
Emergency Department Utilization Report 2012

Florida Center for Health Information and Policy Analysis
Agency for Health Care Administration



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Florida Center for Health Information
And Policy Analysis

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Title:

Emergency Department Utilization Report 2012

Summary:

The Florida Agency for Health Care Administration (Agency) prepares an annual report on emergency department (ED) costs and utilization in Florida. This report provides patient demographic information and other characteristics of emergency department visits for calendar year 2012 as well as information on visits to the ED that resulted in an inpatient admission.

This analysis of calendar year 2012 data reveals that 68.4 percent of pediatric ED visits were made by children under age 9 and 63.7 percent of adult ED visits were for persons under age 55. More than 32 percent of pediatric ambulatory ED visits and 16.8 percent of adult ambulatory ED visits were low acuity. 58.3 percent of pediatric and more than 56 percent of adult Florida resident Medicaid ambulatory ED visits could potentially be avoided through greater utilization of primary care services.

**Relevant
Florida Statutes:**

Section 408.062(1)(i), F.S., directs the Agency to report to the Legislature each year on the use of emergency department services by patient acuity level and the implication of increasing hospital cost by providing non urgent care in emergency departments.

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Introduction

The Florida Legislature has requested an annual study of ED utilization and costs, grouped by the acuity level of patients using the ED. This report uses the ED data as well as the Agency's hospital inpatient data to provide information on patient demographics and other clinical characteristics of all visits to the ED.

On July 10, 2013, all available records from the Agency's emergency department (ED) database collected during the 2012 calendar year were selected for analysis. The financial information in this report reflects reported hospital charges for services provided and not the actual cost or revenue received by the hospital for the services provided. The analysis was done separately for pediatric and adult utilization.

Legislative Directions and Mandates

Section 408.062, F.S. mandates that;

- (1) The agency shall conduct research, analyses, and studies relating to health care costs and access to and quality of health care services as access and quality are affected by changes in health care costs. Such research, analyses, and studies shall include, but not be limited to:
 - (i) The use of emergency department services by patient acuity level and the implication of increasing hospital cost by providing non-urgent care in emergency departments. The agency shall submit an annual report based on this monitoring and assessment to the Governor, the Speaker of the House of Representatives, the President of the Senate, and the substantive legislative committees with the first report due January 1, 2006.

The Florida Center initiated collection of patient records for all ambulatory visits to a hospital ED, beginning with visits in January 2005. The ED database provides a detailed look at the reasons people seek care at the ED, the charges and the payers for these visits, as well as the diagnoses and procedures performed in that setting.

The Florida Agency for Health Care Administration (Agency) started collecting ambulatory visit records to hospital EDs in January 2005. This data provides information about the acuity level (the severity of the visit) for all patients where the visit did not result in an inpatient admission.

Findings

Patient Characteristics

Table 1 displays all pediatric and all adult emergency department (ED) visits for 2012 by patient characteristics (see **Appendix B** for a description of the racial/ethnic groups and payer groups). Pediatric males were 52.4 percent of all pediatric ED visits, whereas adult females were 58.4 percent of all adult ED visits. Non-whites represented 58.1 percent of all pediatric ED visits, while white adults were 57.8 percent of all adult ED visits. The top principal payer for all adult ED visits was Medicare. Additionally, self-pay and charity comprised 24.2 percent of all adult ED visits. Medicaid was the top principal payer for all pediatric ED patients, accounting for 65.7 percent of all pediatric ED visits.

Table 1: ED Visits by Patient Characteristics

Gender					
Pediatric	ED Visits	Percent	Adult	ED Visits	Percent
Male	977,777	52.4%	Male	2,948,496	41.4%
Female	888,726	47.6%	Female	4,175,801	58.6%
Racial/Ethnic Group					
Pediatric	ED Visits	Percent	Adult	ED Visits	Percent
Black	506,022	27.1%	Black	1,551,518	21.8%
Hispanic	511,377	27.4%	Hispanic	1,180,659	16.6%
White	738,136	39.5%	White	4,121,241	57.8%
Other	67,320	3.6%	Other	139,692	2.0%
Age Group					
Pediatric	ED Visits	Percent	Adult	ED Visits	Percent
Ages 0-4 years	862,055	46.2%	Ages 18-34 years	2,359,706	33.1%
Ages 5-9 years	414,421	22.2%	Ages 35-54 years	2,179,598	30.6%
Ages 10-14 years	335,450	18.0%	Ages 55-64 years	871,116	12.2%
Ages 15-17 years	254,579	13.6%	Ages 65-79 years	1,014,298	14.2%
			Ages 80+ years	699,649	9.8%
Payer Group					
Pediatric	ED Visits	Percent	Adult	ED Visits	Percent
Medicaid	1,225,717	65.7%	Medicaid	1,410,126	19.8%
Commercial	368,390	19.7%	Commercial	1,595,931	22.4%
Charity	6,458	0.3%	Charity	194,765	2.7%
Self-Pay	152,301	8.2%	Self-Pay	1,527,590	21.4%
Medicare	11,869	0.6%	Medicare	2,092,028	29.4%
Other Government	100,978	5.4%	Other Government	294,885	4.1%
All Pediatric Visits	1,866,505	100.0%	All Adult Visits	7,124,367	100.0%

Data Source: AHCA outpatient and inpatient database

Data excludes ED visits with unknown race/ethnicity and unknown payer

Inpatient Hospitalization

In 2012, there were 8,990,872 emergency department visits with 1,632,797 (18.2 percent) subsequently resulting in a hospital inpatient admission. **Table 2** displays ED visits resulting in inpatient hospitalization by patient characteristics. Over 21.8 percent of adult ED visits resulted in inpatient hospitalization while 4.4 percent of pediatric ED visits resulted in inpatient hospitalization. Regardless of patient characteristics the rate of pediatric ED visits resulting in inpatient admission was much lower than the rate for adult ED visits.

Table 2: ED Visits Resulting in Hospital Admission by Patient Characteristics

Gender			
Pediatric	Percent	Adult	Percent
Male	4.5%	Male	24.6%
Female	4.2%	Female	19.8%
Racial/Ethnic Group			
Pediatric	Percent	Adult	Percent
Black	4.5%	Black	16.6%
Hispanic	4.1%	Hispanic	20.6%
White	4.5%	White	24.2%
Other	5.0%	Other	20.0%
Age Group			
Pediatric	Percent	Adult	Percent
Ages 0-4 years	4.6%	Ages 18-34 years	7.7%
Ages 5-9 years	3.2%	Ages 35-54 years	16.4%
Ages 10-14 years	4.4%	Ages 55-64 years	28.8%
Ages 15-17 years	5.5%	Ages 65-79 years	40.3%
		Ages 80+ years	50.3%
Payer Group			
Pediatric	Percent	Adult	Percent
Medicaid	4.2%	Medicaid	14.8%
Commercial	6.0%	Commercial	15.8%
Charity	2.9%	Charity	19.7%
Self-Pay	1.7%	Self-Pay	8.5%
Medicare	3.8%	Medicare	41.9%
Other Government	4.5%	Other Government	15.6%
All Pediatric Visits	4.4%	All Adult Visits	21.8%

Data Source: AHCA outpatient and inpatient database

Data excludes ED visits with unknown race/ethnicity and unknown payer

Patient Acuity of ED Visits

Current Procedural Terminology (CPT) Evaluation & Management codes were used to categorize ambulatory ED visits into low and high acuity level visits. This information is only available for ambulatory ED visits and not for patients who were subsequently admitted as an inpatient. Ambulatory ED visits without CPT Evaluation & Management codes (1 percent of pediatric visits and 2.4 percent of adult visits) were excluded in this section of the report.

Table 3 displays ED visits by acuity level and patient characteristics. Approximately 32 percent of pediatric ambulatory ED visits were low acuity while 16.8 percent of adult ambulatory ED visits were low acuity. The proportion of low acuity visits decreased with age, in contrast to the average charge for low acuity visits, which increased with age.

Table 3: ED Visits by Patient Acuity Level and Patient Characteristics

Gender							
	Low Acuity	Low Acuity Mean Charge	High Acuity Mean Charge		Low Acuity	Low Acuity Mean Charge	High Acuity Mean Charge
Pediatric				Adult			
Male	32.5%	\$745	\$2,234	Male	18.3%	\$1,132	\$5,074
Female	31.6%	\$750	\$2,317	Female	15.9%	\$1,241	\$5,017
Racial/Ethnic Group							
	Low Acuity	Low Acuity Mean Charge	High Acuity Mean Charge		Low Acuity	Low Acuity Mean Charge	High Acuity Mean Charge
Pediatric				Adult			
Black	32.3%	\$617	\$2,028	Black	17.3%	\$887	\$4,322
Hispanic	37.9%	\$929	\$2,332	Hispanic	21.1%	\$2,087	\$5,815
White	27.9%	\$687	\$2,403	White	15.3%	\$972	\$5,111
Other	31.5%	\$687	\$2,321	Other	16.4%	\$905	\$5,152
Age Group							
	Low Acuity	Low Acuity Mean Charge	High Acuity Mean Charge		Low Acuity	Low Acuity Mean Charge	High Acuity Mean Charge
Pediatric				Adult			
Ages 0-4 years	36.6%	\$662	\$1,803	Ages 18-34 years	19.7%	\$993	\$4,018
Ages 5-9 years	33.2%	\$750	\$2,103	Ages 35-54 years	16.7%	\$1,185	\$5,149
Ages 10-14 years	26.6%	\$884	\$2,643	Ages 55-64 years	14.7%	\$1,350	\$5,844
Ages 15-17 years	21.6%	\$1,009	\$3,358	Ages 65-79 years	13.0%	\$1,724	\$6,332
				Ages 80+ years	10.2%	\$2,101	\$6,629
Payer Group							
	Low Acuity	Low Acuity Mean Charge	High Acuity Mean Charge		Low Acuity	Low Acuity Mean Charge	High Acuity Mean Charge
Pediatric				Adult			
Medicaid	32.9%	\$718	\$2,127	Medicaid	17.3%	\$1,074	\$4,403
Commercial	28.6%	\$934	\$2,699	Commercial	15.4%	\$1,573	\$5,393
Charity	29.7%	\$836	\$2,383	Charity	16.1%	\$1,360	\$4,953
Self-Pay	36.2%	\$628	\$2,182	Self-Pay	21.5%	\$834	\$4,250
Medicare	47.4%	\$597	\$2,322	Medicare	12.8%	\$1,574	\$6,128
Other Governemnt	25.1%	\$753	\$2,525	Other Governemnt	16.9%	\$987	\$4,714
All Pediatric Visits	32.0%	\$747	\$2,274	All Adult Visits	16.8%	\$1,194	\$5,039

Data Source: AHCA outpatient and inpatient database

Data excludes ED visits with unknown race/ethnicity and unknown payer

Low Acuity CPT: 99281,99282,G0380,G0381

High Acuity CPT: 99283-99285,99291,99292,G0382-G0384

Top Medical Conditions

Table 4 shows the top ambulatory ED reason for visit, principal diagnosis, and inpatient hospitalization principal diagnosis. The top reason for visit was abdominal pain. The top principal diagnosis was sprains and strains. The top inpatient principal diagnosis was pneumonia.

Table 4: Top Ten Medical Conditions

Reason for Emergency Department visit	Percent of ED Visits	Average Charge
Abdominal pain	9.3%	\$6,950
Other injuries and conditions due to external causes	9.0%	\$3,527
Other lower respiratory disease	6.9%	\$2,789
Spondylosis; intervertebral disc disorders; other back problems	4.8%	\$3,229
Nonspecific chest pain	4.7%	\$9,216
Fever of unknown origin	4.5%	\$1,910
Other connective tissue disease	4.0%	\$2,603
Nausea and vomiting	3.1%	\$3,828
Other non-traumatic joint disorders	3.0%	\$2,415
Headache; including migraine	3.0%	\$4,509
All other reasons for visit	47.6%	\$3,056
Total Emergency Department Visits	100.0%	\$3,718
Principal Diagnosis of Emergency Department visit	Percent of ED Visits	Average Charge
Sprains and strains	5.2%	\$2,779
Other upper respiratory infections	5.1%	\$1,427
Superficial injury; contusion	4.9%	\$3,044
Abdominal pain	4.9%	\$6,873
Nonspecific chest pain	3.5%	\$10,153
Spondylosis; intervertebral disc disorders; other back problems	3.1%	\$3,031
Skin and subcutaneous tissue infections	3.0%	\$1,812
Urinary tract infections	2.7%	\$4,441
Other injuries and conditions due to external causes	2.5%	\$3,838
Open wounds of extremities	2.5%	\$2,075
All other principal diagnoses	62.6%	\$3,580
Total Emergency Department Visits	100.0%	\$3,718
Inpatient Hospitalization Principal Diagnosis	Percent of Hospitalizations	Average Charge
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	3.6%	\$43,996
Septicemia (except in labor)	3.5%	\$90,290
Congestive heart failure; nonhypertensive	3.5%	\$46,613
Cardiac dysrhythmias	3.1%	\$39,470
Chronic obstructive pulmonary disease and bronchiectasis	3.1%	\$36,295
Nonspecific chest pain	2.9%	\$26,724
Urinary tract infections	2.7%	\$30,191
Skin and subcutaneous tissue infections	2.5%	\$30,045
Mood disorders	2.4%	\$16,643
Acute myocardial infarction	2.3%	\$90,267
All other principal diagnoses	70.2%	\$46,346
Total Inpatient Hospitalizations	100.0%	\$46,181

Emergency Status of ED Visits

This section of the report analyzes ambulatory ED visits from the perspective of primary and preventative care. The New York University (NYU) algorithm of classifying ED visits was used to assign ED visits for Florida residents by principal diagnosis (see **Appendix C** for a description of the NYU algorithm and the classification categories used in this report). This report further condensed the NYU classification categories into the following three categories:

- (1) ED avoidable - ED visits with conditions that were potentially preventable or avoidable through treatment in a primary care setting
- (2) Emergent - not preventable/avoidable - ED visits where care was required and ambulatory care treatment could not have prevented the condition (e.g., trauma, appendicitis, heart attack, etc.).
- (3) All other conditions - ED visits with conditions not assigned to classification 1-2 above.

The term “**Emergency Status**” is used to represent the cases identified as non-emergent or emergent (classifications 1-2 above respectively) by the NYU algorithm. The NYU algorithm assigned an emergency status to 4,399,452 ED visits, representing nearly 62.7 percent of all Florida resident ambulatory ED visits.

Table 5 shows ED visits by category and gender in 2012. The rate for ED avoidable visits per 1,000 population was nearly equal for boys (230) and girls (238), whereas the rate for women (222) was nearly 75 percent higher than the rate for men (127). The ED avoidable population rate for boys was 81.1 percent higher than the rate for men while the rate for girls was only 7.2 percent higher than the rate for women. Although pediatric ED avoidable rates were higher than adult rates, the average ED avoidable charge for adult ED visits was more than twice the charge for pediatric ED visits.

Table 5: ED Visits by Gender and ED Visit Category

Pediatric	ED Avoidable Visits	Emergent - Not Preventable / Avoidable	All Other Conditions	Adult	ED Avoidable Visits	Emergent - Not Preventable / Avoidable	All Other Conditions
Percentage of ED Visits by Emergency Status and Race/Ethnicity							
Male	52.3%	5.8%	41.9%	Male	44.1%	12.8%	43.1%
Female	56.9%	7.2%	36.0%	Female	53.6%	13.7%	32.7%
All ED Visits	54.5%	6.5%	39.1%	All ED Visits	49.8%	13.4%	36.8%
ED Visits by Emergency Status and Race/Ethnicity per 1000 population							
Male	230	26	184	Male	127	37	124
Female	238	30	150	Female	222	57	135
All ED Visits	234	28	168	All ED Visits	176	47	130
Average Charge for ED Visits by Emergency Status and Race/Ethnicity							
Male	\$1,515	\$2,673	\$1,886	Male	\$4,038	\$7,310	\$3,722
Female	\$1,645	\$2,868	\$1,859	Female	\$4,167	\$6,704	\$3,761
All ED Visits	\$1,580	\$2,776	\$1,874	All ED Visits	\$4,122	\$6,933	\$3,743

Source: AHCA outpatient database. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

Table 6 shows ED visits by category and racial/ethnic groups in 2012. ED avoidable visits per 1,000 population for black children under 18 (337) and black adults (337) were more than 47.2 percent and 94.8 percent higher than the rate for all ED visits (229) and (173) respectively. However, the average ED avoidable charge for blacks was the lowest for all racial groups. The average charge for pediatric ED avoidable visits was less than half the average charge for adult ED avoidable visits.

Table 6: ED Visits by Race and ED Visit Category

Pediatric	ED Avoidable	Emergent - Not Preventable / Avoidable	All Other Conditions	Adult	ED Avoidable	Emergent - Not Preventable / Avoidable	All Other Conditions
Percentage of ED Visits by Emergency Status and Race/Ethnicity							
Black	58.6%	6.1%	35.3%	Black	55.8%	12.5%	31.8%
Hispanic	57.9%	7.0%	35.1%	Hispanic	52.1%	14.5%	33.4%
White	49.4%	6.4%	44.2%	White	46.7%	13.4%	40.0%
Other	52.9%	6.6%	40.5%	Other	49.4%	14.3%	36.3%
All ED Visits*	54.6%	6.5%	39.0%	All ED Visits	49.9%	13.4%	36.7%
ED Visits by Emergency Status and Race/Ethnicity per 1000 population							
Black	337	35	203	Black	337	75	192
Hispanic	242	29	147	Hispanic	146	41	94
White	184	24	165	White	150	43	128
Other	133	16	101	Other	90	26	66
All ED Visits*	229	27	164	All ED Visits	173	46	127
Average Charge for ED Visits by Emergency Status and Race/Ethnicity							
Black	\$1,410	\$2,266	\$1,681	Black	\$3,478	\$5,724	\$3,191
Hispanic	\$1,630	\$2,758	\$1,861	Hispanic	\$4,780	\$7,886	\$4,081
White	\$1,681	\$3,162	\$2,004	White	\$4,229	\$7,111	\$3,860
Other	\$1,641	\$2,685	\$1,882	Other	\$4,285	\$6,924	\$3,749
All ED Visits*	\$1,582	\$2,782	\$1,880	All ED Visits	\$4,127	\$6,939	\$3,752

Source: AHCA outpatient database. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

*Total excludes ED visits with unknown race/ethnicity

Table 7 shows ED visits by category and age in 2012. ED avoidable utilization rates decreased with age for both pediatric ED visits and adult ED visits, while ED utilization rates for emergent - not preventable/avoidable conditions increased with age. Contrary to the trend in ED avoidable utilization rates, the average charge for ED avoidable visits increased significantly with age.

Table 8 shows ED visits by category and payer in 2012. ED avoidable utilization was highest for Medicaid, charity, and self-pay patients.

Table 7: ED Visits by Age and ED Visit Category

Pediatric	ED Avoidable	Emergent - Not Preventable / Avoidable	All Other Conditions	Adult	ED Avoidable	Emergent - Not Preventable / Avoidable	All Other Conditions
Percentage of ED Visits by Emergency Status and Age							
Ages 0-4	59.7%	5.6%	34.7%	Ages 18-34	53.7%	11.8%	34.5%
Ages 5-9	55.9%	6.0%	38.1%	Ages 35-54	50.3%	14.0%	35.8%
Ages 10-14	45.6%	7.0%	47.4%	Ages 55-64	46.8%	14.9%	38.3%
Ages 15-17	45.8%	9.5%	44.7%	Ages 65-79	44.1%	15.5%	40.4%
All ED Visits	54.5%	6.5%	39.1%	Ages 80+	38.0%	14.1%	47.8%
All ED Visits				All ED Visits	49.8%	13.4%	36.8%
ED Visits by Emergency Status and Age per 1000 population							
Ages 0-4	441	41	256	Ages 18-34	275	60	177
Ages 5-9	198	21	135	Ages 35-54	172	48	123
Ages 10-14	125	19	130	Ages 55-64	111	35	91
Ages 15-17	148	31	144	Ages 65-79	99	35	91
All ED Visits	234	28	168	Ages 80+	131	49	165
All ED Visits				All ED Visits	176	47	130
Average Charge for ED Visits by Emergency Status and Age							
Ages 0-4	\$1,286	\$1,653	\$1,477	Ages 18-34	\$3,165	\$5,186	\$3,069
Ages 5-9	\$1,480	\$2,420	\$1,759	Ages 35-54	\$4,293	\$7,333	\$3,580
Ages 10-14	\$1,933	\$3,760	\$2,150	Ages 55-64	\$5,081	\$8,329	\$4,087
Ages 15-17	\$2,623	\$4,435	\$2,703	Ages 65-79	\$5,819	\$8,613	\$4,703
All ED Visits	\$1,580	\$2,776	\$1,874	Ages 80+	\$6,104	\$8,397	\$5,615
All ED Visits				All ED Visits	\$4,122	\$6,933	\$3,743

Source: AHCA outpatient database. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

Table 8: ED Visits by Payer and ED Visit Category

Pediatric	ED Avoidable	Emergent - Not Preventable / Avoidable	All Other Conditions	Adult	ED Avoidable	Emergent - Not Preventable / Avoidable	All Other Conditions
Percentage of ED Visits by Emergency Status and Payer							
Medicaid	58.3%	6.2%	35.5%	Medicaid	56.6%	12.8%	30.6%
Commercial	41.8%	7.4%	50.8%	Commercial	47.2%	15.4%	37.4%
Charity	54.4%	6.3%	39.3%	Charity	53.5%	13.4%	33.0%
Self	54.3%	6.2%	39.4%	Self	52.7%	11.3%	35.9%
Medicare	49.6%	7.9%	42.5%	Medicare	44.6%	14.7%	40.7%
Other Governemnt	50.0%	7.1%	42.9%	Other Governemnt	37.8%	10.8%	51.4%
All ED Visits*	54.5%	6.5%	39.1%	All ED Visits*	49.9%	13.4%	36.7%
Total ED Charges by Emergency Status and Payer (in millions)							
Medicaid	\$1,011	\$182	\$730	Medicaid	\$2,416	\$894	\$1,181
Commercial	\$268	\$82	\$351	Commercial	\$2,747	\$1,454	\$1,822
Charity	\$5	\$1	\$4	Charity	\$317	\$145	\$168
Self	\$106	\$21	\$92	Self	\$2,210	\$863	\$1,480
Medicare	\$8	\$2	\$7	Medicare	\$2,797	\$1,375	\$2,232
Other Government	\$87	\$21	\$82	Other Government	\$384	\$179	\$404
All ED Visits*	\$1,487	\$310	\$1,266	All ED Visits*	\$10,871	\$4,910	\$7,286

Source: AHCA outpatient database.

*Total excludes unknown payer.

Emergency Department Frequent Users

This section of the report analyzes frequent use of ED services by Florida residents. Frequent ED users are individuals with multiple ED visits (without hospitalization) in 2012. Frequent ED users are associated with higher health care cost,¹ greater prevalence of chronic medical conditions,² emergency department crowding,³ and lack of access to primary care services.⁴ Different levels of frequent ED users are used in this section since frequent users have been shown to be a heterogeneous group⁵. Five mutually exclusive utilization groups were defined to categorize frequent ED users: group 1: 1 ED visit, group 2: 2 ED visits, group 3: 3 to 5 ED visits, group 4: 6 to 10 ED visits, and group 5: 11 or more ED visits. There was sufficient patient information in the AHCA outpatient database to create a unique identifier for 3,608,004 ED users (81.4 percent of the ED users), representing 6,200,148 ED visits (88.3 percent of Florida ED visits) in 2012.

Table 9 shows the percent of ED patients in 2012 with ED avoidable visits for each utilization group. The percent of patients generally increases with the frequency of ED visits regardless of demographic characteristics. Overall 51.5 percent of single visit pediatric patients were avoidable while 63.7 percent of pediatric patients with 6 to 20 ED visits were avoidable. Overall 46.2 percent of single visit adult patients were avoidable while 54.5 percent of adult patients with 6 to 20 ED visits were avoidable.

Table 9: ED Avoidable Visits by Utilization Group

Pediatric	1 ED Visit	2-5 ED Vists	6-20 ED Visits	>21 ED Visits	Adult	1 ED Visit	2-5 ED Vists	6-20 ED Visits	>21 ED Visits
Males	48.4%	55.7%	64.0%	48.1%	Males	41.7%	45.9%	47.8%	45.9%
Females	54.9%	60.6%	63.4%	64.2%	Females	49.7%	55.2%	57.4%	55.4%
Black	55.4%	60.5%	66.2%	76.9%	Black	53.0%	57.1%	58.2%	51.7%
Hispanic	55.9%	60.7%	65.9%	71.6%	Hispanic	50.0%	53.9%	56.1%	52.1%
White	45.9%	54.2%	60.2%	50.4%	White	42.8%	48.5%	52.2%	50.9%
Other	51.1%	57.9%	63.3%	47.9%	Other	46.3%	52.2%	55.2%	56.3%
Ages 0-4	59.1%	63.6%	68.2%	73.8%	Ages 18-34	49.8%	55.7%	57.0%	52.6%
Ages 5-9	55.0%	60.3%	66.0%	48.4%	Ages 35-54	47.2%	52.2%	53.2%	50.4%
Ages 10-14	44.7%	49.6%	54.4%	53.3%	Ages 55-64	44.1%	48.8%	50.8%	50.3%
Ages 15-17	43.4%	49.9%	54.9%	52.9%	Ages 65-79	42.7%	45.1%	49.3%	53.4%
					Ages 80+	37.6%	38.3%	40.9%	49.9%
Medicaid	55.4%	59.9%	64.4%	58.3%	Medicaid	55.3%	57.5%	56.7%	52.3%
Commercial	39.7%	47.2%	55.3%	49.3%	Commercial	44.6%	50.0%	54.3%	54.5%
Charity	53.8%	57.4%	59.1%	-	Charity	53.1%	54.6%	52.9%	47.6%
Self	53.3%	58.5%	64.9%	69.6%	Self	50.5%	54.6%	55.2%	49.4%
Medicare	48.4%	52.4%	61.6%	-	Medicare	42.6%	45.1%	49.9%	51.8%
Other Governemnt	47.4%	52.8%	58.4%	-	Other Governemnt	32.3%	41.3%	49.3%	49.7%
All ED Visits	51.5%	58.1%	63.7%	57.0%	All ED Visits	46.2%	51.7%	54.5%	51.3%

Source: AHCA outpatient database.

¹ Cook LJ, Knight S, Junkins EP Jr, et al. Repeat patients to the emergency department in a statewide database. *Acad Emerg Med.* 2004;11:256-263.

² Milbrett P, Halm M. Characteristics and predictors of frequent utilization of emergency services. *J Emerg Nurs.* 2009;35:191-198.

³ Malone RE. Almost "like family": emergency nurses and "frequent flyers." *J Emerg Nurs.* 1996;22:176-183.

⁴ Ovens HJ, Chan BT. Heavy users of emergency services: a population-based review. *CMAJ.* 2001;165:1049-1050.

⁵ Ruger JP, Richter CJ, et al. Analysis of Costs, Length of Stay, and Utilization of Emergency Department Services By Frequent Users: Implications for Health Policy. *Acad Emerg Med.* 2004;11(12):1311-1317

Table 10 shows the association between the number of ED visits and acuity level. A multinomial logistic regression model was used to estimate the association between utilization groups and acuity level (defined using CPT codes), controlling for demographic characteristics, payer, primary diagnosis, time of ED visits, the urbanization of patient county, ED ownerships status, and the number of licensed family practice physicians in the patient’s county of residence. The table gives adjusted odds ratios and confidence intervals describing the association with the user group 1 (1 ED visit) and the critical acuity level being the reference categories. The adjusted odds ratios calculate the odds of having a certain acuity level given that an ED visit occurred in a given utilization group. The analysis shows an increased likelihood of having a lower acuity level for each user group. For example, patients with 3 to 5 ED visits were 1.22 times more likely to be assigned a non-urgent acuity level than a critical acuity level. Compared to patients with a single ED visit, patients with more than 20 ED visits were 1.52 times more likely to be assigned a non-urgent acuity level

Table 10: Association between ED Utilization Group and Acuity Level

Acuity Level	1 ED Visit	2 ED Visits	3 to 5 ED Visits	6 to 20 ED Visits	>20 ED Visits
Critical	1	1	1	1	1
Emergent	1	1 (.99, 1)*	1.03 (1.03, 1.04)	1.05 (1.04, 1.06)	1.16 (1.14, 1.19)
Urgent	1	1.06 (1.05, 1.07)	1.12 (1.11, 1.13)	1.11 (1.1, 1.13)	1.28 (1.25, 1.31)
Less Urgent	1	1.06 (1.05, 1.07)	1.11 (1.1, 1.12)	1.05 (1.03, 1.06)	1.22 (1.19, 1.26)
Non-Urgent	1	1.15 (1.14, 1.17)	1.22 (1.21, 1.24)	1.15 (1.14, 1.17)	1.52 (1.47, 1.57)

non-urgent: 99281, G0380; less urgent: 99282, G0381; urgent: 99283, G0382;

emergent: 99284, G0383; Critical: 99285, 99291, 99292, G0384;

* odds ratio not significant at p<.05 level.

Appendix: Methodology

The New York University ED Classification Algorithm

The New York University Center for Health and Public Service Research and the United Hospital Fund of New York developed an algorithm, to aid in the analysis of administrative data from ED records. The algorithm classifies ED utilization, based on the principal diagnosis, from the perspective of primary care and preventive care for emergent and non-emergent cases.

Since few diagnostic categories are clear-cut in all cases, the algorithm assigns cases probabilistically on a percentage basis, reflecting this potential uncertainty and variation

Based on this information, each case was classified into one or more of the following categories:

- (1) **Non-emergent** - The patient's initial complaint, presenting symptoms, vital signs, medical history, and age indicated that immediate medical care was not required within 12 hours.
- (2) **Emergent/Primary Care Treatable** - Based on information in the record, treatment was required within 12 hours, but care could have been provided effectively and safely in a primary care setting. The complaint did not require continuous observation, and no procedures were performed or resources used that are not available in a primary care setting (e.g., CT scan or certain lab tests).
- (3) **Emergent - ED Care Needed - Preventable/Avoidable** - Emergency department care was required based on the complaint or procedures performed and resources used, but the emergent nature of the condition was potentially preventable/avoidable if timely and effective ambulatory care had been received during the episode of illness (e.g., the flare-ups of asthma, diabetes, congestive heart failure, etc.).
- (4) **Emergent - ED Care Needed - Not Preventable/Avoidable** - Emergency department care was required and ambulatory care treatment could not have prevented the condition (e.g., trauma, appendicitis, heart attack, etc.).

This report uses two categories in addition to the above NYU classification categories. These addition categories are as follows:

- (5) **ED avoidable** - Defined by classifications 1-3 above is used to represent ED visits that are potentially preventable or avoidable through treatment in a primary care setting.
- (6) **All other conditions** - Defined as all conditions not assigned to classifications 1-4 above.