KENTUCKY TRAUMA REGISTRY

2020 ANNUAL REPORT

September 2021

Julia Costich, JD, PhD
Lara Daniels, MPH

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

KENTUCKY INJURY PREVENTION AND RESEARCH CENTER

Table of Contents

Foreword

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 and a bona fide agent of the Kentucky Department for 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 standards established in the National Trauma Data Standard Data Dictionary. The same standards apply to trauma centers in the process of applying for designation. The trauma centers upload their trauma data electronically at least quarterly to the KTR. ESO 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
Lexington, Kentucky 40504
(859) 257-6712 office
(859) 257-2821 fax
julia.costich@uky.edu
This report and previous trauma reports are posted on the KIPRC website:

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

Introduction

Kentucky law (Kentucky Revised Statutes (KRS) 311A.010) defines "trauma" as a single or multi-system injury requiring immediate medical or surgical intervention or treatment to prevent death or permanent disability. The body of this report summarizes data reported to the Kentucky Trauma Registry as of July 2020 on trauma patients cared for at Kentucky trauma centers, both verified and in applicant status, during calendar year 2020. 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 Kentucky Trauma Registry (KTR) data. Patients transferred between hospitals have separate records for treatment at each reporting facility that cannot be merged because they lack 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 injury event is not part of the reported data. Hospital trauma registrars report KTR data only 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 underrepresented in this report.

Definitions (per 902 Kentucky Administrative Regulation (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, 2020

Trauma Center	Designation/Status
1 Deaconess Union County Hospital (formerly Methodist Hospital Union County)	Level IV
2 Ephraim McDowell Regional Medical Center	Level III
3 Fort Logan Hospital	Level IV
4 Frankfort Regional Medical Center	Level III
5 Harlan ARH Hospital	Level IV in progress
6 Harrison Memorial Hospital	Level IV
7 Hazard ARH	Level III
8 Highlands Regional Medical Center	Level IV in progress
9 James B. Haggin Memorial Hospital	Level IV
10 Livingston Hospital	Level IV
11 Marcum Wallace Memorial Hospital	Level IV
12 Middlesboro ARH Hospital	Level IV in progress
13 Morgan County ARH Hospital	Level IV
14 Norton Children's Hospital	Level I Pediatric
15 Owensboro Medical Center	Level III
16 Pikeville Medical Center	Level II
17 Rockcastle Regional Hospital	Level IV
18 St. Joseph Hospital Mt. Sterling	Level IV
19 St. Joseph Hospital London	Level IV
20 Taylor Regional Medical Center	Level III in progress
21 The Medical Center at Bowling Green	Level III in progress
22 Tug Valley ARH (formerly Williamson ARH)	Level IV
23 Twin Lakes Regional Medical Center	Level IV in progress
24 University of Kentucky – Children's	Level I Pediatric
25 University of Kentucky Medical Center	Level I
26 University of Louisville Hospital	Level I
27 Whitesburg ARH Hospital	Level IV in progress

Kentucky Trauma Registry Records 2008–2020

The Kentucky Trauma Registry has grown from five reporting facilities in 2008 to 26 in 2019, although some smaller hospitals have left the trauma system in recent years. A total of 13,699 records were reported in 2020, more than double the 2008 total (Figure 1) and a small decrease from 2019. According to trauma facility staff, the 2020 decline reflects reductions in service during the peak months of the Covid-19 pandemic.

Figure 1: Total records, 2008–2020

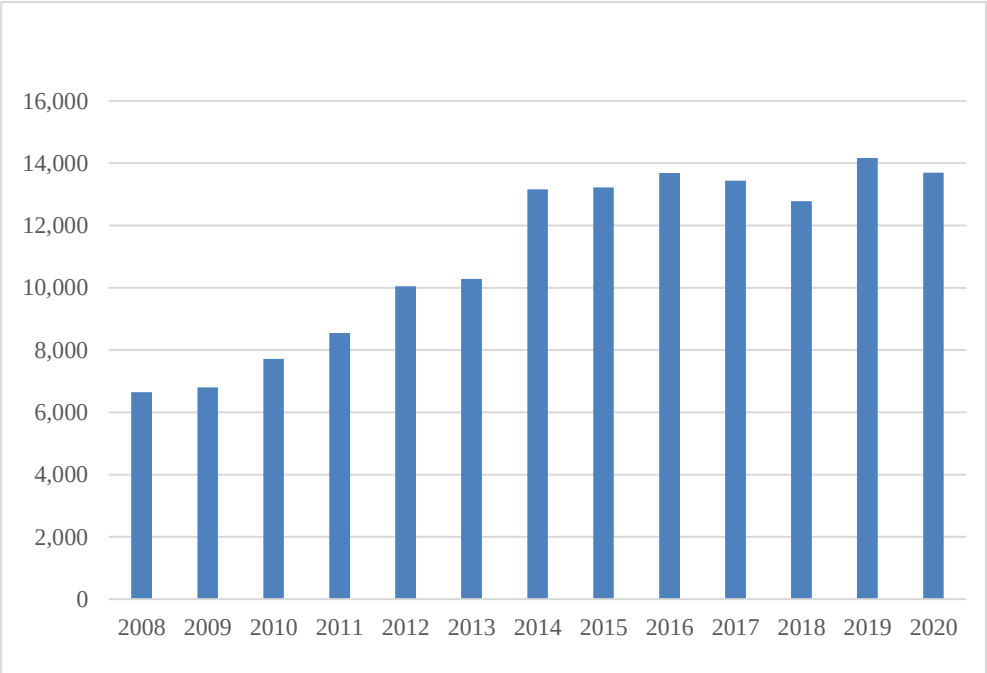


Table 1: Records by reporting trauma center, 2020

Hospital	Records
Deaconess Union County Hospital (formerly Methodist Hospital Union County)	75
Ephraim McDowell Regional Medical Center	648
Fort Logan Hospital	72
Frankfort Regional Medical Center	461
Harlan ARH Hospital	139
Harrison Memorial Hospital	86
Hazard ARH	280
Highlands Regional Medical Center	18
James B. Haggin Memorial Hospital	115
Livingston Hospital	31
Marcum Wallace Memorial Hospital	62
Middlesboro ARH Hospital	101
Morgan County ARH Hospital	32
Norton Children's Hospital	825
Owensboro Medical Center	1,046
Pikeville Medical Center	1,090
Rockcastle Regional Hospital	6
St. Joseph Hospital Mt. Sterling	41
St. Joseph Hospital London	92
Taylor Regional Medical Center	89
The Medical Center at Bowling Green	313
Tug Valley ARH (formerly Williamson ARH)	95
Twin Lakes Regional Medical Center	37
University of Kentucky – Children's	539
University of Kentucky Medical Center	3,322
University of Louisville Hospital	3,996
Whitesburg ARH	88
Total	13,699

Demographic Information

Gender

Injuries to males comprised nearly 60% of KTR records (Table 2). The American College of Surgeons trauma classification excludes isolated hip fractures, the most common traumatic injury in older adults and a category in which women are overrepresented because of their greater longevity. KTR demographics are thus significantly different from those of the related report on Kentucky 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, 2020

Gender	Number	%
Female	5,604	40.91
Male	8,095	59.09
Total	13,699	100.00

Race/Ethnicity

Most (88.07%) of the records reported treatment for white patients, reflecting Kentucky's largely white population, while 9.42% were for black patients (Table 3). Information on patient's race was missing in less than 1% of cases, and 2.50% of cases were missing information on ethnicity.

Table 3: Records by race and ethnicity, 2020

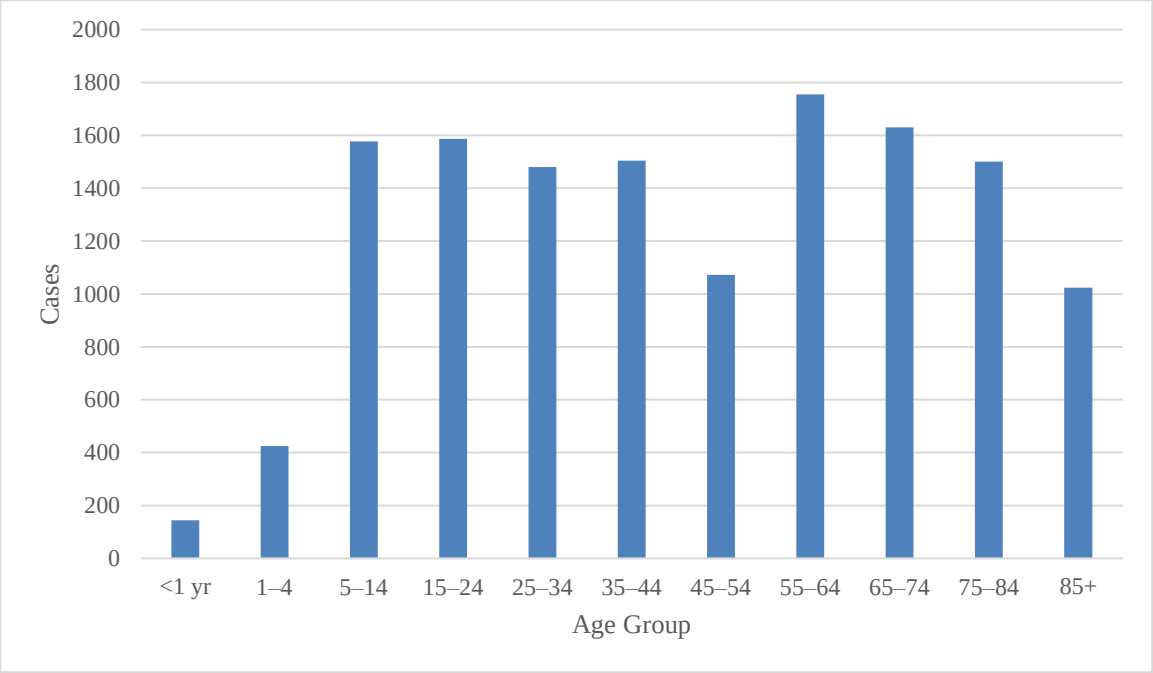
	Ethnicity			
Race	**Hispanic/ Latino**	**Non-Hispanic/Latino**	**Missing**	**Total**
American Indian	*	13	*	15
Asian	*	34	*	36
Black or African American	*	1,284	*	1,291
Native Hawaiian or Other Pacific Islander	0	*	0	*
Other Race	110	*	*	143
More than one race	0	23	0	23
White	137	11,635	293	12,065
Missing	6	75	42	123
Total	258	13,099	342	13,699

*Totals less than five were suppressed in accordance with state data management policy.

Age

Inclusion criteria influence the distribution of trauma records by age group. The statewide hospitalization data for all types of injury are skewed toward older age groups due to inclusion of hip fractures, whereas 69.67% of KTR records are for adults under 65 years of age (Figure 2).

Figure 2: Records by age group, 2020



Patient County of Residence

Table 4 includes the number and proportion of KTR records for the counties with the highest number of reports. About one-fifth (22.75%) 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. Nearly one in seven (12.56%) of the total KTR records were for out-of-state patients. Over half (55.84%) of in-state records were from the top 10 counties.

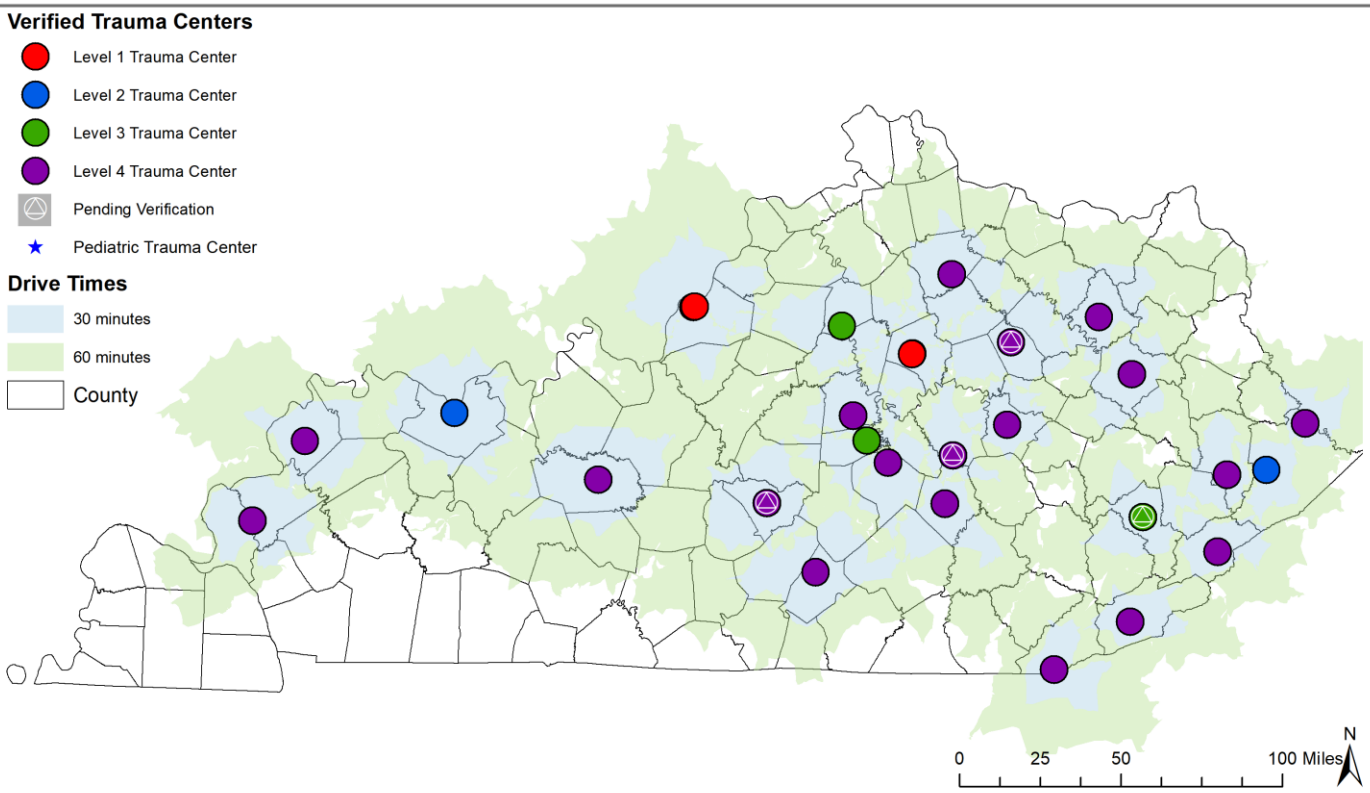
Table 4: Records by county of residence, 2020

Top 10 KY counties based on volume	Number	%
Jefferson	2,287	16.69
Fayette	830	6.06
Daviess	666	4.86
Pike	516	3.77
Franklin	359	2.62
Boyle	336	2.45
Hardin	268	1.96
Mercer	246	1.80
Lincoln	211	1.54
Perry	210	1.53
All other KY counties combined	6,049	44.16
Out-of-state residents	1,721	12.56

A recent map of travel times to the state's trauma facilities follows.

2019 Trauma Registry Facilities for Kentucky with 30/60 Minute Drive-Time Coverage

KENTUCKY INJURY PREVENTION AND RESEARCH CENTER



Injury Information

Work-Related Cases

Work-related trauma is defined as injury that occurs during paid employment. A total of 386 work-related trauma cases were recorded in the KTR dataset in 2020. Falls were the most common cause of injury (Figure 3).

Figure 3: Work-related trauma records by cause of injury, 2020

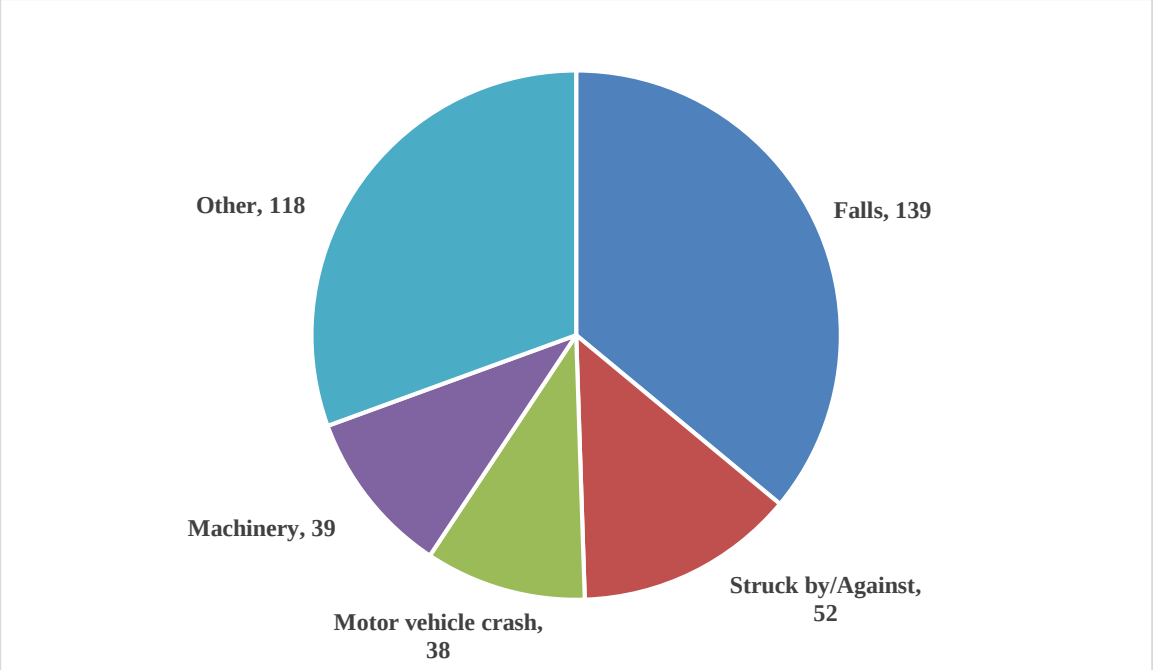


Table 5 shows the industry associated with the patient's work environment for work-related trauma records. Construction and manufacturing are two of the largest industry categories, representing 31.60% of work-related trauma in the KTR.

Table 5: Work-related trauma records by industry, 2020

Industry	Number	%
Construction	82	21.24
Other Services	71	18.39
Manufacturing	40	10.36
Transportation and Public Utilities	40	10.36
Missing	38	9.85
Agriculture, Forestry, and Fishing	31	8.03
Government	21	5.44
Natural Resources and Mining	21	5.44
Retail Trade	12	3.11
Education and Health Services	11	2.85
Professional and Business Services	10	2.59
Information Services	*	*
Wholesale Trade	*	*
Leisure and Hospitality	*	*
Finance, Insurance, and Real Estate	*	*
Total	**386**	**100.00**

*Counts less than five were suppressed in accordance with state data management policy.

Cause and Intent of Injury

Codes indicating mechanism and intent were provided for nearly all (99.8%) of the records. Unintentional falls (n=5,545) and unintentional motor vehicle traffic collisions (n=3,703) were the leading causes of injuries reported to KTR (Table 6).

Table 6: Records by cause and intent of injury, 2020

Cause	Unintentional		Intentional		Other/ Undetermined		Total	
	Count	%	Count	%	Count	%	Count	%
Fall	5,545	40.48	16	0.12	11	0.05	5,572	42.79
Motor Vehicle Traffic	3,703	27.03	11	0.08	6	0.04	3,720	27.16
Firearm	218	1.59	678	4.95	57	0.42	953	6.96
Struck By/Against	344	2.51	346	2.53	*	*	693	5.06
Motor Vehicle Non-Traffic	578	4.22	0	0.00	0	0.00	578	4.22
Cut/Pierce	240	1.75	203	1.48	*	*	446	3.26
Other Specified	186	1.36	47	0.34	12	0.09	245	1.79
Fire/Flame	195	1.36	47	0.34	*	*	202	1.47
Other Land Transport	190	1.39	0	0.00	0	0.00	190	1.39
Hot Object/Substance	152	1.11	*	*	6	0.04	162	1.18
Pedal Cyclist, Other	157	1.15	0	0.00	0	0.00	157	1.15
Machinery	137	1.00	0	0.00	0	0.00	137	1.00
Bite/Sting	127	0.93	0	0.00	0	0.00	127	0.093
Child/Adult Abuse	0	0.00	125	0.91	0	0.00	125	0.91
Overexertion	79	0.58	0	0.00	0	0.00	79	0.58
Pedestrian, Other	71	0.52	0	0.00	0	0.00	71	0.52
Natural/ Environmental	62	0.45	0	0.00	0	0.00	62	0.45
Unspecified	31	0.23	25	0.18	*	*	59	0.43
Poisoning	34	0.25	*	*	*	*	36	0.25
Suffocation	6	0.04	21	0.15	0	0.00	27	0.20
Other Transport	17	0.12	0	0.00	0	0.00	17	0.12
Foreign Body	9	0.07	0	0.00	0	0.00	9	0.07
Drowning/ Submersion	8	0.06	0	0.00	0	0.00	8	0.06
Missing	0	0.00	0	0.00	0	0.00	24	0.18
Total	12,657	89.31	1,255	9.01	132	1.13	14,172	100.00

*Counts less than five were suppressed in accordance with state data management policy.

Cause/Intent of Injury by Age Group

Patients aged 15–24 accounted for nearly one-sixth (17.63%) of motor vehicle crash-related trauma, followed by those aged 25–34 (17.10%). This finding is similar to those of previous years. Falls among those 55 and older accounted for over two-thirds (71.83%) of all unintentional falls treated in trauma centers. Almost one-third (30.81%) of the injuries that are 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 age group found that more than half were sports-related. Two-thirds (65.82%) of the assault injuries were to adolescents and young adults aged 15–44 (Table 7).

Table 7: Records by age and major causes of injury, 2020

Age	Unintentional Injuries										Intentional Injuries			
	Falls		Struck by/Against		Motor vehicle traffic collisions		Other transport Injuries		All other unintentional		Assault		Self-harm	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<1	48	0.40	*	*	8	0.07	0	0.00	21	0.17	64	4.32	0	0.00
1–4	155	1.28	10	0.08	65	0.54	15	0.12	139	1.15	38	2.56	0	0.00
5–14	327	2.70	47	0.39	348	2.88	122	1.01	195	1.61	20	1.35	*	*
15–24	137	1.13	59	0.49	755	6.25	66	0.55	203	1.68	293	19.76	34	2.29
25–34	183	1.51	34	0.28	732	6.06	40	0.33	191	1.58	320	21.58	62	4.18
35–44	262	2.17	46	0.38	640	5.29	45	0.37	197	1.63	221	14.90	51	3.44
45–54	450	3.72	48	0.40	574	4.75	44	0.36	182	1.51	167	11.26	28	1.89
55–64	823	6.81	41	0.34	531	4.39	56	0.46	168	1.39	107	7.22	21	1.42
65–74	1,046	8.65	33	0.27	364	3.01	31	0.26	120	0.99	19	1.28	10	0.67
75–84	1,188	9.83	15	0.12	206	1.70	12	0.10	49	0.41	15	1.01	7	0.47
85+	926	7.66	9	0.07	58	0.48	*	*	19	0.16	*	0.20	0	0.00

*Counts less than five were suppressed in accordance with state data management policy.

Motor Vehicle Traffic Collision Involvement

Among the unintentional motor vehicle traffic collision (MVTC) records, 66.96% were coded as vehicle occupants and 12.77% as motorcyclists (Table 8). The rate of traumatic injury among motorcycle riders in Kentucky is unknown because of the high rate of unregistered vehicles. Pedestrians and pedal cyclists accounted for 6.56% of traffic-related trauma.

Table 8: Motor vehicle collision involvement, 2020

Role in motor vehicle traffic collision	Number	%
Motor vehicle occupant	2,878	66.96
Motorcyclist	549	12.77
Pedal Cyclist	67	1.56
Pedestrian	215	5.00
Unknown	6	0.14
Other	583	13.56
Total	4,298	100.00

Protective Devices

There were 2,874 records for vehicle occupants injured in motor vehicle traffic collisions. Protective devices were available but not used in over one-fifth (22.51%) of reported cases. Information on the use of protective devices was available to the registrars in nearly all (95.79%) of cases (Table 9). Kentucky continues to fall well below national norms for use of occupant protective devices.

Table 9: Use of occupant protective devices in motor vehicle traffic collisions, 2020

Protective device	Use of protective devices by occupants in MVTC	
	Number	%
Shoulder and lap belt	1,345	46.80
Shoulder belt only	51	1.77
Lap belt only	215	7.48
Child restraint	57	1.98
Airbag	1,680	58.46
Available but not used	647	22.51
Missing information on protective device use	121	4.21

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 incidence of interfacility transfers are presented in Table 10. The interfacility transfer variable indicates whether the patient was transferred to the reporting facility from another acute care facility. Helicopter ambulance was used in 690 (16.50%) of the 4,183 interfacility transfers and in 929 (9.76%) of the 9,516 non-transfer records. Ground ambulance was listed in 9,390 (68.55%) of all KTR cases.

Table 10: Transportation mode, 2020

Transportation mode	Interfacility Transfer		
	Yes	No	Total
Missing	*	*	52
Ground Ambulance	3,175	6,215	9,390
Helicopter Ambulance	690	929	1,619
Fixed-Wing Ambulance	*	*	2
Private/Public Vehicle/Walk-in	311	2,286	2,597
Police	*	*	31
Other	*	*	8
Total	4,183	9,516	13,699

*Cells with counts of less than five were suppressed in accordance with state data management policy.

EMS Information

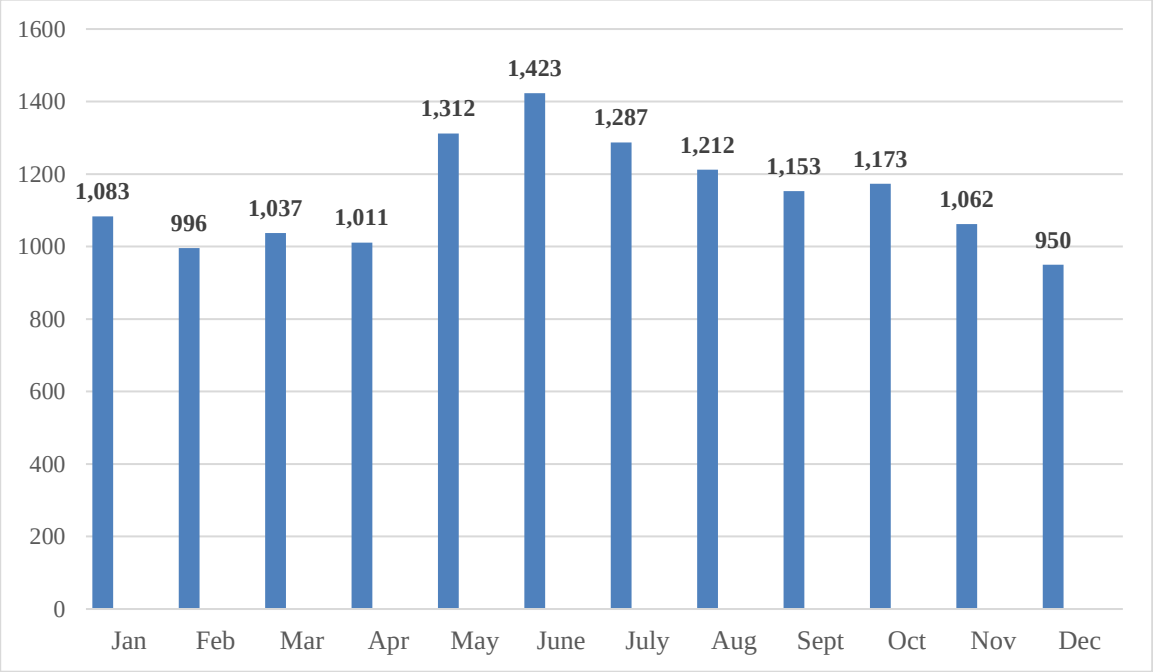
EMS notification, departure, and arrival times are not applicable data elements for patients who arrived at the trauma facility by private vehicle, and they may not be known for patients transferred from another acute care facility. It is reasonable to expect that EMS information will be available for patients who were not interfacility transferees and were transported to the trauma facility by ground ambulance (n=6,215) or air ambulance (n=929) (Table 10). Work is ongoing to integrate these data elements with future KTR reports.

Emergency Department (ED) Information

Month of Arrival at ED/Hospital

Trauma volume typically varies by season, with a higher volume during summer months, and this pattern continued in 2020 data.

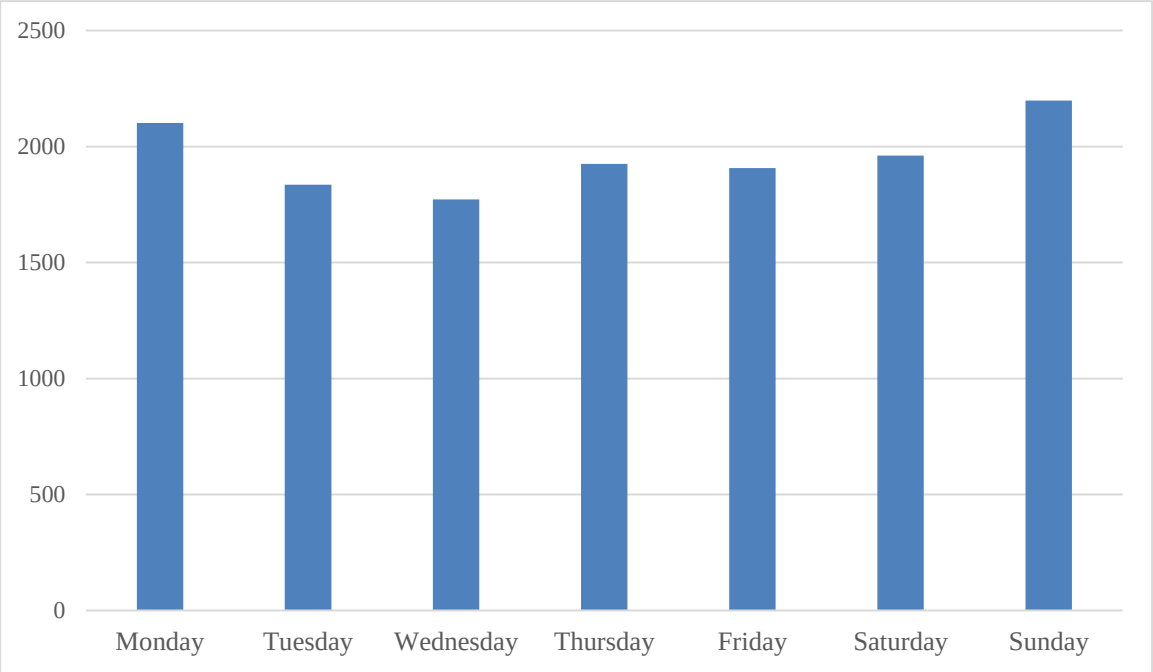
Figure 4: Month of ED/hospital arrival, 2020



Weekday of Arrival to ED/Hospital

Sundays and Mondays see larger volumes of ED trauma cases (Figure 5).

Figure 5: Day of ED/hospital arrival, 2020



Time to ED/Hospital Arrival

Because patients with traumatic injuries need timely access to definitive care, the length of time between the injury incident and hospital arrival is an important indicator of trauma system quality. The distribution of KTR records by time from injury to hospital arrival and interfacility transfer status is presented in Table 11. Interfacility 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. Further complicating this analysis, the incident time is unknown in 45.46% of cases. The absence of these indicators hinders efforts to assess the critical metric of timely transportation to definitive care for trauma patients.

Table 11: Time to ED/hospital arrival, 2020

Time to hospital	Interfacility Transfer	
	Yes	No
<1 hour	18	1797
1–2 hours	75	1601
2–5 hours	966	680
5–12 hours	1,061	253
12–24 hours	167	138
24+ hours	326	390
Same day (exact incident time unknown)	1,170	4,300
Next day or later (exact incident time unknown)	397	282
Total	4,183	9,516

Note: Seventy-eight cases were missing information on time to ED/hospital arrival.

Alcohol Use Indicators

Alcohol use was confirmed by test for 4,904 (35.80%) of all records (Table 12). Only 98 (0.72%) of cases were not tested for alcohol use.

Table 12: Alcohol use indicators, 2020

Alcohol Use Indicators	Number	%
No (confirmed by test)	8,697	63.49
Yes	4,904	35.80
Not documented	88	0.64
Missing	10	0.07
Total	13,699	100.00

Drug Use Indicators

Illegal use of illicit or prescription drugs was confirmed in 3,278 (23.93%) of the records (Table 13). However, it is important to note that 59.50% of cases either were not tested for drug use or did not document whether testing was performed, so the extent of this relationship is unknown.

Table 13: Drug use indicators, 2020

Drug Use Indicators	Number	%
No (confirmed by test)	2,270	16.57
Yes (confirmed by test)	3,278	23.93
Not tested	457	3.34
Not documented	7,503	54.77
Missing	191	1.39
Total	13,699	100.00

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, more than two-thirds (63.85%) of trauma registry injuries were mild, 16.86% were moderate, 11.04% were severe and 7.32% were very severe. ISS was missing for less than one percent of the records (Table 14).

Table 14: Records by ISS, 2020

Injury Severity Score Range	Category	Number	%
1–9	Mild	8,747	63.85
10–15	Moderate	2,310	16.86
16–24	Severe	1,513	11.04
25–75	Very Severe	1,003	7.32
Missing	Missing	126	0.92
Total		13,699	100.00

Outcome Information

Table 15: Discharge type by facility, 2020

Facility	ED Discharge	Inpatient Discharge
	Number (% of type)	Number (% of type)
Deaconess Union County Hospital (formerly Methodist Hospital Union County)	64 (85.33)	11 (14.67)
Ephraim McDowell Regional Medical Center	424 (65.43)	224 (34.57)
Fort Logan Hospital	68 (94.44)	4 (5.56)
Frankfort Regional Medical Center	167 (36.23)	294 (63.77)
Harlan ARH Hospital	60 (43.17)	79 (56.83)
Harrison Memorial Hospital	82 (95.35)	4 (4.65)
Hazard ARH	45 (16.07)	235 (83.93)
Highlands Regional Medical Center	18 (100.00)	0 (0.00)
James B. Haggin Memorial Hospital	113 (98.26)	2 (1.74)
Livingston Hospital	11 (35.48)	20 (64.52)
Marcum Wallace Memorial Hospital	62 (100.00)	0 (0.00)
Middlesboro ARH Hospital	86 (85.15)	15 (14.85)
Morgan County ARH Hospital	32 (100.00)	0 (0.00)
Norton Children's Hospital	104 (12.61)	721 (87.39)
Owensboro Medical Center	89 (8.51)	957 (91.49)
Pikeville Medical Center	150 (13.76)	940 (86.24)
Rockcastle Regional Hospital	6 (100.00)	0 (0.00)
St. Joseph Hospital Mt. Sterling	41 (100.00)	0 (0.00)
St. Joseph Hospital London	52 (56.52)	40 (43.48)
Taylor Regional Medical Center	62 (69.66)	27 (30.34)
The Medical Center at Bowling Green	4 (1.28)	309 (98.72)
Tug Valley ARH (formerly Williamson ARH)	95 (100.00)	0 (0.00)
Twin Lakes Regional Medical Center	25 (67.57)	12 (32.43)
University of Kentucky – Children's	35 (6.49)	504 (93.51)
University of Kentucky Medical Center	499 (15.02)	2,823 (84.98)
University of Louisville Hospital	126 (3.15)	3,870 (96.85)
Whitesburg ARH	88 (100.00)	0 (0.00)
Total	2,608	11,091

Note: Totals less than five were suppressed in accordance with state data management policy.

Emergency Department Discharges

Over three-quarters (79.77%) of the ED records indicated discharge from the ED to a bed or operating room in the same hospital, while 10.48% were transferred to another hospital. Deaths are recorded for 230 (1.68%) of ED patients (Table 16). Typically, about one-eighth (12%) of Kentucky's deaths from traumatic injury occur at hospitals, while the balance of deaths occurs at the scene of the traumatic injury (see https://www.cdc.gov/injury/wisqars/fatal.html).

Table 16: ED discharge disposition, 2020

	Number	%
Same hospital	10,927	79.77
Non-specialty unit bed	6,040	44.09
Operating room	2,256	16.47
Observation unit (< 24-hour stays)	20	0.15
Intensive Care Unit	1,934	14.12
Telemetry/step-down unit	677	4.94
Died	230	1.68
Transferred to another hospital	1,436	10.48
Home with services	36	0.26
Home without services	844	6.16
Other (jail, institutional care, mental health, etc.)	18	0.13
Left against medical advice	29	0.21
Missing	179	1.31
Total	13,699	100.00

Inpatient Hospital Discharges

Forty-nine percent 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 nearly one-third (27.06%) required some kind of post-acute care. In-hospital deaths were recorded for 461 (3.37%) patients (Table 17).

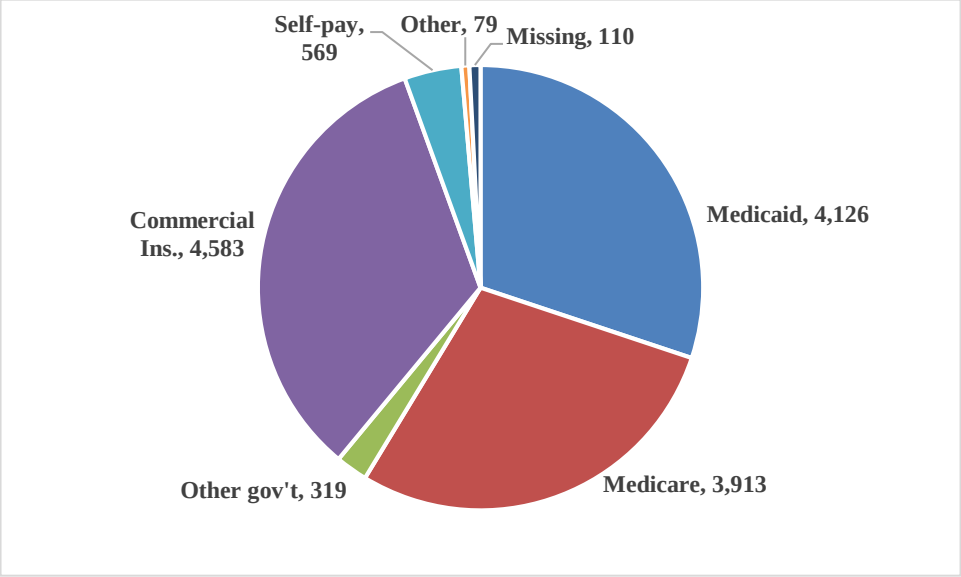
Table 17: Inpatient hospital discharge destination

	Number	%
Home with self-care	6,745	49.24
Home health	856	6.25
Inpatient rehab	1,441	10.52
Skilled nursing facility/ICF	932	6.80
Died	461	3.37
Another acute care hospital	76	0.55
Other	403	2.94
Left against medical advice	165	1.20
Total	**11,079**	**100.00**

Financial Information

Among the encounters listing expected payer, commercial insurance (33.45%) was the leader, followed by Medicaid (30.12%) and Medicare (28.56%) (Figure 6). The proportion of "self-pay" (i.e., uninsured) patients in 2020, 4.15%, continues to reflect the impact of Medicaid expansion. The "self-pay" category was in the 40% range before 2014, when 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 has declined substantially. The expected source of payment was missing for 110 (0.80%) records.

Figure 6: Primary source of payment, 2020



Conclusion

As the proportion of Kentucky hospitals reporting to the Kentucky Trauma Registry grows, the registry will become more representative of major trauma in the state as a whole. In a voluntary system like Kentucky's, growth is inevitably slow. The state Trauma Advisory Council continues to work closely with candidate facilities as they progress toward state or national verification and designation. 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 a facility's first year in the KTR as well as the compilation of this report and other initiatives. We look forward to increasing the value of KTR data for system wide and facility-specific quality improvement initiatives through collaboration with investigators at the state's research universities and the Transportation Cabinet.

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. The system itself 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 policymakers repeatedly, including legislative committee testimony in July 2021. 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.

Acknowledgments:

In addition to the 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.