

Kentucky Injury Prevention and Research Center

**2012 Kentucky Inpatient and
Emergency Department
Traumatic Injury Data Report**

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Introduction

The Kentucky Inpatient and Emergency Department Trauma Data Report is an overview of 2012 hospital care provided to Kentucky residents whose primary diagnosis was some form of physical trauma. The data sources for these tables are the hospital discharge and emergency department (ED) datasets for all Kentucky non-federal general acute care hospitals. In contrast, the Kentucky Trauma Registry (KTR) Report collects data only from Kentucky hospitals that have been verified by the American College of Surgeons (ACS) or the state Dept. for Public Health as trauma facilities, or have volunteered to report their trauma cases according to the National Trauma Data Bank standard. Although Kentucky is moving toward a broader and deeper network for trauma care, review of the full statewide hospital discharge and ED datasets is still necessary to achieve a comprehensive account of trauma-related hospitalizations across the full range of facilities in the state.

The current report can be read in tandem with previous Kentucky Inpatient and Emergency Department Trauma Data Reports as references (<http://www.mc.uky.edu/kiprc/projects/trauma/index.html>). The 2010 version of this report was a comprehensive review of the trauma care provided in the Kentucky acute care hospitals 2001 – 2010.

The data sources for this report are the 2012 Kentucky inpatient hospital discharge (HD) and emergency department (ED) uniform electronic billing records from all Kentucky general acute care hospitals. Data on Kentuckians who received care out of state, such as those treated at Cincinnati or Nashville facilities, were not included. The report is focused only on Kentucky residents and does not include non-Kentuckians who received injury-related care at Kentucky facilities.

The data presented in the report reflects instances of care-hospital admissions or ED visits rather than discrete patient information. State data management policy requires the removal of all personal identifiers from the data sets before we receive them. Thus, our counts do not necessarily correspond to the number of injuries because follow-up hospitalizations or ED visits for earlier injury care could not be identified and removed from the datasets. However, the risk of double-counting patients is reduced by the exclusion of patients from the ED dataset who are admitted from the ED to the same facility's inpatient service.

The hospital discharge data is coded according to the International Classification of Diseases, Clinical Modification, ninth revision (ICD-9-CM). The ICD system describes an injury using diagnosis codes and E-codes. An injury diagnosis code is a single code that describes the nature of the injury (e.g., fracture, open wound) and the body region (head, arm, skull, etc.). The first listed diagnosis is the principal diagnosis that reflects the primary reason for the patient's hospital stay based on clinical findings. For the purpose of this report a case was selected as a traumatic injury case if the principal diagnosis was in the following range of codes: 800-897, 900, 901, 902, 903, 904, 925, 926, 927, 928, 929, 940-949, 950-959.

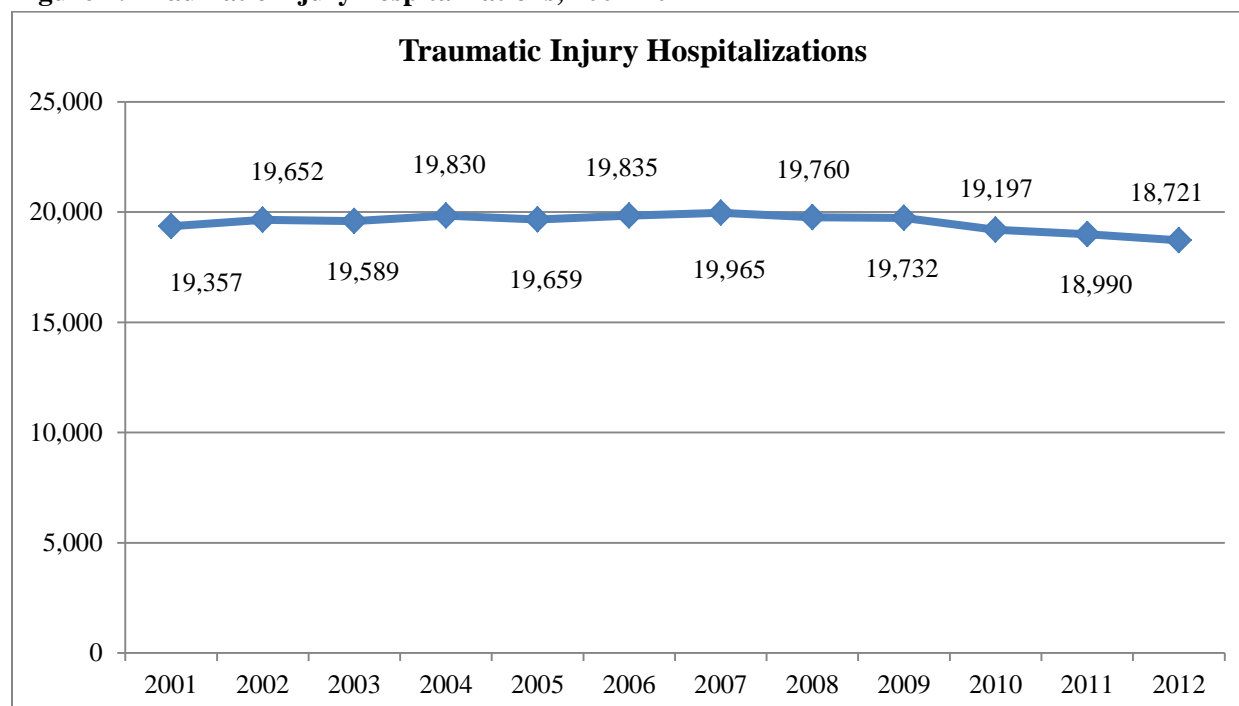
Injury diagnoses should be supplemented (when circumstances of an injury are known) with E-codes, which specify external cause of injury, place of injury, and activity. The external cause of injury E-code is a

single code that describes the mechanism of injury (e.g., fall, motor vehicle collision, firearm) and the intent of injury (e.g., unintentional, assault, self-inflicted, or undetermined). The state HD and ED electronic record systems currently support up to three E-codes. On average, about 85 percent of the HD and ED cases with principal diagnoses of injury are supplemented with valid external cause of injury E-codes. The completeness and validity of E-codes is very important for successful injury surveillance and to identify priority areas and populations at higher risk who are in need of injury prevention programs.

Inpatient Data

In 2012, there were 18,721 hospitalizations in Kentucky non-federal acute care facilities for traumatic injuries to Kentucky residents. This is about a one percent decrease from the 18,990 hospitalizations for traumatic injuries in 2011. A decrease of about one percent was also observed in the previous year's number of traumatic injuries hospitalizations (from 19,197 in 2010 to 18,990 in 2011).

Figure 1: Traumatic injury hospitalizations, 2001-2012



About 21% of all hospital discharge records (3,952 records) with a principal diagnosis of traumatic injury lacked an external cause of injury code (E-code) that described the injury mechanism and intent (Table 1). Among the remaining 14,769 traumatic injury hospitalizations, the large majority (13,996, 95%) were unintentional, while 4% were due to assaults, and 1% were due to intentional self-harm. The majority of the unintentional injuries, 75%, were falls. There were 1,548 hospitalizations for traumatic injuries due to motor vehicle traffic collisions, representing 11% of all unintentional injuries. The majority of assault injuries were classified as struck by/against (n=197, 32%) or firearm injuries (n=141, 23%). Among the intentional self-harms, 59 (42%) were cuts and 53 (38%) due to firearms.

Table 1: Traumatic injury hospitalizations by cause and intent, 2012

Cause	Un-intentional	Self-harm	Assault	Other	Undetermined	Missing E-code	Total
MV Traffic	1,544	0	*	0	0	0	1,548
Firearm	59	53	141	*	0	0	258
Poisoning	12	*	*	0	*	0	19
Falls	10,493	6	*	0	5	0	10,504
Suffocation	*	0	0	0	*	0	*
Drowning	*	0	0	0	*	0	*
Fire/Burn	189	*	*	0	0	0	199
Cut/Pierce	126	59	116	0	*	0	302
Struck by/against	322	0	197	*	*	0	522
Machinery	70	0	0	0	0	0	70
Other Pedal Cycle	63	0	0	0	0	0	63
Other Pedestrian	11	0	0	0	0	0	11
Other Trans.	396	0	0	0	0	0	396
Natural/Environ.	165	0	0	0	0	0	165
Overexertion	142	0	0	0	0	0	142
Other Specified	143	12	39	0	0	0	194
Not elsewhere classified	59	6	28	0	0	0	93
Not specified	196	0	76	0	0	0	278
Missing E-code	0	0	0	0	0	3,952	3,952
TOTAL	13,996	140	607	6	22	3,952	18,721

*Counts less than 5 were suppressed by state data management policy

Among age cohorts, patients 85 and older accounted for the largest proportion of trauma-related hospitalizations (n=3,272 or 17%). Overall, the number of hospitalizations increased with age (Figure 2). This age distribution is quite different from that of the patients reported to the Kentucky Trauma Registry (KTR) http://www.mc.uky.edu/kiprc/projects/trauma/reports/Trauma_Registry_Report_-_2012_-_published.pdf the majority of whom are in the 18-55 age range. The number of cases in KTR decreases with the increase in age. The difference is primarily because the current report includes fall-related fractures, the leading cause of inpatient stays in those 65 and older. Isolated hip fractures, the most common cause of hospitalization following serious falls in older adults, are not included in the diagnostic categories reported to the Kentucky state trauma registry because such admissions do not require trauma team activation.

Figure 2: Traumatic injury hospitalizations, by age group, 2012

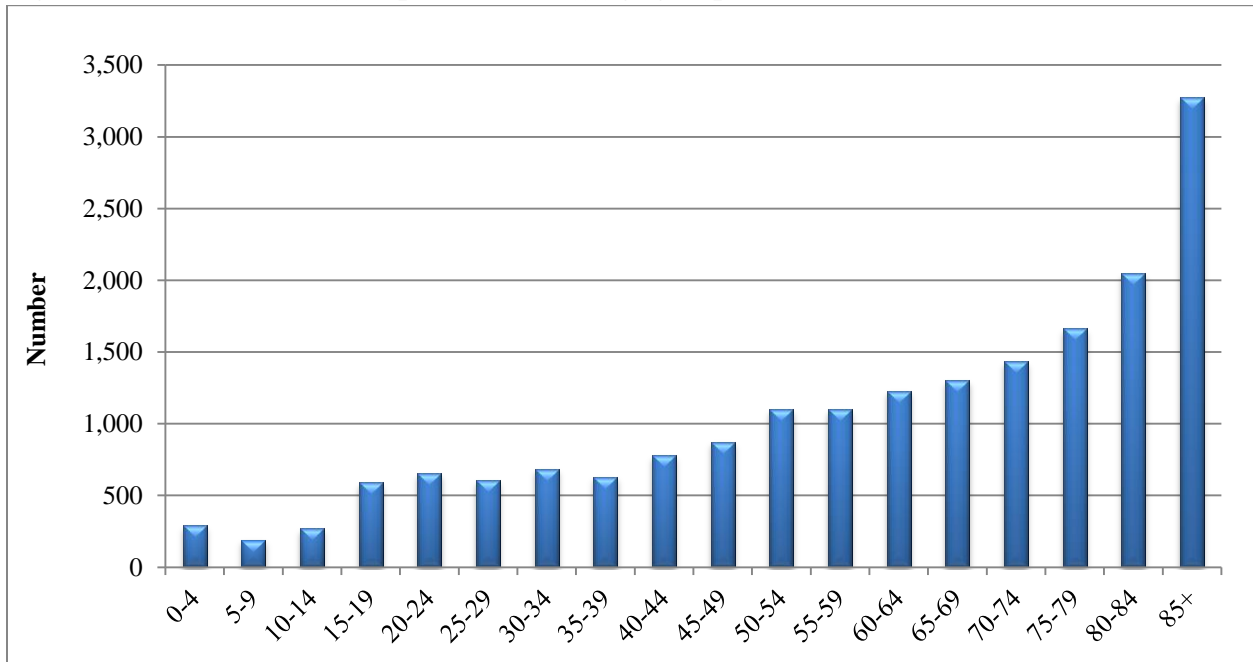


Figure 3 shows the three leading causes for traumatic injury hospitalizations, motor vehicle traffic collisions (MVTC), falls, and being struck by or against an object or person.

Figure 3: Leading causes for traumatic injury hospitalizations, by age group, 2012

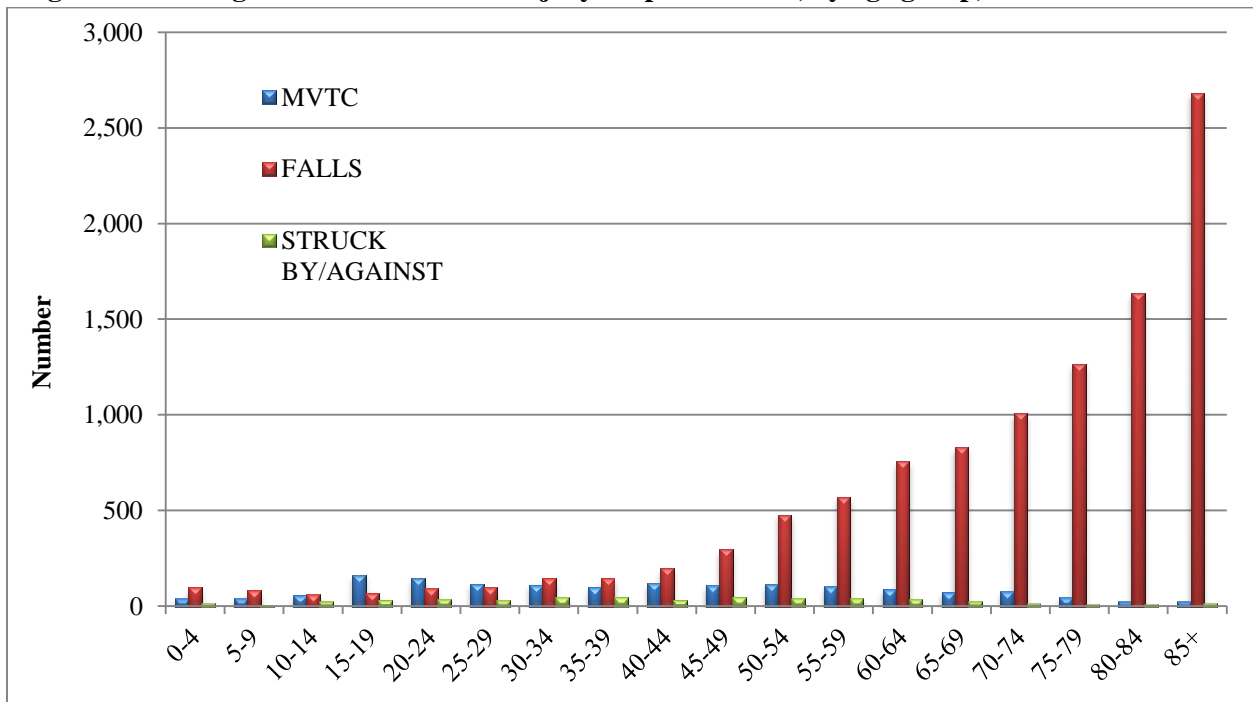


Table 2: Traumatic injury hospitalizations, by body region, 2012

Injuries by Body Region			N	%
Head and Neck	Traumatic Brain Injury (TBI)	Type 1 TBI	1,964	10.49
		Type 2 TBI	300	1.60
		Type 3 TBI	71	0.38
	Other head, face and neck	Other Head	121	0.65
		Face	409	2.18
		Eye	17	0.09
		Neck	31	0.17
		Head, Face and Neck Unspecified	54	0.29
Spine and back	Spinal Cord (SCI)	Cervical SCI	76	0.41
		Thoracic/ Dorsal SCI	40	0.21
		Lumbar SCI	19	0.10
		Sacrum Coccyx SCI	2	0.01
		Spine+ Back unspecified SCI	3	0.02
	Vertebral Column (VCI)	Cervical VCI	363	1.94
		Thoracic /Dorsal VCI	432	2.31
		Lumbar VCI	714	3.81
		Sacrum Coccyx VCI	100	0.53
		Spine, Back Unspecified VCI	3	0.02
Torso	Torso	Chest (Thorax)	1185	6.33
		Abdomen	597	3.19
		Pelvis and Urogenital	879	4.70
		Trunk	43	0.23
		Back and Buttock	26	0.14
Extremities	Upper	Shoulder and upper arm	1,262	6.74
		Forearm and elbow	774	4.13
		Wrist, hand and fingers	281	1.50
		Other and unspecified	70	0.37
	Lower	Hip	4,718	25.20
		Upper leg and thigh	830	4.43
		Knee	189	1.01
		Lower leg and ankle	2,377	12.70
		Foot and toes	344	1.84
		Other and unspecified	308	1.65
Unclassifiable by site	Other and un-specified	Other/multiple	7	0.04
		Unspecified site	30	0.16
	Sys-tem wide	System-wide & late effects	82	0.44

*Type 1 TBI are described with a principal diagnosis for an intracranial injury, moderate/prolonged loss of consciousness, shaken infant syndrome, or injuries to the optic nerve pathways. Type 2 TBI include head injuries with no intracranial injury coded with loss of consciousness of less than 1 hour or unknown duration, or unspecified level. Type 3 TBI involve no intracranial injury and no loss of consciousness.

Almost half (46.8%) of the hospitalizations involved a lower extremity injury (Table 2). Hip fractures accounted for one in four (25.2%) traumatic injury hospitalizations. The traumatic brain injuries (TBI) accounted for a total of 12.5% with majority of them being Type I, or the most serious type of TBI.

Using the principal diagnosis code, injuries are described by nature in Table 3. Three-quarters of the hospitalizations involved fractures, and 14.8% involved internal organ injuries.

Table 3: Traumatic injury hospitalizations, by nature, 2012

Injuries by Nature	Number	Percent
Fractures	14,085	75.24
Dislocation	119	0.64
Sprains and strains	287	1.53
Internal organ	2763	14.76
Open wounds	655	3.50
Amputations	60	0.32
Blood vessels	99	0.53
Crushing	82	0.44
Burns	320	1.71
Nerves	24	0.13
Unspecified	145	0.77
System wide & late effects	82	0.44
Total	18,721	100.00

The distinction by gender is also affected by the large number of falls among older adults, a majority (56.5%) of whom are women (Table 4). In contrast, KTR data typically show a ratio of about 2 male patients for every female patient.

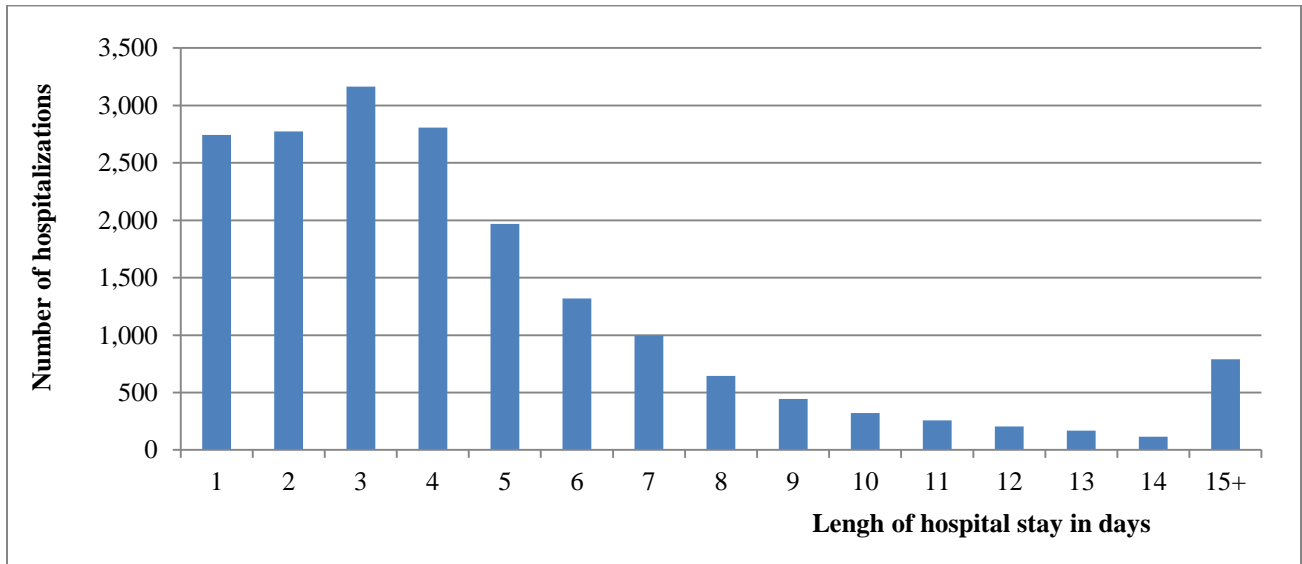
Table 4: Traumatic injury hospitalizations by gender, 2012

Gender	N	%
Female	10,571	56.5
Male	8,147	43.5

*Information for gender was missing for 3 patients

Trauma accounted for a total of 94,729 inpatient days in 2012, a decrease of 2% from the 96,840 total days in 2011, in keeping with the slight decrease in trauma hospitalizations in 2012. The mean length of stay in 2012 was 5.1 days, the same as in 2011. The median stay was 4 days. About 75% of the patients with a short stay of one or two days were discharged to self-care at home (routine discharge). Figure 4 shows visually the length of stay distribution.

Figure 4: Number of hospitalizations by length of hospital stay, 2012



For statewide trauma system planning, the inclusion of the large group of older adults hospitalized for injuries has important implications because it identifies a substantial group that can usually be managed safely at community facilities. The overrepresentation of older adults accounted for the high proportion of discharges to skilled nursing facilities (n=5,160, 28%), home health (n=1,773, 9%), or inpatient rehabilitation (n=2,072, 11.1%) (Table 5). Less than half (n=7,887, 42%) of discharges were to home or self-care. This finding is particularly important because it indicates an ongoing cost of post-discharge care: nearly half of Kentuckians hospitalized for traumatic injury in 2012 required additional formal health services in the period immediately following discharge. While the proportion who died was relatively small (2.5%), it nonetheless reflects the deaths of 476 Kentuckians who survived traumatic injury to the point of hospitalization.

Table 5: Traumatic injury hospitalizations by discharge status, 2012

Discharge Status	Age Group										Total
	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	
Routine discharge (home/self care)	265	414	1,033	1,025	1,088	1,340	1,180	800	506	236	7,887
Inpatient-other short-term hospital	5	*	11	13	17	28	53	87	75	52	342
Skilled nursing facility (SNF)	0	0	9	16	37	118	349	828	1,834	1,969	5,160
Intermediate care facility (ICF)	0	0	0	0	*	*	15	14	21	33	87
Designated Cancer Center or Children's Hospital	0	*	*	*	6	*	*	8	5	12	43
Home health	6	16	59	85	96	235	349	398	334	195	1,773
Left/discontinued care AMA	0	0	6	15	17	18	13	8	*	*	79
Expired/Did not recover	*	8	24	25	25	22	33	77	118	142	476
Discharge/transfer to court/law enforcement	*	0	11	33	17	21	5	*	0	0	90
Discharged/transferred to a federal hospital	0	0	*	*	*	*	6	*	6	*	27
Hospice-home	0	0	*	0	*	*	*	5	16	22	50
Hospice-medical facility	0	0	0	*	0	*	6	10	23	54	97
Transfer w/in institution to Medicare swing bed	0	0	0	*	*	7	26	75	114	129	354
Discharge/transfer to rehab facility or hospital unit	12	19	80	64	80	151	257	389	622	398	2,072
Discharge/transfer to long-term care hospital	0	0	*	*	9	12	17	21	33	19	116
Discharge/transfer to nursing facility certified under Medicaid -not Medicare	0	0	0	0	*	*	0	0	*	*	10
Discharge/transfer to psych hospital or psych distinct part unit of a hos	0	0	*	5	11	6	11	7	*	0	44
Discharge/transfer to critical access hospital (CAH)	0	0	0	0	*	0	0	0	*	0	*
Discharged/transferred to another type of healthcare institution not otherwise defined	0	0	0	0	0	*	2	3	*	*	11
Total	291	460	1,243	1,289	1,410	1,976	2,329	2,735	3,716	3,272	18,721

*cells with less than 5 counts were suppressed by the state data management policy

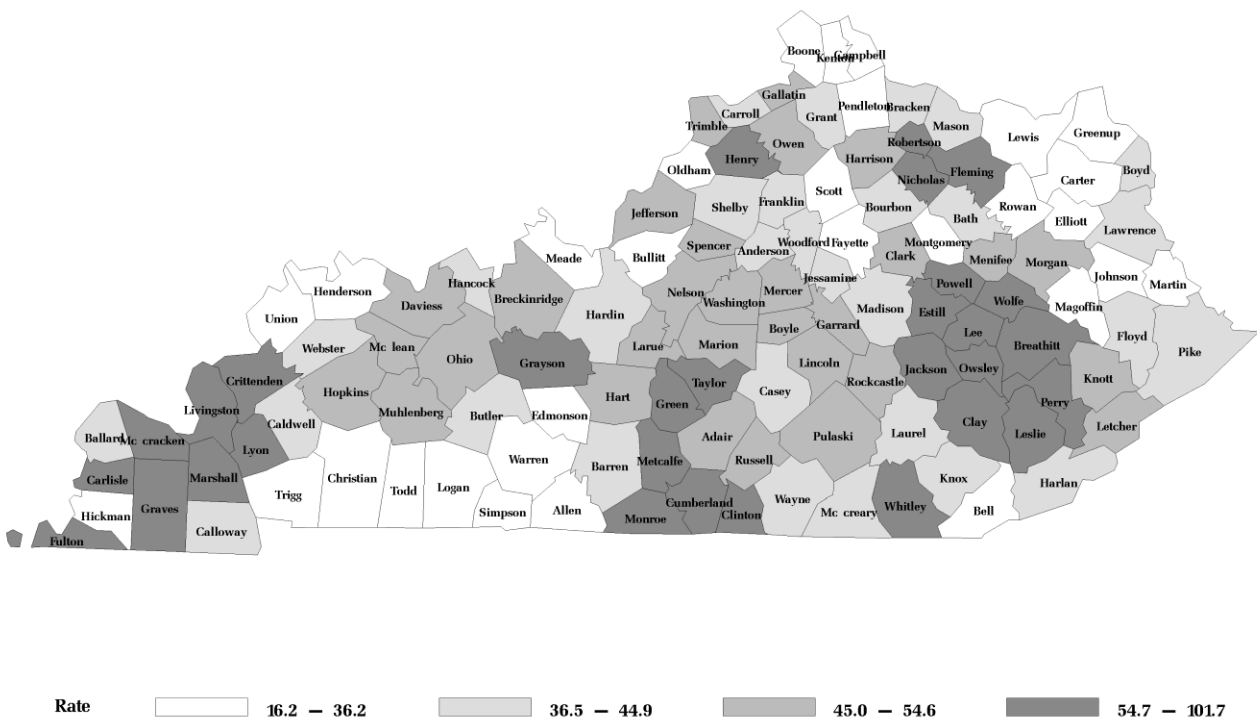
The hospital discharge data contains information for the total charges billed for the hospital stay. We report the total charges as a proxy for the actual cost of the hospital stay and treatment with the caveat that reimbursement is substantially lower than charges for most payers. Medicare alone accounted for 53% of hospitalizations and 44% (\$399,756,791) of the total charges billed (Table 6). About 9% of all traumatic injury hospitalizations in 2012 were coded as self-pay or charity, accounting for 11% of the total charges billed. This data point is important because the large majority of these charges are never paid and add to the public burden of trauma care. The impact of health insurance and Medicaid coverage expansion under the Affordable Care Act may reduce the proportion of unreimbursed trauma hospitalizations in future years. It is also important to note that trauma care is often under-insured, that is, the trauma patient may have some coverage, such as the \$10,000 state-mandated personal injury protection through auto insurance, but not enough to cover the entire length of stay.

Table 6: Traumatic injury hospitalizations by primary payer and total charges, 2012

Primary expected source of payment	Hospitalizations		Total Charges	
	N	%	Amount billed	% of the total amount billed
Auto Insurance	596	3.2%	\$41,045,856	4.5%
CHAMPUS	115	0.6%	\$7,551,244	0.8%
Commercial Insurance	4,060	21.7%	\$225,387,955	24.9%
Medicaid/Passport	1,801	9.6%	\$102,686,155	11.3%
Medicare	9,853	52.6%	\$399,756,791	44.2%
Other	98	0.5%	\$4,108,783	0.5%
Self-Pay or Charity	1,713	9.2%	\$99,228,742	11.0%
Workers Compensation	485	2.6%	\$25,660,527	2.8%
Total	18,721	100%	\$905,426,053	100%

The rate of traumatic injury hospitalizations in Kentucky in 2012 was 43 hospitalizations per 10,000 residents. The five counties with highest rates of hospitalization for traumatic injuries were Owsley, Wolfe, Perry, Fulton, and Leslie (Figure 5 and Appendix A). It is important to note that out-of-state hospitalizations are not included, so data for border counties understate the actual number of hospitalizations.

Figure 5: County rates of traumatic injury hospitalizations per 10,000 residents, 2012



Emergency Department Visits

Traumatic injuries were responsible for 287,042 emergency department (ED) visits for Kentucky residents in 2012. Of those, 44,858 (16%) lacked an external cause of injury code to describe the injury's cause and intent, and were not included in Tables 7 and 8. The completeness of E-codes for the traumatic injury ED visits improved from 81.4% 2010 and 83.6% in 2011, to 84% in 2012.

Among the ED visits with listed information for intent, unintentional injuries (Table 7) accounted for more than 96.2% of the encounters. With regard to the manner of intentional injury, self-inflicted traumatic injuries (n=641) are a much smaller factor than assaults by others (n=8,128). In contrast, self-inflicted injury is a much more common cause of death than assault in Kentucky (detailed information is available in the Kentucky Injury Indicators Reports <http://www.mc.uky.edu/kiprc/AnnualReport.html>)

Table 7: Traumatic injury ED visits by intent, 2012

Intent of injury	N	%
Unintentional	233,127	96.2
Self-harm	641	0.3
Assault	8,128	3.4
Other	142	0.1
Undetermined	146	0.1
TOTAL*	242,184	100

*44,858 records lacked information on the intent of the injury and were not included in the table

As with the inpatient data, falls were the most commonly reported cause of unintentional injury in 2012, accounting for 78,191 ED visits or 33.5% of all unintentional injury-related visits (Table 8). Overexertion, the second most common cause of injury (n=35,571), refers to excessive physical effort and injuries due to lifting, pulling, pushing, carrying or throwing.

Table 8: Traumatic injury ED visits by cause and intent, 2012

Cause	Unintentional	Intentional	Other/Undetermined	Total
MV Traffic	29,920	23	4	29,947
Firearm	294	146	20	460
Poisoning	59	0	9	68
Falls	78,191	11	40	78,242
Suffocation	6	34	0	40
Drowning	23	0	0	23
Fire/Burn	4,047	22	40	4,109
Cut/Pierce	22,927	952	17	23,896
Struck by/against	28,081	3,935	117	32,133
Machinery	1,130	0	0	1,130
Other Pedal Cycle	2,465	0	0	2,465
Other Pedestrian	118	0	0	118
Other Trans.	4,058	0	0	4,058
Natural/Environ.	4931	0	0	4,931
Overexertion	35,571	0	0	35,571
Other Specified	5,047	525	6	5,578
Not elsewhere classified	4,474	1,762	17	6,253
Not specified	11,739	1,359	18	13,116
TOTAL	233,127	8,769	288	242,138

*44,904 records lacked information on the cause and/or intent of the injury and were not included in the table

About 30% of the trauma treated in emergency departments can be classified as upper extremity injuries, based on their principal diagnosis code (Table 9). Injuries to the hand, wrist, or fingers alone accounted for 17%. Lower extremity injuries accounted for about one quarter of all injuries, mainly injuries of the lower leg or ankle. About 20% of all injuries were head or neck injuries.

Almost half of all injuries were sprains or strains (Table 10), followed by open wounds (24.7%) and fractures (16.3%).

Table 9: Traumatic injury ED visits, by body region, 2012

Injuries by Body Region			N	%
Head and Neck	Traumatic Brain Injury (TBI)	Type 1 TBI	825	0.29
		Type 2 TBI	7,710	2.69
		Type 3 TBI	319	0.11
	Other head, face and neck	Other Head	20,920	7.29
		Face	23,595	8.22
		Eye	1,233	0.43
		Neck	219	0.08
		Head, Face and Neck Unspecified	1,789	0.62
Spine and back	Spinal Cord (SCI)	Cervical SCI	23	0.01
		Thoracic/ Dorsal SCI	13	0.00
		Lumbar SCI	8	0.00
		Sacrum Coccyx SCI	*	0.00
		Spine+ Back unspecified SCI	11	0.00
	Vertebral Column (VCI)	Cervical VCI	23,097	8.05
		Thoracic /Dorsal VCI	5,583	1.95
		Lumbar VCI	19,110	6.66
		Sacrum Coccyx VCI	471	0.16
		Spine, Back Unspecified VCI	41	0.01
Torso	Torso	Chest (Thorax)	5,105	1.78
		Abdomen	703	0.24
		Pelvis and Urogenital	5,116	1.78
		Trunk	2,031	0.71
		Back and Buttock	3,125	1.09
Extremities	Upper	Shoulder and upper arm	19,154	6.67
		Forearm and elbow	15,213	5.30
		Wrist, hand and fingers	49,477	17.24
		Other and unspecified	2,245	0.78
	Lower	Hip	3,262	1.14
		Upper leg and thigh	569	0.20
		Knee	1,673	0.58
		Lower leg and ankle	29,102	10.14
		Foot and toes	17,306	6.03
		Other and unspecified	22,644	7.89
Unclassifiable by site	Other and un-specified	Other/multiple	18	0.01
		Unspecified site	5,046	1.76
	Sys-tem-wide	System-wide & late effects	283	0.10

Table 10: Traumatic injury ED visits, by nature, 2012

Injuries by Nature	Number	Percent
Fractures	46,782	16.3
Dislocation	2,899	1.0
Sprains and strains	124,388	43.3
Internal organ	8,637	3.0
Open wounds	70,815	24.7
Amputations	491	0.2
Blood vessels	21	<0.1
Crushing	1,165	0.4
Burns	5,124	1.8
Nerves	121	<0.1
Unspecified	26,316	9.2
System wide & late effects	283	0.1
Total	287,042	100.00

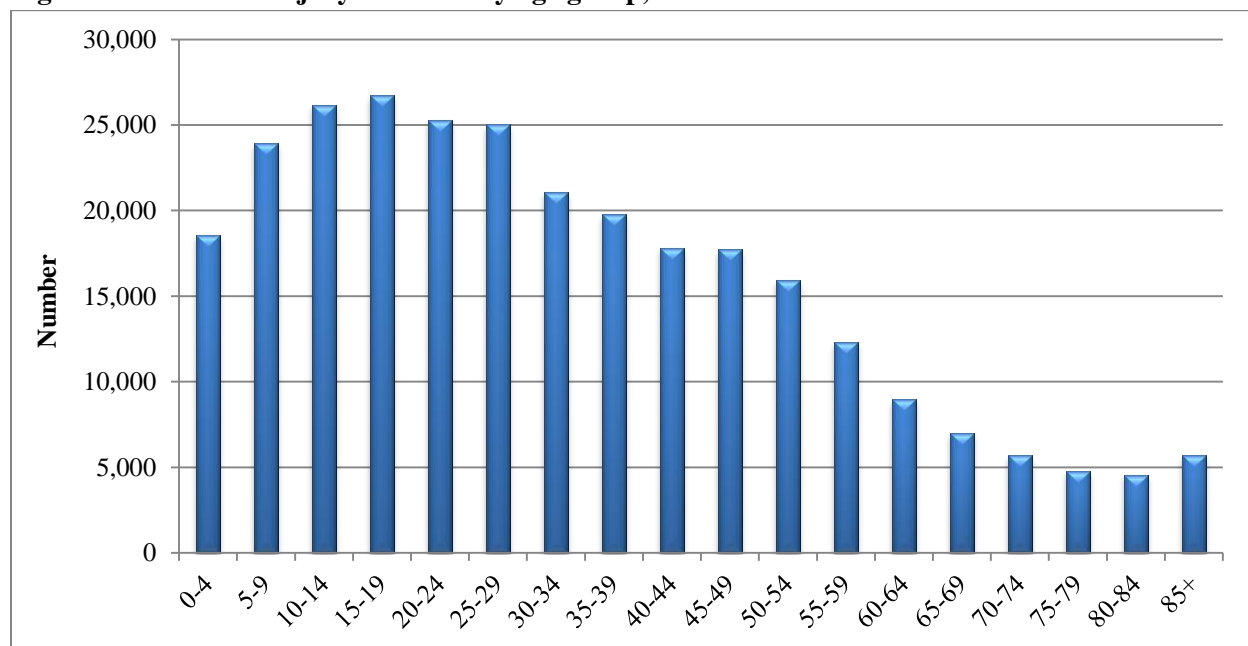
The ED distribution is roughly equal with regard to gender (47.2% female: 52.8% male, Table 11), in contrast with the Kentucky Trauma Registry's typical 65-70% male composition (see Kentucky Trauma Registry reports at <http://www.kiprc.uky.edu/projects/trauma/index.html>).

Table 11: Traumatic injury ED visits by gender, 2012

Gender	N	%
Female	137,121	47.8
Male	149,896	52.2
Missing	25	<0.1
Total	287,042	100.0

Teens and young adults had the largest proportion of ED visits (Figure 6), with nearly half (51%) falling in the 5 to 34-year-old range. The difference between this finding and the predominance of older adults in the inpatient dataset may reflect the relative underlying health status of these two age groups. Chronic conditions that complicate recovery from traumatic injuries are more common in older age groups and they are thus more likely to need inpatient care.

Figure 6: Traumatic injury ED visits by age group, 2012



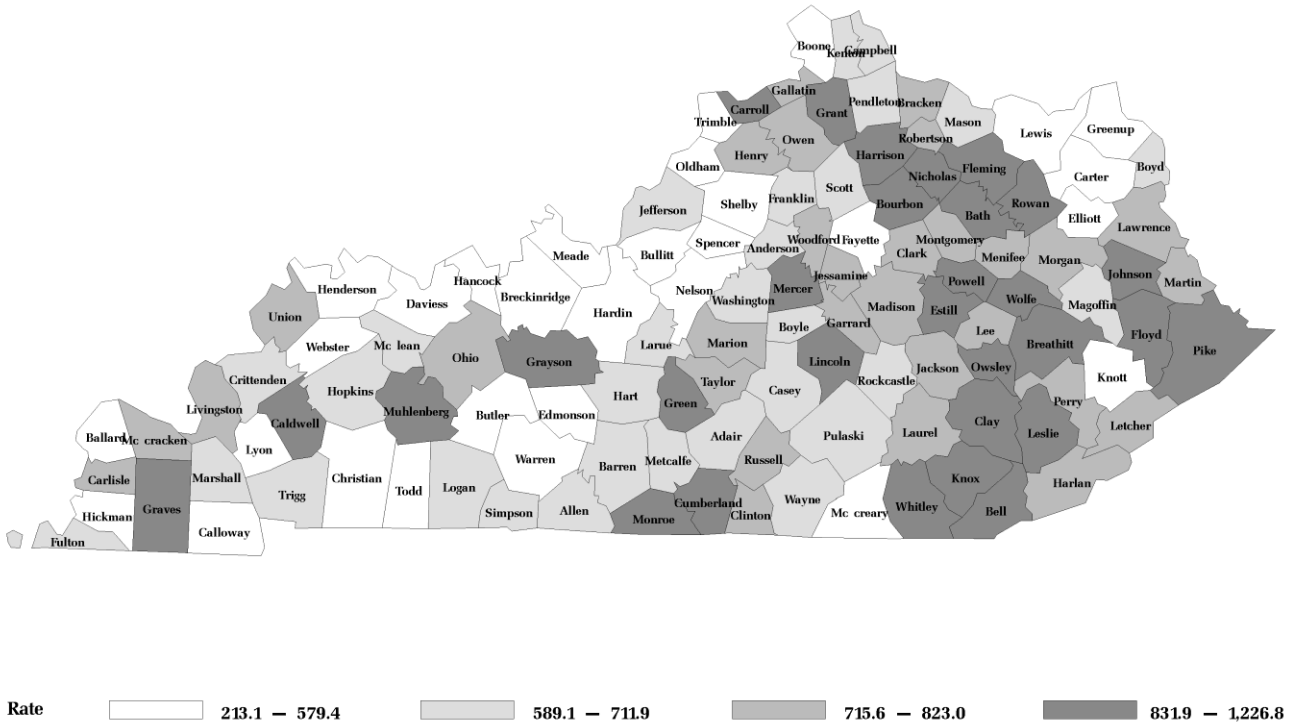
Payment source data reflects a very different mix for ED trauma visits than for inpatient stays (Table 9). One-fifth (22%) of ED visits were classified as either self-pay or charity, categories indicating that the patient had no health insurance. These patients are often covered by either state Disproportionate Share Hospital funding through Medicaid, or by the facility itself, potentially shifting the cost to other payers. DSH funding is scheduled to decline substantially in the next 5 years, so coverage expansion will be a critical factor to avoid financial losses. Another 24.6% of the visits were for patients with Medicaid, accounting for 19.3% of the total charges billed. The sum of these two categories is an important indicator of trauma’s financial burden on state and local payers, totaling about \$209 million in total charges billed.

Table 12: Traumatic injury ED visits by payer and total charges, 2012

Primary expected source of payment	Hospitalizations		Total Charges	
	N	%	Amount billed	% of the total amount billed
Auto Insurance	11,512	4.0%	\$37,016,673	7.2%
CHAMPUS	2,758	1.0%	\$3,944,264	0.8%
Commercial Insurance	85,730	29.9%	\$155,932,683	30.3%
Medicaid/Passport	70,723	24.6%	\$99,105,688	19.3%
Medicare	38,034	13.3%	\$84,509,501	16.4%
Other	1,287	0.4%	\$2,908,586	0.6%
Self-Pay or Charity	63,251	22.0%	\$109,519,263	21.3%
Workers Compensation	13,747	4.8%	\$21,656,728	4.2%
Total	287,042	100.0%	\$514,593,387	100.0%

The rate of traumatic injury ED visits in 2012 was 655 per 10,000 Kentucky residents. In some counties the 2012 rate was almost double the statewide rate. The five counties with the highest traumatic injury ED visit rates were Whitley, Clay, Harrison, Grant, and Breathitt. Details on numbers and rates of emergency department visits due to traumatic injury by county are presented in Figure 7 and Appendix B. As with inpatient data, this picture is somewhat incomplete with regard to border counties because the nearest ED may be in a contiguous state, most notably in Cincinnati for northern Kentucky counties.

Figure 7: County rates of ED visits for traumatic injuries per 10,000 residents, 2012



Conclusion

The Kentucky Hospital Discharge and Emergency Department datasets provide a broad and detailed perspective on traumatic injury across the state. A comprehensive statewide trauma network will help address injury care in a more systematic manner, but a stronger emphasis on injury prevention in policy and practice will be essential if Kentucky is to reduce the toll of injury on its residents and its economy.

Appendices

Appendix A: Traumatic injury hospitalizations by county, 2012

County name	Number of hospitalizations	Rate per 10,000 residents
Adair	88	47.1
Allen	55	27.2
Anderson	83	38.2
Ballard	31	37.2
Barren	184	43.2
Bath	51	43.2
Bell	102	36.2
Boone	285	23.1
Bourbon	88	44.0
Boyd	195	39.7
Boyle	135	47.1
Bracken	31	36.5
Breathitt	93	68.2
Breckinridge	104	51.8
Bullitt	247	32.5
Butler	47	36.6
Caldwell	57	44.1
Calloway	151	40.1
Campbell	286	31.5
Carlisle	33	65.6
Carroll	48	44.0
Carter	85	31.1
Casey	71	44.1
Christian	122	16.2
Clark	168	46.9
Clay	141	65.4
Clinton	63	61.3
Crittenden	54	58.2
Cumberland	42	61.6
Daviess	491	50.2
Edmonson	32	26.5
Elliott	16	20.6
Estill	84	58.0
Fayette	1,071	35.1

Fleming	96	65.9
Floyd	148	38.0
Franklin	218	43.8
Fulton	49	75.1
Gallatin	39	46.0
Garrard	90	53.2
Grant	95	38.8
Graves	238	63.4
Grayson	157	60.5
Green	70	61.9
Greenup	123	33.5
Hancock	39	44.9
Hardin	479	44.8
Harlan	114	39.9
Harrison	100	53.7
Hart	86	46.8
Henderson	120	25.8
Henry	108	70.5
Hickman	14	29.4
Hopkins	221	47.3
Jackson	80	60.0
Jefferson	3,687	49.1
Jessamine	190	38.3
Johnson	82	35.1
Kenton	409	25.3
Knott	88	54.6
Knox	135	42.5
Larue	75	53.0
Laurel	262	44.1
Lawrence	70	44.2
Lee	45	58.4
Leslie	82	73.4
Letcher	110	45.9
Lewis	30	21.7
Lincoln	132	54.0
Livingston	68	72.2
Logan	71	26.6
Lyon	48	57.5
McCracken	463	70.6
McCreary	79	43.7

McLean	51	53.7
Madison	311	36.7
Magoffin	43	33.0
Marion	102	50.8
Marshall	185	59.0
Martin	38	29.8
Mason	68	38.8
Meade	69	23.6
Menifee	28	45.0
Mercer	98	46.1
Metcalf	55	55.2
Monroe	66	61.0
Montgomery	87	32.3
Morgan	65	47.6
Muhlenberg	155	49.7
Nelson	233	52.6
Nicholas	45	64.3
Ohio	122	50.7
Oldham	216	35.2
Owen	53	49.2
Owsley	48	101.7
Pendleton	37	25.3
Perry	239	84.6
Pike	268	41.8
Powell	73	58.5
Pulaski	314	49.4
Robertson	13	59.4
Rockcastle	77	45.3
Rowan	79	33.7
Russell	84	48.0
Scott	160	32.6
Shelby	164	37.6
Simpson	54	30.8
Spencer	84	48.2
Taylor	135	54.7
Todd	23	18.2
Trigg	47	32.5
Trimble	48	54.6
Union	34	22.9
Warren	410	35.0

Washington	59	49.9
Wayne	84	40.3
Webster	54	39.8
Whitley	242	68.2
Wolfe	63	87.9
Woodford	94	37.5

Appendix B: Traumatic injury ED visits by county, 2012

County name	Number of ED visits	Rate per 10,000 residents
Adair	1,273	681.7
Allen	1,232	609.6
Anderson	1,360	625.9
Ballard	373	447.6
Barren	3,035	711.9
Bath	1,077	912.6
Bell	2,870	1,018.3
Boone	6,109	495.4
Bourbon	1,694	847.9
Boyd	3,490	709.9
Boyle	2,012	702.1
Bracken	620	729.9
Breathitt	1,451	1,064.2
Breckinridge	1,159	577.5
Bullitt	3,035	399.9
Butler	555	432.2
Caldwell	1,096	847.3
Calloway	1,849	491.0
Campbell	5,355	589.1
Carlisle	366	727.1
Carroll	1,107	1,015.6
Carter	1,110	405.9
Casey	1,125	699.5
Christian	2,812	372.8
Clark	2,843	794.4
Clay	2,573	1,193.6
Clinton	736	715.6
Crittenden	636	685.3
Cumberland	644	944.4
Daviess	5,039	515.0
Edmonson	553	458.1
Elliott	254	326.5
Estill	1,531	1,056.4
Fayette	15,990	523.4
Fleming	1,268	870.9
Floyd	3,544	909.9
Franklin	3,318	666.2
Fulton	393	602.3

County name	Number of ED visits	Rate per 10,000 residents
Gallatin	618	728.9
Garrard	1,228	726.1
Grant	2,684	1,096.2
Graves	3,154	840.1
Grayson	2,688	1,035.3
Green	998	882.0
Greenup	2,070	563.9
Hancock	219	252.4
Hardin	6,071	567.3
Harlan	2,278	798.1
Harrison	2,042	1,096.4
Hart	1,151	626.7
Henderson	2,522	542.2
Henry	1,167	761.9
Hickman	166	349.2
Hopkins	3,066	656.3
Jackson	1,070	802.6
Jefferson	46,275	616.3
Jessamine	4,036	813.1
Johnson	2,456	1,050.3
Kenton	10,628	657.2
Knott	868	538.3
Knox	2,789	878.8
Larue	869	614.1
Laurel	4,882	821.0
Lawrence	1,304	822.8
Lee	594	770.8
Leslie	930	832.6
Letcher	1,947	812.9
Lewis	494	357.1
Lincoln	2,035	831.9
Livingston	717	760.9
Logan	1,664	624.5
Lyon	461	552.0
McCracken	4,714	719.2
McCreary	696	385.2
McLean	560	589.1
Madison	6,655	784.9

County name	Number of ED visits	Rate per 10,000 residents
Magoffin	915	701.6
Marion	1,497	745.2
Marshall	2,154	687.2
Martin	966	758.1
Mason	1,232	703.5
Meade	623	213.1
Menifee	472	758.8
Mercer	1,881	884.7
Metcalfe	661	663.1
Monroe	968	894.6
Montgomery	2,184	811.8
Morgan	1,072	784.3
Muhlenberg	2,836	909.5
Nelson	1,681	379.3
Nicholas	662	945.7
Ohio	1,895	787.1
Oldham	2,785	453.5
Owen	818	759.9
Owsley	435	921.2
Pendleton	978	669.7
Perry	2,078	735.8
Pike	5,866	914.0
Powell	1,124	900.4
Pulaski	3,929	617.8
Robertson	168	767.8
Rockcastle	1,149	675.6
Rowan	1,973	841.5
Russell	1,401	800.7
Scott	3,268	666.2
Shelby	1,746	400.3
Simpson	1,143	651.7
Spencer	781	448.4
Taylor	2,032	823.0
Todd	351	277.5
Trigg	946	654.8
Trimble	460	523.5
Union	1,182	796.0
Warren	6,676	570.1

County name	Number of ED visits	Rate per 10,000 residents
Washington	701	592.4
Wayne	1,375	660.3
Webster	787	579.4
Whitley	4,355	1,226.8
Wolfe	736	1,027.4
Woodford	1,847	736.5