

KENTUCKY TRAUMA REGISTRY REPORT 2010

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Kentucky Trauma Registry 2010



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Forward

The Kentucky Trauma Registry (KTR) Report 2010 is a publication of the Kentucky Injury Prevention and Research Center (KIPRC). This report presents trauma data submitted to the National Trauma Data Bank (NTDB) from the state's trauma facilities. The NTDB collects uniform data from hospitals that are verified by the American College of Surgeons (ACS) as trauma centers. Clinical Data Management, Inc. (CDM) is the vendor that maintains the central Kentucky Trauma Registry repository and the Kentucky eTraumaBase TraumaLite web system, which supplies injury data to the Kentucky Injury Prevention and Research Center. CDM also manages the downloading and compilation of data from participating trauma centers, including undesignated facilities that report to the repository. CDM provides analysis and reports on repository data and recommends the collection of new data elements.

Statewide data collection from ACS-verified hospitals is critical to the completeness of the Kentucky traumatic injury data and especially on Kentucky motor vehicle injuries that are the leading cause of major traumatic injuries in the state. In response to a legislative initiative, Kentucky is expanding the number of trauma registry data reporting facilities to a projected 12 facilities by year 2012. All these facilities are required to report in compliance with the NTDB standards as a condition of their new status. Trauma hospitals are required to submit particular data elements to the Kentucky Trauma Registry (KTR) system that are periodically reported to the NTDB system. The Kentucky Injury Prevention and Research Center (KIPRC) operates the KTR system. KIPRC received funding from the Kentucky Transportation Cabinet and the Foundation for a Healthy Kentucky to analyze the statewide trauma registry data and provide more detailed profile of the traumatic injuries treated in the Kentucky trauma facilities. This report is intended to provide a baseline for assessment of the input from newly verified facilities in subsequent years.

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Introduction

Kentucky law (KRS 311A.010) defines “trauma” as a single or multi-system life-threatening or limb-threatening injury requiring immediate medical or surgical intervention or treatment to prevent death or permanent disability.

The body of this report is summary data for trauma cases seen at the Kentucky trauma centers in 2010. The registry does not include any trauma data from other Kentucky hospitals unless individuals were transferred from another hospital to one of the trauma centers. It is important to note that these data represent only the most serious survivable injuries and not all traumatic injuries in the state. Trauma cases leading to death at the scene of the event are obviously not part of the reported data. Data for trauma sustained in Kentucky but treated in out-of-state facilities are not available. Border areas are thus under-represented in this report. A broad overview of the hospital care provided to Kentucky residents whose primary diagnosis was some form of physical trauma is provided in the Kentucky Inpatient and Emergency Department Traumatic Injury Data Report available at <http://www.kiprc.uky.edu/projects/trauma/index.html>.

Kentucky’s Reporting Trauma Centers in 2009:

- Ephraim McDowell Regional Medical Center
- Fort Logan Hospital
- Frankfort Regional Medical Center
- James B. Haggin Memorial Hospital
- Kosair Children’s Hospital
- Livingston Hospital
- Marcum and Wallace Memorial Hospital
- St. Joseph Berea
- Taylor Regional Medical Center
- University of Louisville Hospital
- University of Kentucky Chandler Medical Center

Research Findings

The Kentucky Trauma Registry expanded from 5 reporting facilities in 2009 to 11 reporting facilities in 2010. A total of 7,709 patients were reported to the Kentucky Trauma Registry in 2010, an increase of 931 cases compared with year 2009. The increase is due partially to the newly added facilities (417 cases) but also to an increase in the volume of trauma cases treated in the existed trauma facilities. The University of Kentucky Hospital reported 3,146 cases, including both children and adults, or 40.81% of all KTR cases in 2010. The University of Louisville hospital reported 2,943 (38.18%) trauma patients, Kosair Children's Hospital saw 851 (11.04%), Taylor Regional Medical Center treated 192 patients (2.49%), and Ephraim McDowell Regional Medical Center reported 160 cases (2.08%) (Table 1).

Demographic information collected included gender, age, race, and ethnicity. Males comprised 65.27% of KTR patients (Table 2), reflecting the predominance of males in the injury categories classified by the American College of Surgeons as trauma. ACS trauma classification excludes hip fractures, the most common traumatic injury in older adults, and a category that is therefore predominantly female. Thus, KTR demographics are strikingly different from those of the related report on traumatic injuries as a whole, in which males and females are roughly equally represented (Annual Kentucky Inpatient and ED Traumatic Injury Data Reports can be found on our website www.kiprc.uky.edu/projects/trauma/index.html). The same issue of inclusion criteria influences the distribution of trauma cases by age group. Whereas the statewide hospitalization data for traumatic injury (including hip fractures) is skewed towards older age groups, the KTR data is concentrated in working-age adults (Figure 1 and Table 3), with over half (52.24%) aged 25-64.

The ethnicity variable was much better populated this year (18.1% missing ethnicity codes compared with 56.3% missing values in 2009). About 88% of the patients were white, 9% were black. The distribution of trauma patients by race and ethnicity is presented in Table 4.

Trauma rates vary by season, with higher incidence during late summer months (Table 5). August and September had the highest number of incidents leading to treatment in the trauma facilities, mainly due to the increased number of motor vehicle traffic collision injuries among 15-24 and 35-44 age groups.

The county of residence was calculated based on a zip-to-county algorithm that may misclassify counties where zip codes cross county lines. County-specific data must also be read with the caveat that we are only reporting on Kentucky facilities, so patients from the northern and southern tiers of counties, who often receive trauma care in Ohio and Tennessee respectively, are underrepresented in the current data (Tables 6 and 7). Jefferson and Fayette counties had the highest numbers of patients, reflecting the larger population of these counties (Table 6). Rural Appalachian counties have the highest rates of injury per 1,000 population (Table 7). There were 981 records (12.7%) for out-of-state residents treated in Kentucky trauma facilities.

Table 8 presents summary of the injuries by body region. The classification is based on the Barell injury diagnosis matrix (http://www.cdc.gov/nchs/data/ice/final_matrix_post_ice.pdf). Head injuries were labeled as Type 1 TBI if there were principal diagnosis codes for an intracranial injury, or a moderate/prolonged loss of consciousness, shaken infant syndrome, or injuries to the optic nerve pathways. Type 2 TBI included head injuries with no intracranial injury coded, and loss of consciousness of less than 1 hour coded, or loss of consciousness of unknown duration coded, or unspecified level of consciousness coded. Type 3 TBI included patients with no intracranial injury coded and no loss of consciousness coded. TBI injuries accounted for 26.8% of all trauma registry cases, followed by torso injuries (20.5%) and lower extremity injuries (18.0%). More than half of the injuries (52.7%) were fractures by nature of injury (see Table 9). The second large group (28.4%) was the internal organ injury group.

Motor vehicle traffic collisions (MVTC) continue to be the leading cause of traumatic injuries in Kentucky: 2,778 trauma registry records, or 36% of all trauma registry cases in 2010 (see Table 11). Falls (2,078 or 27%) were the second leading cause of injuries reported to KTR. Most of the injuries in motor vehicle crashes were sustained by vehicle occupants (72%), followed by motorcyclists (17%), and pedestrians (7.6%) (Table 10). Data on age of children and adolescents admitted for motor vehicle crash-related injuries (464 cases) are presented in greater detail in Table 12.

Table 13 describes the use of protective devices for the pediatric patients injured in motor vehicle traffic collisions: 171 (37%) did not have protective devices, in 62 cases (13.4%) the presence or use of a protective device was not documented.

Patients aged 15-24 accounted for 21.9% of the MVT-related trauma, followed by those aged 25-34 (16.7%). The trend is similar to the trend observed last year. Falls among those 55-64 years old accounted for 12.9% of all falls treated in trauma centers. Almost one forth (56 cases)

of the injuries attributed to being struck by or against an object were experienced by the patients 5-14 years of age. The review of the struck by/against injuries in this group showed that 45% of these injuries were due to striking against or struck accidentally in sports (Ecodes E917.0, E917.5). Half of the assault injuries were among young adults ages 15-34 (Table 14).

Alcohol use beyond legal limits was confirmed by test for 329 (12%) of the unintentional motor vehicle traffic collision injuries and for 148 (22%) of the assaults (Table 15). Illegal use drug was confirmed in 290 (11%) of the MVT collision injuries, in 16% of the unintentional injuries due to other transportation, and in 13% of the assaults (Table 16).

The mode of transportation by inter-facility transfer is available in Table 20. Helicopter ambulance was used in 759 (25.2%) of the inter-facility transfers and in 1,106 (23.9%) of the non-transfer cases. Ground ambulance was used in 4,851 (62.9%) of all trauma patients transported to reporting facilities.

The time from accident to hospital arrival (Table 21) could not be calculated for almost half (43.1%) of the cases, primarily due to missing or unknown time of incident. Some facilities had rates of unavailable information for determining the time to hospital arrival that was as high as 70% to 80% of their cases.

Admission shift is a metric that provides evidence for planning prevention initiatives and staffing trauma care facilities. The busiest time of the day is the 3pm to 11pm shift (Table 22).

The Glasgow coma score (GCS) rates patients with regard to the severity of symptoms associated with brain injury. Detailed information on the first recorded eye, verbal, and motor Glasgow scores in the ED/hospital is presented in Table 23 for pediatric patients under age of 2 years and in Table 24 for patients older than 2 years.

Most trauma patients (80%) were discharged in less than a week, 1.1% stayed between one to four weeks, and 17.8% were treated for more than one month. Details on the length of hospital stay by hospital are presented in Table 25. MVTC were responsible for by far the largest number of aggregated inpatient days (18,783), followed by falls (8,571) and injuries due to other transportation (3,990) (Figure 2).

The primary method of payment was not reported for the cases treated in Marcum and Wallace Memorial Hospital and for almost half of the cases treated in Ephraim McDowell Regional Medical Center. The primary source of payment for the majority of the KO patients was Medicaid (55%), followed by private/commercial insurance (37.4%). The most common primary pay source for trauma patients at the University of Kentucky Medical Center was no-

fault automobile (34.1%), followed by “self pay” (15.2%), reflecting lack of any third party payment source. “Self pay” was the most common primary method of payment for the trauma cases at the University of Louisville Hospital (32%) and for the patients at St. Joseph Berea (40%). Because “self pay” patients are often medically indigent, the implications of this finding are very serious and warrant further analysis. For more details on primary method of payment see Table 26.

The large majority of trauma patients, 67.6%, were discharged to home with no home services; 10.1% were discharged/transferred to another type of rehabilitation or long-term care facility, 3.9% (302 patients) expired, 2.9% were discharged to a skilled nursing facility, 1.3% went home under home health care, 0.4% were transferred to a short-term general hospital for inpatient care, 0.4% were transferred to an intermediate care facility, and 0.4% left against medical advice. Ten patients were transferred to hospice care. Information on the disposition was not available for 135 of the cases. Table 27 gives more details on the patient discharge status by trauma facility.

The Injury Severity Score (ISS) is an anatomical rating system that provides numerical values for patients with multiple and varying injuries. The National Trauma Data Bank characterizes ISS scores of 1-9 as mild, 10-15 as moderate, 16-24 as severe, and over 24 as very severe. Using this metric, 59.3% of trauma registry injuries were mild, 16.9% moderate, 14.2% severe, and 8% very severe. ISS was missing for 1.6% of the patients. For details by hospital, refer to Table 28.

Finally, because all-terrain vehicle (ATV) injuries are a particular concern in Kentucky, Table 29 presents details on these injuries by severity score and age group.

Tables and Figures

Table 1: KY Trauma Registry patient distribution by hospital

Facility	N	%
St. Joseph Berea	40	0.52
Frankfort Regional Medical Center	139	1.80
James B. Haggin Memorial Hospital	111	1.44
Livingston Hospital	37	0.48
Fort Logan Hospital	33	0.43
Kosair Children's Hospital	851	11.04
University of Kentucky Medical Center	3,146	40.81
Taylor Regional Medical Center	192	2.49
University of Louisville Hospital	2,943	38.18
Ephraim McDowell Regional Medical Center	160	2.08
Marcum Wallace Memorial Hospital	57	0.74
Total	7,709	100.00

Table 2: KY Trauma Registry patient distribution by gender

Gender	N	%
Female	2,676	34.71
Male	5,031	65.27
Missing	2	0.02
Total	7,707	100.00

Table 3: KY Trauma Registry patient distribution by age group

	Facility											
	St. Joseph Berea		Frankfort Regional Medical Center		James B. Haggin Memorial Hospital		Livingston Hospital		Fort Logan Hospital		Kosair Children's Hospital	
	N	%	N	%	N	%	N	%	N	%	N	%
Age												
<1yr	*	*	*	*			*	*			96	11.29
1-4	*	*	7	5.04	13	11.93	*	*	*	*	229	26.94
5-14	*	*	10	7.19	8	7.34	*	*	6	18.18	421	49.53
15-24	5	12.50	17	12.23	21	19.27	*	*	7	21.21	104	12.24
25-34	*	*	16	11.51	17	15.60	*	*	*	*		
35-44	*	*	14	10.07	10	9.17	*	*	*	*		
45-54	6	15.00	13	9.35	15	13.76	*	*	*	*		
55-64	5	12.50	16	11.51	12	11.01	5	13.51	*	*		
65-74	*	*	20	14.39	9	8.26	6	16.22	*	*		
75-84	*	*	18	12.95	*	*	7	18.92	*	*		
85+	*	*	6	4.32	*	*	8	21.62				

	Facility (continue)									
	University of Kentucky Medical Center		Taylor Regional Medical Center		University of Louisville Hospital		Ephraim McDowell Regional Medical Center		Marcum Wallace Memorial Hospital	
	N	%	N	%	N	%	N	%	N	%
Age										
<1yr	44	1.40								
1-4	128	4.07	8	4.17			*	*		
5-14	225	7.15	22	11.46	6	0.20	*	*	5	8.93
15-24	499	15.86	25	13.02	517	17.57	26	16.25	8	14.29
25-34	500	15.89	17	8.85	524	17.80	8	5.00	11	19.64
35-44	483	15.35	24	12.50	497	16.89	13	8.13	6	10.71
45-54	463	14.72	26	13.54	498	16.92	15	9.38	8	14.29
55-64	354	11.25	24	12.50	380	12.91	15	9.38	5	8.93
65-74	221	7.02	21	10.94	251	8.53	20	12.50	6	10.71
75-84	151	4.80	14	7.29	180	6.12	35	21.88	*	*
85+	78	2.48	11	5.73	90	3.06	25	15.63	*	*

Table 4: KY Trauma Registry patients by race and ethnicity

Race	Ethnicity			
	Hispanic or Latino	Not Hispanic or Latino	Missing	Total
Asian	*	10	8	19
Other Race	144	21	12	177
American Indian	0	*	*	5
Native Hawaiian or Other Pacific Islander	6	21	*	28
Black or African American	0	519	178	697
White	28	5,552	1,180	6,760
Missing	5	*	14	23
Total	184	6,131	1,394	7,709

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

Table 5: KY Trauma Registry patient distribution by month of hospital arrival

Facility	Month												Total
	01	02	03	04	05	06	07	08	09	10	11	12	
St. Joseph Berea	*	5	0	*	*	*	*	5	5	*	*	*	40
Frankfort Regional Medical Center	18	15	10	21	32	25	8	10	0	0	0	0	139
James B. Haggin Memorial Hospital	0	0	0	0	*	9	6	7	11	14	33	30	111
Livingston Hospital	7	*	*	*	*	*	*	5	*	*	5	*	37
Fort Logan Hospital	*	*	*	0	8	*	*	6	*	5	*	0	33
Kosair Children's Hospital	62	45	82	71	95	73	82	68	80	89	59	45	851
University of Kentucky Medical Center	199	157	209	271	292	288	284	330	343	320	245	208	3,146
Taylor Regional Medical Center	20	7	9	20	25	16	13	21	17	15	15	14	192
University of Louisville Hospital	197	153	218	237	231	269	270	324	274	301	238	231	2,943
Ephraim McDowell Regional Medical Center	12	12	14	14	18	12	14	15	17	7	10	15	160
Marcum Wallace Memorial Hospital	*	*	0	*	11	8	*	12	7	*	*	7	57
Total	523	398	544	642	720	705	683	803	760	758	615	558	7,709

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

Table 6: Top 10 KY counties by number of trauma registry cases

#	Patient County of Residence	Cases	% of KY Residents Treated in KY Trauma Registry Facilities	Rate per 1,000 Population
1	Jefferson	1,639	20.7%	2.2
2	Fayette	503	6.4%	1.7
3	Hardin	193	2.4%	1.8
4	Taylor	184	2.3%	7.5
5	Madison	180	2.3%	2.2
6	Mercer	170	2.1%	8.0
7	Franklin	136	1.7%	2.8
8	Laurel	136	1.7%	2.3
9	Pulaski	127	1.6%	2.0
10	Bullitt	125	1.6%	1.7

Table 7: KY Trauma Registry Top 10 county rates

	Patient County of Residence	Cases	% of KY cases	Rate per 1,000 population
1	Mercer	170	2.1%	8.0
2	Taylor	184	2.3%	7.5
3	Estill	85	1.1%	5.8
4	Owsley	26	0.3%	5.5
5	Lincoln	125	1.6%	5.1
6	Clay	101	1.3%	4.6
7	Lee	36	0.5%	4.6
8	Wolfe	32	0.4%	4.4
9	Boyle	119	1.5%	4.2
10	Garrard	64	0.8%	3.8

Table 8: Injuries by Body Region

Injuries by Body Region			N	%
Head and Neck	Traumatic Brain Injury (TBI)	Type 1 TBI	1,262	16.49
		Type 2 TBI	656	8.57
		Type 3 TBI	135	1.76
	Other head, face and neck	Other Head	142	1.86
		Face	416	5.44
		Eye	28	0.37
		Neck	56	0.73
		Head, Face and Neck Unspecified	27	0.35
Spine and back	Spinal Cord (SCI)	Cervical SCI	49	0.64
		Thoracic/ Dorsal SCI	17	0.22
		Lumbar SCI	6	0.08
		Sacrum Coccyx SCI	*	*
		Spine+ Back unspecified SCI	5	0.07
	Vertebral Column (VCI)	Cervical VCI	258	3.37
		Thoracic /Dorsal VCI	117	1.53
		Lumbar VCI	135	1.76
		Sacrum Coccyx VCI	18	0.24
	Torso	Torso	Chest (Thorax)	892	11.66
Abdomen			388	5.07
Pelvis and Urogenital			231	3.02
Trunk			31	0.41
Back and Buttock			27	0.35
Extremities	Upper	Shoulder and upper arm	500	6.53
		Forearm and elbow	322	4.21
		Wrist, hand and fingers	249	3.25
		Other and unspecified	58	0.76
	Lower	Hip	249	3.25
		Upper leg and thigh	289	3.78
		Knee	35	0.46
		Lower leg and ankle	557	7.28
		Foot and toes	155	2.03
		Other and unspecified	90	1.18
Unclassifiable by site	Other and un-specified	Other/multiple	*	*
		Unspecified site	240	3.14
	System wide	System-wide & late effects	10	0.13

Note: Diagnosis codes were missing for 56 cases

Table 9: Injuries by Nature of Injury

Nature of Injury	N	%
Fractures	4,032	52.69
Dislocation	102	1.33
Sprains & Strains	59	0.77
Internal Organ	2,173	28.39
Open Wounds	639	8.35
Amputations	64	0.84
Blood Vessels	75	0.98
Crushing	18	0.24
Burns	322	4.21
Nerves	20	0.26
Unspecified	139	1.82
System Wide & Late Effects	10	0.13

Note: Diagnosis codes were missing for 56 cases

Table 10: KY Trauma Registry patients injured in motor vehicle traffic collisions

Role in motor vehicle collision	Number
Occupant	1,975
Motorcyclist	471
Pedal cyclist	41
Pedestrian	211
Unknown	59
Other	21
Total	2,778

Table 11: KY Trauma Registry injuries by cause and intent of injury

Cause	Intent			Total
	Unintentional	Intentional	Other/ Undetermined	
Motor vehicle traffic collisions	2,758	7	13	2,778
Firearm	64	284	28	376
Poisoning	*	*	0	*
Falls	2,069	6	3	2,078
Suffocation	0	*	0	*
Drowning	11	0	0	11
Fire/burn	270	5	8	283
Cut/pierce	107	218	*	328
Struck by/against	254	203	*	459
Machinery	129	0	0	129
Other pedal cycle	91	0	0	91
Other pedestrian	34	0	0	34
Other transportation	712	0	0	712
Natural/environmental	85	0	*	86
Overexertion	20	0	0	20
Other specified	99	72	*	172
NEC	16	18	*	35
Not specified	23	33	14	70
Missing Ecode				39
Total	6,745	851	74	7,709

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

Table 12: Pediatric KY Trauma Registry patients in MVTC by age

Age in years	Number of patients in motor vehicle traffic collision	Percent of all pediatric motor vehicle traffic collision cases	Percent of all trauma registry cases for this age
0	7	1.51	4.83
1	9	1.94	7.63
2	9	1.94	8.49
3	14	3.02	15.91
4	16	3.45	19.28
5	15	3.23	20.00
6	14	3.02	18.67
7	12	2.59	17.14
8	15	3.23	25.86
9	14	3.02	20.00
10	22	4.74	36.67
11	15	3.23	26.32
12	14	3.02	23.33
13	22	4.74	22.00
14	25	5.39	29.41
15	22	4.74	28.21
16	68	14.66	57.63
17	73	15.73	57.03
18	78	16.81	56.52
Total	464	100.00	27.10

Table 13: Pediatric KY Trauma Registry patients in motor vehicle traffic collisions, by age and protective device

Protective Device	Age Category					
	<1yr	1-4yr	5-8	9-14	15-18	Total
None	*	6	20	43	101	171
Shoulder Belt	0	0	*	0	0	*
Lap Belt	*	9	6	12	26	54
Lap & Shoulder Belt	0	*	6	22	48	80
Lap Belt, Child Restraint (booster seat, child car seat)	*	*	*	0	0	6
Lap Belt, Airbag Present	0	0	0	*	5	7
Child Restraint (booster seat, child car seat)	3	19	1	0	0	23
Helmet (e.g., bicycle, skiing, motorcycle)	0	0	0	7	*	11
Airbag Present	0	0	0	*	9	10
None, Airbag Present	0	0	0	0	*	*
Lap Belt, Airbag Present	0	0	*	0	6	7
Protective Clothing (e.g., padded leather pants)	0	0	0	0	*	*
Not Applicable	0	*	*	6	15	29
Not documented	0	*	15	19	24	62
Total	7	48	56	112	241	464

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

Table 14: KY Trauma Registry patients by age and cause of injury

	Unintentional Injuries										Intentional	
	Motor vehicle traffic collisions		Other transport. injuries		Falls		Struck by/against		All other		Assault	
	N	%	N	%	N	%	N	%	N	%	N	%
Age												
<1yr	7	0.25	*	*	63	3.04	9	3.54	24	1.94	41	6.06
1-4yr	48	1.74	11	1.54	168	8.12	20	7.87	131	10.57	17	2.51
5-14yr	168	6.09	83	11.66	241	11.65	56	22.05	155	12.51	7	1.03
15-24	604	21.90	152	21.35	117	5.65	45	17.72	155	12.51	158	23.34
25-34	460	16.68	127	17.84	137	6.62	25	9.84	176	14.21	177	26.14
35-44	428	15.52	108	15.17	157	7.59	29	11.42	201	16.22	134	19.79
45-54	419	15.19	101	14.19	235	11.36	26	10.24	172	13.88	94	13.88
55-64	309	11.20	70	9.83	266	12.86	25	9.84	114	9.20	35	5.17
65-74	179	6.49	39	5.48	252	12.18	14	5.51	66	5.33	9	1.33
75-84	112	4.06	15	2.11	246	11.89	4	1.57	34	2.74	3	0.44
s.85+	24	0.87	5	0.70	186	8.99	1	0.39	8	0.65	2	0.30

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

Table 15: KY Trauma Registry patients by cause of injury and alcohol use

	Cause of Injury				
	Unintentional MVTC	Other transport.	Falls	Other unintentional	Assault
	N	N	N	N	N
Alcohol Use Indicators					
No (not tested)	748	211	1,147	675	225
No (confirmed by test)	1,381	295	368	347	208
Yes (confirmed by test [trace levels])	91	40	32	25	42
Yes (confirmed by test [beyond legal limit])	329	93	118	85	148
Not Applicable	16	5	19	20	*
Not documented/Missing	193	68	385	341	50

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

Table 16: KY Trauma Registry patients by cause of injury and drug use indicator

	Cause of Injury				
	Unintentional MVTC	Other transport.	Falls	Other unintentional	Assault
	N	N	N	N	N
Drug Use Indicator					
No (not tested)	762	188	1,036	609	250
No (confirmed by test)	796	113	220	181	161
Yes (confirmed by test [prescription drug])	564	161	158	175	95
Yes (confirmed by test [prescription drug][illegal use drug])	34	5	7	5	9
Yes (confirmed by test [illegal use drug])	256	109	55	50	82
Not Applicable	173	69	267	168	37
Not documented	173	67	326	305	43

Table 17: KY Trauma Registry, work related trauma injuries

Patient Occupational Industry	N	%
Finance, Insurance, and Real Estate	*	*
Natural Resources and Mining	10	3.05
Wholesale Trade	*	*
Other Services	99	30.18
Manufacturing	24	7.32
Retail Trade	25	7.62
Transportation and Public Utilities	13	3.96
Agriculture, Forestry, Fishing	21	6.40
Professional and Business Services	8	2.44
Education and Health Services	*	*
Construction	66	20.12
Government	15	4.57
Not available/missing	41	12.49
Total	328	100.00

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

Table 18: KY Trauma Registry, alcohol use by work related trauma injuries

Alcohol Use Indicators	Work Related Trauma Injury			
	No	Yes	Missing	Total
No (not tested)	2,807	180	19	3,006
No (confirmed by test)	2,463	133	*	2,599
Yes (confirmed by test [trace levels])	225	*	*	230
Yes (confirmed by test [beyond legal limit])	769	*	*	773
Not Applicable	35	*	27	64
Not documented	28	*	5	35
Missing information	998	*	0	1,002
Total	7,325	328	23	7,709

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

Table 19: KY Trauma Registry, drug use by work related trauma injuries

Drug Use Indicator	Work Related Trauma Injury			
	No	Yes	Missing	Total
No (not tested)	2,673	154	18	2,845
No (confirmed by test)	1,409	62	0	1,471
Yes (confirmed by test [prescription drug])	1,100	53	0	1,153
Yes (confirmed by test [prescription drug][illegal use drug])	59	*	0	60
Yes (confirmed by test [illegal use drug])	534	17	*	552
Not Applicable	676	37	*	714
Not documented	874	4	36	914
Total	7,325	328	56	7,709

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

Table 20: KY Trauma Registry patients by mode of transport delivering the patient to the hospital and inter facility transfer status

Mode of Transportation	Inter Facility Transfer			Total
	Yes	No	Missing	
Ground Ambulance	2,045	2,764	42	4,851
Helicopter Ambulance	759	1,106	4	1,869
Private/Public Vehicle/Walk-in	205	743	11	959
Police	0	10	0	10
Other	0	*	0	*
Not documented	*	12	*	18
Total	3,011	4,637	61	7,709

Table 21: KY Trauma Registry patients by time from injury to hospital arrival

Time to Hospital	N	%
Up to 1 hour	1,119	14.52
1 to less than 2 hours	860	11.16
2 to less than 5 hours	1,106	14.35
5 to less than 12 hours	829	10.75
12 to less than 24 hours	145	1.88
More than 24 hours	330	4.28
Missing or Invalid	3,320	43.07

Table 22: KY Trauma Registry patient distribution by shift of arrival

		Shift			
		11pm-7am	7am-3pm	3pm-11pm	Missing
Facility					
St. Joseph Berea	N	*	15	21	.
	%	*	37.50	52.50	.
Frankfort Regional Medical Center	N	27	54	58	.
	%	19.42	38.85	41.73	.
James B. Haggin Memorial Hospital	N	8	38	60	5
	%	7.21	34.23	54.05	4.50
Livingston Hospital	N	5	16	16	.
	%	13.51	43.24	43.24	.
Fort Logan Hospital	N	*	16	15	.
	%	*	48.48	45.45	.
Kosair Children's Hospital	N	174	150	527	.
	%	20.45	17.63	61.93	.
University of Kentucky Medical Center	N	810	773	1,563	.
	%	25.75	24.57	49.68	.
Taylor Regional Medical Center	N	25	64	103	.
	%	13.02	33.33	53.65	.
University of Louisville Hospital	N	818	816	1,308	*
	%	27.79	27.73	44.44	*
Ephraim McDowell Regional Medical Center	N	17	72	70	*
	%	10.63	45.00	43.75	*
Marcum Wallace Memorial Hospital	N	57	.	.	.
	%	100	.	.	.
Total	N	1,947	2,014	3,741	7
	(%)	25.26	26.13	48.53	0.09

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

Table 23: KY Trauma Registry - First recorded Glasgow Coma Score in the ED/hospital Pediatric patients, age ≤ 2 years

Pediatric patients, age ≤ 2 years	N	%
Glasgow Coma Score (Eye)		
1 (No eye movement when assessed)	18	4.83
2 (Opens eyes in response to painful stimulation)	3	0.80
3 (Opens eyes in response to verbal stimulation)	3	0.80
4 (Opens eyes spontaneously)	328	87.94
Missing	21	5.63
Glasgow Coma Score (Verbal)		
1 (No vocal response)	29	7.77
2 (Inconsolable, agitated)	7	1.88
3 (Inconsistently consolable, moaning)	6	1.61
4 (Cries but is consolable, inappropriate interactions)	12	3.22
5 (Smiles, oriented to sounds, follows objects, Interacts)	296	79.36
Missing	23	6.17
Glasgow Coma Score (Motor)		
1 (No motor response)	12	3.22
2 (Extension to pain)	0	0
3 (Flexion to pain)	*	*
4 (Withdrawal from pain)	8	2.14
5 (Localizing pain)	36	9.65
6 (Appropriate response to stimulation)	292	78.28
Missing	23	6.17

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

Table 24: KY Trauma Registry - First recorded Glasgow Coma Score in the ED/hospital patients, age>2 years

Patients, age>2 years	N	%
Glasgow Coma Score (Eye)		
1 (No eye movement when assessed)	633	8.63
2 (Opens eyes in response to painful stimulation)	70	0.95
3 (Opens eyes in response to verbal stimulation)	245	3.34
4 (Opens eyes spontaneously)	5,578	76.04
Missing	810	11.04
Glasgow Coma Score (Verbal)		
1 (No verbal response)	739	10.07
2 (Incomprehensible sounds)	75	1.02
3 (Inappropriate words)	49	0.67
4 (Confused)	506	6.90
5 (Oriented)	5,154	70.26
Missing	813	11.08
Glasgow Coma Score (Motor)		
1 (No motor response)	493	6.72
2 (Extension to pain)	21	0.29
3 (Flexion to pain)	17	0.23
4 (Withdrawal from pain)	110	1.50
5 (Localizing pain)	217	2.96
6 (Obeys commands)	5,665	77.22
Missing	813	11.08

Table 25: KY Trauma Registry patient distribution by length of stay

		Length of Hospital Stay			
		1-7 days	8-30 days	>30 days	Missing, Not available
Facility		.	.	.	40
St. Joseph Berea	N	.	.	.	100
	%	.	.	.	100
Frankfort Regional Medical Center	N	60	.	7	72
	%	43.17	.	5.04	51.8
James B. Haggin Memorial Hospital	N	.	.	.	111
	%	.	.	.	100
Livingston Hospital	N	16	.	*	19
	%	43.24	.	*	51.35
Fort Logan Hospital	N	.	.	.	33
	%	.	.	.	100
Kosair Children's Hospital	N	779	*	66	*
	%	91.54	*	7.76	*
University of Kentucky Medical Center	N	2185	33	539	389
	%	69.45	1.05	17.13	12.36
Taylor Regional Medical Center	N	85	*	11	95
	%	44.27	*	5.73	49.48
University of Louisville Hospital	N	2260	42	571	70
	%	76.79	1.43	19.4	2.38
Ephraim McDowell Regional Medical Center	N	85	*	*	70
	%	53.13	*	*	43.75
Marcum Wallace Memorial Hospital	N	*	.	.	55
	%	*	.	.	96.49
Total	N	5,472	82	1,199	956
	%	70.98	1.06	15.55	12.40

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

Table 26: Percent of KY Trauma Registry patients by primary method of payment

Primary Method of Payment	Facility											
	St. Joseph Berea		Frankfort Regional Medical Center		James B. Haggin Memorial Hospital		Livingston Hospital		Fort Logan Hospital		Kosair Children's Hospital	
	N	%	N	%	N	%	N	%	N	%	N	%
Medicaid	8	20.00	25	17.99	19	17.12	7	18.92	7	21.21	469	55.11
Other	*	*	*	*	2	1.80	.	.	.	.	*	*
Self Pay	16	40.00	6	4.32	24	21.62	*	*	7	21.21	18	2.12
Private/Commercial Insurance	*	*	23	16.55	32	28.83	*	*	*	*	318	37.37
No Fault Automobile	.	.	16	11.51	.	.	.	.	.	.	19	2.23
Medicare	6	15.00	35	25.18	12	10.81	21	56.76	*	*	.	.
Other Government	*	*	*	*	*	*	.	.	*	*	.	.
Workers Compensation	*	*	7	5.04	6	5.41	*	*	.	.	.	.
Blue Cross/Blue Shield	*	*	10	7.19	7	6.31	*	*	*	*	.	.
Not documented	*	*	13	9.35	5	4.50	*	*	9	27.27	25	2.94

Primary Method of Payment	Facility (continue)									
	University of Kentucky Medical Center		Taylor Regional Medical Center		University of Louisville Hospital		Ephraim McDowell Regional Medical Center		Marcum Wallace Memorial Hospital	
	N	%	N	%	N	%	N	%	N	%
Medicaid	330	10.49	20	10.42	211	7.17	*	*	.	.
Other	5	0.16	*	*	.	.	.	.	.	.
Self Pay	479	15.23	45	23.44	943	32.04	*	*	.	.
Private/Commercial Insurance	292	9.28	63	32.81	514	17.47	11	6.88	.	.
No Fault Automobile	1,073	34.11	*	*	611	20.76	10	6.25	.	.
Medicare	329	10.46	54	28.13	499	16.96	59	36.88	.	.
Other Government	36	1.14	*	*	44	1.50	.	.	.	.
Workers Compensation	115	3.66	6	3.13	119	4.04	*	*	.	.
Blue Cross/Blue Shield	151	4.80	.	.	.	.	8	5.00	.	.
Not documented	336	10.68	.	.	*	*	68	42.5	57	100.00

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

Table 27: Percent of KY Trauma Registry patients by discharge status

Hospital Discharge Disposition	Facility							
	Frankfort Regional Medical Center		Livingston Hospital		Kosair Children's Hospital		University of Kentucky Medical Center	
	N	%	N	%	N	%	N	%
Discharged/Transferred to a short-term general hospital for inpatient care	.	.	.	.	*	*	*	*
Discharged/Transferred to an Intermediate Care Facility (ICF)	.	.	.	.	26	3.06	*	*
Discharge/Transferred to home under care of organized home health service	*	*	.	.	.	.	.	.
Left against medical advice or discontinued care	.	.	.	.	.	.	12	0.44
Expired	.	.	.	.	11	1.3	119	4.31
Discharged home with no home services	21	77.78	10	62.5	811	95.52	2178	78.97
Discharged/Transferred to Skilled Nursing Facility	*	*	6	37.5	.	.	53	1.92
Discharged/ Transferred to hospice care	.	.	.	.	.	.	5	0.18
Discharged/Transferred to another type of rehabilitation or long-term care facility	*	*	.	.	.	.	374	13.56

Hospital Discharge Disposition	Facility (continue)							
	University of Louisville Hospital		Ephraim McDowell Regional Medical Center		Marcum Wallace Memorial Hospital		Taylor Regional Medical Center	
	N	%	N	%	N	%	N	%
Discharged/Transferred to a short-term general hospital for inpatient care	6	0.21	*	*	.	.	6	6.19
Discharged/Transferred to an Intermediate Care Facility (ICF)	.	.	.	.	.	.	*	*
Discharge/Transferred to home under care of organized home health service	81	2.82	14	15.56	.	.	*	*
Left against medical advice or discontinued care	15	0.52	.	.	.	.	.	.
Expired	168	5.86	*	*	*	*	.	.
Discharged home with no home services	2099	73.16	12	13.33	.	.	74	76.29
Discharged/Transferred to Skilled Nursing Facility	94	3.28	57	63.33	.	.	10	10.31
Discharged/ Transferred to hospice care	5	0.17	.	.	.	.	.	.
Discharged/Transferred to another type of rehabilitation or long-term care facility	401	13.98	*	*	.	.	.	.

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

Table 28: Percent of KY Trauma Registry patients by injury severity scores (ISS)

		ISS					
		1-9	10-15	16-24	25-34	35-44	45-75
Facility							
Frankfort Regional Medical Center	N	125	5	*	*	.	*
	%	90.58	3.62	*	*	.	*
James B. Haggin Memorial Hospital	N	53	.	.	.	.	.
	%	10	.	.	.	.	.
Livingston Hospital	N	33	.	.	.	.	.
	%	100	.	.	.	.	.
Fort Logan Hospital	N	23	.	*	*	*	.
	%	85.19	.	*	*	3.7	.
Kosair Children's Hospital	N	710	65	59	16	*	.
	%	83.43	7.64	6.93	1.88	*	.
University of Kentucky Medical Center	N	1,750	589	525	212	43	24
	%	55.68	18.74	16.7	6.75	1.37	0.76
Taylor Regional Medical Center	N	167	15	*	*	*	.
	%	88.36	7.94	*	*	*	.
University of Louisville Hospital	N	1,516	617	495	240	50	21
	%	51.58	20.99	16.84	8.17	1.7	0.71
Ephraim McDowell Regional Medical Center	N	144	9	6	.	.	.
	%	90.57	5.66	3.77	.	.	.
Marcum Wallace Memorial Hospital	N	49	*	*	.	.	*
	%	85.96	*	*	.	.	*

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

Table 29: KY Trauma Registry ATV injuries by injury severity scores

Age in years	Injury Severity Score for ATV Injuries				Total
	Mild (1-9)	Moderate (10-15)	Severe (16-24)	Very Severe (25+)	
1-4	*	*	*	0	8
5-14	44	*	*	0	49
15-24	33	12	10	7	62
25-34	15	11	9	6	41
35-44	25	7	8	*	42
45-54	10	14	12	5	41
55-64	6	5	11	*	23
65-74	4	*	*	0	8
75-84	*	*	0	0	*
85+	*	*	*	0	*
Total	143	61	55	21	280

Figure 1: Kentucky Trauma Registry patients by age group

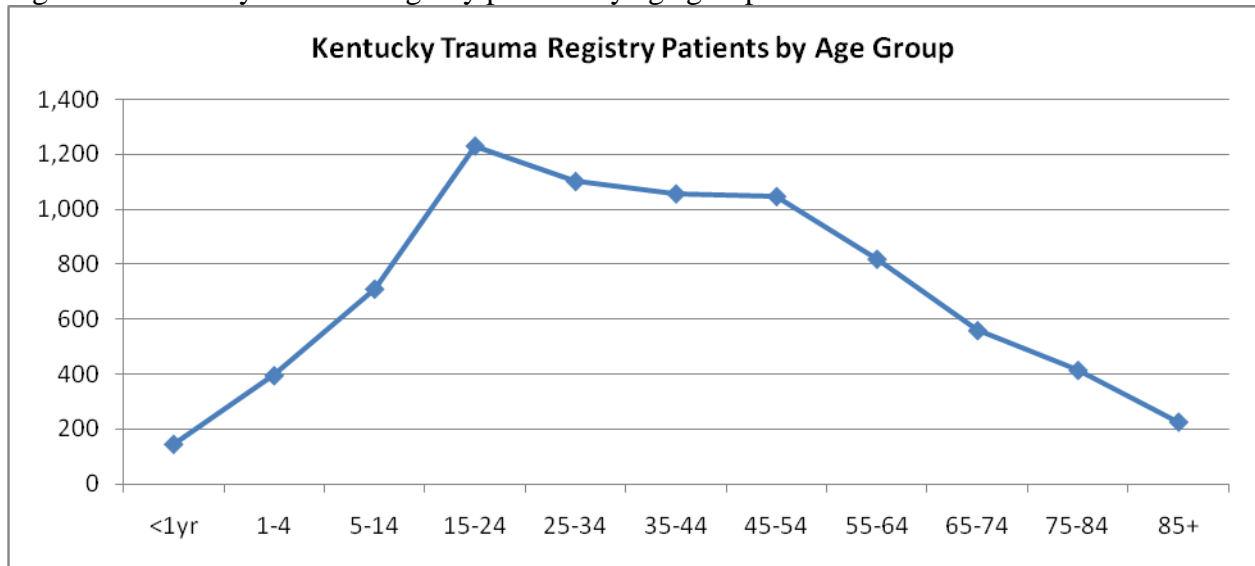


Figure 2: KY Trauma Registry patients - total length of hospital stay in days by cause of injury

