by Age Group:</u>				
Under 18	23.3%	23.0%	22.8%	23.1%
18 to 39	36.3%	36.2%	36.1%	36.2%
40-64	28.5%	29.1%	29.5%	29.4%
65 and over	11.9%	11.7%	11.6%	11.4%
<u>Percentage of volume by Gender:</u>				
Female	53.2%	53.2%	53.6%	53.9%
Male	46.8%	46.8%	46.4%	46.1%
<u>Percentage of volume by Patient Race:</u>				
White	51.2%	50.4%	49.5%	48.4%
Black	13.7%	13.5%	13.7%	13.8%
Other	17.2%	18.9%	20.0%	21.1%
Hispanic	15.5%	15.3%	14.9%	14.8%
American Indian or Eskimo or Aleut	0.6%	0.6%	0.7%	0.7%
Hawaiian or Pacific Islander	0.1%	0.1%	0.1%	0.1%
Asian	1.8%	1.2%	1.2%	1.2%
ED Care Needed	10.3%	10.1%	10.4%	10.1%
Injury	29.0%	28.4%	27.6%	26.8%
Psychiatric	3.0%	2.8%	2.9%	2.8%
Drug and/or Alcohol	2.3%	2.2%	2.2%	2.2%
Unclassified	7.2%	9.4%	9.4%	11.2%
Non-emergency	22.3%	21.2%	21.7%	21.2%
Emergent Primary Care Treatable	20.5%	20.5%	20.6%	20.5%
ED Care Needed Preventable/Avoidable	5.4%	5.3%	5.2%	5.2%
Number of Visits Estimated as Not Requiring ED Services	48.2%	47.0%	47.5%	47.0%

## Appendix 2: Town Rates for Non-urgent ED Non-Admits in FY 2009

Town Name	Non-urgent Use Rate	ED Use Rate	Estimated Population In 2010	Town Name	Non-urgent Use Rate	ED Use Rate	Estimated Population in 2010
<b>Rural</b>				<b>Rural</b>			
Andover	100.2	263.6	3,403	Stafford and Union	158.6	382.3	12,293
Ashford	105.8	274.7	4,507	Sterling	104.2	258.2	3,927
Barkhamsted	100.7	288.3	3,707	Stonington	70.1	142.2	17,970
Beacon Falls	129.1	301.9	5,548	Thomaston	135.3	326.0	7,531
Bozrah	184.6	415.1	2,416	Thompson	118.7	269.5	9,256
Brooklyn	165.0	389.7	6,804	Voluntown	148.0	345.8	2,612
Canaan	59.2	122.6	1,020	Waterford	183.6	400.4	17,921
Canterbury	127.8	324.2	4,907	Westbrook	183.2	439.1	6,511
Chaplin	131.2	308.2	2,479	Willington	101.8	247.9	6,362
Colchester	181.3	410.6	15,916	Winchester	276.0	637.9	10,834
Colebrook	69.4	152.0	1,500	Woodstock	71.5	198.8	8,459
Cornwall and	59.9	157.7	2,777	<b>Suburban</b>			
Coventry	106.9	279.7	12,420	Avon	50.6	138.3	17,482
Deep River	174.1	399.3	4,555	Berlin	98.8	248.7	19,536
East Haddam	127.6	300.3	9,043	Bethany	62.2	160.5	5,503
East Hampton	227.8	515.0	11,459	Bethel	92.4	243.0	20,630
East Lyme	106.9	253.0	16,140	Bethlehem	64.8	196.8	3,638
East Windsor	138.0	332.3	9,950	Bolton	102.5	246.0	5,174
Eastford	79.0	204.1	1,901	Bridgewater	71.1	236.3	1,968
Franklin	142.4	333.9	1,854	Brookfield	75.9	212.0	17,044
Goshen	73.2	209.3	3,038	Burlington	66.6	187.2	8,802
Griswold and Lisbon	186.3	413.5	15,876	Canton	67.6	171.5	9,263
Hampton	155.1	389.3	1,970	Cheshire	71.3	192.1	25,887
Hartland	60.5	168.3	1,979	Chester	148.5	374.9	3,739
Kent	96.6	256.8	3,045	Clinton	136.4	326.0	13,901
Killingly	197.5	437.2	18,029	Columbia	112.1	285.1	5,469
Lebanon	139.7	345.3	7,281	Cromwell	123.3	308.0	12,602
Ledyard	195.8	395.5	15,508	Durham	78.0	215.1	7,377
Litchfield	89.8	265.3	9,066	East Granby	48.6	126.9	5,123
Mansfield	83.5	212.2	13,357	Ellington	119.2	290.0	14,495
Middlefield	95.5	247.1	4,258	Essex	133.3	335.6	6,889
Montville	196.2	419.3	18,274	Fairfield	105.7	227.3	52,715
Morris	90.8	265.0	2,234	Farmington	91.8	234.0	24,099
New Milford	128.9	324.7	29,756	Glastonbury	80.9	202.3	34,996
Norfolk	139.7	336.5	1,831	Granby	42.9	123.1	10,918
North Canaan	39.1	103.7	3,278	Guilford	88.5	225.6	22,492
North Stonington	97.8	198.4	5,288	Haddam	102.8	268.9	7,643
Old Lyme and Lyme	114.4	283.4	9,467	Harwinton	88.5	258.4	5,337
Plainfield	178.4	392.0	16,403	Hebron	154.0	354.6	9,753
Plymouth	166.3	390.3	11,997	Killingworth	89.8	242.0	6,708
Pomfret	87.8	232.8	4,481	Madison	78.6	204.2	19,502
Portland	144.9	344.9	9,014	Marlborough	184.7	423.7	6,147
Preston	147.7	340.7	5,007	Middlebury	77.7	207.2	6,723
Putnam	236.2	512.3	9,226	Monroe	43.2	116.1	21,286
Salisbury	5.7	20.7	4,155	New Fairfield	71.2	196.3	14,752
Scotland	54.4	142.0	1,866	New Hartford	81.0	220.7	6,652
Sharon	5.8	18.8	3,026	Newtown	56.6	161.3	28,076
Somers	96.0	264.7	8,623	North Branford	95.9	234.1	14,551
Sprague	256.9	524.6	3,323	North Haven	67.5	183.4	23,171

**Appendix 2: Town Rates for Non-Urgent ED non-admits in FY 2009 (continued)**

<b>Town Name</b>	<b>Non-urgent Use Rate</b>	<b>ED Use Rate</b>	<b>Estimated Population In 2010</b>	<b>Town Name</b>	<b>Non-urgent Use Rate</b>	<b>ED Use Rate</b>	<b>Estimated Population in 2010</b>
<b>Suburban</b>				<b>Urban Periphery</b>			
Old Saybrook	159.2	377.7	10,361	Norwalk	141.5	313.8	86,345
Orange	113.9	262.5	13,486	Norwich	366.7	750.7	36,390
Oxford	96.0	245.6	10,828	Plainville	162.6	372.6	16,657
Prospect	95.1	234.6	9,428	Rocky Hill	87.8	215.7	18,095
Redding	59.6	179.7	8,427	Seymour	164.6	370.6	16,244
Roxbury	85.7	239.2	2,115	Stamford	199.4	389.2	122,308
Salem	120.7	288.7	4,063	Stratford	131.9	290.1	50,878
Shelton	95.9	233.8	39,410	Torrington	203.7	498.9	37,931
Sherman	63.0	185.5	4,269	Vernon	229.9	491.7	27,984
Simsbury	44.2	122.7	23,858	West Hartford	90.3	213.4	57,861
South Windsor	81.4	205.6	26,950	Wethersfield	83.8	194.8	25,829
Southbury	61.4	173.5	20,335	Windham	374.0	738.3	21,080
Southington	141.5	340.9	40,455	Windsor Locks	92.6	221.0	12,930
Suffield	50.4	143.2	12,479	<b>Wealthy</b>			
Tolland	88.1	225.0	14,860	Darien	62.8	172.9	21,214
Trumbull	61.4	160.6	35,365	Easton	59.6	151.1	7,829
Wallingford	96.1	233.7	44,106	Greenwich	111.8	273.4	62,865
Washington	108.0	310.6	3,461	New Canaan	52.7	152.5	20,165
Watertown	107.3	269.2	22,584	Ridgefield	41.9	130.7	24,925
Windsor	104.5	234.3	28,760	Weston	36.6	118.6	10,965
Wolcott	114.1	274.1	16,488	Westport	44.4	133.6	27,284
Woodbridge	66.7	187.4	9,074	Wilton	48.8	139.3	18,878
Woodbury	65.0	172.2	10,170				
<b>Urban Core</b>							
Bridgeport	331.4	624.3	134,293				
Hartford	415.1	755.5	124,948				
New Britain	475.9	893.8	66,951				
New Haven	300.5	606.5	109,074				
New London	464.7	830.1	24,035				
Waterbury	408.9	766.3	106,619				
West Haven	207.5	438.7	50,986				
<b>Urban Periphery</b>							
Ansonia	274.5	569.0	18,890				
Bloomfield	132.6	297.6	19,726				
Branford	99.8	244.0	28,816				
Bristol	263.2	541.7	58,556				
Danbury	167.1	383.6	77,110				
Derby	239.5	499.2	12,874				
East Hartford	234.6	473.0	48,060				
East Haven	162.7	370.4	28,183				
Enfield	92.0	230.8	43,730				
Groton	319.1	592.5	39,018				
Hamden	102.8	237.6	53,503				
Manchester	219.1	468.6	54,715				
Meriden	272.7	529.4	59,821				
Middletown	216.2	475.3	43,519				
Milford	183.2	400.9	53,258				
Naugatuck	150.9	334.3	34,384				
Newington	98.3	240.3	28,106				

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## ENDNOTES

- <sup>1</sup> Hospital Fiscal Year runs from October 1 to September 30.
- <sup>2</sup> As the Chime database is proprietary to CHA, data have been used “as is,” and have not been verified by OHCA.
- <sup>3</sup> Sharon Hospital reported 14,124 visits for FY 2009. Due to its location near the border of the state of New York, 4,972 (35%) patients were Connecticut residents. Additionally, Sharon Hospital provided ED services to 0.4% of the total number of CT residents treated in FY 2009. Data from Sharon Hospital were excluded from the non-admit analyses for this reason.
- <sup>4</sup> See <http://ctsdc.uconn.edu/projections/5cts.html> for additional information on town groups.
- <sup>5</sup> U.S. Census Bureau, Population Estimates Program.
- <sup>6</sup> The diagnosis designated in the record as the first diagnosis for the patient’s visit was used to determine the major disease or system that the person presented with at the ED. The first-listed diagnosis was aggregated by a diagnosis group code, a group of related codes for the same general disease or symptom. Information on the NYU ED algorithm was obtained from the following website address: <http://wagner.nyu.edu/chpsr/index.html?p=25>.
- <sup>7</sup> The number of visits made to the ED was totaled based on the primary health insurance coverage identified for each visit.
- <sup>8</sup> In this chart the NYU algorithm classifications of drug/alcohol and psychiatric were combined due to the low numbers in relationship to the other types of visits.

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