

KENTUCKY TRAUMA REGISTRY

2017 ANNUAL REPORT

October 2018

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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 and 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.

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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 2017 at Kentucky trauma centers, both verified and in applicant status, and reported to the Kentucky Trauma Registry as of October 2018. 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.

On October 1, 2015, U.S. hospitals were required to switch from the International Classification of Diseases, 9th edition, Clinical Modification, to the 10th edition (ICD-9-CM to ICD-10-CM). One prominent feature of ICD-10-CM is a much more nuanced array of injury diagnoses. While trauma registries do not rely on ICD coding to the same extent as broader hospital and emergency department datasets, the implementation of ICD-10-CM was disruptive and may have led to some inconsistencies in coding across reporting facilities and periods of time.

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
 - (d) Meets the requirements established in 902 KAR 28:020.
 - (21) "Level IV trauma center" means a regional trauma center that:
 - (a) Provides advanced trauma life support before a patient is transferred to a higher level of care;
 - (b) Is located in a hospital emergency department; and
 - (c) Meets the requirements established in 902 KAR 28:030.
-

Kentucky's Reporting Trauma Centers, 2017

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
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 Regional Hospital	Level IV
St. Claire Medical Center	Level IV
St. Joseph Berea	Level IV in progress
Taylor Regional Medical Center	Level III
Tug Valley ARH (formerly Williamson ARH)	Level IV in progress
Twin Lakes Regional Medical Center	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

Kentucky Trauma Registry Records 2008-2017

The Kentucky Trauma Registry has grown from 5 reporting facilities in 2008 to 29 in 2017, although Parkway Regional Hospital in Fulton discontinued inpatient service in early 2015 and two other small hospitals left the group in 2017. A total of 13,442 records were reported in 2017, more than double the 2008 total but slightly fewer than in 2016 (Figure 1). The decline reflects gaps in reporting from smaller facilities and lower numbers of low-acuity injuries (see Tables 1 and 15).

Figure 1: Total records, 2008-2017

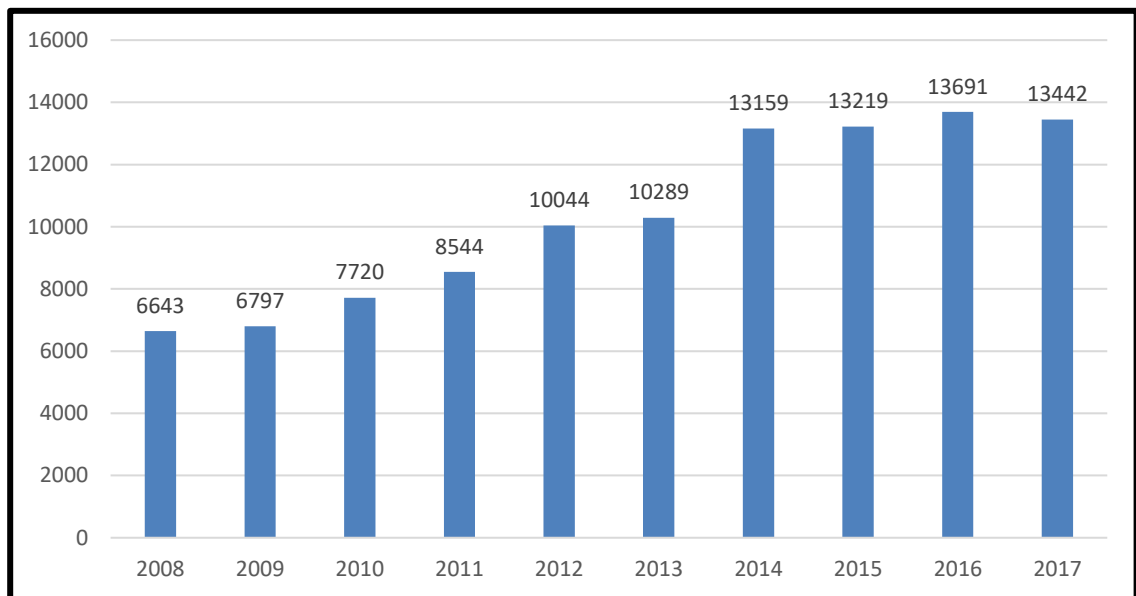


Table 1: Records by reporting trauma center, 2017

Hospital	Records
Baptist Health – Corbin	*
Ephraim McDowell Regional Medical Center	215
Fort Logan Hospital	66
Frankfort Regional Medical Center	481
Harlan ARH Hospital	179
Harrison Memorial Hospital	111
Hazard ARH	459
James B. Haggin Memorial Hospital	126
Kosair Children's Hospital	813
Livingston Hospital	42
Marcum Wallace Memorial Hospital	52
McDowell ARH Hospital	*
Methodist Hospital Union County	74
Middlesboro ARH Hospital	132
Morgan County ARH Hospital	46
Owensboro Medical Center	867
Pikeville Medical Center	1,459
Rockcastle Hospital	106
St. Claire Medical Center	70
St. Joseph Berea	77
Taylor Regional Medical Center	317
Tug Valley ARH (formerly Williamson ARH)	103
Twin Lakes Regional Medical Center	177
University of Kentucky – Children's	491
University of Kentucky Medical Center	3,321
University of Louisville Hospital	3,494
Whitesburg ARH Hospital	158
Total	13,442

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

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, 2017

Gender	Number	%
Female	5,270	39.21%
Male	8,172	60.79%
Total	13,442	100.0%

Race/Ethnicity

Most (88.2%) of the records reported treatment for white patients, while 6.6% were for black patients (Table 3). Nearly all records list the patient's race, but 3.6% are missing information on ethnicity.

Table 3: Records by race and ethnicity, 2017

	Ethnicity			
Race	Hispanic/ Latino	Non- Hispanic/Latino	Missing	Total
Asian	0	43	*	**
Native Hawaiian or Other Pacific Islander	*	0	*	**
Other Race	110	40	*	**
American Indian	*	*	0	**
Black or African American	*	881	52	**
White	66	11,304	592	11,962
Missing	17	85	243	342
Total	**	**	**	13,442

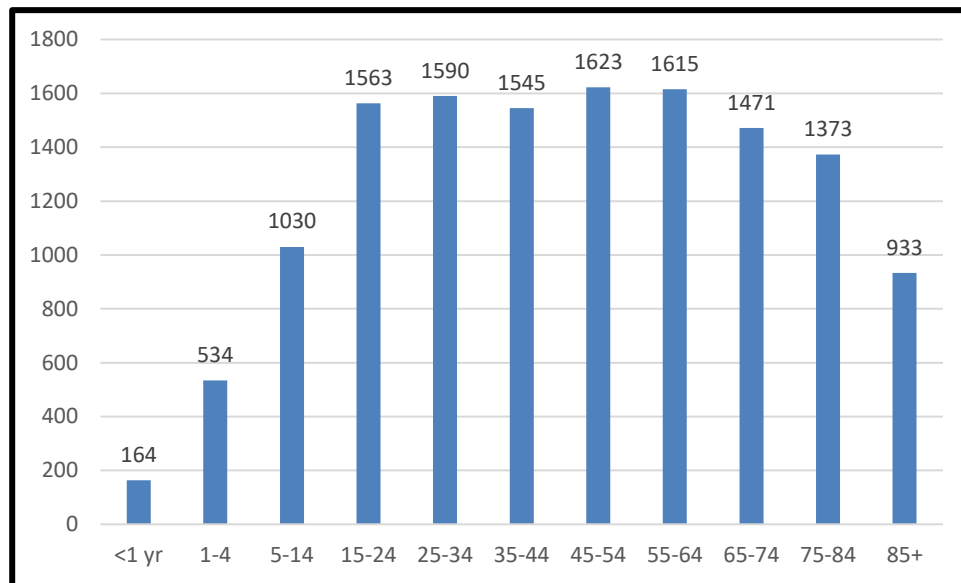
*Totals less than 5 were suppressed by state data management policy.

**Suppressed totals to maintain censoring.

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, 2017



Note: Missing information on age for 1 record.

Patient County of Residence

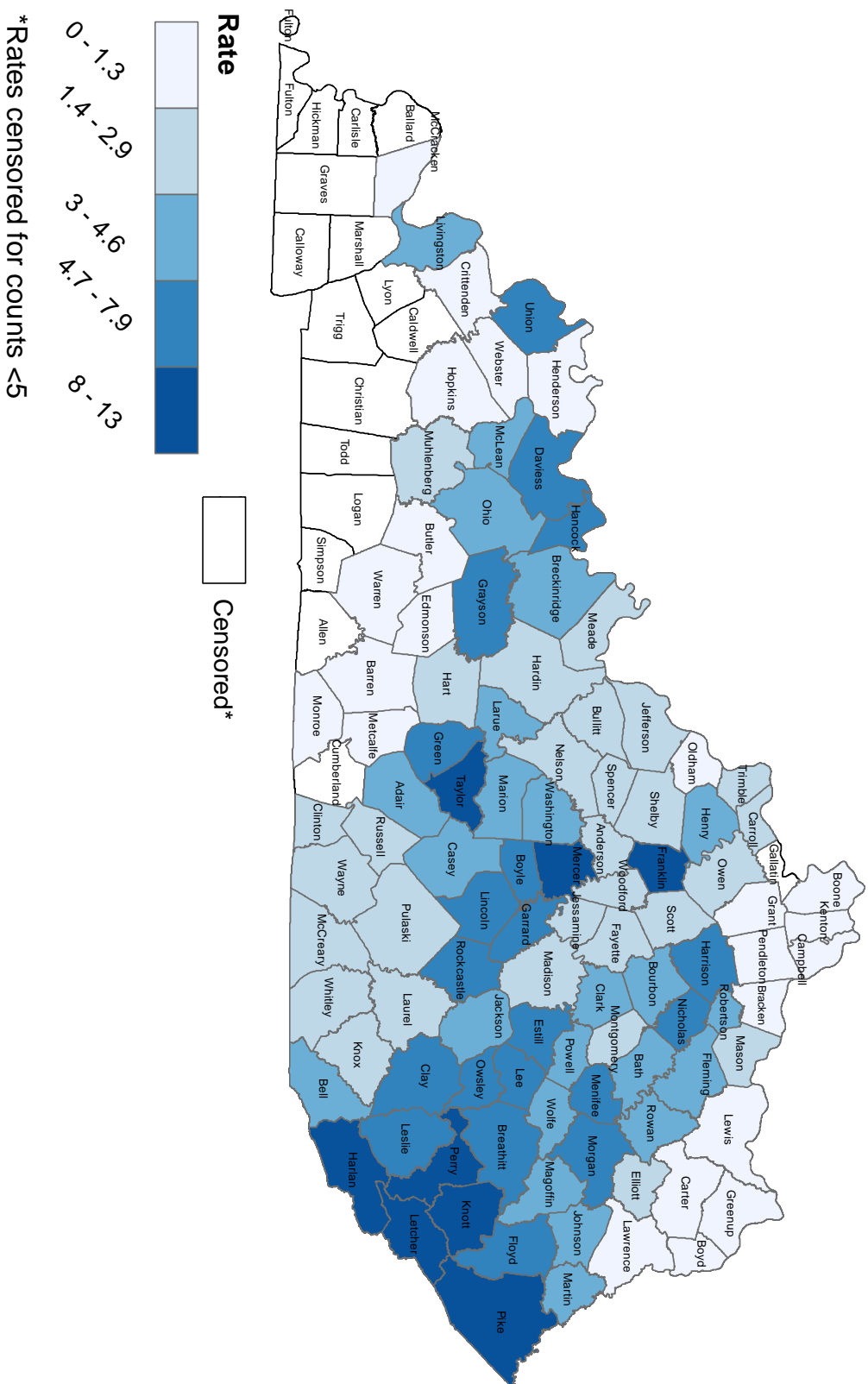
Table 4 sets out the number and proportion of KTR records for the counties with the highest number of reports. About one-fifth (20.54%) of the records were for patients residing in Jefferson or Fayette counties, which is expected as these are the most populous counties in the state. About one in eight (12.56%) of the total KTR records were for out-of-state patients. Two-thirds of in-state records were from the top 10 counties (66.5% vs. 33.94%).

Table 4: Records by county of residence, 2017

Top 10 KY counties based on volume	Number	%
Jefferson	2,017	15.01%
Fayette	744	5.53%
Pike	596	4.43%
Daviess	560	4.17%
Franklin	492	3.66%
Perry	344	2.56%
Taylor	303	2.25%
Letcher	272	2.02%
Floyd	271	2.02%
Madison	246	1.83%
All other KY counties combined	5,909	43.96%
Out-of-state residents	1,688	12.56%

A map of rates per 1,000 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.

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



Injury Information

Work-related Cases

Work-related trauma is defined as injury that occurs during paid employment. A total of 506 work-related trauma cases were recorded in the KTR dataset in 2017. Falls were the most common cause of injury (Figure 3).

Figure 3: Work-related trauma records by cause of injury, 2017

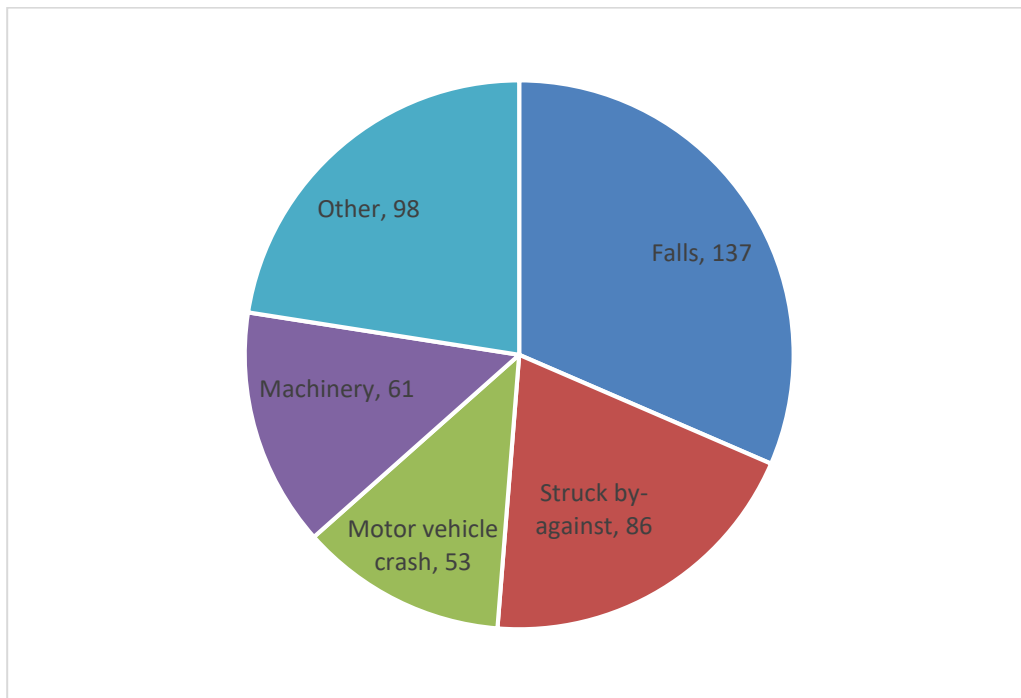


Table 5 shows the industry associated with the patient's work environment for work-related trauma records. Construction and manufacturing are two of the largest industry categories, representing (28.9%) of work-related trauma in the KTR.

Table 5: Work-related trauma records by industry, 2017

Industry	Number	%
Construction	84	19.27%
Other Services	67	15.37%
Natural Resources and Mining	49	11.24%
Manufacturing	42	9.63%
Transportation and Public Utilities	38	8.72%
Agriculture, Forestry, Fishing	32	7.34%
Retail Trade	12	2.75%
Government	11	2.52%
Leisure and Hospitality	10	2.29%
Education and Health Services	9	2.06%
Professional and Business Services	9	2.06%
Information Services	*	*
Finance, Insurance, and Real Estate	0	0
Wholesale Trade	*	*
Missing/not available	47	10.78%
Total	436	100%

*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 (99.8%) of the records. Unintentional falls (n=5,341) and unintentional motor vehicle traffic collisions (n=4,058) were the leading causes of injuries reported to KTR (Table 6).

Table 6: Records by cause and intent of injury, 2017

Cause	Unintentional	Intentional	Other/ Undetermined
Falls	5,341	15	45
Motor vehicle traffic collisions	4,058	7	6
Other transportation	573	0	0
Struck by/against	517	389	9
Cut/pierce	344	249	10
Fire/burn	305	8	7
Machinery	177	0	0
Other specified cause	172	84	0
Other pedal cycling	120	0	0
Firearm	165	424	47
Natural/environmental	89	0	0
Other Pedestrian	68	0	0
Overexertion	61	0	0
Not Specified	0	32	*
Not elsewhere classified	0	17	25
Poisoning	16	7	*
Suffocation	*	12	0
Drowning	*	0	0
Total	11,915	1,263	151

*Counts less than 5 were suppressed by state data management policy.
Note: Missing information on cause and intent for 131 records.

Cause/Intent of Injury by Age Group

Patients aged 15-24 accounted for nearly one-fifth (19.37%) of motor vehicle crash-related trauma, followed by those aged 25-34 (16.00%). This finding is similar to those of previous years. Falls among those 55 and older accounted for well over half (58.78%) of all unintentional falls treated in trauma centers. Almost two-fifths (38.83%) 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 (50.38%) of the assault injuries were to adolescents and adults aged 15-34 (Table 7).

Table 7: Records by age and major causes of injury, 2017

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	0	0	0	0	0	0	0	7	0.39	0	0	0	0
<1	7	0.17	0	0	75	1.43	5	0.97	25	1.4	49	4.68	0	0
1-4	75	1.85	18	3.14	241	4.6	29	5.61	148	8.27	29	2.77	*	*
5-14	738	18.19	114	19.9	144	2.75	79	15.28	238	13.3	211	20.15	36	16.67
15-24	678	16.71	79	13.79	188	3.59	62	11.99	241	13.46	296	28.27	52	24.07
25-34	636	15.67	83	14.49	260	4.96	55	10.64	252	14.08	210	20.06	42	19.44
35-44	574	14.14	94	16.4	466	8.89	71	13.73	235	13.13	146	13.94	36	16.67
45-54	209	5.15	104	18.15	396	7.56	89	17.21	215	12.01	14	1.34	7	3.24
55-64	508	12.52	55	9.6	722	13.78	56	10.83	187	10.45	64	6.11	19	8.8
65-74	362	8.92	17	2.97	901	17.19	38	7.35	131	7.32	14	1.34	12	5.56
75-84	201	4.95	8	1.4	1046	19.96	21	4.06	74	4.13	10	0.96	8	3.7
85+	70	1.72	*	*	802	15.3	12	2.32	37	2.07	*	*	*	*

*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, 64.55% were coded as vehicle occupants and 12.12% as motorcyclists (Table 8).

Table 8: Motor vehicle collision involvement, 2017

Role in motor vehicle traffic collision	Number	%
Motor vehicle occupant	2,627	64.55
Motorcyclist	493	12.12
Unknown	200	4.89
Other	479	11.78
Pedal cyclist	64	1.57
Total	4,070	

Protective Devices

There were 4,070 records for vehicle occupants injured in motor vehicle traffic collision. Protective devices were available but not used in over one-fourth (26.14%) of reported cases. Information on the use of protective devices was not available to the registrars in nearly all (96.45%) of cases (Table 9).

Table 9: Use of occupant protective devices in motor vehicle traffic collisions, 2017

Protective device	Use of protective devices by occupants in unintentional MVTC (n=)	
	Number	%
Shoulder and Lap belt	1,150	43.38%
Shoulder belt only	9	0.34%
Lap belt only	354	13.35%
Child restraint	57	2.15%
Airbag	1,311	49.45%
Available but not used	693	26.14%
Missing information on protective device use	94	3.55%

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 729 (18.6%) of the 3,924 inter-facility transfers and in 1,133 (11.6%) of the 9,762 non-transfer records. Ground ambulance was listed in 8,787 (64.2%) of all KTR cases. Transportation mode was not identified in 5 cases.

Table 10: Transportation mode, 2017

Transportation mode	Inter-facility Transfer		
	Yes	No	Total
Missing	7	21	28
Ground Ambulance	3,236	5,507	8,745
Helicopter Ambulance	679	1,058	1,864
Fixed-wing Ambulance	*	*	**
Private/Public Vehicle/Walk-in	188	2,663	2,853
Police	*	65	**
Other	*	5	**
Total	4,118	9,319	13,437

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

Note: Missing information on inter-facility transfer for 5 records.

EMS Information

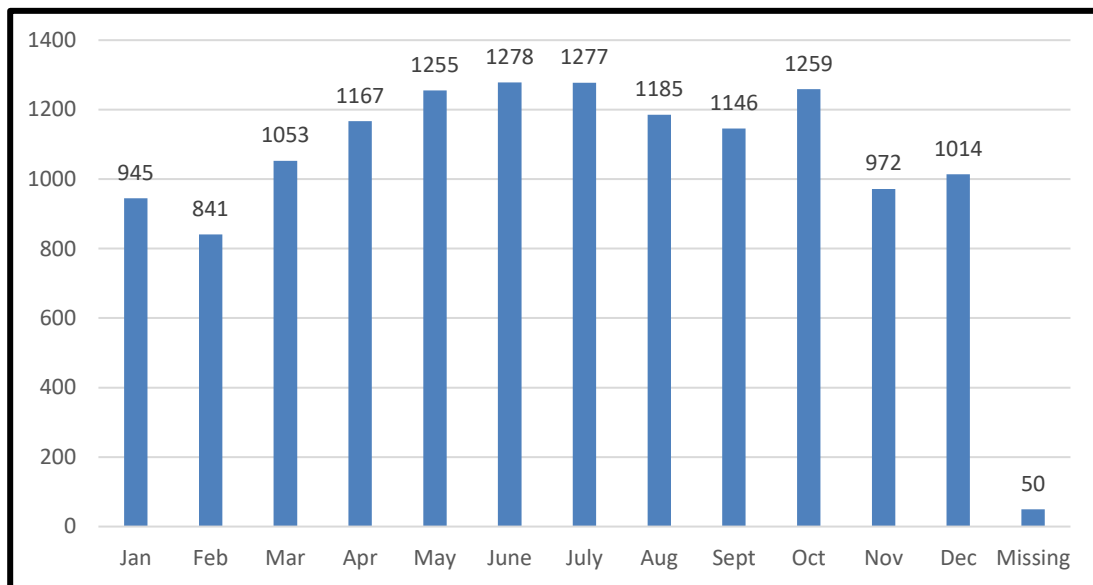
EMS notification, departure, and arrival times are not applicable data elements for patients who arrived at the trauma facility by private vehicle, and they may not be known for patients transferred from another acute care facility. It is reasonable to expect, however, that EMS information will be available for patients who were not inter-facility transferees and were transported to the trauma facility by ground ambulance (n=8,745) or air ambulance (n=1,741) (Table 10).

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.

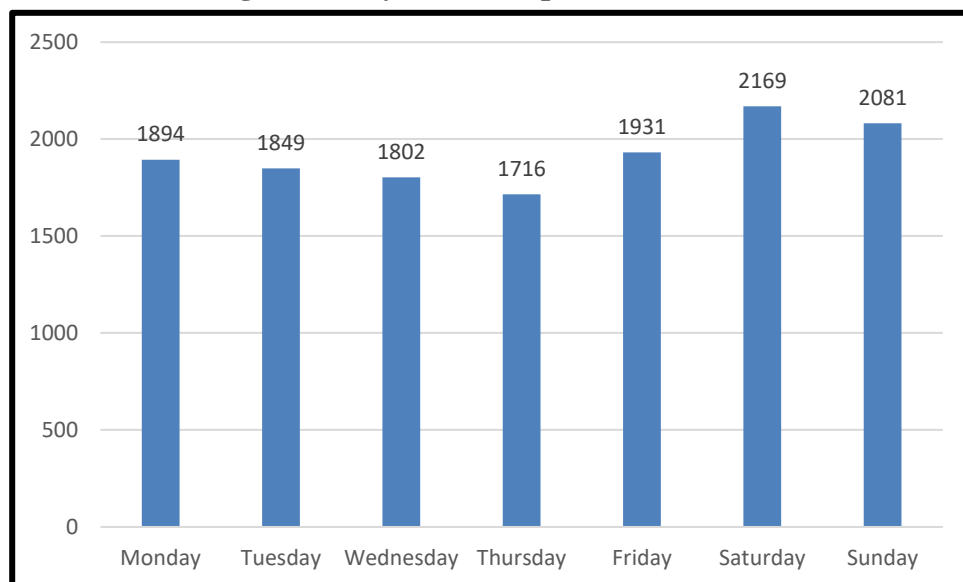
Figure 4: Month of ED/hospital arrival, 2017



Weekday of Arrival to ED/Hospital

Weekend days see larger volumes of ED trauma cases (Figure 5).

Figure 5: Day of ED/hospital arrival, 2017



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. Inter-facility transfers are patients who 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 nearly one-third of cases.

Table 11: Time to ED/hospital arrival, 2017

Time to hospital	Inter-facility Transfer	
	Yes	No
<1 hour	22	2,466
1-2 hours	149	1,910
2-5 hours	1,051	723
5-12 hours	1,032	254
12-24 hours	155	162
24+ hours	301	359
Same day (exact incident time unknown)	1,039	3,069
Next day or later (exact incident time unknown)	354	288
Incorrect (negative, zero, missing time)	15	88
Total	4,118	9,319

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

Alcohol Use Indicators

Alcohol use beyond legal limits was confirmed by test for 832 (6.19%) of all records (Table 12). Over half (53.94%) of cases were not tested for alcohol use, so the true extent of this problem is unknown.

Table 12: Alcohol use indicators, 2017

Alcohol Use Indicators	Number	%
No (not tested)	7,250	53.94%
No (confirmed by test)	3,265	24.29%
Yes (confirmed by test [trace levels])	211	1.57%
Yes (confirmed by test [beyond legal limit])	832	6.19%
Not Applicable	985	7.33%
Not documented	344	2.56%
Missing	555	4.13%
Total	13,442	100.0%

Drug Use Indicators

Illegal use of illicit or prescription drugs was confirmed in 1,019 (7.58%) of the records (Table 13). However, it is again important to note that 57.51% of cases were not tested for drug use, so the true extent to which drug use is involved in trauma is unknown. The number of cases in which drug use indicators were not documented more than doubled in 2017 compared with 2016.

Table 13: Drug use indicators, 2017

	Number	%
No (not tested)	7,731	57.51%
No (confirmed by test)	1,998	14.86%
Yes (confirmed by test [prescription drug])	754	5.61%
Yes (confirmed by test [illegal use of prescription drug])	67	0.50%
Yes (confirmed by test [illegal use drug])	952	7.08%
Not Applicable	1,004	7.47%
Not documented	936	6.96%
Total	13,442	100.0%

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, about two-thirds (67.62%) of trauma registry injuries were mild, 15% moderate, 10% severe and 7% very severe. ISS was missing for nearly 7% of the records, a figure that is almost triple the missing data in 2016 (Table 14).

Table 14: Records by ISS, 2017

Injury Severity Score Range	Category	Number	%
1-9	Mild	8,182	67.69
10-15	Moderate	2,015	14.99
16-24	Severe	1,375	10.23
25-75	Very Severe	953	7.09
Missing	Missing	917	6.82
Total		13,442	100

Outcome Information

Table 15: Discharge status, 2017

Facility	ED Discharge	Inpatient Discharge
	Number (% facility)	Number (% facility)
Baptist Health – Corbin	* (100%)	0 (0%)
Ephraim McDowell Regional Medical Center	83 (38.6%)	132 (61.4%)
Fort Logan Hospital	65 (98.5%)	* (1.5%)
Frankfort Regional Medical Center	201 (41.8%)	280 (58.2%)
Harlan ARH Hospital	131 (73.2%)	48 (26.8%)
Harrison Memorial Hospital	81 (73%)	30 (27%)
Hazard ARH	123 (26.8%)	336 (73.2%)
James B. Haggin Memorial Hospital	126 (100%)	0 (0%)
Kosair Children's Hospital	17 (2.1%)	796 (97.9%)
Livingston Hospital	25 (59.5%)	17 (40.5%)
Marcum Wallace Memorial Hospital	50 (96.2%)	* (3.8%)
McDowell ARH Hospital	* (100%)	0 (0%)
Methodist Hospital Union County	53 (71.6%)	21 (28.4%)
Middlesboro ARH Hospital	120 (90.9%)	12 (9.1%)
Morgan County ARH Hospital	45 (97.8%)	* (2.2%)
Owensboro Medical Center	67 (7.7%)	800 (92.3%)
Pikeville Medical Center	117 (8%)	1,342 (92%)
Rockcastle Hospital	103 (97.2%)	* (2.8%)
St. Claire Medical Center	56 (80%)	14 (20%)
St. Joseph Berea	77 (100%)	0 (0%)
Taylor Regional Medical Center	288 (90.9%)	29 (9.1%)
Tug Valley ARH (formerly Williamson ARH)	93 (90.3%)	10 (9.7%)
Twin Lakes Regional Medical Center	114 (64.4%)	63 (35.6%)
University of Kentucky – Children's	27 (5.5%)	464 (94.5%)
University of Kentucky Medical Center	554 (16.7%)	2,767 (83.3%)
University of Louisville Hospital	79 (2.3%)	3,415 (97.7%)
Whitesburg ARH Hospital	149 (94.3%)	9 (5.7%)
Total	2,850 (21.2%)	10,592 (78.8%)

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

Emergency Department Discharges

Over three-quarters (77.61%) of the ED records indicated discharge from the ED to a bed or operating room in the same hospital, while 14.77% were transferred to another hospital. Deaths are recorded for 177 (1.29%) of ED patients (Table 16).

Table 16: ED discharge disposition, 2017

	Number	%
Same hospital	10,433	75.61
Non-specialty unit bed	5,837	43.42
Operating room	1,985	14.77
Transferred to another hospital	1,850	13.76
Intensive Care Unit	2,108	15.68
Home without services	780	5.80
Telemetry/step-down unit	466	3.47
Observation unit (< 24 hour stays)	37	0.28
Died	172	1.28
Home with services	12	0.09
Other (jail, institutional care, mental health, etc.)	14	0.10
Left against medical advice	16	0.12
Missing	165	1.24
Total	13,442	100.00

Inpatient Hospital Discharges

Most (60.67%) 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 (22.33%) required some kind of post-acute care. In-hospital deaths were recorded for 420 (3.97%) patients (Table 17).

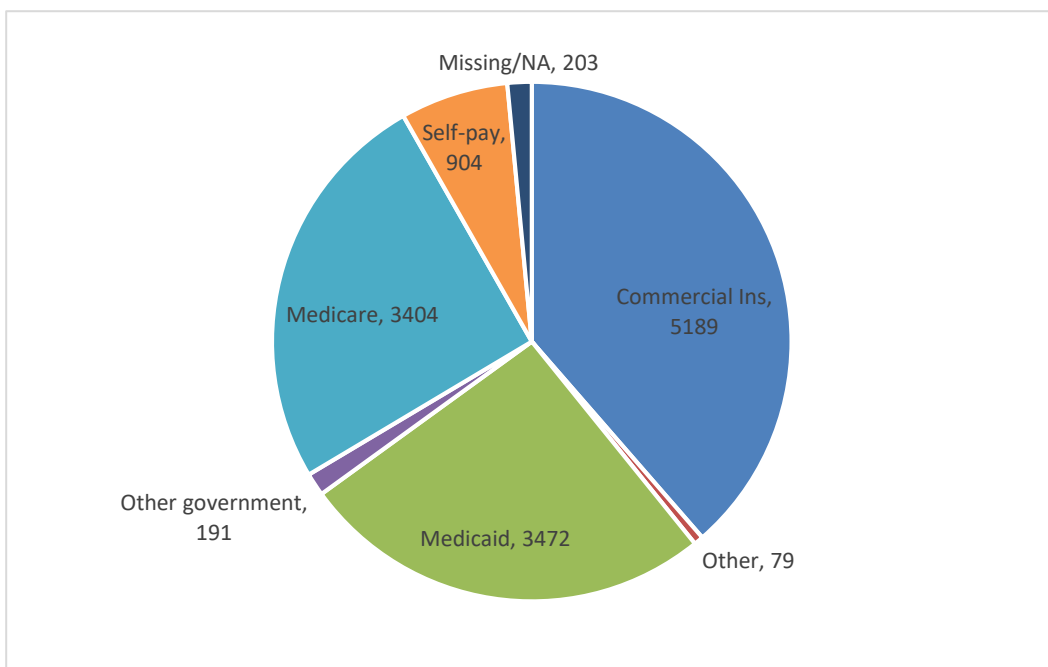
Table 17: Inpatient Hospital Discharge Destination

	Number	%
Home with self-care	6,414	61.85
Home health	909	8.60
Inpatient rehab	1,274	12.05
Skilled nursing facility/ICF	1,029	9.74
Expired	420	3.97
Another acute care hospital	78	0.74
Other	367	4.24
Total	10,572	100.00

Financial Information

The expected source of payment was not reported for 157 records, about 1.2% of the total KTR volume. Among the encounters listing expected payer, commercial insurance (38.60%) was the leader, followed by Medicaid (25.83%), and Medicare (25.32%) (Fig. 6). The proportion of “self-pay” (i.e., uninsured) patients in 2017, 6.73%, is strikingly lower than the 10.5% in this category in 2015. Both reflect the impact of Medicaid expansion, as the “self-pay” category was in the 40% range before Medicaid coverage became available to new categories and income levels of Kentuckians. This decline is important 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, 2017



Conclusion

As the proportion of Kentucky hospitals in the Kentucky Trauma Registry 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.

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.