

Kentucky Traumatic Brain & Spinal Cord Injury Surveillance Project

Fiscal Year 2007 Final Report

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This project is located at the Kentucky Injury Prevention and Research Center,
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FOR MORE INFORMATION

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Introduction

In 2004, traumatic brain injury (TBI) was a factor in the deaths of 1,088 Kentuckians, as well as the live discharges of 3,353 Kentuckians from licensed, acute-care hospitals across the state. TBI played a role in the death or hospitalization of 12 state residents per day. Acquired brain injury (ABI) was diagnosed in 1,241 deaths and 2,194 live discharges (more than 9 ABI per day), and spinal cord injury (SCI) was reported in 71 deaths and 213 live discharges, or over 5 SCI per week. See Tables 1, 16, and 31 for details.

NOTE: Due to a change in the methods of creating this year's report, we have omitted comparisons with previous years' results in this report. Details are provided in the Methods section.

The results of this year's report, combined with the two previous year's reports, clearly suggest that further exploration of the following causes of TBI, ABI, and SCI are needed, in order to pinpoint the risk factors involved and develop prevention strategies:

- *Motor vehicle traffic crashes (TBI and SCI), especially among ages 15-24*
- *Falls (TBI and SCI), especially among ages 0-4 and 65 and older*
- *Anoxia/hypoxia (ABI), especially among ages 45 and older*
- *Exposure to toxic substances (ABI), especially among ages 25-44*

Motor vehicle traffic crashes in persons aged 15-24, and falls in persons aged 65 and older, again emerged as the leading causes of TBI. Anoxia/hypoxia was most common among persons aged 65 and older, whereas exposure to toxic substances was greatest among those aged 25-44. Combined, these two were the cause of 99% of fatal ABI and 92% of nonfatal, hospitalized ABI.

Geographically, rates of TBI and ABI were both highest in eastern Kentucky. The west-central part of the state is also high for TBI, and the western part is high for ABI.

*Furthermore, the following counties have been identified as top priorities for prevention activities and programs. These counties have ranked in the top quarter of Kentucky counties in terms of both the number of cases reported **and** the age-adjusted rate per 100,000 residents in at least four out of the last five years and can be considered excellent candidates for an in-depth pilot study leading to interventions to prevent and control TBI and ABI:*

- *TBI: Breathitt, Letcher, Nelson, and Perry*
- *ABI: Bell, Hopkins, Johnson, Perry and Whitley*
- *SCI: There were not enough total reported cases of SCI statewide to support a reliable geographic analysis.*

Jefferson county would also be a good choice for an in-depth pilot study as it represented 19% of all TBI in 2004 and had an age-adjusted rate that was higher than the statewide rate, and almost 50% higher than the rate for Fayette county, which had the second highest number of TBI.

Methods

Data collection

Data used for surveillance were all received electronically. Hospital Discharge Data files from the Kentucky Department for Public Health (KDPH) are routinely received by the Kentucky Injury Prevention and Research Center (KIPRC) for surveillance purposes. The National Center for Health Statistics' Multiple Cause of Death File (NCHS Death) was required, as this data set contains information on up to 20 supplemental causes of death, whereas the Kentucky computerized death certificate data file generally includes only the external cause of injury (E-code) for trauma cases. In addition to these data sets, we were able to obtain data on Kentucky residents treated in Tennessee from that state's TBI registry. We have reported the number of TBI identified on that dataset. However, those cases were not included in the data linkage or in the final count or rates.

The current year of analysis (2004) marks the first year analysis has been done not using the state trauma registry data. Over the last several years, the trauma registry has contributed around 8% of the TBI cases. However, many of the cases that were identified only in the trauma registry had lengths of stay equal to zero, suggesting that they were non-admissions – and some were patients who died before they could be admitted. After all such factors are taken into account, it appears that the trauma registry contributes few cases of hospitalized brain injury that are not captured through the HDD. For this reason, *we will not be including the Kentucky trauma registries in this or in future CNSI surveillance. This should be noted when comparing 2004 data to previous years' data. Next year's report will be a 5 year review looking at comparable data over the time period covering 2001-2005.*

Traumatic brain injury case definition

The Centers for Disease Control and Prevention (CDC) have established standards for TBI case identification (CDC, 1995). Hospitals commonly use ICD-9 codes for injury coding. For death certificates, state and federal authorities use ICD-10 codes. The following ICD-9 diagnosis codes (n-codes) were used for identifying TBI in HDD:

- Fracture of vault or base of skull: 800.0-801.9
- Other, unqualified, and multiple fractures of skull: 803.0-804.9
- Intracranial injury, including concussion, cerebral laceration, subdural hemorrhage, unspecified intracranial injury, etc: 850.0-854.1
- Head injury, unspecified: 959.01

ICD-10 codes were used to identify TBI in NCHS Death records:

- Open wound of head: S01.0-S01.9
- Fracture of skull and facial bones: S02.0-S02.1, S02.3, S02.7-S02.9
- Intracranial injury: S06.0, S06.2-S06.9
- Crushing injury of head: S07.0-S07.1, S07.8-S07.9
- Other unspecified injuries of head: S09.7-S09.9
- Open wounds involving head with neck: T01.0
- Fractures involving head with neck: T02.0
- Crushing injuries involving head with neck: T04.0
- Injuries of brain and cranial nerve with injuries of nerves and spinal cord at neck level: T06.0
- Sequelae of injuries of head: T90.1-T90.2, T90.4-T90.5, T90.8-T90.9

If one or more of these codes was found in any of the diagnosis code fields in HDD or NCHS Death, the record was determined to be a TBI.

Acquired brain injury case definition

In addition to CDC-defined TBI, there are many brain injuries that have non-traumatic etiologies. These we have classified as ABI. Because these diagnoses are not included in the CDC definition of TBI, they have been linked and analyzed separately. These conditions were also identified by ICD-9 diagnosis codes, as follows:

- Anoxia/Hypoxia: 348.1, 668.2, 669.4, 768.1, 768.5, 768.6, 768.9, 799.0, 994.1, 994.7, 997.0
- Allergy/Anaphylaxis: 995.0, 999.4, 999.5
- Acute Medical Clinical Incidents: 320.0-320.9, 321.0-321.8
- Toxic Substances: 964.2, 967.0-967.9, 968.0-968.9, 980.0-980.9, 985, 986, 988.0-988.2, 989.0, 995.4, 995.5, 998.0

The following ICD-10 codes were used to identify ABI in NCHS Death records:

- Anoxia/Hypoxia: G93.1, O29.2, O74.3, O75.4, O89.2, P20.1, P21.0, P21.1, P21.9, R09.0, T71, T75.1
- Allergy/Anaphylaxis: T78.0, T78.2, T80.5, T80.6, T88.1, T88.6
- Acute Medical Clinical Incidents: G00.0, G00.1, G00.2, G00.3, G00.8, G01, G07, G02.0, G02.1, G02.8, G04.2, G04.8, G05.0, G05.1, G06.2

- Toxic Substances: G03.8, G03.9, G97.1, G97.2, G97.8, G97.9, N14.3, R29.1, T40.5, T41.0, T41.1, T41.2, T41.3, T41.4, T42.3, T42.4, T42.6, T42.7, T45.5, T49.0, T51.0, T51.1, T51.2, T51.3, T51.8, T51.9, T56.1, T56.2, T56.3, T56.4, T56.5, T56.6, T56.7, T56.8, T57.0, T57.2, T57.3, T57.8, T58, T60.4, T61.9, T62.0, T62.1, T62.2, T62.8, T62.8, T64, T65.0, T65.8, T65.9, T81.1, T88.2, T88.5

If one or more of these codes was found in any of the diagnosis code fields in HDD or NCHS Death, the record was classified as an ABI.

Note: The code T71 was reclassified from 'Toxic Substances' to 'Anoxia/Hypoxia'. The definition of T71 is 'Asphyxiation', and includes 'suffocation (by strangulation)' and 'systemic oxygen deficiency due to low oxygen content in ambient air or mechanical threat to breathing'.

Spinal cord injury case definition

The CDC defines SCI by the following ICD-9 diagnosis codes (CDC, 1995):

- Fracture of vertebral column with spinal cord injury: 806.0-806.9
- Spinal cord injury without evidence of spinal bone injury: 952.0-952.9

The following ICD-10 codes were used to identify SCI in NCHS Death records:

- Fracture of neck: S12.0-S12.2, S12.7, S12.9
- Fracture of thoracic vertebra and thoracic spine: S22.0-S22.1
- Fracture of lumbar spine: S32.0, S32.7
- Injury of nerves and spinal cord at neck level: S14.0-S14.1
- Injury of nerves and spinal cord at thorax level: S24.0-S24.1
- Injury of nerves and lumbar spinal cord at abdomen, lower back, and pelvis level: S34.0-S34.1, S34.3
- Fracture of spine, level unspecified: T08
- Injury of nerves and spinal cord involving other multiple body regions: T06.1
- Injury of spinal cord, level unspecified: T09.3
- Sequelae of injury of spinal cord: T91.3

For this report, SCI records had to contain one of these codes in one of the first three diagnosis code fields in HDD or NCHS Death data.

Probabilistic data linkage

Probabilistic data linkage (PDL) has been described in scholarly depth by Jaro (1995, 1989). Briefly, PDL is a statistical method for matching records in unrelated databases. By comparing the frequencies of all individuals' characteristics, such as age, birth date, and zip code, the data linkage software decides which records in the different databases probably pertain to the same

person. Thus, we avoid counting these cases more than once when calculating incidence. For this project, the ratio of authentic to spurious links was set to 99:1.

Standardized variables were created from variables necessary for linkage. These included dates (of injury, admission, discharge, death, birth), geographic variables (resident county, resident state, zip codes), and demographic characteristics (age, gender, race, marital status) and others (hospital ID, TBI indicator, cause of injury).

Self match: As a first step, we matched each file against itself to determine the extent of duplication of cases within the datasets. We found that less than 0.5% of the HDD records, and almost none of the NCHS death records, appeared to be a duplicate. In other words, duplication of cases within the datasets appeared to be minimal.

File linkages and master dataset: Next we linked the HDD and NCHS death datasets. We then created a master dataset containing two sections: one for the HDD portion of the record and one for the NCHS death portion. For example, if a case was identified by data linkage in both the HDD and NCHS Death files, the master file would contain a single record with an HDD and a NCHS Death portion. If it was found in the HDD only, the master file would contain a single record with only the HDD portion populated, and so on.

Create analytical file: From the master dataset we created a simplified dataset from which the tables and figures in this report were derived. In doing so we made several choices which we outline briefly here. First, we defined a master record to represent a TBI, ABI, or SCI case if there was a TBI, ABI, or SCI diagnosis on any of the three files. Second, we declared a master record to represent a fatality if there was an NCHS death record present, or if there was a HDD record with a patient disposition indicating death. Third, we established rules of precedence for the data source. For fatalities, if a NCHS death record was found its values were used to populate the analytical file. If a death was indicated on the HDD but no death record was found, then the HDD files were used to populate the analytical file.

Using these rules we reduced the master file to an analytical file with a single value for each data element (age, gender, diagnosis codes, etc.).

Incidence rates

Crude incidence rates were calculated for each injury type by dividing the number of injuries by 4,118,189, the estimated 2003 population of Kentucky according to the Kentucky State Data Center, and then multiplying by 100,000. This figure represents the number of TBI, ABI, or SCI that occurred per 100,000

residents of Kentucky. Age-adjusted rates were calculated using the Year 2000 Standard Population.

Data analysis

All data analysis, including mapping, was performed using SAS Version 9.1.

Results

Traumatic brain injury

There were 4,441 Kentucky-resident TBI cases identified for 2004 (Table 1). The crude incidence rate was 107.8 per 100,000 population. (Residents who were treated out-of-state are not included in any of any of the estimate in this report.)

The demographics of TBI in 2004 were consistent with those for 2003. Table 1 shows that the highest rates of TBI were again found among those aged 65 and over and 15-24. From Table 2 we find that 58% of non-fatal and 74% of fatal TBI occurred in males. The leading mechanisms of injury were also consistent with last year's report. Motor vehicle traffic crashes (MVTC) were the cause of 37% of all TBI, and falls caused 24% (Table 3). The top three mechanisms varied by age group (Tables 4 to 9). For those aged 65 and over, falls were the leading cause (49%). MVTC's contributed to just under two thirds (63%) of TBI in those aged 15-24, and were the leading cause from ages 5 to 64. Falls led among young children (ages 0-4).

As one would expect, the incidence of TBI was highest in the larger counties (Figure 2). Four of the most populous counties in 2004 (Jefferson, Fayette, Kenton, Hardin) were among the top six in TBI incidence. A notable exception was Owsley, which was 80th in TBI incidence but 119th in population. Unsurprisingly, Owsley County had the highest age-adjusted rate in the state. Owsley was 2nd in age-adjusted rate in 2003. Another notable exception was Christian county, which was 10th in population but 38th in frequency (and 115th in age-adjusted rate) of TBI. Because it borders Tennessee, we can reasonable infer that a substantial number of TBI cases in Christian county residents are not treated in Kentucky. This conclusion is supported by Figure 4, which shows that 34 Christian county residents appeared in the 2004 Tennessee TBI registry. In general, Figure 4 shows that several southern border counties have significant numbers of residents treated in Tennessee hospitals. Prominent examples, in addition to Christian, include McCreary, Bell, Logan, Harlan, Whitley, and Warren. This illustrates an important point: if this report shows a county to have a high rate of TBI, we can be confident that this is a county in need. Conversely, however, if a county is shown to have a low rate we cannot conclude that there is not a significant problem in that county, particularly if it is located on or near the state border.

Viewing the state in terms of age-adjusted rates (Figure 3), again there were clusters of high-incidence counties in the eastern and west-central regions. The eastern cluster for 2004 was inclusive of the 2003 cluster. A west-central cluster was again evident, though slightly more expansive with some variation in counties involved. One useful way of determining priority counties is to find those that ranked among the top thirty in both frequency **and** age-adjusted rate

of TBI. For 2004 there were eight such counties: Clay, , Laurel, Letcher, Madison, McCracken, Nelson, Perry. Tables 10 through 12 show the frequency and rates of TBI by county, ranked in order by county, frequency, and age-adjusted rate respectively.

Nearly 4 out of 5 TBI (76%) were non-fatal (Table 1). We attempted by several means to estimate the number of the non-fatal TBI that inclined toward the higher end of the severity spectrum. All of the three methods placed the number somewhere between 1,200 and 1,600, or 30% to 49%.

Table 13 indicates that 1,119 non-fatal TBI discharges had a disposition other than “routine”. The three most frequent non-routine discharges were “skilled nursing facility”, “home health”, and “inpatient – other short term hospital”. A total of 677 discharges had one of these three dispositions.

Table 15 presents an analysis of TBI in terms defined by the Barell Injury Diagnosis Matrix (Barell et al 2002). The definitions are as follows:

- A Type 1 TBI is one in which there is “recorded evidence of an intracranial injury or a moderate or a prolonged loss of consciousness (LOC), Shaken Infant Syndrome, or injuries to the optic nerve pathways.”
- A Type 2 TBI is one in which there is “no recorded evidence of intracranial injury, and LOC of less than one hour, or LOC of unknown duration, or unspecified level of consciousness.”
- A Type 3 TBI is one in which there is “no evidence of intracranial injury and no LOC.”

From this Table we see that 1,497 non-fatal TBI discharges had a principal diagnosis indicating a “Type I” TBI.

Government (38%) or commercial (30%) sources were the primary payers billed for acute care charges in 68% of nonfatal TBI, based on discharges identified from the HDD (Table 16). Commercial payers were billed just over \$41 million in 2004, and government payers almost \$28 million. *There was a notable shift, compared to 2002 and 2003, in both the number of TBI discharges and the total charges billed to Self Pay (with charges over 9 times 2003 totals) and HMOs (charges over 3 times 2003 totals).* Please note that the amount billed by the hospital will generally be larger than the amount actually paid after adjudication of the claim.

Figures 9 through 13 demonstrate that the leading mechanism of TBI varies according to the primary insurance source billed. For example, MVTC was the mechanism of injury in 66% of TBI for which ‘Commercial Insurance’ was the primary payer billed. Falls were the leading mechanism of TBI when “Government” was the primary payer, at 48%. These insurers should be viewed

as stakeholders in programs to prevent those injuries that result in a substantial portion of their claims.

Acquired brain injury

There were 3,435 ABI cases for Kentucky residents identified in 2004 (Table 16). The crude incidence rate for 2004 was 82.9 per 100,000 population.

ABI was skewed toward the middle and older age groups, with 86% occurring in persons aged 25 and older, compared to 76% of TBI (Table 16). Also in contrast to TBI, of which 62% occurred in males, ABI affected the genders in closer to equal proportions (Table 17). Just under two thirds (64%) of ABI were nonfatal, compared to 76% of TBI.

As shown in Table 21, nearly all ABI (99% of fatal and 91% of nonfatal, hospitalized) were a result of either anoxia/hypoxia or exposure to toxic substances (ETS). Anoxia/hypoxia tends to affect older people (ages 45 and over) considerably more often than younger people, whereas ETS affects persons 15 and older at similar rates, and is most common among persons aged 25-44 (Tables 22 and 23). Diagnosis codes (Tables 24-27) provide minimal information about the circumstances of injury. Asphyxia was the leading cause in fatal anoxia/hypoxia. Complications related to medical care were the leading cause in nonfatal anoxia/hypoxia with asphyxia being a close second. Complications related to medical care were much less common in fatal cases. Alcohol and drugs were involved in most of the nonfatal ETS. They were common in fatal ETS as well, as were carbon monoxide poisoning and postoperative shock.

Among those ABI discharges that were reported to have some relationship with an injury (i.e., included an E-code), 83% of the non-fatal cases were poisonings. Poisoning, suffocation or drowning were indicated in over 7 out of 10 of the fatal, injury-related ABI (Table 28). (Note that we are making a distinction here between "injury-related" and traumatic, with trauma being considered one of several forms of injury. ABI is, by the statutory definition, non-traumatic).

In general, as with TBI, the more populous counties had high numbers of ABI (Figure 6). Four of the most populous counties in 2004 (Jefferson, Fayette, Kenton, and Hardin) were the top four counties in ABI incidence. However, with the exceptions of McCracken (which ranked 37th in rate) and Hardin (36th), the ten most populous counties did not appear in the top forty counties when ranked by age-adjusted rate.

The counties with the highest rates were strongly concentrated in eastern Kentucky (Figure 7). As with TBI, we located the counties that ranked among the top thirty in both frequency and age-adjusted rate of ABI. There were nine counties that met both criteria in 2004: Bell, Casey, Floyd, Hopkins, Knox,

Madison, Perry, Russell, and Whitley. These can be considered leading candidates for further study and intervention. Tables 18 through 20 show the frequency and rates of ABI cases by county, ranked in order by county, frequency, and age-adjusted rate respectively.

Table 29 indicates that 42% of ABI discharges were other than “routine” – i.e., to destinations other than the home. The three most frequent non-routine discharges were “home health”, “skilled nursing facility”, and “inpatient – other type of facility”.

Government (57%) or commercial (16%) sources were the primary payer billed for hospital charges in almost 3 out of every 4 non-fatal ABI, based on discharges identified from the HDD (Table 30). Government payers were billed over \$38 million in 2004, and commercial payers over \$12 million.

Spinal cord injury

SCI patients often are readmitted for problems stemming from the original injury. In an effort to avoid double counting in such cases, for SCI we looked only at the first three listed diagnosis codes. There were 284 SCI cases for Kentucky residents identified in 2004 (Table 31). This number is 14 more than the number of cases identified in 2003. The crude incidence rate was 6.9 per 100,000 population.

Age groups 65 and over had the highest age-specific rates (14.6 per 100,000) of SCI (Table 32). Rates for persons aged 15-24 were the next highest at 9.7. Persons aged 25-64 had lower rates but were similar across this group. Males had nearly double the SCI rate of females, and had just over two thirds of the non-fatal SCI (Table 32).

Table 33 presents the number of SCI per county. Due to the small number of cases per county, we did not attempt a graphical analysis of SCI rates by county, as the rates would be unstable.

Among SCI's for which an E-code was reported, MVTC and falls were the leading mechanisms of injury (Table 34). Unfortunately, over one out of four of the non-fatal SCI discharges had no E-code reported.

Half (50%) of the non-fatal SCI discharges had dispositions other than “routine”, compared to one-third for TBI (Table 35).

Government (34%) or commercial (27%) sources were the primary payer billed for acute care charges in 61% of nonfatal SCI, based on discharges identified from the HDD (Table 38). Commercial payers were billed almost \$5.5 million in 2004, and government payers just over \$4 million.

Limitations

The methodology used in this report under-represents the incidence of ABI. The reason is that the injury subset of the HDD used in this and previous years included only those cases of ABI that were comorbid with at least one injury diagnosis.

Double counting of cases is possible for several reasons, including multiple representation of cases within individual data sets (e.g., transfers between hospitals), or across linked data sets (due to failure of data linkage to identify duplicate records).

“Non-fatal” in this report refers to Kentucky-resident inpatients discharged alive from a licensed, acute-care hospital *in Kentucky* (including trauma centers). It does not include those treated and released at emergency departments (with the exception of certain cases treated and released from ED’s at certified trauma centers), those treated by emergency medical services who refused transport to a hospital, or those hospitalized outside of Kentucky. **The incidence of non-fatal TBI in Kentucky residents, in that larger sense, is certainly several times larger than the results reported here.**

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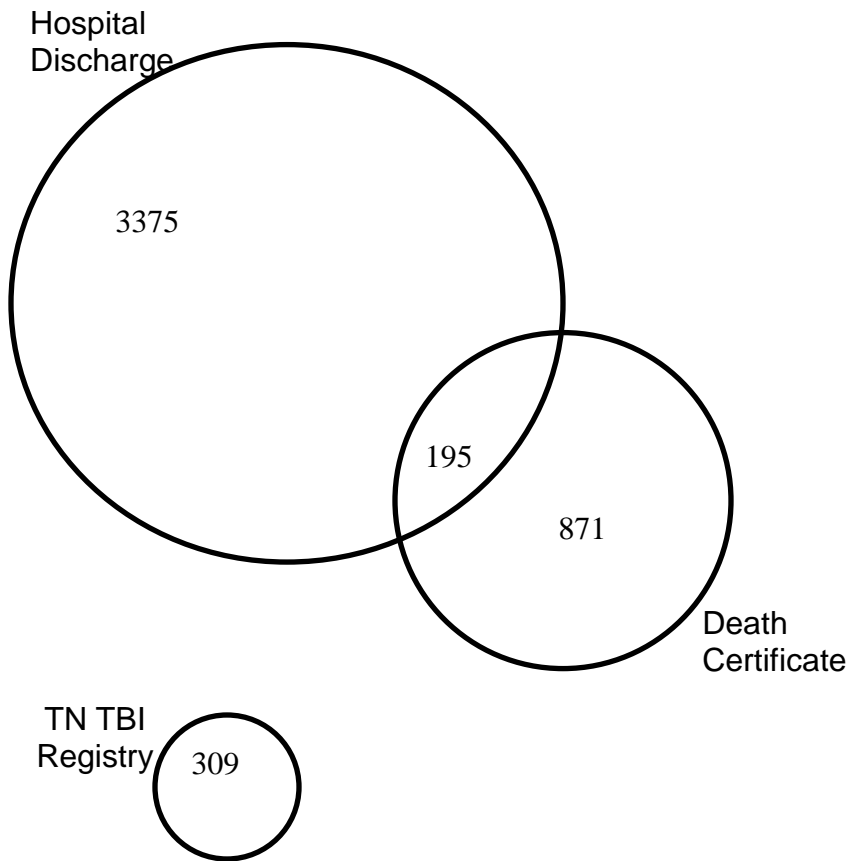
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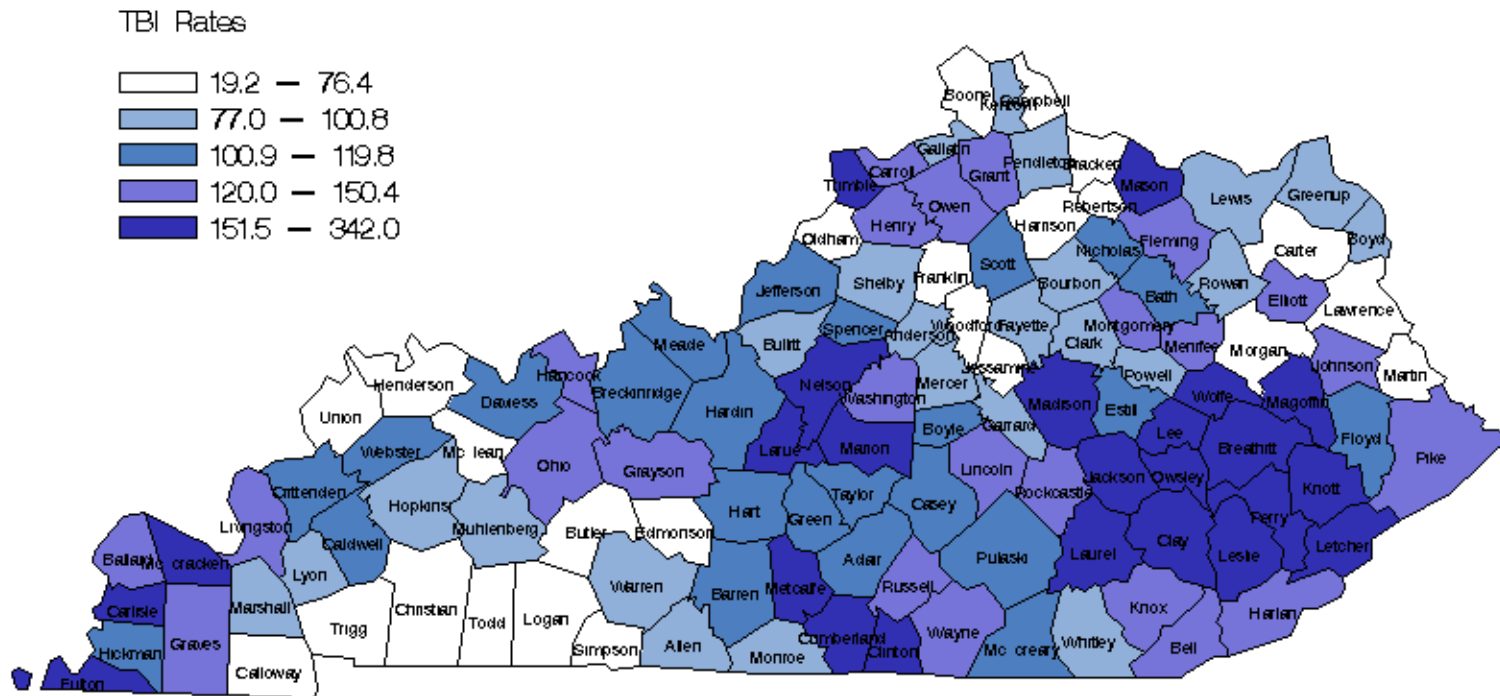
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FIGURES

Figure 1. Distribution of TBI among databases, 2004

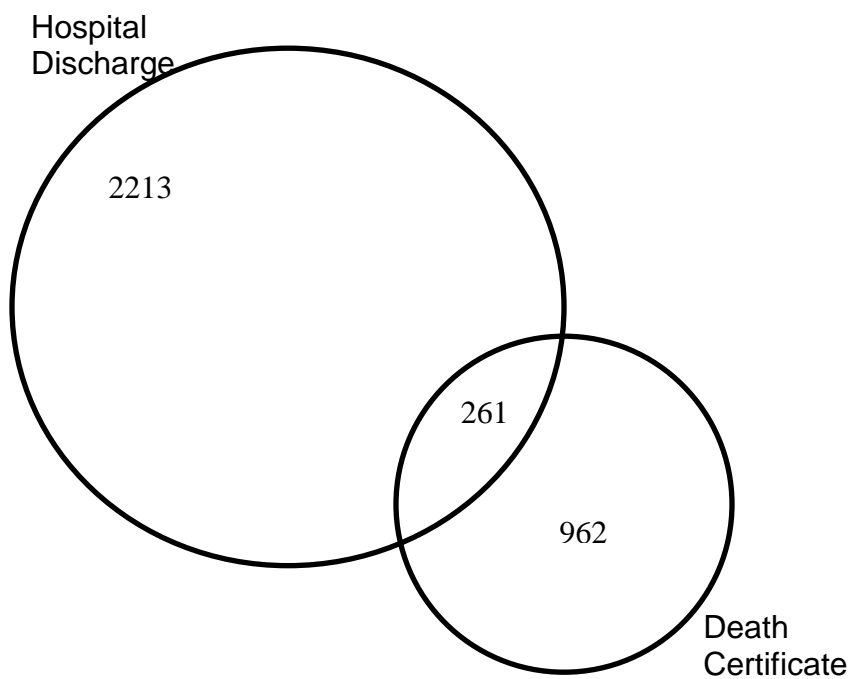


Age-Adjusted TBI Rates by County, Kentucky 2004

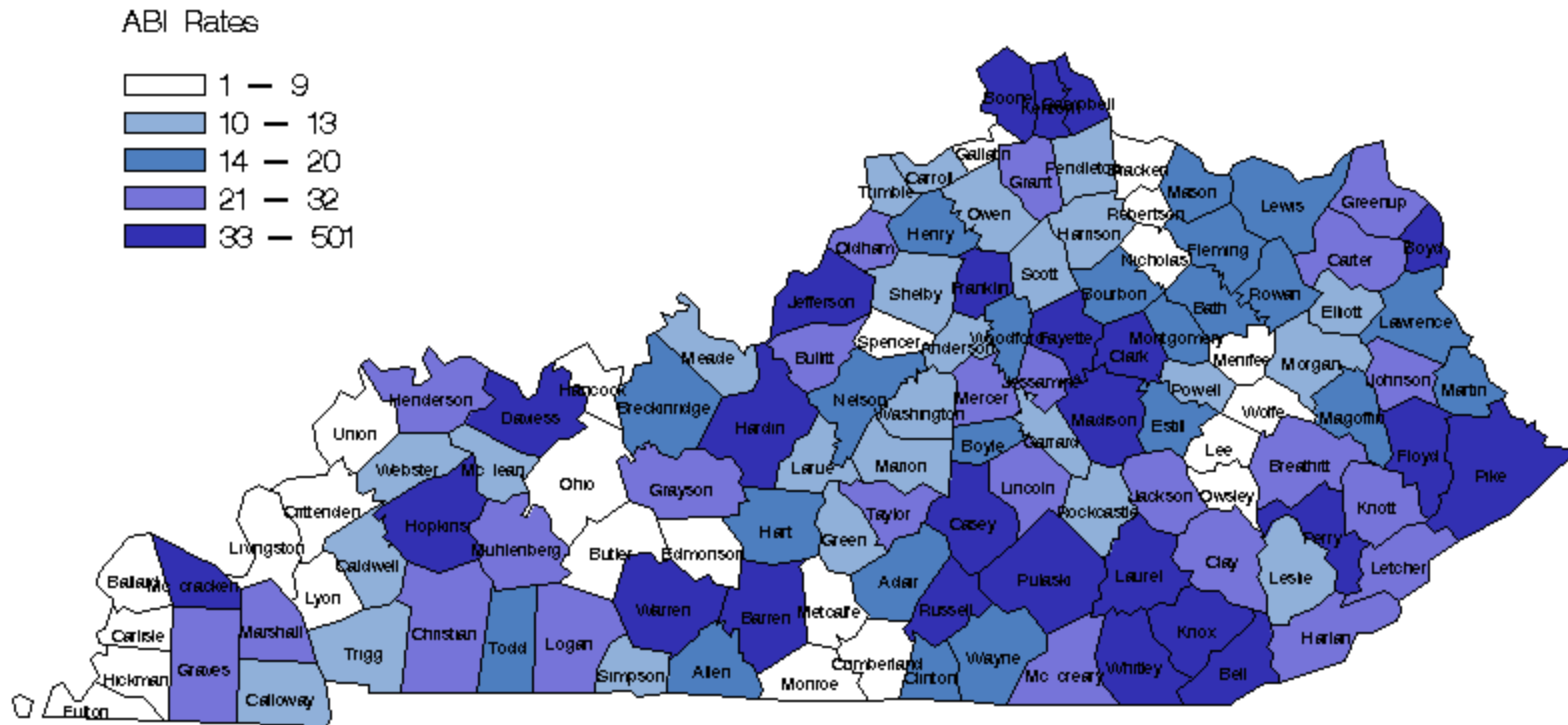


Source: Kentucky TBI Surveillance Project 2004.

Figure 5. Distribution of ABI among databases, 2004



ABI Cases by County, Kentucky 2004



Source: Kentucky TBI Surveillance Project 2004.

Figure 8. Distribution of SCI among databases, 2004

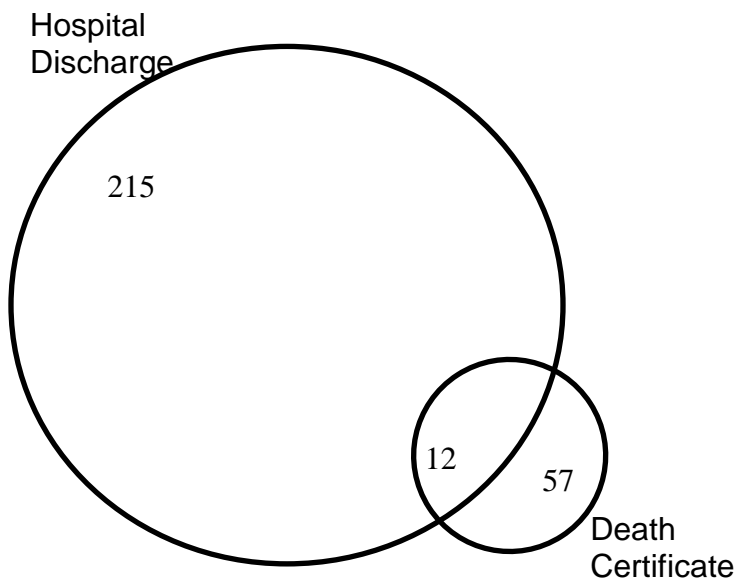


Figure 9. Mechanism of injury for self-pay TBI, 2004

Injury Causes by Payment Sources for Hospitalized TBI

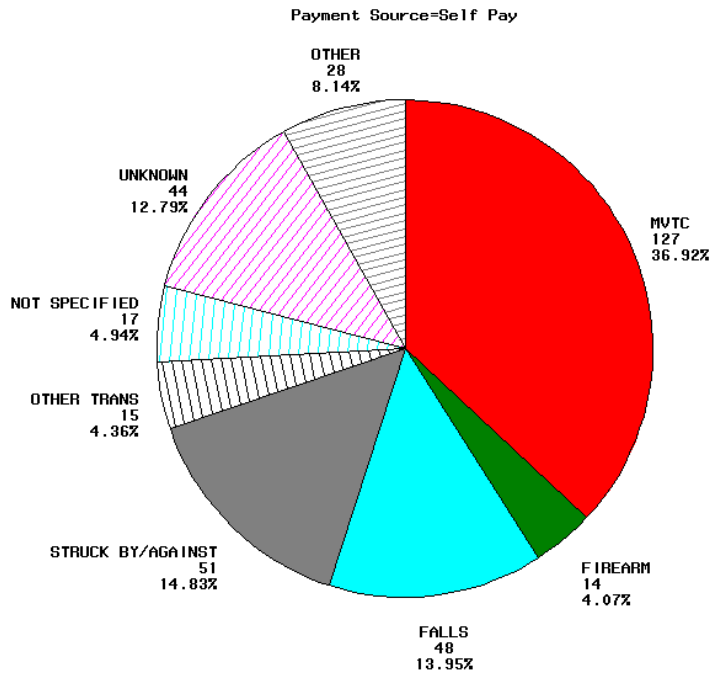


Figure 10. Mechanism of injury for TBI having 'Commercial Insurance' as primary payer, 2004

Injury Causes by Payment Sources for Hospitalized TBI

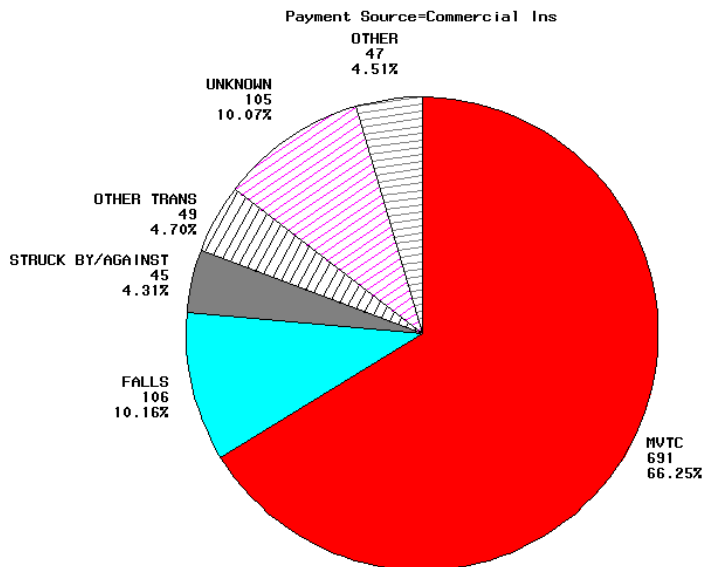


Figure 11. Mechanism of injury for TBI having 'Government' as primary payer, 2004

Injury Causes by Payment Sources for Hospitalized TBI

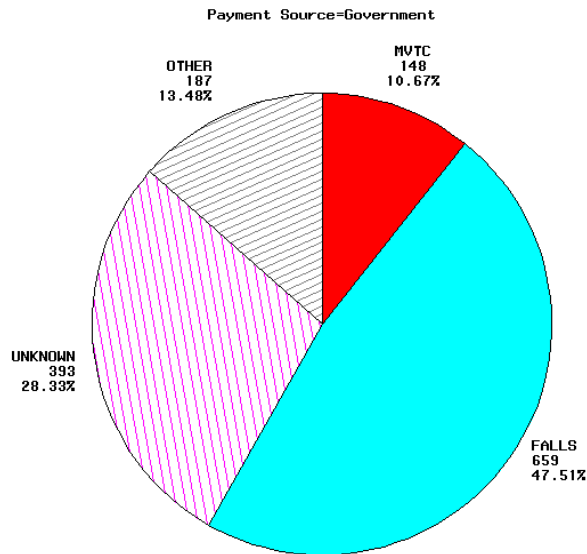


Figure 12. Mechanism of injury for TBI having 'Worker's Compensation' as primary payer, 2004

Injury Causes by Payment Sources for Hospitalized TBI

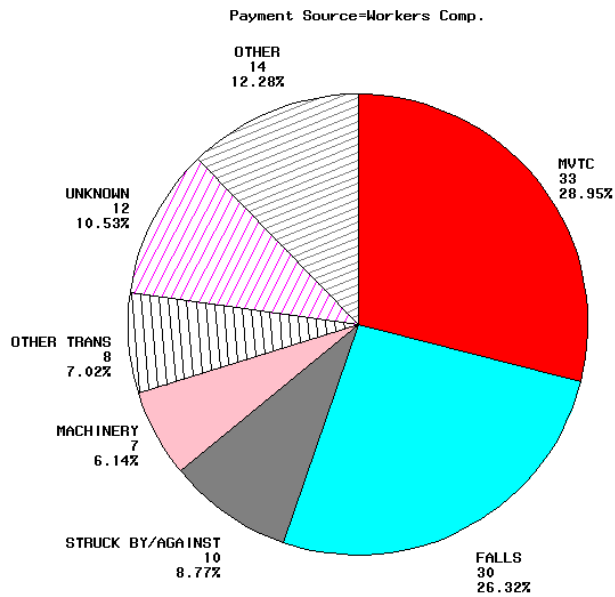
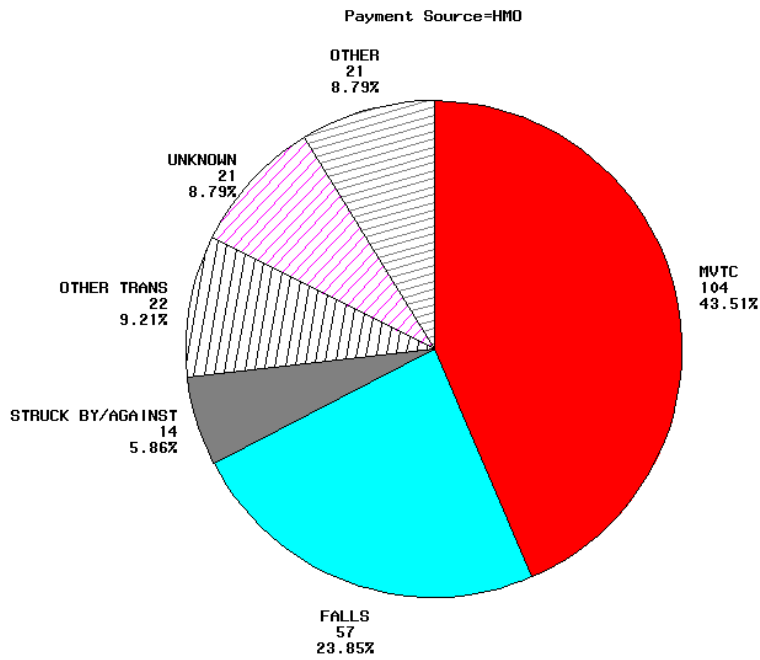


Figure 13. Mechanism of injury for TBI having 'HMO' as primary payer, 2004

Injury Causes by Payment Sources for Hospitalized TBI



TABLES

Table 1. TBI by age, 2004

Age	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	19	13.4	7.1	123	86.6	46.1	142	100.0	53.3
5-14	24	11.7	4.4	182	88.3	33.3	206	100.0	37.7
15-24	187	25.6	32.3	544	74.4	93.9	731	100.0	126.1
25-44	314	27.9	26.4	812	72.1	68.3	1,126	100.0	94.7
45-64	266	29.1	25.5	649	70.9	62.1	915	100.0	87.6
65+	278	21.0	53.5	1043	79.0	200.8	1,321	100.0	254.4
Total	1,088	24.5	26.2	3,353	75.5	80.9	4,441	100.0	107.1

Table 2. TBI by gender, 2004

Age	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Male	804	29.2	39.5	1,952	70.8	96.0	2,756	100.0	135.5
Female	284	16.9	13.4	1,400	83.1	66.3	1,684	100.0	79.7
Total	1,088	24.5	26.2	3,352	75.5	80.9	4,440	100.0	107.1

* For one observation, the individual's gender was not reported

Table 3. Leading causes of TBI, all ages, 2004

Mechanism of Injury	Fatal			Non-fatal			Total		
	Number	Pct.	Rate	Number	Pct.	Rate	Number	Pct.	Rate
Motor vehicle traffic crash	400	24.6	9.6	1,227	75.4	29.6	1,627	100.0	39.2
Fall	151	14.1	3.6	922	85.9	22.2	1,073	100.0	25.9
Firearm	354	92.4	8.5	29	7.6	0.7	383	100.0	9.2
Non-traffic land transport	21	11.1	0.5	168	88.9	4.1	189	100.0	4.6
Struck by object or person	12	5.8	0.3	196	94.2	4.7	208	100.0	5.0
Non-traffic pedal cycle	1	2.6	0.0	38	97.4	0.9	39	100.0	0.9
Machinery	3	18.8	0.1	13	81.3	0.3	16	100.0	0.4
Other	117	45.3	2.8	141	54.7	3.4	258	100.0	6.2
Unknown (missing E-code)	29	4.5	0.7	619	95.5	14.9	648	100.0	15.6
Total	1,088	24.5	26.2	3,353	75.5	80.9	4,441	100.0	107.1

Table 4. Leading causes of TBI for ages 0-4, 2004

Mechanism of Injury	Fatal		Non-fatal		Total	
	Number	Percent	Number	Percent	Number	Percent
Fall	0	0.0	54	43.9	54	38.0
Motor vehicle traffic crash	10	52.6	21	17.1	31	21.8
Struck by or against object or person	0	0.0	7	5.7	7	4.9
Non-traffic land transportation	0	0.0	4	3.3	4	2.8
Other (including non-specific codes)	9	47.4	24	19.5	33	23.2
Unknown (missing E-code)	0	0.0	13	10.6	13	9.2
Total	19	100.0	123	100.0	142	100.0

Table 5. Leading causes of TBI for ages 5-14, 2004

Mechanism of Injury	Fatal		Non-fatal		Total	
	Number	Percent	Number	Percent	Number	Percent
Motor vehicle traffic crash	16	66.7	67	36.8	83	40.3
Fall	1	4.2	39	21.4	40	19.4
Non-traffic land transportation	4	16.7	21	11.5	25	12.1
Other pedal cycle	0	0.0	22	12.1	22	10.7
Struck by or against object or person	0	0.0	18	9.9	18	8.7
Firearm	0	0.0	1	0.5	1	0.5
Other (including non-specific codes)	3	12.5	3	1.6	6	2.9
Unknown (missing E-code)	0	0.0	11	6.0	11	5.3
Total	24	100.0	182	100.0	206	100.0

Table 6. Leading causes of TBI for ages 15-24, 2004

Mechanism of Injury	Fatal		Non-fatal		Total	
	Number	Percent	Number	Percent	Number	Percent
Motor vehicle traffic crash	115	61.5	348	64.0	463	63.3
Firearm	57	30.5	5	0.9	62	8.5
Non-traffic land transportation	4	2.1	47	8.6	51	7.0
Fall	1	0.5	37	6.8	38	5.2
Struck by or against object or person	1	0.5	33	6.1	34	4.7
Other (including non-specific codes)	9	4.8	16	2.9	25	3.4
Unknown (missing E-code)	0	0.0	58	10.7	58	7.9
Total	187	100.0	544	100.0	731	100.0

Table 7. Leading causes of TBI for ages 25-44, 2004

Mechanism of Injury	Fatal		Non-fatal		Total	
	Number	Percent	Number	Percent	Number	Percent
Motor vehicle traffic crash	132	42.0	405	49.9	537	47.7
Firearm	125	39.8	16	2.0	141	12.5
Fall	9	2.9	90	11.1	99	8.8
Struck by or against object or person	4	1.3	88	10.8	92	8.2
Non-traffic land transportation	7	2.2	57	7.0	64	5.7
Machinery	0	0.0	10	1.2	10	0.9
Other (including non-specific codes)	34	10.8	47	5.8	81	7.2
Unknown (missing E-code)	3	1.0	99	12.2	102	9.1
Total	314	100.0	812	100.0	1,126	100.0

Table 8. Leading causes of TBI for ages 45-64, 2004

Mechanism of Injury	Fatal		Non-fatal		Total	
	Number	Percent	Number	Percent	Number	Percent
Motor vehicle traffic crash	83	31.2	250	38.5	333	36.4
Fall	31	11.7	164	25.3	195	21.3
Firearm	116	43.6	7	1.1	123	13.4
Struck by or against object or person	3	1.1	41	6.3	44	4.8
Non-traffic land transportation	6	2.3	29	4.5	35	3.8
Other (including non-specific codes)	22	8.3	44	6.8	66	7.2
Unknown (missing E-code)	5	1.9	114	17.6	119	13.0
Total	266	100.0	649	100.0	915	100.0

Table 9. Leading causes of TBI for ages 65+, 2004

Mechanism of Injury	Fatal		Non-fatal		Total	
	Number	Percent	Number	Percent	Number	Percent
Fall	109	39.2	538	51.6	647	49.0
Motor vehicle traffic crash	44	15.8	136	13.0	180	13.6
Firearm	56	20.1	0	0.0	56	4.2
Struck by or against object or person	4	1.4	9	0.9	13	1.0
Non-traffic land transportation	0	0.0	10	1.0	10	0.8
Other (including non-specific codes)	44	15.8	26	2.5	70	5.3
Unknown (missing E-code)	21	7.6	324	31.1	345	26.1
Total	278	100.0	1,043	100.0	1,321	100.0

Table 10. Incidence of TBI by county, sorted by county name, 2004

County	Freq	Percent	Age-		County	Freq	Percent	Age-		County	Freq	Percent	Age-	
			Adjusted Rate	Crude Rate				Adjusted Rate	Crude Rate				Adjusted Rate	Crude Rate
ADAIR	21	0.5	117.6	119.5	GRANT	28	0.6	127.7	115.1	MCLEAN	14	0.3	73.1	74.8
ALLEN	18	0.4	97.3	97.1	GRAVES	56	1.3	136.4	149.7	MEADE	27	0.6	110.8	95.4
ANDERSON	18	0.4	93.1	89.6	GRAYSON	32	0.7	128.4	128.0	MENIFEE	9	0.2	128.1	133.0
BALLARD	11	0.2	136.8	132.6	GREEN	14	0.3	116.1	120.0	MERCER	18	0.4	81.8	83.7
BARREN	45	1.0	111.8	114.0	GREENUP	33	0.7	85.4	88.5	METCALFE	17	0.4	168.9	167.2
BATH	12	0.3	102.0	104.0	HANCOCK	10	0.2	125.3	118.2	MONROE	11	0.2	87.0	94.3
BELL	39	0.9	136.7	131.4	HARDIN	102	2.3	111.3	106.2	MONTGOMERY	28	0.6	122.1	118.5
BOONE	54	1.2	68.4	53.3	HARLAN	39	0.9	123.8	122.2	MORGAN	9	0.2	65.5	62.7
BOURBON	20	0.5	100.8	101.9	HARRISON	12	0.3	66.5	65.7	MUHLENBERG	33	0.7	94.9	103.9
BOYD	44	1.0	85.8	88.5	HART	22	0.5	119.8	120.6	NELSON	60	1.4	153.0	148.5
BOYLE	35	0.8	117.0	123.9	HENDERSON	32	0.7	68.9	70.4	NICHOLAS	8	0.2	103.9	113.1
BRACKEN	5	0.1	57.2	57.4	HENRY	20	0.5	131.1	126.8	OHIO	33	0.7	132.3	140.0
BREATHITT	31	0.7	193.7	194.5	HICKMAN	6	0.1	117.2	116.0	OLDHAM	33	0.7	75.5	63.3
BRECKINRIDGE	23	0.5	112.2	120.0	HOPKINS	48	1.1	99.6	102.5	OWEN	16	0.4	140.1	141.6
BULLITT	51	1.1	77.0	76.5	JACKSON	26	0.6	195.8	190.9	OWSLEY	16	0.4	342.0	336.9
BUTLER	10	0.2	71.0	74.8	JEFFERSON	854	19.2	119.5	122.0	PENDLETON	11	0.2	79.9	72.7
CALDWELL	16	0.4	104.0	124.2	JESSAMINE	30	0.7	69.9	70.9	PERRY	65	1.5	220.7	218.4
CALLOWAY	23	0.5	63.2	66.1	JOHNSON	33	0.7	138.5	138.3	PIKE	83	1.9	128.8	123.7
CAMPBELL	52	1.2	59.7	59.6	KENTON	125	2.8	88.9	81.8	POWELL	13	0.3	95.0	95.5
CARLISLE	17	0.4	291.9	320.2	KNOTT	34	0.8	191.9	193.4	PULASKI	68	1.5	113.4	115.8
CARROLL	13	0.3	126.6	125.7	KNOX	40	0.9	125.3	125.3	ROBERTSON	*	-	-	-
CARTER	17	0.4	59.1	61.9	LARUE	22	0.5	164.1	163.1	ROCKCASTLE	23	0.5	140.4	137.1
CASEY	17	0.4	104.6	105.9	LAUREL	87	2.0	164.7	155.4	ROWAN	19	0.4	82.1	85.7
CHRISTIAN	32	0.7	50.1	45.3	LAWRENCE	11	0.2	70.6	68.5	RUSSELL	22	0.5	122.8	130.7
CLARK	28	0.6	82.2	81.5	LEE	15	0.3	177.4	192.7	SCOTT	37	0.8	100.9	97.3
CLAY	47	1.1	191.0	193.8	LESLIE	30	0.7	257.1	249.1	SHELBY	32	0.7	90.4	86.0
CLINTON	17	0.4	179.0	177.9	LETCHER	39	0.9	163.4	158.0	SIMPSON	9	0.2	50.4	53.3
CRITTENDEN	11	0.2	114.4	122.2	LEWIS	12	0.3	85.9	86.8	SPENCER	16	0.4	104.8	107.9
CUMBERLAND	10	0.2	153.4	139.5	LINCOLN	31	0.7	128.3	124.9	TAYLOR	29	0.7	116.8	123.5
DAVIESS	115	2.6	119.1	124.2	LIVINGSTON	12	0.3	130.0	122.9	TODD	*	-	-	-
EDMONSON	8	0.2	70.1	67.1	LOGAN	13	0.3	47.7	48.1	TRIGG	7	0.2	48.0	52.8
ELLIOTT	8	0.2	120.0	117.0	LYON	8	0.2	97.9	97.5	TRIMBLE	15	0.3	177.2	165.8
ESTILL	17	0.4	108.0	112.1	MADISON	70	1.6	219.0	227.2	UNION	*	-	-	-
FAYETTE	205	4.6	79.9	77.0	MAGOFFIN	26	0.6	217.8	210.9	WARREN	90	2.0	95.2	92.6
FLEMING	20	0.5	139.9	138.1	MARION	29	0.7	176.6	171.2	WASHINGTON	15	0.3	127.6	133.1
FLOYD	47	1.1	110.8	110.9	MARSHALL	59	1.3	88.0	91.2	WAYNE	30	0.7	150.4	147.1
FRANKLIN	33	0.7	70.7	68.5	MARTIN	12	0.3	76.4	70.4	WEBSTER	15	0.3	107.9	106.2
FULTON	14	0.3	158.2	190.3	MASON	16	0.4	154.1	160.3	WHITLEY	34	0.8	88.0	90.5
GALLATIN	6	0.1	86.4	75.2	MCCRACKEN	103	2.3	151.5	135.2	WOLFE	22	0.5	329.3	312.3
GARRARD	16	0.4	98.2	99.0	MCCREARY	14	0.3	107.3	104.0	WOODFORD	16	0.4	68.1	66.8

* At least one but fewer than five

- Percentage or rate suppressed to prevent disclosure of the value on which it was based

Table 11. Incidence of TBI by county, sorted by frequency, 2004

County	Freq	Percent	Age-Adjusted Rate	Crude Rate	County	Freq	Percent	Age-Adjusted Rate	Crude Rate	County	Freq	Percent	Age-Adjusted Rate	Crude Rate
JEFFERSON	854	19.2	119.5	122.0	SHELBY	32	0.7	90.4	86.0	SPENCER	16	0.4	104.8	107.9
FAYETTE	205	4.6	79.9	77.0	BREATHITT	31	0.7	193.7	194.5	WOODFORD	16	0.4	68.1	66.8
KENTON	125	2.8	88.9	81.8	LINCOLN	31	0.7	128.3	124.9	LEE	15	0.3	177.4	192.7
DAVISS	115	2.6	119.1	124.2	JESSAMINE	30	0.7	69.9	70.9	TRIMBLE	15	0.3	177.2	165.8
MCCRACKEN	103	2.3	151.5	135.2	LESLIE	30	0.7	257.1	249.1	WASHINGTON	15	0.3	127.6	133.1
HARDIN	102	2.3	111.3	106.2	WAYNE	30	0.7	150.4	147.1	WEBSTER	15	0.3	107.9	106.2
WARREN	90	2.0	95.2	92.6	MARION	29	0.7	176.6	171.2	FULTON	14	0.3	158.2	190.3
LAUREL	87	2.0	164.7	155.4	TAYLOR	29	0.7	116.8	123.5	GREEN	14	0.3	116.1	120.0
PIKE	83	1.9	128.8	123.7	CLARK	28	0.6	82.2	81.5	MCCREARY	14	0.3	107.3	104.0
MADISON	70	1.6	219.0	227.2	GRANT	28	0.6	127.7	115.1	MCLEAN	14	0.3	73.1	74.8
PULASKI	68	1.5	113.4	115.8	MONTGOMERY	28	0.6	122.1	118.5	CARROLL	13	0.3	126.6	125.7
PERRY	65	1.5	220.7	218.4	MEADE	27	0.6	110.8	95.4	LOGAN	13	0.3	47.7	48.1
NELSON	60	1.4	153.0	148.5	JACKSON	26	0.6	195.8	190.9	POWELL	13	0.3	95.0	95.5
MARSHALL	59	1.3	88.0	91.2	MAGOFFIN	26	0.6	217.8	210.9	BATH	12	0.3	102.0	104.0
GRAVES	56	1.3	136.4	149.7	BRECKINRIDGE	23	0.5	112.2	120.0	HARRISON	12	0.3	66.5	65.7
BOONE	54	1.2	68.4	53.3	CALLOWAY	23	0.5	63.2	66.1	LEWIS	12	0.3	85.9	86.8
CAMPBELL	52	1.2	59.7	59.6	ROCKCASTLE	23	0.5	140.4	137.1	LIVINGSTON	12	0.3	130.0	122.9
BULLITT	51	1.1	77.0	76.5	HART	22	0.5	119.8	120.6	MARTIN	12	0.3	76.4	70.4
HOPKINS	48	1.1	99.6	102.5	LARUE	22	0.5	164.1	163.1	BALLARD	11	0.2	136.8	132.6
CLAY	47	1.1	191.0	193.8	RUSSELL	22	0.5	122.8	130.7	CRITTENDEN	11	0.2	114.4	122.2
FLOYD	47	1.1	110.8	110.9	WOLFE	22	0.5	329.3	312.3	LAWRENCE	11	0.2	70.6	68.5
BARREN	45	1.0	111.8	114.0	ADAIR	21	0.5	117.6	119.5	MONROE	11	0.2	87.0	94.3
BOYD	44	1.0	85.8	88.5	BOURBON	20	0.5	100.8	101.9	PENDLETON	11	0.2	79.9	72.7
KNOX	40	0.9	125.3	125.3	FLEMING	20	0.5	139.9	138.1	BUTLER	10	0.2	71.0	74.8
BELL	39	0.9	136.7	131.4	HENRY	20	0.5	131.1	126.8	CUMBERLAND	10	0.2	153.4	139.5
HARLAN	39	0.9	123.8	122.2	ROWAN	19	0.4	82.1	85.7	HANCOCK	10	0.2	125.3	118.2
LETCHER	39	0.9	163.4	158.0	ALLEN	18	0.4	97.3	97.1	MENIFEE	9	0.2	128.1	133.0
SCOTT	37	0.8	100.9	97.3	ANDERSON	18	0.4	93.1	89.6	MORGAN	9	0.2	65.5	62.7
BOYLE	35	0.8	117.0	123.9	MERCER	18	0.4	81.8	83.7	SIMPSON	9	0.2	50.4	53.3
KNOTT	34	0.8	191.9	193.4	CARLISLE	17	0.4	291.9	320.2	EDMONSON	8	0.2	70.1	67.1
WHITLEY	34	0.8	88.0	90.5	CARTER	17	0.4	59.1	61.9	ELLIOTT	8	0.2	120.0	117.0
FRANKLIN	33	0.7	70.7	68.5	CASEY	17	0.4	104.6	105.9	LYON	8	0.2	97.9	97.5
GREENUP	33	0.7	85.4	88.5	CLINTON	17	0.4	179.0	177.9	NICHOLAS	8	0.2	103.9	113.1
JOHNSON	33	0.7	138.5	138.3	ESTILL	17	0.4	108.0	112.1	TRIGG	7	0.2	48.0	52.8
MUHLENBERG	33	0.7	94.9	103.9	METCALFE	17	0.4	168.9	167.2	GALLATIN	6	0.1	86.4	75.2
OHIO	33	0.7	132.3	140.0	CALDWELL	16	0.4	104.0	124.2	HICKMAN	6	0.1	117.2	116.0
OLDHAM	33	0.7	75.5	63.3	GARRARD	16	0.4	98.2	99.0	BRACKEN	5	0.1	57.2	57.4
CHRISTIAN	32	0.7	50.1	45.3	MASON	16	0.4	154.1	160.3	TODD	*	-	-	-
GRAYSON	32	0.7	128.4	128.0	OWEN	16	0.4	140.1	141.6	UNION	*	-	-	-
HENDERSON	32	0.7	68.9	70.4	OWSLEY	16	0.4	342.0	336.9	ROBERTSON	*	-	-	-

* At least one but fewer than five

- Percentage or rate suppressed to prevent disclosure of the value on which it was based

Table 12. Incidence of TBI by county, sorted by age-adjusted rate, 2004

County	Freq	Percent	Age-		County	Freq	Percent	Age-		County	Freq	Percent	Age-	
			Adjusted Rate	Crude Rate				Adjusted Rate	Crude Rate				Adjusted Rate	Crude Rate
OWSLEY	16	0.4	342.0	336.9	WASHINGTON	15	0.3	127.6	133.1	ANDERSON	18	0.4	93.1	89.6
WOLFE	22	0.5	329.3	312.3	CARROLL	13	0.3	126.6	125.7	SHELBY	32	0.7	90.4	86.0
CARLISLE	17	0.4	291.9	320.2	HANCOCK	10	0.2	125.3	118.2	KENTON	125	2.8	88.9	81.8
LESLIE	30	0.7	257.1	249.1	KNOX	40	0.9	125.3	125.3	WHITLEY	34	0.8	88.0	90.5
PERRY	65	1.5	220.7	218.4	HARLAN	39	0.9	123.8	122.2	MARSHALL	59	1.3	88.0	91.2
MADISON	70	1.6	219.0	227.2	RUSSELL	22	0.5	122.8	130.7	MONROE	11	0.2	87.0	94.3
MAGOFFIN	26	0.6	217.8	210.9	MONTGOMERY	28	0.6	122.1	118.5	GALLATIN	6	0.1	86.4	75.2
JACKSON	26	0.6	195.8	190.9	ELLIOTT	8	0.2	120.0	117.0	LEWIS	12	0.3	85.9	86.8
BREATHITT	31	0.7	193.7	194.5	HART	22	0.5	119.8	120.6	BOYD	44	1.0	85.8	88.5
KNOTT	34	0.8	191.9	193.4	JEFFERSON	854	19.2	119.5	122.0	GREENUP	33	0.7	85.4	88.5
CLAY	47	1.1	191.0	193.8	DAVISS	115	2.6	119.1	124.2	CLARK	28	0.6	82.2	81.5
CLINTON	17	0.4	179.0	177.9	ADAIR	21	0.5	117.6	119.5	ROWAN	19	0.4	82.1	85.7
LEE	15	0.3	177.4	192.7	HICKMAN	6	0.1	117.2	116.0	MERCER	18	0.4	81.8	83.7
TRIMBLE	15	0.3	177.2	165.8	BOYLE	35	0.8	117.0	123.9	PENDLETON	11	0.2	79.9	72.7
MARION	29	0.7	176.6	171.2	TAYLOR	29	0.7	116.8	123.5	FAYETTE	205	4.6	79.9	77.0
METCALFE	17	0.4	168.9	167.2	GREEN	14	0.3	116.1	120.0	BULLITT	51	1.1	77.0	76.5
LAUREL	87	2.0	164.7	155.4	CRITTENDEN	11	0.2	114.4	122.2	MARTIN	12	0.3	76.4	70.4
LARUE	22	0.5	164.1	163.1	PULASKI	68	1.5	113.4	115.8	OLDHAM	33	0.7	75.5	63.3
LETCHER	39	0.9	163.4	158.0	BRECKINRIDGE	23	0.5	112.2	120.0	MCLEAN	14	0.3	73.1	74.8
FULTON	14	0.3	158.2	190.3	BARREN	45	1.0	111.8	114.0	BUTLER	10	0.2	71.0	74.8
MASON	16	0.4	154.1	160.3	HARDIN	102	2.3	111.3	106.2	FRANKLIN	33	0.7	70.7	68.5
CUMBERLAND	10	0.2	153.4	139.5	FLOYD	47	1.1	110.8	110.9	LAWRENCE	11	0.2	70.6	68.5
NELSON	60	1.4	153.0	148.5	MEADE	27	0.6	110.8	95.4	EDMONSON	8	0.2	70.1	67.1
MCCRACKEN	103	2.3	151.5	135.2	ESTILL	17	0.4	108.0	112.1	JESSAMINE	30	0.7	69.9	70.9
WAYNE	30	0.7	150.4	147.1	WEBSTER	15	0.3	107.9	106.2	HENDERSON	32	0.7	68.9	70.4
ROCKCASTLE	23	0.5	140.4	137.1	MCCREARY	14	0.3	107.3	104.0	BOONE	54	1.2	68.4	53.3
OWEN	16	0.4	140.1	141.6	SPENCER	16	0.4	104.8	107.9	WOODFORD	16	0.4	68.1	66.8
FLEMING	20	0.5	139.9	138.1	CASEY	17	0.4	104.6	105.9	HARRISON	12	0.3	66.5	65.7
JOHNSON	33	0.7	138.5	138.3	CALDWELL	16	0.4	104.0	124.2	MORGAN	9	0.2	65.5	62.7
BALLARD	11	0.2	136.8	132.6	NICHOLAS	8	0.2	103.9	113.1	CALLOWAY	23	0.5	63.2	66.1
BELL	39	0.9	136.7	131.4	BATH	12	0.3	102.0	104.0	CAMPBELL	52	1.2	59.7	59.6
GRAVES	56	1.3	136.4	149.7	SCOTT	37	0.8	100.9	97.3	CARTER	17	0.4	59.1	61.9
OHIO	33	0.7	132.3	140.0	BOURBON	20	0.5	100.8	101.9	BRACKEN	5	0.1	57.2	57.4
HENRY	20	0.5	131.1	126.8	HOPKINS	48	1.1	99.6	102.5	SIMPSON	9	0.2	50.4	53.3
LIVINGSTON	12	0.3	130.0	122.9	GARRARD	16	0.4	98.2	99.0	CHRISTIAN	32	0.7	50.1	45.3
PIKE	83	1.9	128.8	123.7	LYON	8	0.2	97.9	97.5	TRIGG	7	0.2	48.0	52.8
GRAYSON	32	0.7	128.4	128.0	ALLEN	18	0.4	97.3	97.1	LOGAN	13	0.3	47.7	48.1
LINCOLN	31	0.7	128.3	124.9	WARREN	90	2.0	95.2	92.6	ROBERTSON	*	-	-	-
MENIFEE	9	0.2	128.1	133.0	POWELL	13	0.3	95.0	95.5	TODD	*	-	-	-
GRANT	28	0.6	127.7	115.1	MUHLENBERG	33	0.7	94.9	103.9	UNION	*	-	-	-

* At least one but fewer than five

- Percentage or rate suppressed to prevent disclosure of the value on which it was based

Table 13. Hospital discharges by disposition for non-fatal TBI, 2004

Discharge Disposition	Number	Percent
Routine discharge (home/self care)	2,234	66.6
Skilled nursing facility (SNF)	349	10.4
Home health	250	7.5
Inpatient-other short-term hospital	78	2.3
Intermediate care facility (ICF)	32	1.0
Inpatient-other type facility	52	1.6
Other	358	10.7
Total	3,353	100.0

Table 14. Barrell Matrix Type I/II/III TBI by mechanism for non-fatal TBI, 2004

Injury Mechanism	Type of TBI								Total
	Type I		Type II		Type III		Other		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Motor vehicle traffic crash	373	24.9	234	42.8	21	23.1	29	23.2	657
Falls	551	36.8	142	26.0	26	28.6	40	32.0	759
Non-traffic land transportation	70	4.7	37	6.8	8	8.8	7	5.6	122
Struck by or against object or person	103	6.9	46	8.4	11	12.1	8	6.4	168
Non-traffic pedal cycle	21	1.4	9	1.6	1	1.1	1	0.8	32
Firearm	36	2.4	0	0.0	7	7.7	1	0.8	44
Other	74	4.9	18	3.3	7	7.7	6	4.8	105
Unknown	269	18.0	61	11.2	10	11.0	33	26.4	373
Total	1,497	100.0	547	100.0	91	100.0	125	100.0	2,260

Table 15. Primary payers for hospitalized TBI, 2004
(Hospital Discharge Dataset only)

Payer	Number of Discharges	Percent of Discharges	Total Hospital Charges
Government	1,287	38.4	\$ 27,925,527
Commercial Ins	1,000	29.8	\$ 41,383,636
Self Pay	323	9.6	\$ 13,855,222
Workers Compensation	108	3.2	\$ 4,651,458
HMO	231	6.9	\$ 7,268,867
Other	404	12.0	\$ 12,836,863
Total	3,353	100.0	\$ 107,921,573

Table 16. ABI by age, 2004

Age	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	67	50.0	25.1	67	50.0	25.1	134	100.0	50.3
5-14	15	25.0	2.7	45	75.0	8.2	60	100.0	11.0
15-24	85	30.5	14.7	194	69.5	33.5	279	100.0	48.1
25-44	264	31.4	22.2	576	68.6	48.4	840	100.0	70.6
45-64	329	33.0	31.5	667	67.0	63.9	996	100.0	95.4
65+	481	42.7	92.6	645	57.3	124.2	1,126	100.0	216.8
Total	1,241	36.1	29.9	2,194	63.9	52.9	3,435	100.0	82.9

Table 17. ABI by gender, 2004

Age	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Male	757	42.7	37.2	1,017	57.3	50.0	1,774	100.0	87.2
Female	485	29.2	23.0	1,177	70.8	55.7	1,662	100.0	78.7
Total	1,242	36.1	30.0	2,194	63.9	52.9	3,436	100.0	82.9

Table 18. Incidence of ABI by county, sorted by county name, 2004

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude Rate		Freq	Percent	Rate	Crude Rate		Freq	Percent	Rate	Crude Rate
ADAIR	17	0.5	88.5	96.7	GRANT	29	0.8	125.5	119.3	MCLEAN	12	0.3	65.2	64.1
ALLEN	16	0.5	82.8	86.3	GRAVES	31	0.9	78.1	82.9	MEADE	13	0.4	52.0	45.9
ANDERSON	13	0.4	72.2	64.7	GRAYSON	29	0.8	116.6	116.0	MENIFEE	8	0.2	108.1	118.2
BALLARD	7	0.2	77.0	84.4	GREEN	10	0.3	74.1	85.7	MERCER	22	0.6	93.8	102.4
BARREN	39	1.1	96.2	98.8	GREENUP	26	0.8	71.7	69.8	METCALFE	8	0.2	78.7	78.7
BATH	14	0.4	114.7	121.3	HANCOCK	*	-	-	-	MONROE	9	0.3	66.3	77.2
BELL	38	1.1	127.4	128.1	HARDIN	96	2.8	104.8	99.9	MONTGOMERY	16	0.5	65.0	67.7
BOONE	58	1.7	60.4	57.2	HARLAN	31	0.9	96.9	97.1	MORGAN	10	0.3	71.0	69.6
BOURBON	20	0.6	100.1	101.9	HARRISON	11	0.3	62.2	60.3	MUHLENBERG	30	0.9	86.0	94.5
BOYD	37	1.1	69.5	74.4	HART	15	0.4	78.6	82.3	NELSON	19	0.6	46.1	47.0
BOYLE	19	0.6	62.7	67.3	HENDERSON	22	0.6	46.3	48.4	NICHOLAS	*	-	-	-
BRACKEN	*	-	-	-	HENRY	20	0.6	129.7	126.8	OHIO	9	0.3	35.5	38.2
BREATHITT	25	0.7	154.8	156.9	HICKMAN	6	0.2	85.6	116.0	OLDHAM	28	0.8	68.7	53.7
BRECKINRIDGE	16	0.5	75.8	83.5	HOPKINS	72	2.1	134.0	153.8	OWEN	13	0.4	111.2	115.0
BULLITT	32	0.9	49.7	48.0	JACKSON	21	0.6	162.0	154.2	OWSLEY	*	-	-	-
BUTLER	5	0.1	40.6	37.4	JEFFERSON	501	14.6	68.8	71.6	PENDLETON	11	0.3	75.4	72.7
CALDWELL	13	0.4	92.2	100.9	JESSAMINE	32	0.9	81.7	75.6	PERRY	56	1.6	193.3	188.2
CALLOWAY	10	0.3	25.8	28.7	JOHNSON	30	0.9	125.8	125.8	PIKE	52	1.5	78.1	77.5
CAMPBELL	73	2.1	82.7	83.7	KENTON	123	3.6	81.8	80.5	POWELL	13	0.4	95.2	95.5
CARLISLE	*	-	-	-	KNOTT	31	0.9	173.3	176.3	PULASKI	61	1.8	97.2	103.9
CARROLL	13	0.4	127.2	125.7	KNOX	43	1.3	135.9	134.7	ROBERTSON	*	-	-	-
CARTER	29	0.8	101.0	105.6	LARUE	13	0.4	85.0	96.4	ROCKCASTLE	11	0.3	63.6	65.5
CASEY	33	1.0	189.0	205.5	LAUREL	42	1.2	75.3	75.0	ROWAN	17	0.5	81.4	76.7
CHRISTIAN	31	0.9	50.7	43.9	LAWRENCE	14	0.4	87.4	87.2	RUSSELL	34	1.0	178.5	201.9
CLARK	33	1.0	94.1	96.0	LEE	7	0.2	83.9	89.9	SCOTT	13	0.4	39.0	34.2
CLAY	30	0.9	126.3	123.7	LESLIE	13	0.4	105.6	107.9	SHELBY	11	0.3	30.7	29.6
CLINTON	15	0.4	142.6	156.9	LETCHER	24	0.7	101.7	97.3	SIMPSON	11	0.3	60.8	65.1
CRITTENDEN	7	0.2	74.1	77.8	LEWIS	16	0.5	113.9	115.8	SPENCER	5	0.1	38.3	33.7
CUMBERLAND	9	0.3	118.9	125.6	LINCOLN	26	0.8	107.9	104.8	TAYLOR	28	0.8	109.5	119.3
DAVISS	54	1.6	56.0	58.3	LIVINGSTON	*	-	-	-	TODD	15	0.4	121.7	126.4
EDMONSON	7	0.2	56.6	58.7	LOGAN	23	0.7	83.2	85.0	TRIGG	11	0.3	68.3	83.0
ELLIOTT	13	0.4	177.0	190.2	LYON	9	0.3	81.6	109.7	TRIMBLE	10	0.3	111.6	110.5
ESTILL	14	0.4	86.5	92.3	MADISON	51	1.5	159.6	165.5	UNION	8	0.2	61.2	50.9
FAYETTE	219	6.4	86.1	82.2	MAGOFFIN	20	0.6	175.3	162.2	WARREN	51	1.5	57.0	52.5
FLEMING	15	0.4	98.3	103.6	MARION	12	0.3	63.7	70.9	WASHINGTON	11	0.3	95.9	97.6
FLOYD	53	1.5	119.6	125.1	MARSHALL	21	0.6	29.8	32.5	WAYNE	16	0.5	74.9	78.4
FRANKLIN	41	1.2	82.9	85.2	MARTIN	15	0.4	90.5	88.0	WEBSTER	11	0.3	73.7	77.8
FULTON	9	0.3	110.4	122.3	MASON	15	0.4	143.9	150.3	WHITLEY	44	1.3	115.2	117.1
GALLATIN	5	0.1	61.6	62.7	MCCRACKEN	72	2.1	102.0	94.5	WOLFE	5	0.1	63.5	71.0
GARRARD	12	0.3	77.4	74.2	MCCREARY	27	0.8	207.0	200.7	WOODFORD	19	0.6	86.2	79.3

* At least one but fewer than five

- Percentage or rate suppressed to prevent disclosure of the value on which it was based

Table 19. Incidence of ABI by county, sorted by frequency, 2004

County	Freq	Percent	Age-Adjusted Rate	Crude Rate	County	Freq	Percent	Age-Adjusted Rate	Crude Rate	County	Freq	Percent	Age-Adjusted Rate	Crude Rate
JEFFERSON	501	14.6	68.8	71.6	GREENUP	26	0.8	71.7	69.8	SCOTT	13	0.4	39.0	34.2
FAYETTE	219	6.4	86.1	82.2	LINCOLN	26	0.8	107.9	104.8	GARRARD	12	0.3	77.4	74.2
KENTON	123	3.6	81.8	80.5	BREATHITT	25	0.7	154.8	156.9	MARION	12	0.3	63.7	70.9
HARDIN	96	2.8	104.8	99.9	LETCHER	24	0.7	101.7	97.3	MCLEAN	12	0.3	65.2	64.1
CAMPBELL	73	2.1	82.7	83.7	LOGAN	23	0.7	83.2	85.0	HARRISON	11	0.3	62.2	60.3
HOPKINS	72	2.1	134.0	153.8	HENDERSON	22	0.6	46.3	48.4	PENDLETON	11	0.3	75.4	72.7
MCCRACKEN	72	2.1	102.0	94.5	MERCER	22	0.6	93.8	102.4	ROCKCASTLE	11	0.3	63.6	65.5
PULASKI	61	1.8	97.2	103.9	JACKSON	21	0.6	162.0	154.2	SHELBY	11	0.3	30.7	29.6
BOONE	58	1.7	60.4	57.2	MARSHALL	21	0.6	29.8	32.5	SIMPSON	11	0.3	60.8	65.1
PERRY	56	1.6	193.3	188.2	BOURBON	20	0.6	100.1	101.9	TRIGG	11	0.3	68.3	83.0
DAVISS	54	1.6	56.0	58.3	HENRY	20	0.6	129.7	126.8	WASHINGTON	11	0.3	95.9	97.6
FLOYD	53	1.5	119.6	125.1	MAGOFFIN	20	0.6	175.3	162.2	WEBSTER	11	0.3	73.7	77.8
PIKE	52	1.5	78.1	77.5	BOYLE	19	0.6	62.7	67.3	CALLOWAY	10	0.3	25.8	28.7
MADISON	51	1.5	159.6	165.5	NELSON	19	0.6	46.1	47.0	GREEN	10	0.3	74.1	85.7
WARREN	51	1.5	57.0	52.5	WOODFORD	19	0.6	86.2	79.3	MORGAN	10	0.3	71.0	69.6
WHITLEY	44	1.3	115.2	117.1	ADAIR	17	0.5	88.5	96.7	TRIMBLE	10	0.3	111.6	110.5
KNOX	43	1.3	135.9	134.7	ROWAN	17	0.5	81.4	76.7	CUMBERLAND	9	0.3	118.9	125.6
LAUREL	42	1.2	75.3	75.0	ALLEN	16	0.5	82.8	86.3	FULTON	9	0.3	110.4	122.3
FRANKLIN	41	1.2	82.9	85.2	BRECKINRIDGE	16	0.5	75.8	83.5	LYON	9	0.3	81.6	109.7
BARREN	39	1.1	96.2	98.8	LEWIS	16	0.5	113.9	115.8	MONROE	9	0.3	66.3	77.2
BELL	38	1.1	127.4	128.1	MONTGOMERY	16	0.5	65.0	67.7	OHIO	9	0.3	35.5	38.2
BOYD	37	1.1	69.5	74.4	WAYNE	16	0.5	74.9	78.4	MENIFEE	8	0.2	108.1	118.2
RUSSELL	34	1.0	178.5	201.9	CLINTON	15	0.4	142.6	156.9	METCALFE	8	0.2	78.7	78.7
CASEY	33	1.0	189.0	205.5	FLEMING	15	0.4	98.3	103.6	UNION	8	0.2	61.2	50.9
CLARK	33	1.0	94.1	96.0	HART	15	0.4	78.6	82.3	BALLARD	7	0.2	77.0	84.4
BULLITT	32	0.9	49.7	48.0	MARTIN	15	0.4	90.5	88.0	CRITTENDEN	7	0.2	74.1	77.8
JESSAMINE	32	0.9	81.7	75.6	MASON	15	0.4	143.9	150.3	EDMONSON	7	0.2	56.6	58.7
CHRISTIAN	31	0.9	50.7	43.9	TODD	15	0.4	121.7	126.4	LEE	7	0.2	83.9	89.9
GRAVES	31	0.9	78.1	82.9	BATH	14	0.4	114.7	121.3	HICKMAN	6	0.2	85.6	116.0
HARLAN	31	0.9	96.9	97.1	ESTILL	14	0.4	86.5	92.3	BUTLER	5	0.1	40.6	37.4
KNOTT	31	0.9	173.3	176.3	LAWRENCE	14	0.4	87.4	87.2	GALLATIN	5	0.1	61.6	62.7
CLAY	30	0.9	126.3	123.7	ANDERSON	13	0.4	72.2	64.7	SPENCER	5	0.1	38.3	33.7
JOHNSON	30	0.9	125.8	125.8	CALDWELL	13	0.4	92.2	100.9	WOLFE	5	0.1	63.5	71.0
MUHLENBERG	30	0.9	86.0	94.5	CARROLL	13	0.4	127.2	125.7	BRACKEN	*	-	-	-
CARTER	29	0.8	101.0	105.6	ELLIOTT	13	0.4	177.0	190.2	CARLISLE	*	-	-	-
GRANT	29	0.8	125.5	119.3	LARUE	13	0.4	85.0	96.4	HANCOCK	*	-	-	-
GRAYSON	29	0.8	116.6	116.0	LESLIE	13	0.4	105.6	107.9	LIVINGSTON	*	-	-	-
OLDHAM	28	0.8	68.7	53.7	MEADE	13	0.4	52.0	45.9	NICHOLAS	*	-	-	-
TAYLOR	28	0.8	109.5	119.3	OWEN	13	0.4	111.2	115.0	OWSLEY	*	-	-	-
MCCREARY	27	0.8	207.0	200.7	POWELL	13	0.4	95.2	95.5	ROBERTSON	*	-	-	-

* At least one but fewer than five

- Percentage or rate suppressed to prevent disclosure of the value on which it was based

Table 20. Incidence of ABI by county, sorted by age-adjusted rate, 2004

County	Freq	Percent	Age-		County	Freq	Percent	Age-		County	Freq	Percent	Age-	
			Adjusted Rate	Crude Rate				Adjusted Rate	Crude Rate				Adjusted Rate	Crude Rate
MCCREARY	27	0.8	207.0	200.7	PULASKI	61	1.8	97.2	103.9	ANDERSON	13	0.4	72.2	64.7
PERRY	56	1.6	193.3	188.2	HARLAN	31	0.9	96.9	97.1	GREENUP	26	0.8	71.7	69.8
CASEY	33	1.0	189.0	205.5	BARREN	39	1.1	96.2	98.8	MORGAN	10	0.3	71.0	69.6
RUSSELL	34	1.0	178.5	201.9	WASHINGTON	11	0.3	95.9	97.6	BOYD	37	1.1	69.5	74.4
ELLIOTT	13	0.4	177.0	190.2	POWELL	13	0.4	95.2	95.5	JEFFERSON	501	14.6	68.8	71.6
MAGOFFIN	20	0.6	175.3	162.2	CLARK	33	1.0	94.1	96.0	OLDHAM	28	0.8	68.7	53.7
KNOTT	31	0.9	173.3	176.3	MERCER	22	0.6	93.8	102.4	TRIGG	11	0.3	68.3	83.0
JACKSON	21	0.6	162.0	154.2	CALDWELL	13	0.4	92.2	100.9	MONROE	9	0.3	66.3	77.2
MADISON	51	1.5	159.6	165.5	MARTIN	15	0.4	90.5	88.0	MCLEAN	12	0.3	65.2	64.1
BREATHITT	25	0.7	154.8	156.9	ADAIR	17	0.5	88.5	96.7	MONTGOMERY	16	0.5	65.0	67.7
MASON	15	0.4	143.9	150.3	LAWRENCE	14	0.4	87.4	87.2	MARION	12	0.3	63.7	70.9
CLINTON	15	0.4	142.6	156.9	ESTILL	14	0.4	86.5	92.3	ROCKCASTLE	11	0.3	63.6	65.5
KNOX	43	1.3	135.9	134.7	WOODFORD	19	0.6	86.2	79.3	WOLFE	5	0.1	63.5	71.0
HOPKINS	72	2.1	134.0	153.8	FAYETTE	219	6.4	86.1	82.2	BOYLE	19	0.6	62.7	67.3
HENRY	20	0.6	129.7	126.8	MUHLENBERG	30	0.9	86.0	94.5	HARRISON	11	0.3	62.2	60.3
BELL	38	1.1	127.4	128.1	HICKMAN	6	0.2	85.6	116.0	GALLATIN	5	0.1	61.6	62.7
CARROLL	13	0.4	127.2	125.7	LARUE	13	0.4	85.0	96.4	UNION	8	0.2	61.2	50.9
CLAY	30	0.9	126.3	123.7	LEE	7	0.2	83.9	89.9	SIMPSON	11	0.3	60.8	65.1
JOHNSON	30	0.9	125.8	125.8	LOGAN	23	0.7	83.2	85.0	BOONE	58	1.7	60.4	57.2
GRANT	29	0.8	125.5	119.3	FRANKLIN	41	1.2	82.9	85.2	WARREN	51	1.5	57.0	52.5
TODD	15	0.4	121.7	126.4	ALLEN	16	0.5	82.8	86.3	NICHOLAS	*	-	-	-
FLOYD	53	1.5	119.6	125.1	CAMPBELL	73	2.1	82.7	83.7	EDMONSON	7	0.2	56.6	58.7
CUMBERLAND	9	0.3	118.9	125.6	KENTON	123	3.6	81.8	80.5	DAVIESS	54	1.6	56.0	58.3
GRAYSON	29	0.8	116.6	116.0	JESSAMINE	32	0.9	81.7	75.6	MEADE	13	0.4	52.0	45.9
WHITLEY	44	1.3	115.2	117.1	LYON	9	0.3	81.6	109.7	CHRISTIAN	31	0.9	50.7	43.9
BATH	14	0.4	114.7	121.3	ROWAN	17	0.5	81.4	76.7	BULLITT	32	0.9	49.7	48.0
LEWIS	16	0.5	113.9	115.8	METCALFE	8	0.2	78.7	78.7	HANCOCK	*	-	-	-
TRIMBLE	10	0.3	111.6	110.5	HART	15	0.4	78.6	82.3	BRACKEN	*	-	-	-
OWEN	13	0.4	111.2	115.0	GRAVES	31	0.9	78.1	82.9	HENDERSON	22	0.6	46.3	48.4
FULTON	9	0.3	110.4	122.3	PIKE	52	1.5	78.1	77.5	NELSON	19	0.6	46.1	47.0
TAYLOR	28	0.8	109.5	119.3	GARRARD	12	0.3	77.4	74.2	ROBERTSON	*	-	-	-
MENIFEE	8	0.2	108.1	118.2	BALLARD	7	0.2	77.0	84.4	BUTLER	5	0.1	40.6	37.4
LINCOLN	26	0.8	107.9	104.8	BRECKINRIDGE	16	0.5	75.8	83.5	SCOTT	13	0.4	39.0	34.2
LESLIE	13	0.4	105.6	107.9	PENDLETON	11	0.3	75.4	72.7	SPENCER	5	0.1	38.3	33.7
HARDIN	96	2.8	104.8	99.9	LAUREL	42	1.2	75.3	75.0	OHIO	9	0.3	35.5	38.2
MCCRACKEN	72	2.1	102.0	94.5	WAYNE	16	0.5	74.9	78.4	LIVINGSTON	*	-	-	-
LETCHER	24	0.7	101.7	97.3	GREEN	10	0.3	74.1	85.7	SHELBY	11	0.3	30.7	29.6
CARTER	29	0.8	101.0	105.6	CRITTENDEN	7	0.2	74.1	77.8	MARSHALL	21	0.6	29.8	32.5
BOURBON	20	0.6	100.1	101.9	WEBSTER	11	0.3	73.7	77.8	CALLOWAY	10	0.3	25.8	28.7
FLEMING	15	0.4	98.3	103.6	CARLISLE	*	-	-	-	OWSLEY	*	-	-	-

* At least one but fewer than five

- Percentage or rate suppressed to prevent disclosure of the value on which it was based

Table 21. Causes of ABI (based on diagnosis code), 2004

ABI Category	Fatal		Non-fatal	
	Number	Percent	Number	Percent
Anoxia/hypoxia	999	79.3	1028	46.4
Exposure to toxic substances	243	19.3	996	45.0
Allergy/anaphylaxis	2	0.2	132	6.0
Acute medical clinical incidents	15	1.2	58	2.6

* Because there are multiple diagnoses and/or causes of death listed for each individual, it is possible for the same case to fall into more than one ABI category. Therefore, the column sums in this table are slightly higher than the total number of ABI cases shown in Table 16.

Table 22. Anoxia/hypoxia by age group, 2004

Age	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	57	68.7	21.4	26	31.3	9.8	83	100.0	31.1
5-14	10	41.7	1.8	14	58.3	2.6	24	100.0	4.4
15-24	70	59.8	12.1	47	40.2	8.1	117	100.0	20.2
25-44	169	53.5	14.2	147	46.5	12.4	316	100.0	26.6
45-64	254	43.7	24.3	327	56.3	31.3	581	100.0	55.6
65+	438	48.4	84.3	467	51.6	89.9	905	100.0	174.3
Total	998	49.3	24.1	1,028	50.7	24.8	2,026	100.0	48.9

Table 23. Exposure to toxic substances by age group, 2004

Age	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	8	19.5	3.0	33	80.5	12.4	41	100.0	15.4
5-14	4	13.8	0.7	25	86.2	4.6	29	100.0	5.3
15-24	17	11.4	2.9	132	88.6	22.8	149	100.0	25.7
25-44	99	20.0	8.3	397	80.0	33.4	496	100.0	41.7
45-64	74	21.5	7.1	270	78.5	25.9	344	100.0	32.9
65+	41	22.8	7.9	139	77.2	26.8	180	100.0	34.7
Total	243	19.6	5.9	996	80.4	24.0	1,239	100.0	29.9

Table 24. Diagnoses in non-fatal anoxia/hypoxia, 2004

Diagnosis	Description	Number	Percent	Cumulative Percent
997.0	Nervous system complications (related to medical care)	425	41.3	41.3
	- Anoxic brain damage			
	- Cerebral hypoxia			
	- Postoperative stroke			
	- Other			
799.0	Asphyxia	393	38.2	79.5
348.1	Anoxic brain damage (related to hereditary and degenerative diseases of the central nervous system)	179	17.4	96.9
994.1	Drowning and nonfatal submersion	20	1.9	98.9
669.4	Cerebral anoxia following cesarean	7	0.7	99.6
768 (.1,.5,.6,.9)	Birth asphyxia	3	0.3	99.9
668.2	Cerebral anoxia following anesthesia ...	1	0.1	100.0
Total		1,028	100.0	100.0

Table 25. Diagnoses in fatal anoxia/hypoxia, 2004

Diagnosis	Description	Number	Percent	Cumulative Percent
R09.0	Asphyxia	287	28.7	28.7
G93.1	Anoxic brain damage, not elsewhere classified	266	26.6	55.4
T71	Asphyxiation	181	18.1	73.5
T75.1, 994.1	Drowning	97	9.7	83.2
348.1	Anoxic brain damage (related to hereditary and degenerative diseases of the central nervous system)	89	8.9	92.1
997.0	Nervous system complications (related to medical care)	52	5.2	97.3
	- Anoxic brain damage			
	- Cerebral hypoxia			
	- Postoperative stroke			
	- Other			
P21	Birth asphyxia	14	1.4	98.7
799.0	Asphyxia	13	1.3	100.0
Total		999	100.0	100.0

Table 26. Diagnoses in non-fatal exposures to toxic substances, 2004

Diagnosis	Description	Number	Percent	Cumulative Percent
967	Poisoning by sedatives and hypnotics	326	32.7	32.7
980	Toxic effect of alcohol	304	30.5	63.3
964.2				
	Poisoning by anticoagulants	109	10.9	74.2
968	Poisoning by other central nervous system depressants and anesthetics	108	10.8	85.0
995.4,995.5	Shock due to anesthesia; Child Maltreatment Syndrome	58	5.8	90.9
998	Post-operative shock	48	4.8	95.7
986	Toxic effect of carbon monoxide	30	3.0	98.7
985	Toxic effect of other metals	11	1.1	99.8
988.0-988.2	Toxic effect of noxious substances eaten as food	2	0.2	100.0
Total		996	100.0	100.0

Table 27. Diagnoses in fatal exposures to toxic substances, 2004

Diagnosis	Description	Number	Percent	Cumulative Percent
T40.5	Poisoning by cocaine	56	23.0	23.0
T42 (.3,.4,.6,.7), 967	Poisoning by barbiturates, benzodiazepines, or anti-epileptic and sedative-hypnotic drugs	53	21.8	44.8
T58, 986	Toxic effect of carbon monoxide	47	19.3	64.2
T51, 980	Toxic effect of alcohol	25	10.3	74.4
998.0	Postoperative shock	18	7.4	81.8
G03 (.8,.9)	Meningitis due to other and unspecified causes	16	6.6	88.4
T45, 964	Poisoning by anticoagulants	15	6.2	94.6
T81.1				
	Shock during or resulting from a procedure, not elsewhere classified	4	1.6	96.3
Other	See 'Methods' section for other diagnoses	9	3.7	100.0
Total		243	100.0	100.0

Other Diagnoses include: 968, 995, G97 (3), T41, T57, and T65 (2)

Table 28. Injury-related causes of ABI (based on E-code), 2004

Mechanism of Injury	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Poisoning	181	19.1	4.4	767	80.9	18.5	948	100.0	22.9
Suffocation	157	88.7	3.8	20	11.3	0.5	177	100.0	4.3
Drowning	67	94.4	1.6	4	5.6	0.1	71	100.0	1.7
Falls	17	26.6	0.4	47	73.4	1.1	64	100.0	1.5
Motor vehicle traffic crash	47	71.2	1.1	19	28.8	0.5	66	100.0	1.6
Fire/burn	20	90.9	0.5	2	9.1	0.0	22	100.0	0.5
Other	63	47.0	1.5	71	53.0	1.7	134	100.0	3.2
Total	552	37.2	13.3	930	62.8	22.4	1,482	100.0	35.7

Table 29. Hospital discharge disposition for nonfatal ABI, 2004

Discharge Disposition	Number	Percent
Routine discharge (home/self care)	1,283	58.5
Home health	210	9.6
Skilled nursing facility (SNF)	181	8.2
Inpatient-other type facility	150	6.8
Inpatient-other short-term hospital	90	4.1
Intermediate care facility (ICF)	14	0.6
Other	266	12.1
Total	2,194	100.0

Table 30. Primary payers for hospitalized ABI, 2004
(Hospital Discharge Dataset only)

Payer	Number of Discharges	Percent of Discharges	Total Hospital Charges
Government	1,242	56.6	\$ 38,190,238
Commercial Insurance	344	15.7	\$ 12,192,842
Self Pay	196	8.9	\$ 3,107,240
Workers Compensation	31	1.4	\$ 1,050,804
HMO	167	7.6	\$ 4,108,253
Other	214	9.8	\$ 5,569,223
Total	2,194	100.0	\$ 64,218,600

Table 31. SCI by age, 2004

Age	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	0	0.0	0.0	2	100.0	0.8	2	100.0	0.8
5-14	1	20.0	0.2	5	83.3	0.9	6	100.0	1.1
15-24	13	30.2	2.2	43	76.8	7.4	56	100.0	9.7
25-44	20	32.8	1.7	61	75.3	5.1	81	100.0	6.8
45-64	12	23.5	1.1	51	81.0	4.9	63	100.0	6.0
65+	25	49.0	4.8	51	67.1	9.8	76	100.0	14.6
Total	71	25.0	1.7	213	75.0	5.1	284	100.0	6.9

Table 32. SCI by gender, 2004

Age	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Male	44	23.5	2.2	143	76.5	7.0	187	100.0	9.2
Female	27	27.8	1.3	70	72.2	3.3	97	100.0	4.6
Total	71	25.0	1.7	213	75.0	5.1	284	100.0	6.9

Table 33. Incidence of SCI by county, sorted by frequency, 2004

County	Freq	Percent	Age-Adjusted Rate	Crude Rate	County	Freq	Percent	Age-Adjusted Rate	Crude Rate	County	Freq	Percent	Age-Adjusted Rate	Crude Rate
JEFFERSON	43	15.1	6.1	6.1	FULTON	*	-	-	-	MENIFEE	*	-	-	-
KENTON	12	4.2	8.6	7.8	GREEN	*	-	-	-	MERCER	*	-	-	-
FAYETTE	9	3.2	3.7	3.4	HOPKINS	*	-	-	-	METCALFE	*	-	-	-
HARLAN	8	2.8	24.8	25.1	JESSAMINE	*	-	-	-	MORGAN	*	-	-	-
CAMPBELL	7	2.5	7.8	8.0	JOHNSON	*	-	-	-	OHIO	*	-	-	-
HARDIN	7	2.5	7.3	7.3	KNOX	*	-	-	-	OWSLEY	*	-	-	-
PIKE	7	2.5	9.9	10.4	LEWIS	*	-	-	-	PERRY	*	-	-	-
FRANKLIN	6	2.1	12.4	12.5	LINCOLN	*	-	-	-	ROCKCASTLE	*	-	-	-
GREENUP	6	2.1	15.8	16.1	MADISON	*	-	-	-	RUSSELL	*	-	-	-
MCCRACKEN	6	2.1	8.7	7.9	MAGOFFIN	*	-	-	-	SCOTT	*	-	-	-
WARREN	6	2.1	6.7	6.2	MARSHALL	*	-	-	-	UNION	*	-	-	-
BELL	5	1.8	17.3	16.9	NELSON	*	-	-	-	WASHINGTON	*	-	-	-
BOONE	5	1.8	5.5	4.9	OLDHAM	*	-	-	-	WOODFORD	*	-	-	-
BOYD	5	1.8	8.8	10.1	POWELL	*	-	-	-	BALLARD	0	0.0	0.0	0.0
FLOYD	5	1.8	12.5	11.8	SHELBY	*	-	-	-	BATH	0	0.0	0.0	0.0
MONTGOMERY	5	1.8	19.2	21.2	SPENCER	*	-	-	-	BOURBON	0	0.0	0.0	0.0
WAYNE	5	1.8	27.5	24.5	TODD	*	-	-	-	BRACKEN	0	0.0	0.0	0.0
CUMBERLAND	*	-	-	-	TRIGG	*	-	-	-	BUTLER	0	0.0	0.0	0.0
GRAYSON	*	-	-	-	TRIMBLE	*	-	-	-	CALDWELL	0	0.0	0.0	0.0
LAUREL	*	-	-	-	ADAIR	*	-	-	-	CLARK	0	0.0	0.0	0.0
PULASKI	*	-	-	-	BULLITT	*	-	-	-	ELLIOTT	0	0.0	0.0	0.0
TAYLOR	*	-	-	-	CARLISLE	*	-	-	-	ESTILL	0	0.0	0.0	0.0
ANDERSON	*	-	-	-	CARROLL	*	-	-	-	GRANT	0	0.0	0.0	0.0
BOYLE	*	-	-	-	CASEY	*	-	-	-	LAUREL	0	0.0	0.0	0.0
DAVISS	*	-	-	-	CLINTON	*	-	-	-	LAWRENCE	0	0.0	0.0	0.0
GRAVES	*	-	-	-	CRITTENDEN	*	-	-	-	LEE	0	0.0	0.0	0.0
HART	*	-	-	-	EDMONSON	*	-	-	-	LETCHER	0	0.0	0.0	0.0
MARION	*	-	-	-	GALLATIN	*	-	-	-	LIVINGSTON	0	0.0	0.0	0.0
MUHLENBERG	*	-	-	-	GARRARD	*	-	-	-	LOGAN	0	0.0	0.0	0.0
ROWAN	*	-	-	-	HANCOCK	*	-	-	-	MARTIN	0	0.0	0.0	0.0
WHITLEY	*	-	-	-	HARRISON	*	-	-	-	MASON	0	0.0	0.0	0.0
ALLEN	*	-	-	-	HENDERSON	*	-	-	-	MCCREARY	0	0.0	0.0	0.0
BARREN	*	-	-	-	HENRY	*	-	-	-	MONROE	0	0.0	0.0	0.0
BREATHITT	*	-	-	-	HICKMAN	*	-	-	-	NICHOLAS	0	0.0	0.0	0.0
BRECKINRIDGE	*	-	-	-	JACKSON	*	-	-	-	OWEN	0	0.0	0.0	0.0
CALLOWAY	*	-	-	-	KNOTT	*	-	-	-	PENDLETON	0	0.0	0.0	0.0
CARTER	*	-	-	-	LESLIE	*	-	-	-	ROBERTSON	0	0.0	0.0	0.0
CHRISTIAN	*	-	-	-	LYON	*	-	-	-	SIMPSON	0	0.0	0.0	0.0
CLAY	*	-	-	-	MCLEAN	*	-	-	-	WEBSTER	0	0.0	0.0	0.0
FLEMING	*	-	-	-	MEADE	*	-	-	-	WOLFE	0	0.0	0.0	0.0

* At least one but fewer than five

- Percentage or rate suppressed to prevent disclosure of the value on which it was based

Table 34. Leading causes of SCI, all ages, 2004

Mechanism of Injury	Fatal			Non-fatal			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Motor vehicle traffic crash	40	35.7	1.0	72	64.3	1.7	112	100.0	2.7
Fall	8	15.1	0.2	45	84.9	1.1	53	100.0	1.3
Non-traffic land transportation	4	23.5	0.1	13	76.5	0.3	17	100.0	0.4
Struck by or against object or person	1	25.0	0.0	3	75.0	0.1	4	100.0	0.1
Firearm	1	11.1	0.0	8	88.9	0.2	9	100.0	0.2
Other	12	42.9	0.3	16	57.1	0.4	28	100.0	0.7
Unknown (missing E-code)	5	8.2	0.1	56	91.8	1.4	61	100.0	1.5
Total	71	25.0	1.7	213	75.0	5.1	284	100.0	6.9

Table 35. Hospital discharge disposition for non-fatal SCI, 2004

Discharge Disposition	Number	Percent
Routine discharge (home/self care)	106	49.8
Inpatient-other short-term hospital	15	7.0
Skilled nursing facility (SNF)	13	6.1
Inpatient-other type facility	6	2.8
Home health	22	10.3
Other	51	23.9
Total	213	100.0

Table 36. Primary payers for hospitalized SCI, 2004
(Hospital Discharge Dataset only)

Payer	Number of Discharges	Percent of Discharges	Total Hospital Discharges
Commercial Ins	57	26.8	\$ 5,513,540
Government	73	34.3	\$ 4,138,113
Workers Compensation	17	8.0	\$ 1,959,206
HMO	21	9.9	\$ 1,828,125
Self Pay	21	9.9	\$ 2,019,457
Other	24	11.3	\$ 1,274,977
Total	213	100.0	\$16,733,418

Table 37. Number of injury-related cases reported on hospital discharge file, 1999-2004

Year	Number	Percent Increase
1999	56972	-
2000	73808	29.6
2001	85588	16
2002	91100	6.4
2003	93700	2.9
2004	100980	7.8