

KENTUCKY TRAUMA REGISTRY

2015 ANNUAL REPORT

August 2016

Julia Costich, JD, PhD
Peter Rock, MPH

Kentucky Injury Prevention and Research Center
333 Waller Avenue, Suite 202
Lexington, Kentucky 40504-2915
(859) 257-4954
www.kiprc.uky.edu



Table of Contents

Forward	4
Introduction	5
Kentucky’s Reporting Trauma Centers, 2015	7
Kentucky Trauma Registry Records 2008-2015	8
Figure 1: Total records, 2008-2015	8
Table 1: Records by reporting trauma center, 2015	9
Demographic Information	10
Gender	10
Table 2: Records by gender, 2015.....	10
Race/Ethnicity	10
Table 3: Records by race and ethnicity, 2015	10
Age	11
Figure 2: Records by age group, 2015	11
Patient County of Residence	12
Table 4: Records by county of residence, 2015.....	12
Injury Information	14
Work-related Cases	14
Figure 3: Work-related trauma records by cause of injury, 2015	14
Table 5: Work-related trauma records by industry, 2015	15
Cause and Intent of Injury.....	16
Table 6: Records by cause and intent of injury, 2015	16
Cause/Intent of Injury by Age Group.....	17
Table 7: Records by age and major causes of injury, 2015	17
Motor Vehicle Traffic Collision Involvement.....	18
Table 8: Motor vehicle collision involvement, 2015	18
Protective Devices	18
Table 9: Use of occupant protective devices in motor vehicle traffic collisions, 2015	18
Pre-Hospital Information	19
Transportation Mode	19
Table 10: Transportation mode, 2015	19
EMS Information.....	19
Emergency Department Information	20
Month of Arrival at ED/Hospital	20
Figure 4: Month of ED/hospital arrival, 2015	20
Weekday of Arrival to ED/Hospital	20
Figure 5: Day of ED/hospital arrival, 2015	20
Time to ED/Hospital Arrival	21
Table 11: Time to ED/hospital arrival, 2015.....	21
Alcohol Use Indicator	22

Table 12: Alcohol use indicators, 2015	22
Drug Use Indicators	23
Table 13: Drug use indicators, 2015	23
Locally Calculated Injury Severity Scores	23
Table 14: Records by ISS, 2015	24
Outcome Information	25
Table 15: Discharge status, 2015	25
Table 16: ED discharge disposition, 2014	26
Inpatient Hospital Discharge	27
Table 17: Inpatient hospital discharge disposition, 2015	27
Financial Information	28
Figure 6: Primary source of payment, 2015	28
Conclusion	29

Forward

The Kentucky Trauma Registry (KTR) was established by state law (KRS 211.490 et seq.; 902 KAR 28:040) to be the statewide repository for trauma data. It is housed administratively in the Kentucky Department for Public Health and managed by the Kentucky Injury Prevention Research Center (KIPRC), a unit of the University of Kentucky's College of Public Health. All trauma centers designated by the Commissioner of Public Health in the Kentucky Trauma Care System maintain trauma registries that are compatible with the National Trauma Data Bank (NTDB) standards established in the National Trauma Data Standard Data Dictionary. The trauma centers upload their trauma data electronically at least quarterly to the KTR. Clinical Data Management, Inc. (CDM) is the vendor that manages the downloading and compilation of data from participating trauma centers, including unverified facilities that report to the registry, and supplies the data to the Kentucky Injury Prevention and Research Center.

With support from the National Highway Traffic Safety Administration through the Kentucky Transportation Cabinet, KIPRC analyzes the statewide trauma registry data and provides a detailed profile of the traumatic injuries treated in the state's trauma facilities.

Requests for copies of this publication and any other inquiries should be directed to:

Julia F. Costich
Kentucky Injury Prevention and Research Center
333 Waller Avenue, Suite 242
Lexington, Kentucky 40504
(859) 257-6712 office
(859) 257-2821 fax
julia.costich@uky.edu

This report and previous trauma reports are posted on KIPRC website:

<http://www.mc.uky.edu/kiprc/projects/trauma/index.html>

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 summarizes data on trauma patients cared for during calendar year 2015 at Kentucky trauma centers, both verified and in applicant status, and reported to the Kentucky Trauma Registry as of July 31, 2016. A list of these facilities appears on the next page. It is important to note several characteristics of the data reported here.

- Governing state law (KRS 211.490 (6)) protects patient privacy by forbidding the identification of individual trauma patients in KTR data. Patients transferred between hospitals have separate records for treatment at each reporting facility that cannot be merged in the absence of personal identifiers. Thus, the number of records in KTR reflects total episodes of care in reporting facilities and is greater than the number of patients treated. The rest of this report refers to each episode of trauma care as a “case”.
- These data represent the most serious injuries—those that meet national inclusion criteria—rather than all traumatic injuries in the state.
- Trauma that results in death at the scene of the event is not part of the reported data: KTR data entries are reported by hospital staff for patients who reach a hospital.
- If a traumatic injury occurs in Kentucky but the patient is treated in an out-of-state facility, the case is not included in KTR data. Border areas are thus under-represented in this report.
- One facility reported the full year’s data too late to be included in this report.
- A data audit found several duplicate entries in two facilities’ 2014 data submissions, so the 2014 data are updated in the current report.

A broad overview of the hospital care provided to Kentucky residents whose primary diagnosis was some form of physical trauma appears in the Kentucky Inpatient and Emergency Department Traumatic Injury Data Report, available at <http://www.kiprc.uky.edu/projects/trauma/index.html>.

Definitions (per 902 KAR 28:010):

- (18) "Level I trauma center" means a regional trauma center that:
 - (a) Provides total care of every aspect of injury from prevention through rehabilitation; and
 - (b) Meets the requirements established in 902 KAR 28:020.
- (19) "Level II trauma center" means a regional trauma center that:
 - (a) Provides screening and initial trauma care of the injured patient regardless of the severity of injury; and
 - (b) Meets the requirements established in 902 KAR 28:020.
- (20) "Level III trauma center" means a regional trauma center that:
 - (a) Provides prompt assessment, resuscitation, emergency operations and stabilization;
 - (b) Arranges for transfer to a facility that can provide trauma care at a higher level;
 - (c) Serves communities that do not have immediate access to a Level I or Level II trauma center; and

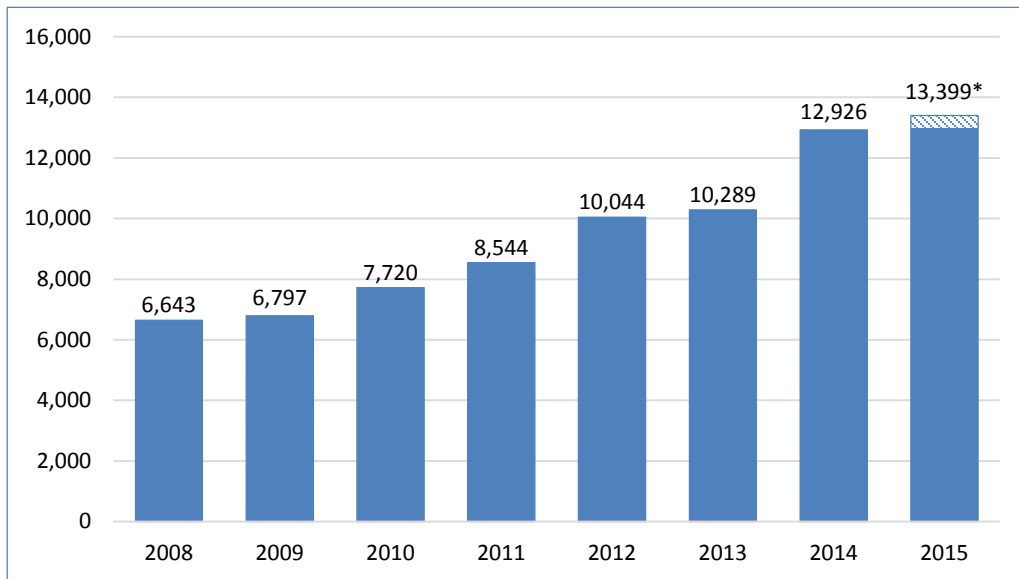
Kentucky's Reporting Trauma Centers, 2015

Trauma Center	Designation/Status
Ephraim McDowell Regional Medical Center	Level III
Ephraim McDowell Fort Logan Hospital	Level IV
Frankfort Regional Medical Center	Level III
Harlan ARH Hospital	Level IV in progress
Harrison Memorial Hospital	Level IV
Hazard ARH	Level III in progress
James B. Haggin Memorial Hospital	Level IV
Kosair Children's Hospital	Level I Pediatric
Livingston Hospital	Level IV
Marcum Wallace Memorial Hospital	Level IV
McDowell ARH Hospital	Level IV in progress
Methodist Hospital Union County	Level IV
Middlesboro ARH Hospital	Level IV in progress
Morgan County ARH Hospital	Level IV
Owensboro Medical Center	Level III
Pikeville Medical Center	Level II
Rockcastle Hospital	Level IV
Russell County Hospital	Level IV in progress
St. Claire Medical Center	Level IV
St. Joseph Berea	Level IV in progress
St. Joseph Hospital (Mt. Sterling)	Level IV in progress
St. Joseph London	Level IV in progress
Taylor Regional Medical Center	Level III
Trigg County Hospital	Level IV in progress
University of Kentucky – Children's	Level I Pediatric
University of Kentucky Medical Center	Level I
University of Louisville Hospital	Level I
Whitesburg ARH Hospital	Level IV in progress
Williamson ARH Hospital	Level IV in progress

Kentucky Trauma Registry Records 2008-2015

The Kentucky Trauma Registry has grown from 5 reporting facilities in 2008 to 29 in 2015, although Parkway Regional Hospital in Fulton discontinued inpatient service in early 2015. A total of 12,971 records were reported in 2015, nearly double the 2008 total (Figure 1). One hospital with mid-range volume was lacking a trauma registrar for the second half of 2015, so the total set out in Figure 1 includes an estimate that adjusts for this omission to show roughly comparable annual data.

Figure 1: Total records, 2008-2015



*A combination of the hospital's first six months of data and season changes in average counts of similar trauma centers was used to estimate this missing data (n=428). This estimate is indicated in the bar chart by the hashed lines.

Table 1: Records by reporting trauma center, 2015

Hospital	Records
Ephraim McDowell Regional Medical Center	282
Ephraim McDowell Fort Logan Hospital	73
Frankfort Regional Medical Center	395
Harlan ARH Hospital	104
Harrison Memorial Hospital	97
Hazard ARH	374
James B. Haggin Memorial Hospital	214
Kosair Children's Hospital	928
Livingston Hospital	70
Marcum Wallace Memorial Hospital	204
McDowell ARH Hospital	59
Methodist Hospital Union County	87
Middlesboro ARH Hospital	135
Morgan County ARH Hospital	67
Owensboro Medical Center	694
Pikeville Medical Center	1,020
Rockcastle Hospital	125
Russell County Hospital	84
St. Claire Medical Center	208
St. Joseph Berea	53
St. Joseph Hospital (Mt. Sterling)	88
St. Joseph London	280
Taylor Regional Medical Center	335
Trigg County Hospital	35
University of Kentucky - Children's	474
University of Kentucky Medical Center	3,104
University of Louisville Hospital	3,267
Whitesburg ARH Hospital	49
Williamson ARH Hospital	66
Total	12,971

Demographic Information

Gender

Injuries to males comprised 61% of KTR records (Table 2). The 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 significantly different from those of the related report on injuries as a whole, in which males and females are roughly equally represented (see Kentucky Inpatient and Emergency Department Traumatic Injury Data Reports, <http://www.mc.uky.edu/kiprc/projects/trauma/index.html>).

Table 2: Records by gender, 2015

Gender	Number	%
Female	4,994	38.51%
Male	7,974	61.48%
Total	12,968	100%

Note: Missing information on gender for 3 records

Race/Ethnicity

Most (89%) of the records reported treatment for white patients, while 8% were for black patients (Table 3). Nearly all records list the patient's race, but 2% are missing information on ethnicity.

Table 3: Records by race and ethnicity, 2015

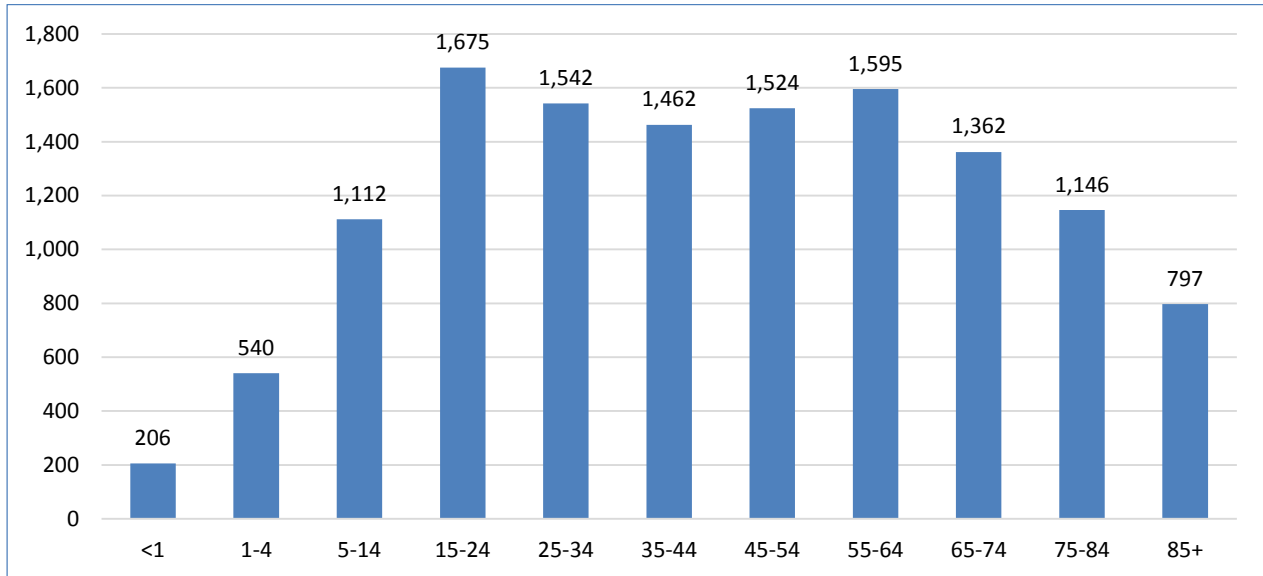
Race	Ethnicity			Total
	Hispanic/Latino	Non-Hispanic/Latino	Missing	
Asian	0	23	*	25
Native Hawaiian or Other Pacific Islander	5	20	*	28
Other Race	122	45	0	167
American Indian	0	5	0	5
Black or African American	*	926	27	955
White	33	10798	699	11,530
Missing	15	43	203	261
Total	177	1,860	934	12,971

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

Age

Inclusion criteria influence the distribution of trauma records by age group. The statewide hospitalization data for traumatic injury is skewed towards older age groups due to inclusion of hip fractures, whereas the KTR records are mainly for working-age adults (Figure 2).

Figure 2: Records by age group, 2015



Note: Missing information on age for 10 records

Patient County of Residence

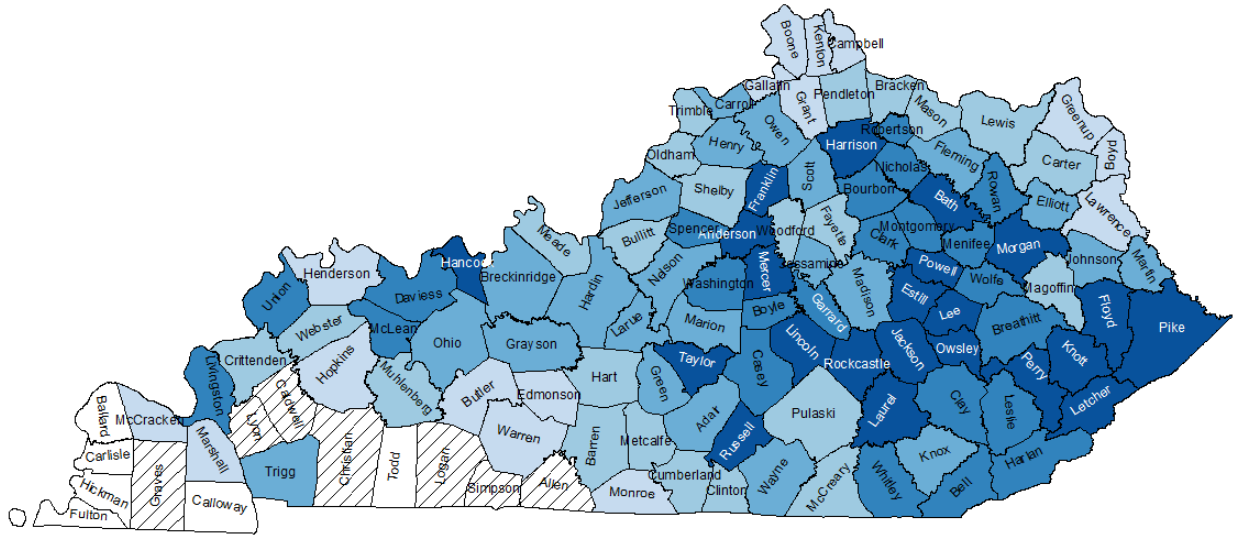
Table 4 sets out the number and proportion of KTR records for the counties with the highest number of reports. About one-fifth (19.21%) of the records were for patients residing in Jefferson or Fayette counties, which is expected as these are the most populous counties in the state. About one in eight (12.43%) of the total KTR records were for out-of-state patients. There were almost as many records from the top 10 counties as from the rest of the state’s counties combined (41% vs. 46%).

Table 4: Records by county of residence, 2015

Top 10 KY counties based on volume	Number	%
Jefferson	1,857	14.32%
Fayette	635	4.90%
Pike	492	3.79%
Daviess	440	3.39%
Taylor	412	3.18%
Franklin	355	2.74%
Laurel	326	2.51%
Perry	314	2.42%
Mercer	287	2.21%
Hardin	246	1.90%
All other Kentucky counties	5,995	46.22%
Out-of-state residents	1,612	12.43%

A map of rates per 1,000 county residents follows. It must be interpreted with the caveat that it is not an accurate rendering of counties’ incidence of trauma: low rates in the counties in the southwest and northern parts of the state reflected the lack of acute care hospitals reporting to the KTR in those regions. It is also possible that the residents of these counties are treated in out-of-state trauma centers such as the University of Cincinnati Hospital, Cincinnati Children’s Hospital, or Vanderbilt University Hospital. Counties with rates under 5 are noted in keeping with state data management policy.

Map: Trauma Registry Records per 1,000 County Population, in Quintiles



Rate



0 - 1.1
1.2 - 3
3 - 4
4 - 6.9
6.9 - 21.6



Censored*



No Records

*Rates censored for counts <5

Injury Information

Work-related Cases

Work-related trauma is defined as injury that occurs during paid employment. A total of 508 work-related trauma cases were recorded in the KTR dataset in 2015. Almost one-third (32%) of the injuries were due to falls (Figure 3).

Figure 3: Work-related trauma records by cause of injury, 2015

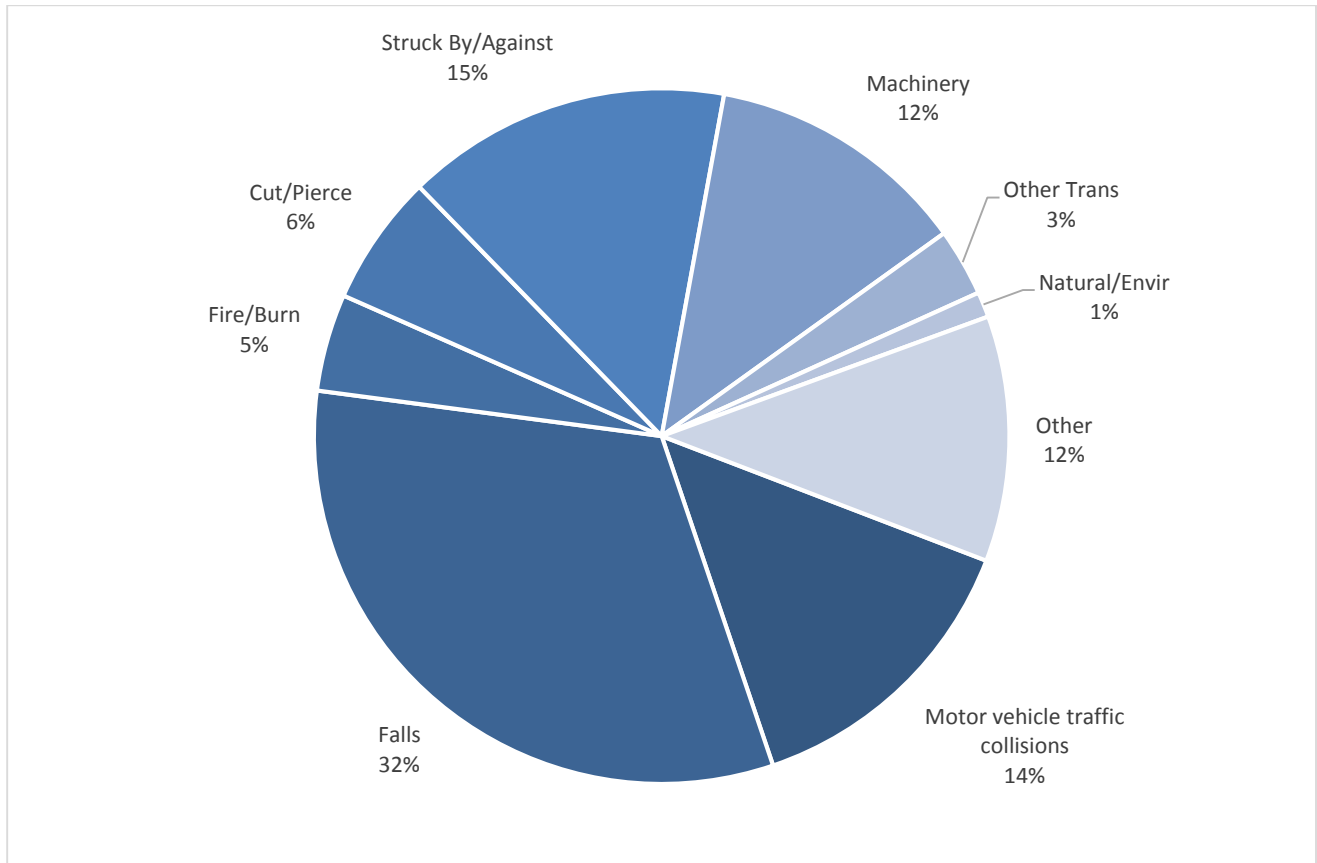


Table 5 shows the industry associated with the patient’s work environment for work-related trauma records. Construction and manufacturing are two of the largest industry categories, representing over one quarter (28.15%) of work-related trauma in the KTR.

Table 5: Work-related trauma records by industry, 2015

Industry	Number	%
Construction	80	15.75%
Other Services	70	13.78%
Manufacturing	63	12.40%
Transportation and Public Utilities	57	11.22%
Agriculture, Forestry, Fishing	41	8.07%
Natural Resources and Mining	36	7.09%
Retail Trade	23	4.53%
Education and Health Services	15	2.95%
Government	10	1.97%
Leisure and Hospitality	10	1.97%
Information Services	8	1.57%
Finance, Insurance, and Real Estate	*	0.59%
Wholesale Trade	*	0.39%
Professional and Business Services	*	0.20%
Missing/not available	89	17.52%
Total	508	100.00%

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

Cause and Intent of Injury

E-codes indicating mechanism and intent were provided for nearly all (99.4%) of the records. Unintentional falls (n=4,903) and unintentional motor vehicle traffic collisions (n=3,745) were the leading causes of injuries reported to KTR (Table 6).

Table 6: Records by cause and intent of injury, 2015

Cause	Unintentional	Intentional	Other/ Undetermined
Falls	4,989	11	36
Motor vehicle traffic collisions	3,668	6	19
Other transportation	918	0	0
Struck by/against	440	301	*
Firearm	135	365	29
Cut/Pierce	261	248	*
Fire/Burn	363	16	6
Other Specified	240	116	0
Machinery	196	0	0
Natural/Environmental	155	0	0
Other Pedal Cycle	142	0	0
Not Specified	47	32	17
Not Elsewhere Classified (NEC)	24	26	9
Other Pedestrian	46	0	0
Overexertion	37	0	0
Suffocation	*	9	0
Poisoning	*	*	*
Drowning	*	0	0
Total	11,669	1,134	125

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

Note: Missing information on cause and intent for 43 records

Cause/Intent of Injury by Age Group

Patients aged 15-24 accounted for over one-fifth (20.64%) of motor vehicle crash-related trauma, followed by those aged 25-34 (16.68%). This finding is similar to those of previous years. Falls among those 55 and older accounted for nearly two-thirds (61.36%) of all unintentional falls treated in trauma centers. Almost two-fifths (35.7%) of the injuries attributed to being unintentionally struck by or against an object were experienced by patients 5-24 years of age. An earlier review of the struck by/against injuries in this group found that more than half of these injuries were sport-related. About half (44.5%) of the assault injuries were to adults aged 15-34 (Table 7).

Table 7: Records by age and major causes of injury, 2015

Age	Unintentional Injuries										Intentional Injuries			
	Motor vehicle traffic collisions		Other transport Injuries		Falls		Struck by/against		All other unintentional		Assault		Self-harm	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Missing	*	0.05%	0	0%	*	0.04%	0	0%	*	0.16%	*	0.33%	0	0%
<1	13	0.35%	*	0.11%	75	1.50%	5	1.14%	50	2.75%	61	6.80%	*	0.42%
1-4	70	1.91%	21	2.29%	235	4.71%	24	5.45%	161	8.85%	27	3.01%	*	0.84%
5-14	215	5.86%	106	11.55%	449	9.00%	79	17.95%	233	12.80%	27	3.01%	*	1.26%
15-24	757	20.64%	199	21.68%	183	3.67%	78	17.73%	212	11.65%	204	22.74%	42	17.57%
25-34	612	16.68%	136	14.81%	214	4.29%	56	12.73%	274	15.05%	195	21.74%	55	23.01%
35-44	517	14.09%	146	15.90%	307	6.15%	55	12.50%	231	12.69%	165	18.39%	41	17.15%
45-54	501	13.66%	112	12.20%	463	9.28%	52	11.82%	223	12.25%	132	14.72%	41	17.15%
55-64	446	12.16%	101	11.00%	723	14.49%	51	11.59%	198	10.88%	54	6.02%	22	9.21%
65-74	294	8.02%	60	6.54%	811	16.26%	25	5.68%	128	7.03%	23	2.56%	21	8.79%
75-84	181	4.93%	25	2.72%	841	16.86%	12	2.73%	75	4.12%	5	0.56%	7	2.93%
85+	60	1.64%	11	1.20%	686	13.75%	*	0.68%	32	1.76%	*	0.11%	*	1.67%

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

Motor Vehicle Traffic Collision Involvement

Among the unintentional motor vehicle traffic collision (MVTC) records, 75.26% were coded as vehicle occupants, 14.44% as motorcyclists, and 6.61% as pedestrians (Table 8).

Table 8: Motor vehicle collision involvement, 2015

Role in motor vehicle traffic collision	Number	%
Motor vehicle occupant	2,777	75.26%
Motorcyclist	533	14.44%
Pedal cyclist	32	0.87%
Pedestrian	244	6.61%
Unknown	67	1.82%
Other	37	1.00%
Total	3,690	100%

Protective Devices

There were 3,607 records for vehicle occupants injured in motor vehicle traffic collision. Protective devices were not used in 27.29% of the cases. Information on the use of protective devices was not available to the registrars in 4.15% of the cases (Table 9). It is notable that this proportion of missing information decreased from 11.9% from the previous year, indicating data quality improvements.

Table 9: Use of occupant protective devices in motor vehicle traffic collisions, 2015

Protective device	Use of protective devices by occupants in unintentional MVTC (n=3,607)	
	Number	%
Shoulder and Lap belt	1,163	41.93%
Shoulder belt only	13	0.47%
Lap belt only	415	14.96%
Child restraint	70	2.52%
Airbag	1,074	38.72%
Available but not used	757	27.29%
Missing information on protective device use	115	4.15%

Note: In some records two or more protective devices were listed; therefore, counts do not add up to the total number of MVTC cases

Pre-Hospital Information

Transportation Mode

The mode of transportation and inter-facility transfers are presented in Table 10. The inter-facility transfer variable indicates whether the patient was transferred to the reporting facility from another acute care facility. Helicopter ambulance was used in 686 (18.98%) of the 3,614 inter-facility transfers and in 1,136 (12.17%) of the 9,332 non-transfer records. Ground ambulance was listed in 8,047 (62.16%) of all KTR cases.

Table 10: Transportation mode, 2015

Transportation mode	Inter-facility Transfer		
	Yes	No	Total
Missing	6	31	37
Ground Ambulance	2,740	5,307	8,047
Helicopter Ambulance	686	1,136	1,822
Fixed-wing Ambulance	0	*	*
Private/Public Vehicle/Walk-in	181	2,810	2,991
Police	*	41	42
Other	0	6	6
Total	3,614	9,332	12,946

*Cells with counts of less than 5 were suppressed by state data management policy

Note: Missing information on inter-facility transfer for 25 records

EMS Information

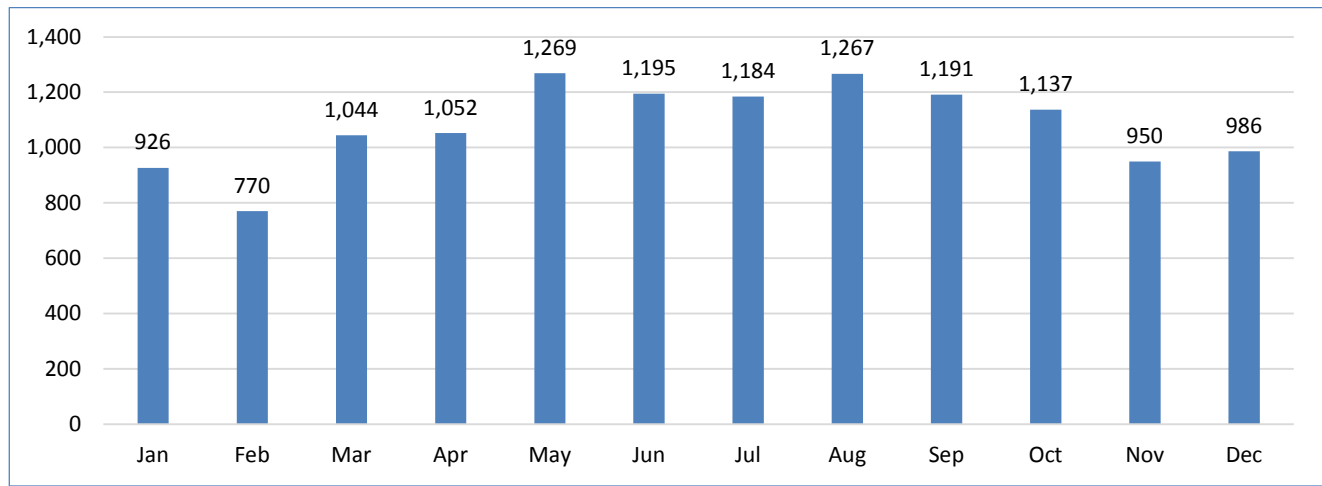
EMS notification, departure, and arrival times are not applicable data elements for patients who arrived at the trauma facility by private vehicle, and they may not be known for patients transferred from another acute care facility. It is reasonable to expect, however, that EMS information will be available for patients who were not inter-facility transferees and were transported to the trauma facility by ground ambulance (n=5,307) or helicopter ambulance (n=1,136) (Table 10). About 37% of these records did not include complete EMS notification, arrival, and scene departure dates and times, an improvement over the 2014 rate of 45%. With regard to complete patient status, EMS pulse, and respiratory rate, blood pressure and Glasgow Coma Scale scores were missing for 37% of direct transfers.

Emergency Department Information

Month of Arrival at ED/Hospital

Trauma volume varies by season, with a higher volume during summer months (Figure 4), mainly due to the increased number of motor vehicle traffic collision injuries and falls.

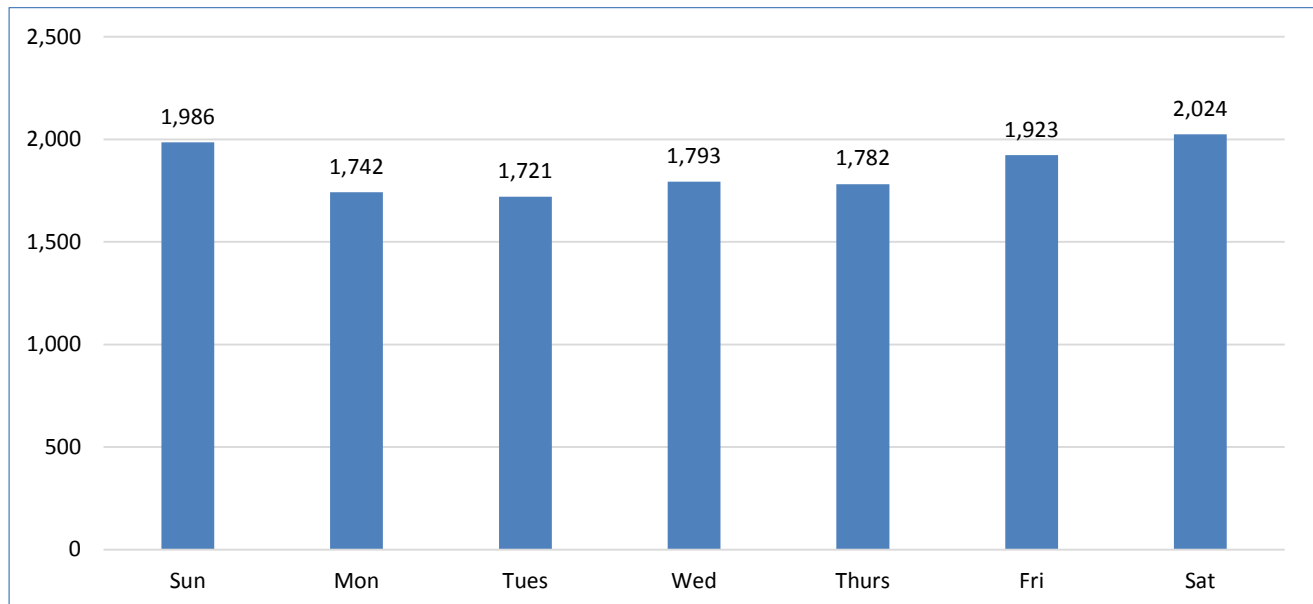
Figure 4: Month of ED/hospital arrival, 2015



Weekday of Arrival to ED/Hospital

A higher volume of trauma cases was recorded on weekend days (Figure 5).

Figure 5: Day of ED/hospital arrival, 2015



Time to ED/Hospital Arrival

The distribution of KTR records by time from the injury incident to hospital arrival and inter-facility transfer status is presented in Table 11. Patients are considered inter-facility transfers if they are transferred to the reporting facility from another acute care facility. Due to the lack of personal identifiers in trauma registry data collection, we cannot track specific patients from one facility to another. The incident time is unknown in 38.92% of cases.

Table 11: Time to ED/hospital arrival, 2015

Time to hospital	Inter-facility Transfer	
	Yes	No
<1 hour	15	2,436
1-2 hours	126	1,881
2-5 hours	1,030	650
5-12 hours	907	207
12-24 hours	125	140
24+ hours	126	137
Same day (exact incident time unknown)	929	3,331
Next day or later (exact incident time unknown)	342	446
Incorrect (negative, zero, missing time)	14	126
Total	3,614	9,354

Note: Missing information on inter-facility transfer for 3 records

Alcohol Use Indicator

Alcohol use beyond legal limits was confirmed by test for 824 (6.35%) of all records (Table 12). However, it is important to note that over 60% of cases were not tested for alcohol use, so the true extent of this problem is unknown.

Table 12: Alcohol use indicators, 2015

Alcohol Use Indicators	Number	%
No (not tested)	7,790	60.06%
No (confirmed by test)	2,574	19.84%
Yes (confirmed by test [trace levels])	283	2.18%
Yes (confirmed by test [beyond legal limit])	824	6.35%
Not Applicable	1,220	9.41%
Not documented	138	1.06%
Missing	142	1.09%
Total	12,971	100%

Drug Use Indicators

Illegal drug use was confirmed in 844 (6.51%) of the records (Table 13). However, it is again important to note that 61.1% of cases were not tested for drug use, so the true extent to which drug use is involved in trauma is unknown. The category “illegal drug use” includes use of illicit drugs or illegal use of a prescription drug according to the National Trauma Data Standard Data Dictionary.

Table 13: Drug use indicators, 2015

	Number	%
No (not tested)	7,925	61.10%
No (confirmed by test)	1,418	10.93%
Yes (confirmed by test [prescription drug])	1,068	8.23%
Yes (confirmed by test [illegal use of prescription drug])	77	0.59%
Yes (confirmed by test [illegal use drug])	767	5.91%
Not Applicable	863	6.65%
Not documented	853	6.58%
Total	12,971	100%

Locally Calculated Injury Severity Scores

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, 68.02% of trauma registry injuries were mild, 14.40% moderate, 10.55% severe and 6.51% very severe. ISS was missing for less than 1% of the records (Table 14).

Table 14: Records by ISS, 2015

Injury Severity Score Range	Category	Number	%
1-9	Mild	8,823	68.02%
10-15	Moderate	1,868	14.40%
16-24	Severe	1,368	10.55%
25-75	Very Severe	845	6.51%
Missing	Missing	67	0.52%
Total		12,971	100%

Outcome Information

Table 15: Discharge status, 2015

Facility	ED Discharge	Inpatient Discharge
	Number (% facility)	Number (% facility)
Ephraim McDowell Regional Medical Center	120 (42.55%)	162 (57.45%)
Fort Logan Hospital	72 (98.63%)	*
Frankfort Regional Medical Center	205 (51.9%)	190 (48.1%)
Harlan ARH Hospital	59 (56.73%)	45 (43.27%)
Harrison Memorial Hospital	73 (75.26%)	24 (24.74%)
Hazard ARH	82 (21.93%)	292 (78.07%)
James B. Haggin Memorial Hospital	211 (98.6%)	*
Kosair Children's Hospital	31 (3.34%)	897 (96.66%)
Livingston Hospital	36 (51.43%)	34 (48.57%)
Marcum Wallace Memorial Hospital	203 (99.51%)	*
McDowell ARH Hospital	56 (94.92%)	*
Methodist Hospital Union County	67 (77.01%)	20 (22.99%)
Middlesboro ARH Hospital	121 (89.63%)	14 (10.37%)
Morgan County ARH Hospital	66 (98.51%)	*
Owensboro Medical Center	130 (18.73%)	564 (81.27%)
Pikeville Medical Center	190 (18.63%)	830 (81.37%)
Rockcastle Hospital	118 (94.4%)	7 (5.6%)
Russell County Hospital	84 (100%)	0 (0%)
St. Claire Medical Center	164 (78.85%)	44 (21.15%)
St. Joseph Berea	53 (100%)	0 (0%)
St. Joseph Hospital (Mt. Sterling)	88 (100%)	0 (0%)
St. Joseph London	166 (59.29%)	114 (40.71%)
Taylor Regional Medical Center	290 (86.57%)	45 (13.43%)
Trigg County Hospital	35 (100%)	0 (0%)
University of Kentucky – Children's	21 (4.43%)	453 (95.57%)
University of Kentucky Medical Center	867 (27.93%)	2237 (72.07%)
University of Louisville Hospital	467 (14.29%)	2800 (85.71%)
Whitesburg ARH Hospital	46 (93.88%)	*
Williamson ARH Hospital	57 (86.36%)	9 (13.64%)
Total	4,178 (32.21%)	8,793 (67.79%)

Note: Totals less than 5 were suppressed in keeping with state data management policy.

Three quarters (75.27%) of the records indicated discharge from ED to a bed or operating room in the same hospital, while 15.2% were transferred to another hospital. The latter number is somewhat higher than the 11.46% transfer rate reported in 2014 and may reflect the addition of several Level IV facilities to the trauma registry this year. Deaths are recorded for 149 (1.15%) ED patients (Table 16).

Table 16: ED discharge disposition, 2014

	Number	%
Same hospital	9,583	75.27%
Floor bed (general admission, non-specialty unit bed)	5,236	40.37%
Operating Room	2,003	15.44%
Transferred to another hospital	1,972	15.20%
Intensive Care Unit	1,856	14.31%
Home without services	911	7.02%
Telemetry/step-down unit (less acuity than ICU)	456	3.52%
Observation unit (< 24 hour stays)	159	1.23%
Died	149	1.15%
Home with services	32	0.255%
Other (jail, institutional care, mental health, etc.)	24	0.19%
Left against medical advice	14	0.11%
Missing	159	1.23%
Total	12,971	100%

Inpatient Hospital Discharge

More than two-thirds (68.8%) of trauma registry records on patients discharged from inpatient care indicated that the patient was well enough to go home without formal home health services, but over one in four (27%) required some kind of post-acute care. Deaths were recorded for 358 (4.07%) records of patients who died in the Hospital (Table 17).

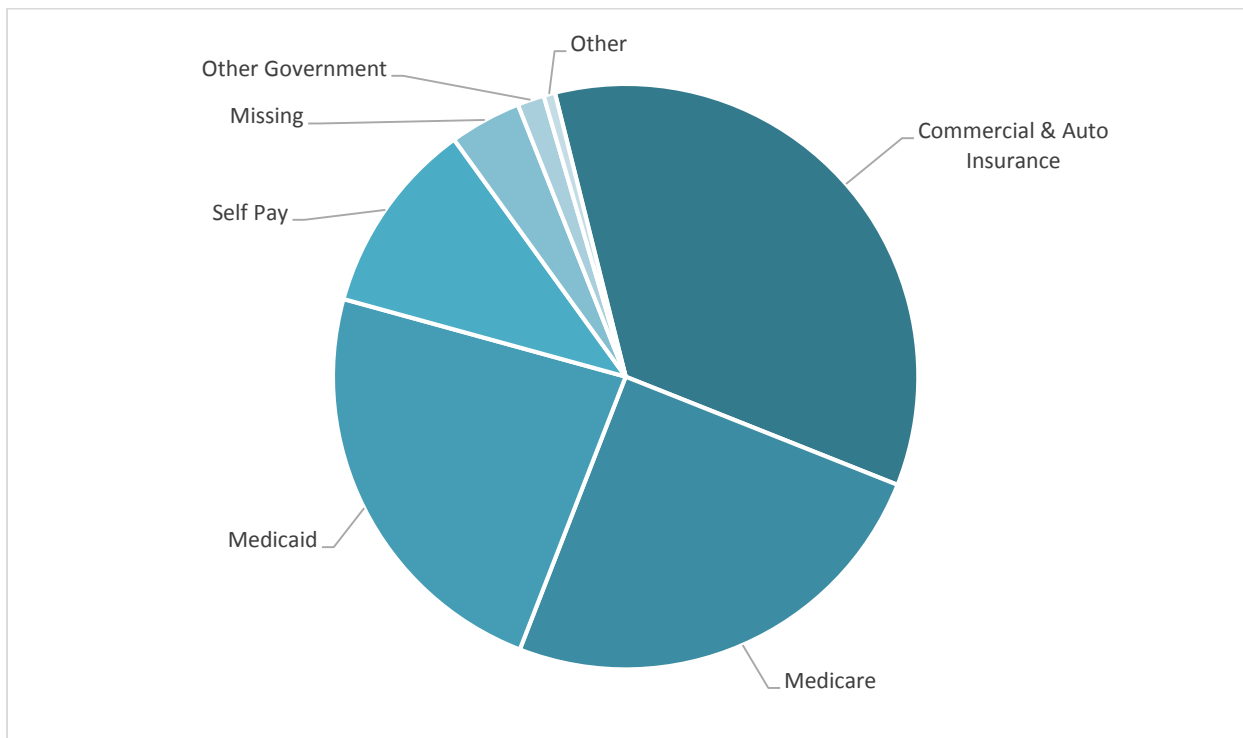
Table 17: Inpatient hospital discharge disposition, 2015

Discharge Destination	Number	%
Home with self-care	6,049	68.79%
Home health	1,128	12.83%
Skilled nursing facility & Intermediate Care Facility	813	9.25%
Expired	358	4.07%
Inpatient rehab	150	1.71%
Another acute care hospital (Long Term Care Hospital, Inpatient, Psychiatric)	136	1.54%
Other	125	1.42%
Total	8,793	100%

Financial Information

The expected source of payment was not reported for 515 records, about 4.0% of the total KTR volume. Among the encounters listing expected payer, commercial/auto insurance (34.92%) was the leader, followed by Medicare (24.86%), and Medicaid (23.38%) (Fig. 6). The proportion of “self-pay” (i.e., uninsured) patients in 2015, 10.75%, is very close to the 11% in this category in 2014. Both reflect the impact of Medicaid expansion, as the “self-pay” category was previously in the 40% range. This decline is significant because “self-pay” patients are rarely able to pay for their trauma care, and the federal funding that has historically provided some offset to uncompensated care will be reduced under the Affordable Care Act.

Figure 6: Primary source of payment, 2015



Conclusion

The Kentucky Trauma Registry continues to grow steadily and has added reporting facilities that serve new areas over the past year. As the proportion of Kentucky hospitals in the KTR grows, it will become more representative of major trauma in the state as a whole. The state Trauma Advisory Council continues to work closely with candidate facilities as they progress towards state or national verification, and funding from the National Highway Traffic Safety Administration, made available through a grant from the Kentucky Office of Highway Safety, supports software or portal activation costs for their first year in the KTR. Thanks to the Kentucky Commissioner of Public Health, funding was made available during the 2015-2016 state fiscal year to support extensive educational programming and a full system-wide evaluation (summary available at <http://www.mc.uky.edu/kiprc/programs/trauma-registry/Kentucky-trauma-system-evaluation-2016.pdf>). We look forward to increasing the value of KTR data for system-wide and facility-specific quality improvement initiatives through the addition of new variables in the 2016 reporting year.

The progress made by Kentucky's trauma system is particularly noteworthy because during the time covered by this report, the system had no state funding and would not have existed without the professionalism and dedication of clinical and support staff. The sustainability of statewide trauma care on this tenuous basis is a constant concern that has been brought before state policy makers repeatedly. The value added by the state's trauma system--saving lives and avoiding catastrophic trauma-related disability--must be recognized and given proportionate support if the state trauma system is to continue its record of growth and effectiveness.

Acknowledgements:

In addition to our invaluable support from Trauma Advisory Council leadership and our grant funders, KTR facilities' trauma registrars have worked diligently to assure continuous quality improvement for KTR data as well as trauma care across the state.