

CENTRAL NERVOUS SYSTEM INJURY IN KENTUCKY

Emergency Department Visits and Hospitalizations 2021

Prepared by: the Kentucky Injury Prevention and Research Center, University of Kentucky

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FOR MORE INFORMATION

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This report presents basic data about emergency department (ED) visits, hospitalizations, and hospital deaths for the calendar year 2021 for central nervous system injuries (CNSI) that include traumatic brain injuries (TBI), non-traumatic brain injuries (NTBI), spinal cord injuries (SCI) and cerebrovascular disease (stroke). **The numbers found in this report should only be used in comparison with reports after 2015 due to the transition from the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) to the most recent Tenth Revision (ICD-10-CM).** ED visits represent approximately three out of four of all TBIs. This report will illustrate the leading causes of central nervous system injuries in Kentucky, what age groups are affected, and who pays for care received. The report is intended as a reference for policy makers, service providers, educators, researchers, advocates, and others interested in knowing more about the impact of central nervous system injuries with a focus on TBI.

Introduction

Awareness of traumatic brain injury (TBI) is fairly limited in the general public because the complications and issues related to TBI are often not visible to others. Symptoms of brain injury cover a wide range of issues and can include:

Mild TBI

Fatigue
Headaches
Seizures
Emotional disturbances
Balance issues
Memory loss
Impulsive Behavior

Severe TBI

Amnesia
Paralysis
Loss of limb, bladder and/or bowel control
Aggressiveness
Speech, language and/or vision problems
Respiratory issues
Mood, personality, or behavioral changes

These issues very often are not physically visible yet can have a devastating impact on day to day life of the injured person as well as their family, friends and colleagues. Even minor TBI may have serious, long term consequences.

Understanding how and who brain and spinal cord injuries affect is crucial to understanding the resources need to educate, prevent, and respond as a society to those with brain and spinal cord injuries.

Major sections of this report include:

- Non-Fatal TBI, NTBI, SCI and stroke case demographics, causes and outcomes
- TBI, NTBI and stroke case frequencies and rates at the county level
- SCI demographics, causes and outcomes

Later reports will include trends.

Also, this report does not include TBIs from federal, military, or Veterans' Administration hospitals. Data regarding deaths due to TBI, NTBI, SCI and stroke only include deaths treated or seen in an ED or admitted as an inpatient to an acute care hospital. Deaths that occur due to BI, SCI or stroke outside of the hospital environment are not included in this analysis due to unavailable data. Deaths that occur in the hospital setting will be noted when included in analysis in this report.

Purpose of the Report

This report answers a wide range of important questions about how many CNSIs occur each year in the Commonwealth, who is affected, and how these CNSIs occur. This report is intended as a reference for policy makers, service providers, educators, researchers, advocates, and others interested in knowing more about the impact of CNSI in Kentucky. This information can be used to document the need for prevention, to identify priorities for research, and to support the need for services among those living with CNSI-related impairment and disability.

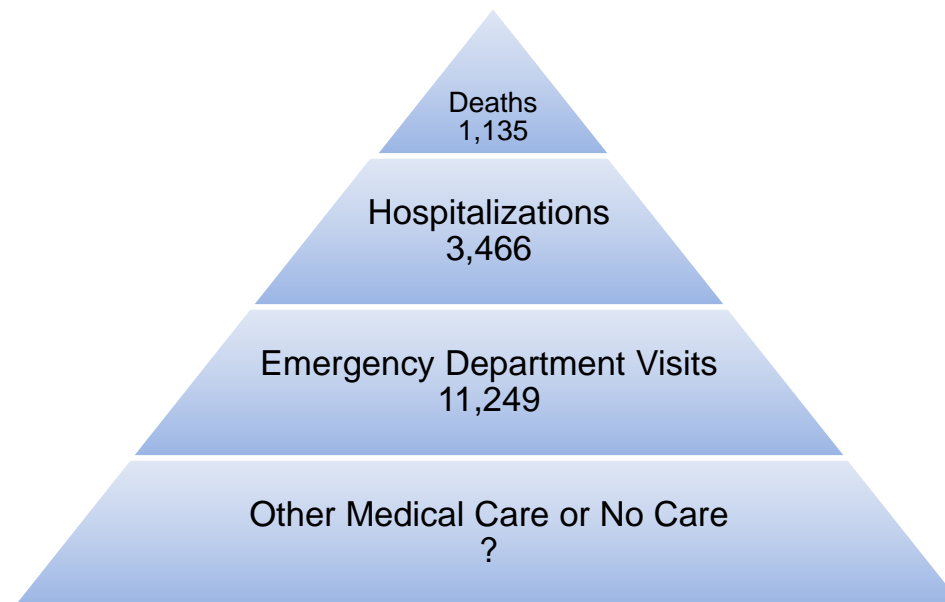
Contents and Organization

This report describes CNSI-related ED visits and hospitalizations in Kentucky for the calendar year 2021. The numbers show the magnitude of the problem, but the rates are also important. Rates show how a certain group is affected by CNSI by relating the number of CNSIs to the size of the population. For example, a relatively small number of TBIs occurring in a small population (e.g., persons ages 65 years or older) would result in a higher TBI rate than if the same number of TBIs occurred in a larger population (e.g., persons ages 25 to 44 years). The report findings are organized into two main sections. The Overview summarizes and interprets some key findings. The Appendices present more detailed data tables, along with a description of the methods and limitations.

Overview of TBI in Kentucky

In Kentucky, it is estimated that over 14,000 traumatic brain injuries and deaths occur each year. In 2021, 11,249 (76.4%) ED discharges and 3,466 (23.6%) hospitalization discharges (non-fatal) were recorded in Kentucky hospitals. In addition to these non-fatal incidents, there were 1,135 Kentucky residents who died from a TBI related injury. The following figure is a pyramid depicting the estimated average annual number of TBI-related ED visits, hospitalizations, and deaths in Kentucky for 2021. The number of individuals with a TBI that treat themselves at home (estimated to be close to 25% of all mild to moderate TBIs) or by seeking other means of medical care are unknown and will not be included in this report.

Figure 1: Number of Traumatic Brain Injury-Related Emergency Department Visits, Hospitalizations, and Estimated Deaths*, Kentucky, 2021



TBI in Kentucky, 2021:

- Over 14,000 people visited Kentucky hospitals with a TBI related injury. Of those, 11,249 were treated and released from an ED and 3,466 were hospitalized.
- 2,022 TBIs occurred among children ages 0 to 14 years; ED visits accounted for almost 90% of the TBIs in this age group.
- Falls were the leading cause of TBI for both ED visits as well as hospitalizations. Fall rates were highest for adults 65 years or older in both ED visits as well as hospitalizations.
- Falls resulted in the greatest number of TBI-related hospitalizations with a rate 2.3 times motor vehicle traffic crashes.
- Adults ages 65 years or older had the highest rates of TBI-related hospitalization with a rate higher than all other ages combined.
- Falls accounted for over twice as many TBI injuries as motor vehicle traffic crashes (MVTC).
- Data indicates that TBIs led to over 40 state residents per day being treated in Kentucky hospitals (ED and hospitalization).

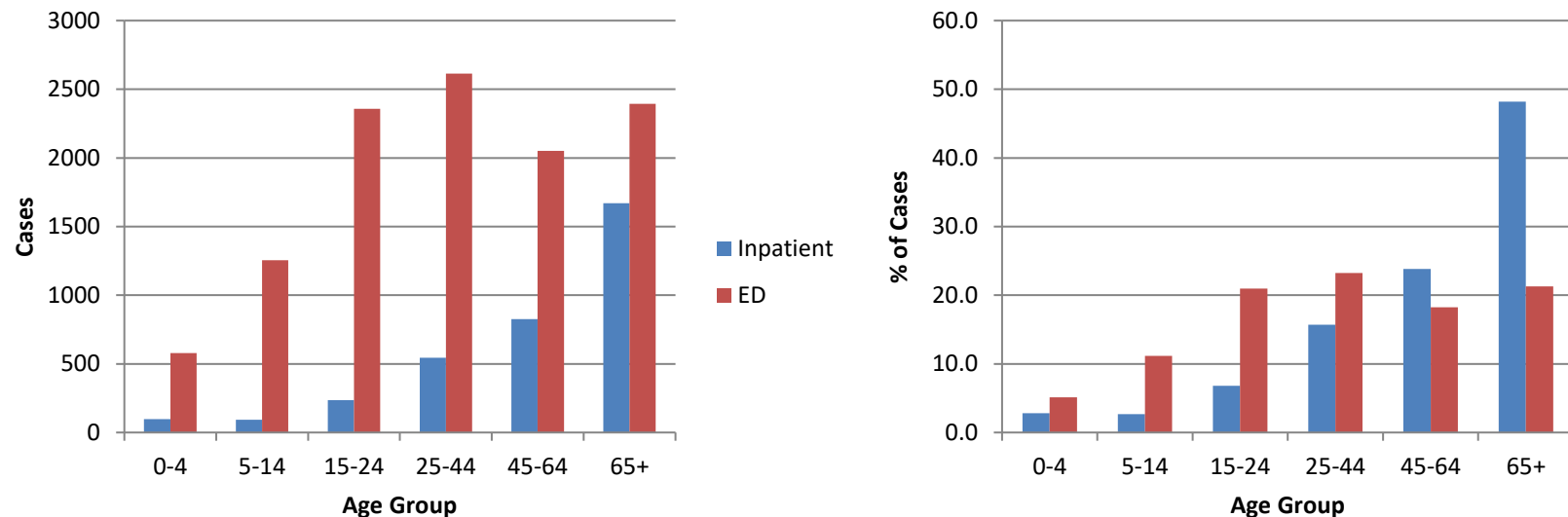
Our results indicate a need to focus prevention efforts on the following causes and target populations:

- Motor vehicle traffic crashes, especially among ages 15-24
- Falls, especially among ages 0-14 and 65 and older
- Anoxia (NTBI), especially among ages 45 and older
- Exposure to toxic substances (NTBI), especially among ages 45 and older

TBI by Age: Comparing the Numbers

Figure 2: Numbers of Non-Fatal Traumatic Brain Injury-Related Emergency Department Visits, and Hospitalizations, by Age Group, Kentucky, 202

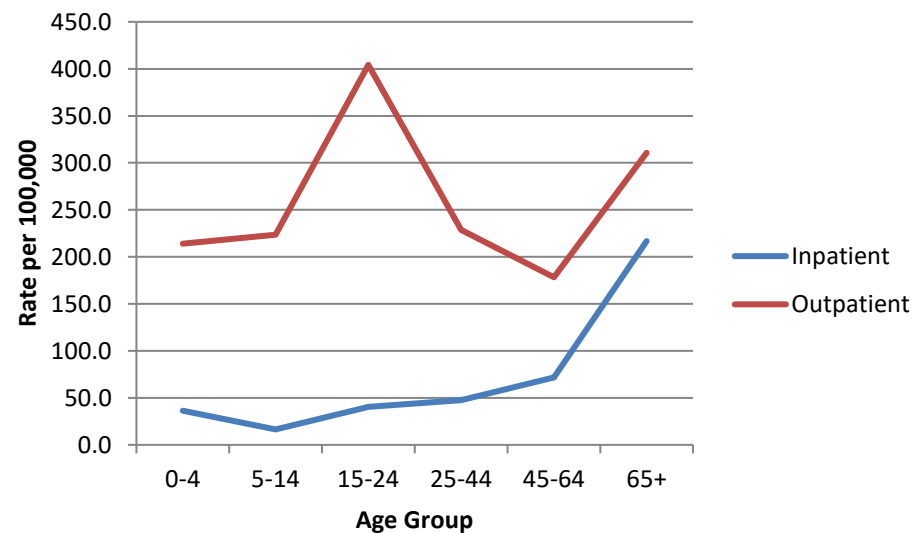
A non-fatal TBI related injury treated at a Kentucky hospital results in an *inpatient* admission for almost half of older adults (65 and older) TBI related injuries while almost 9 out of 10 TBI related injuries in children (under the age of 15) are treated and released in the ED.



TBI by Age: Comparing the Rates

The following figure, **Figure 3**, is a graph depicting the annual rate of TBI-related ED visits and hospitalizations by age groups in Kentucky for 2021. The y axis represents the rate per 100,000 population. During 2021, young adults, ages 15 to 24 years had the highest rate of non-fatal TBI-related ED visits, 404 per 100,000 population. From age 25 to age 64 the rates for ED visits decline, then begin to rise again for those ages 65 and over. The highest rates of non-fatal TBI-related hospitalization occurred among adults age 65 years or older (217 per 100,000).

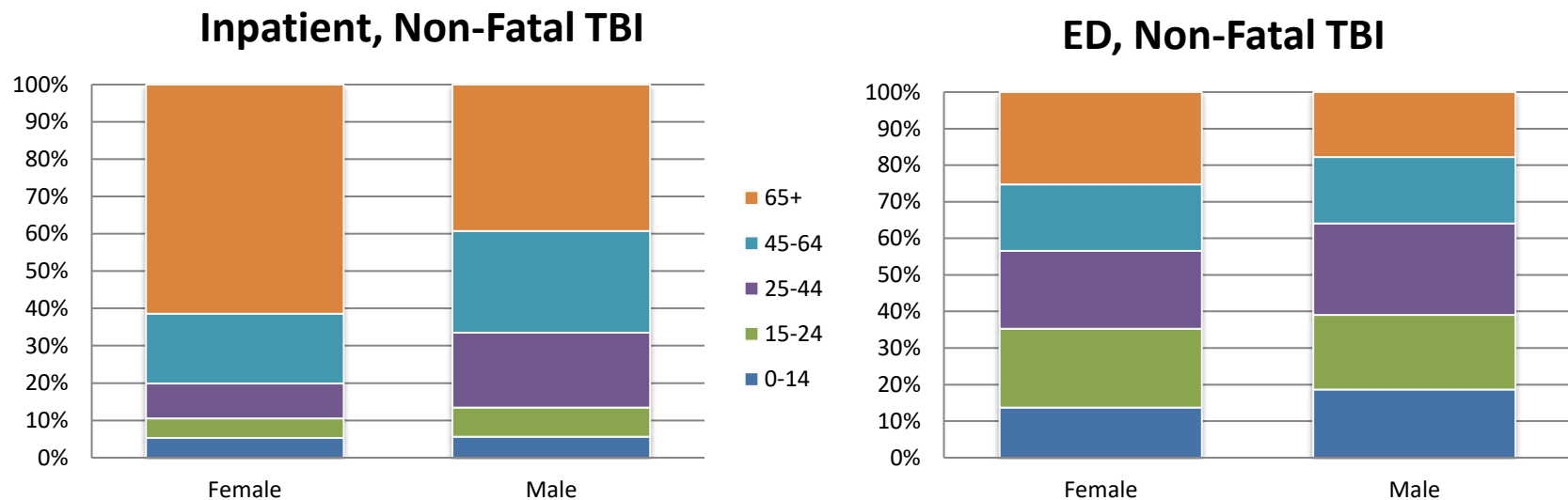
Figure 3: Rates of Traumatic Brain Injury-Related Emergency Department Visits and Hospitalizations, by Age Group, Kentucky, 2021



TBI by Gender: Comparing the Numbers

The following figure represents the estimated average annual numbers of TBI-related ED visits and hospitalizations, by gender and age, in the Commonwealth for 2021. Overall 7,995 non-fatal TBIs occurred among males compared with 6,719 among females.

Figure 4: Traumatic Brain Injury-Related Emergency Department Visits and Hospitalizations, by Age Group and Gender, Kentucky, 2021



Over half of female, non-fatal TBI related inpatient admissions were over the age of 64 while almost 4 out of 10 men admitted for non-fatal hospitalization for TBI were over the age of 64.

TBI by Gender: Comparing the Rates

The following figure, **Figure 5**, is a graph depicting the rates of TBI-related ED visits and hospitalizations by gender. The y axis represents the rate per 100,000 population. Males from 15 to 24 years of age had the highest rates for TBI-related ED visits, 403 per 100,000. Rates were also high for female ED visits from 15 to 24 years of age, 405 per 100,000. Both males and females had high rates for ages 65 and older inpatient visits, 243 per 100,000 for males and 206 per 100,000 for females.

Figure 5: Rates of Non-Fatal Traumatic Brain Injury-Related Emergency Department Visits and Hospitalizations, by Gender, Kentucky, 2021

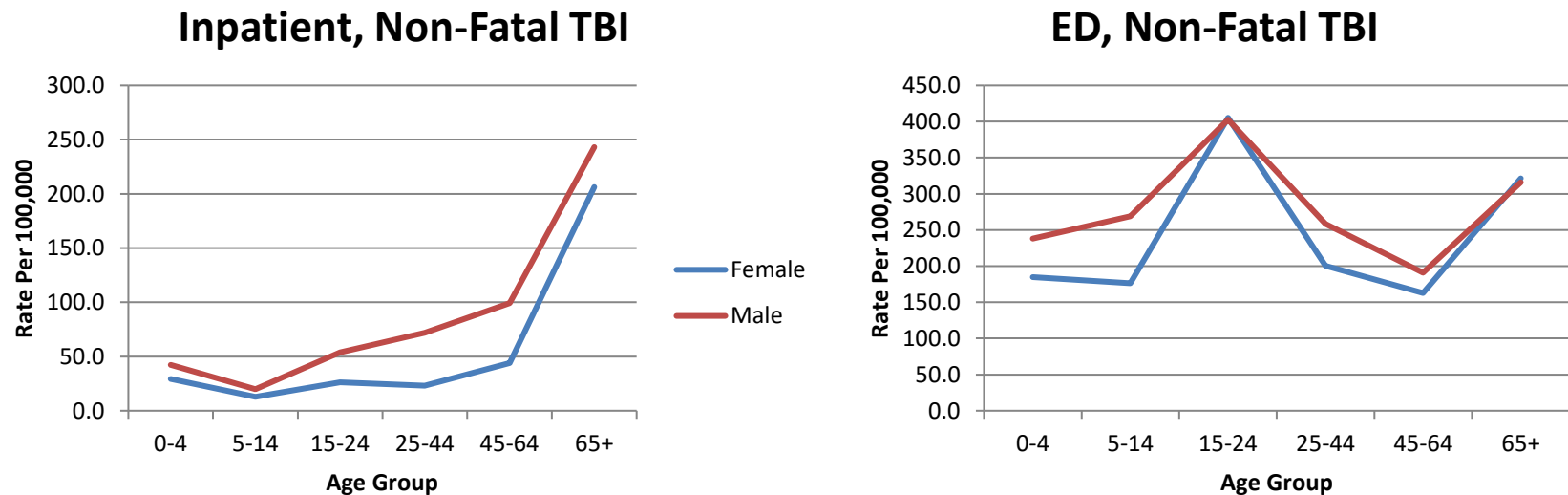
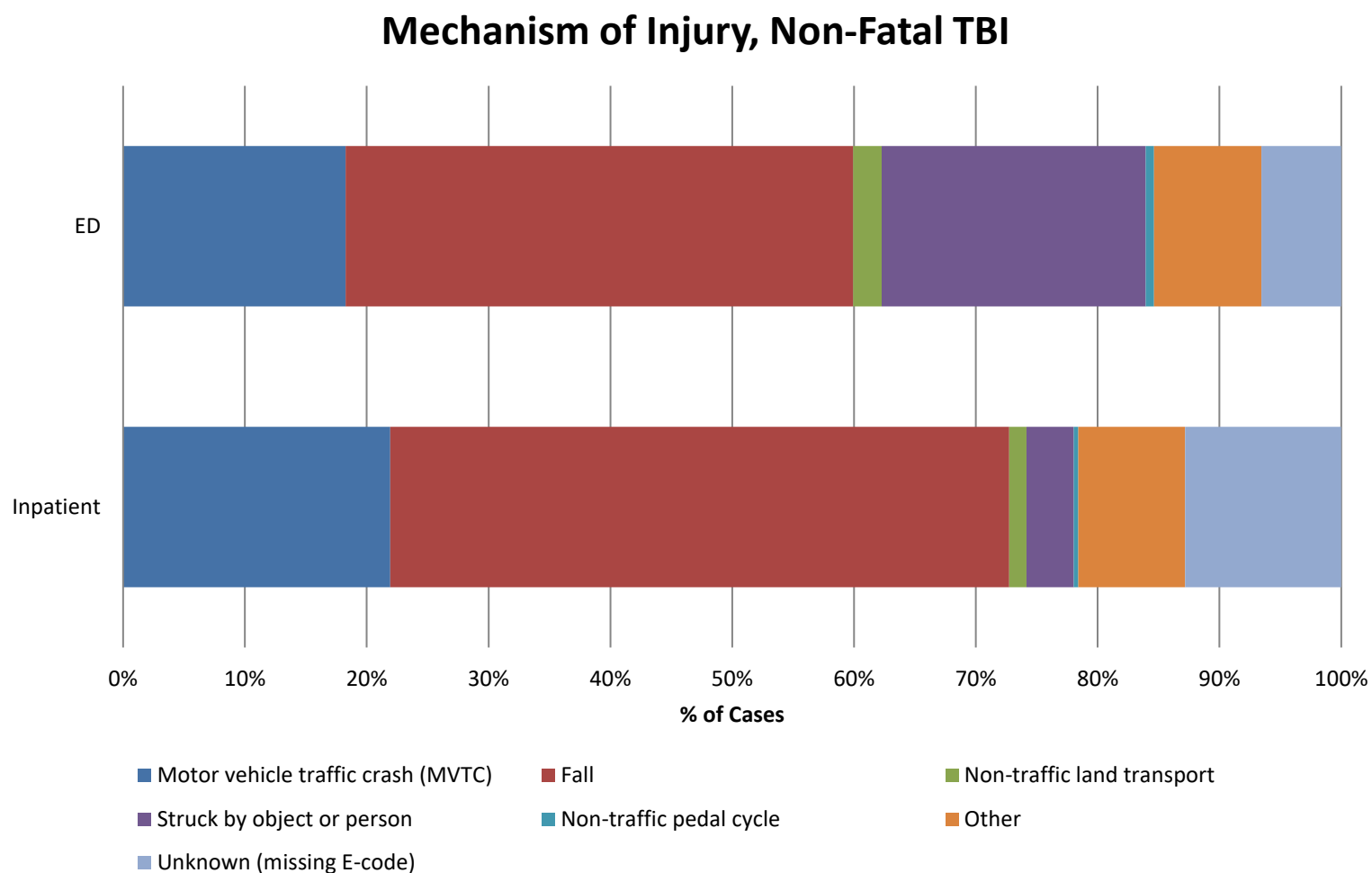


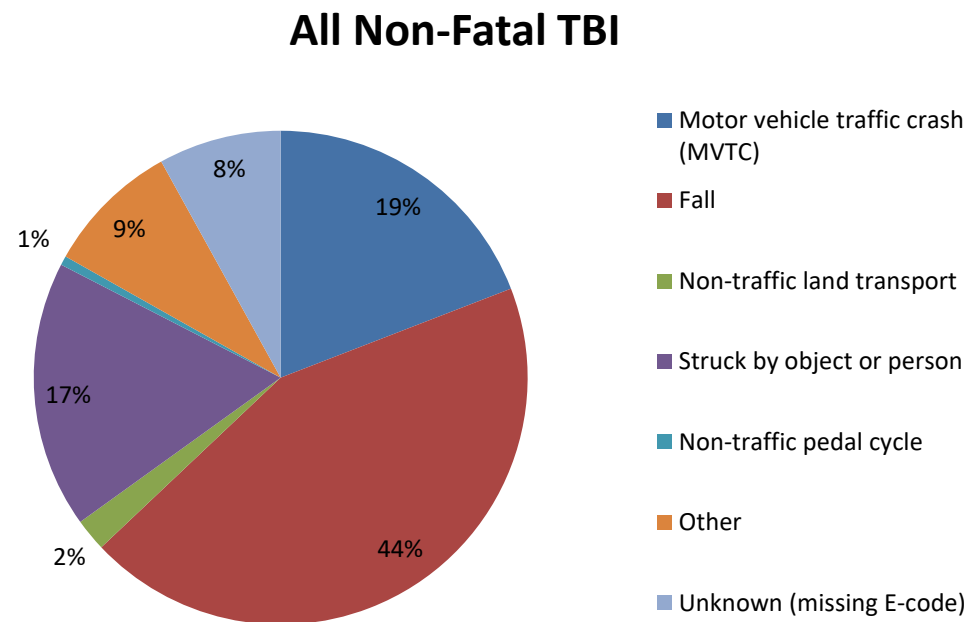
Figure 6: Non-Fatal Traumatic Brain Injury-Related Emergency Department Visits and Hospitalizations, Kentucky, 2021



TBI by External Cause: Comparing the Percentages

Following is a pie chart depicting the percentage of TBI-related ED visits and hospitalizations, combined, by external cause of injury. Falls were the leading known cause of TBI covering 44% of all non-fatal TBI in Kentucky in 2021. The second leading known cause was motor vehicle traffic crashes (MVTC) which contributed 19% of all non-fatal TBI. With the change in coding still being translated on the surveillance side, there are a larger number of unknown codes for this year. This number is expected to be reduced and confidence in coding increase as consistent coding crosswalks are generated.

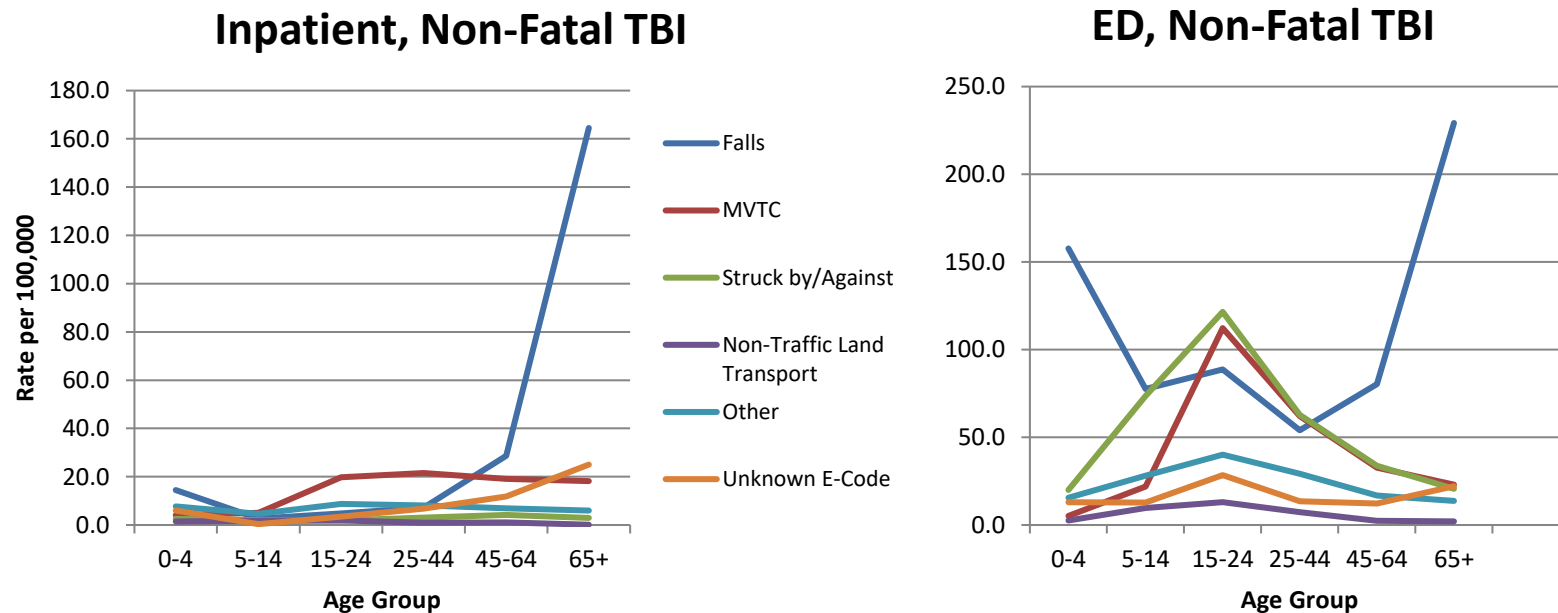
Figure 7: Percentage of Traumatic Brain Injury-Combined Emergency Department Visits and Hospitalizations, by External Cause, Kentucky, 2021



The following figure, **Figure 8**, is a graph depicting the rates of TBI-related ED visits and hospitalizations by external cause. The y axis represents the rate per 100,000 population.

The data indicate that Falls were the leading cause of TBI in Kentucky. Rates were highest among ages 0-4 years (ED) and 65 years and older (both, hospitalizations and ED). The rates for motor vehicle crash related TBI were highest among young adults ages 15 to 24 years.

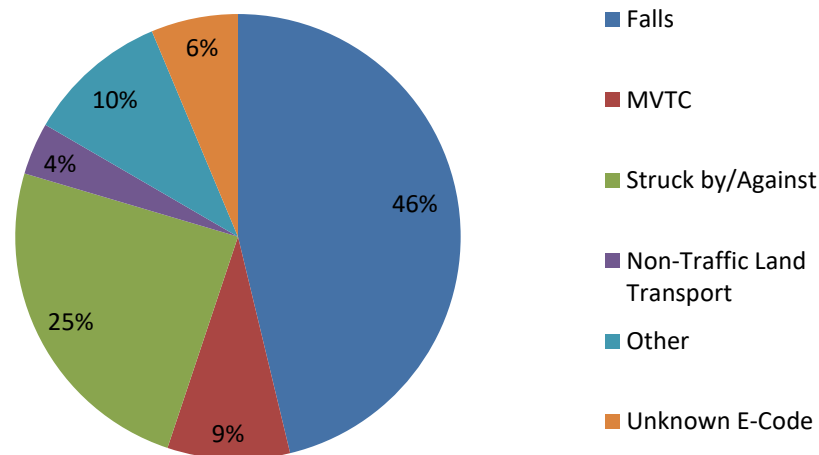
Figure 8: Rates of Non-Fatal Traumatic Brain Injury-Related Emergency Department Visits and Hospitalizations, by External Cause, Kentucky, 2021



TBI by External Cause: Comparing the Percentages by Age Groups

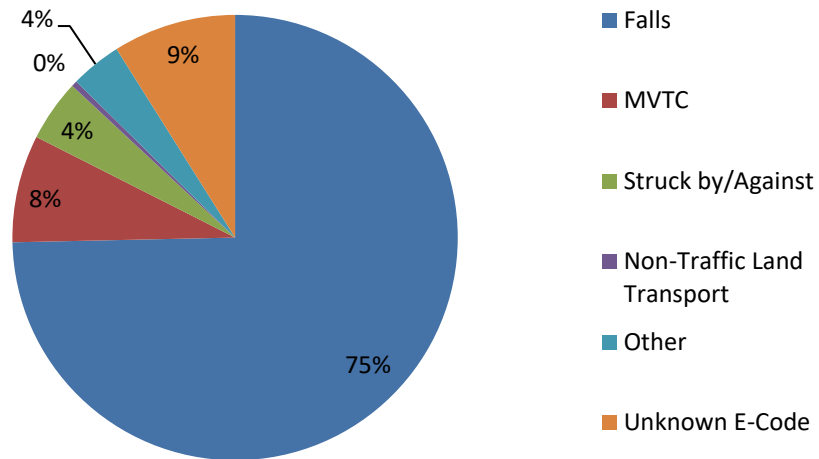
The following two figures depict the percentage of non-fatal TBI-related ED visits and hospitalizations by external cause for specific age groups. Figure 9 presents data for children ages 0 to 14 years. Figure 10 presents data for adults age 65 or older.

Figure 9: Percentage of Traumatic Brain Injury-Combined Emergency Department Visits and Hospitalizations Among Children 0 to 14 Years, by External Cause, Kentucky, 2021



For children ages 0 to 14 years, falls were the leading known external cause of non-fatal TBI, contributing to over half of all TBIs in this age group. The second leading known external cause was struck by or against events which accounted for 25% of injuries.

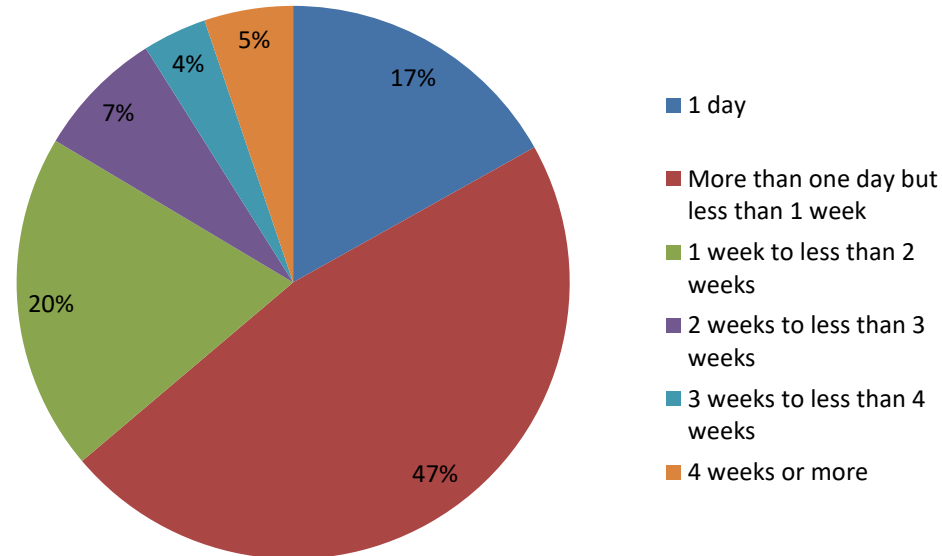
Figure 10: Percentage of Non-Fatal Traumatic Brain Injury-Combined Emergency Department Visits and Hospitalizations Among Older Adults 65 Years or Older, by External Cause, Kentucky, 2021



Falls were also the leading cause of non-fatal TBI for adults age 65 years or older and contributed to three quarters of non-fatal TBI injuries.

The length of stay (LOS) for hospitalized, non-fatal TBI (n=3,466) ranged from 1 day to 237 days. The mean LOS was 8 days with a median LOS of 4 days. Figure 11 shows the distribution of stays for those hospitalized with a TBI. Just under two thirds of admitted TBI injuries stayed for less than 1 week.

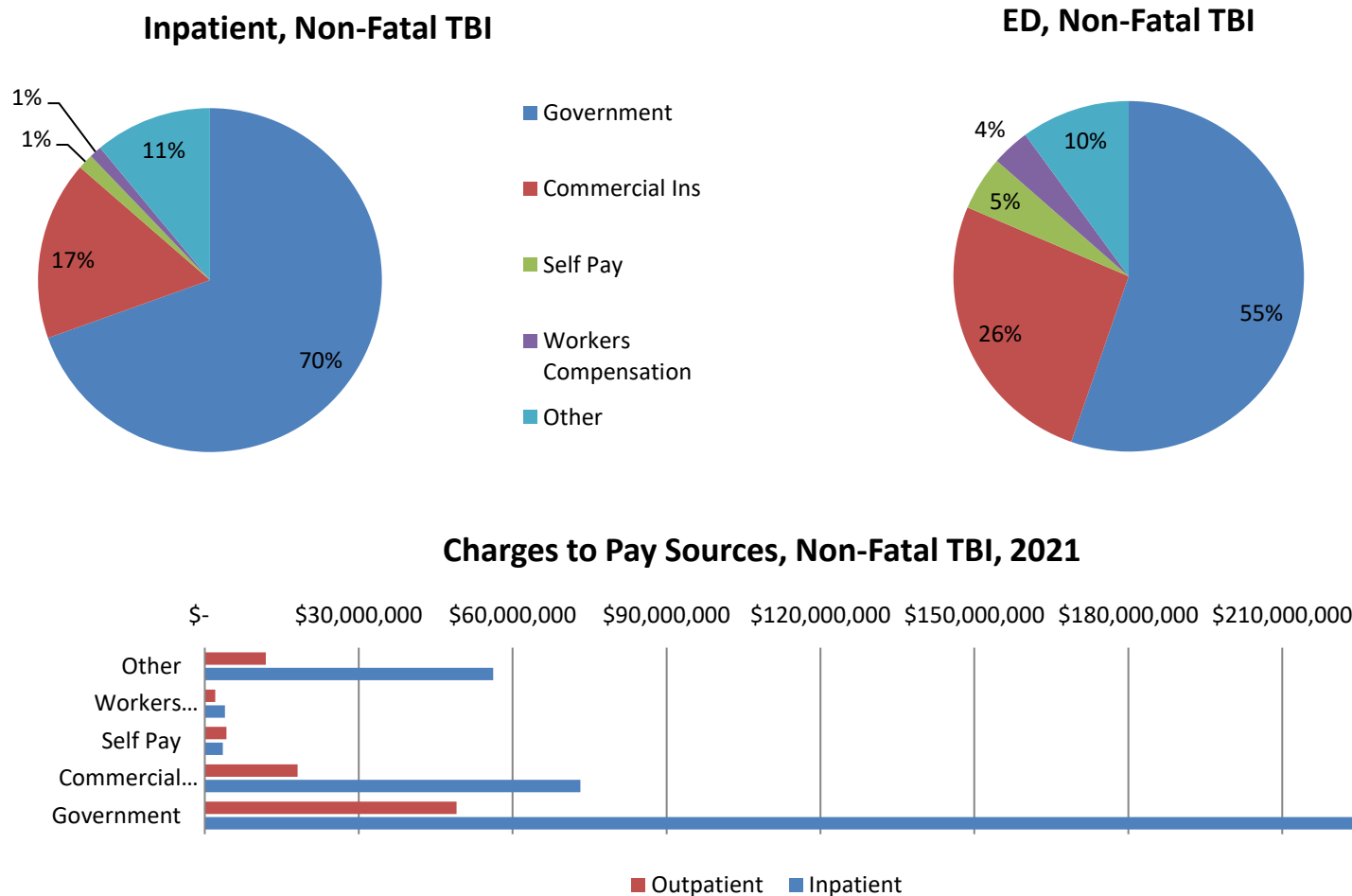
Figure 11: Non-Fatal Traumatic Brain Injury-Hospitalization Length of Stay, Kentucky, 2021



For non-fatal inpatient TBIs, 1,798 (51.9%) had a disposition other than “routine”. The three most frequent non-routine discharges were “skilled nursing facility”, “home health”, and “rehabilitation”. A total of 1,346 inpatient discharges had one of these three dispositions. ED discharges were nearly always (81.9%) to home or self care (routine) with “inpatient – other short term hospital” being the most frequent non-routine discharge.

Government sources were the primary payers billed for inpatient care charges in 7 out of 10 (69.5%) of non-fatal TBI as well as over half ED care charges (55.3%). Please note that the amount billed by the hospital will generally be larger than the amount actually paid after adjudication of the claim.

Figure 12: Non-Fatal Traumatic Brain Injury-Emergency Department and Hospitalizations, Payer Source and Charges, Kentucky, 2021

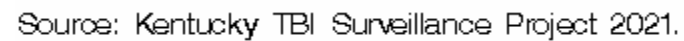


As one would expect, the incidence of TBI was highest in the larger counties. The top three in overall (inpatient and ED combined) TBI incidence (Jefferson, Fayette, and Hardin) are among the top most populous counties in Kentucky. Both Clark and Whitley County make the top 10 in incidence while only being 28th and 29th (respectively) in population rank in the state. Another notable exception was Calloway County, which was 11th in TBI incidence but 26th in population. Letcher, Robertson, Harrison and Clark also stood out by being the top 4 age-adjusted rate while ranking 54th, 120th, 63rd, and 28th in population size. Clay County, which has consistently been one of the highest rated counties in Kentucky since 2001, remains in the top 15 again this year. In the past when data was available, it was noted that several southern border counties have significant numbers of residents treated in Tennessee hospitals. Prominent examples include Christian, Whitley, Warren, Bell, Harlan, Graves, Logan, and McCracken. 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.*

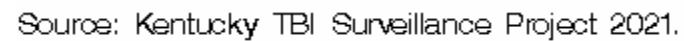
The following illustrations map both the frequency of TBI in Kentucky counties (Figures 13 and 14) as well as the age adjusted rate of TBI in each county (Figures 15 and 16) for inpatient and outpatient TBIs. It should be noted that these mappings include ALL inpatient TBI cases (Figures 13 and 15) as well as ALL ED TBI cases (Figures 14 and 16) – including those that died at the hospital. Fatalities are not included in other analysis in this report unless noted but are included here to capture a visual representation of the magnitude of the problem of TBI in each county. These numbers DO NOT include those that died before admission to an acute care hospital.

Multiple tables can be found in the Appendix detailing specific rates and frequencies by county, frequency, and age adjusted rates for both inpatient and ED TBIs.

TBI Hospitalization Cases by County, Kentucky 2021



TBI ED Cases by County, Kentucky 2021



Age-Adjusted TBI Hospitalization Rates by County, Kentucky 2021

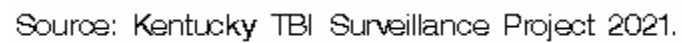
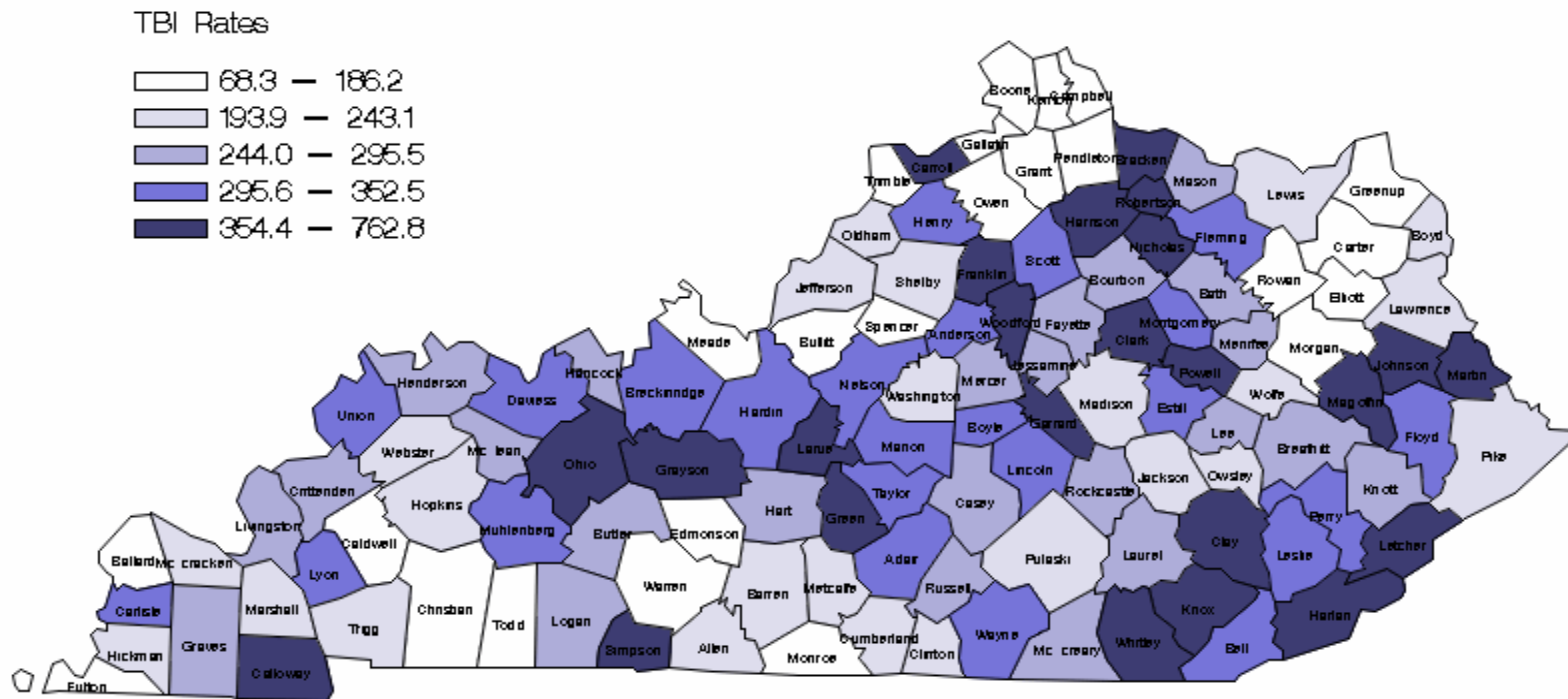


Figure 16:

Age—Adjusted TBI ED Rates by County, Kentucky 2021



Source: Kentucky TBI Surveillance Project 2021.

Non-Traumatic Brain Injury in Kentucky

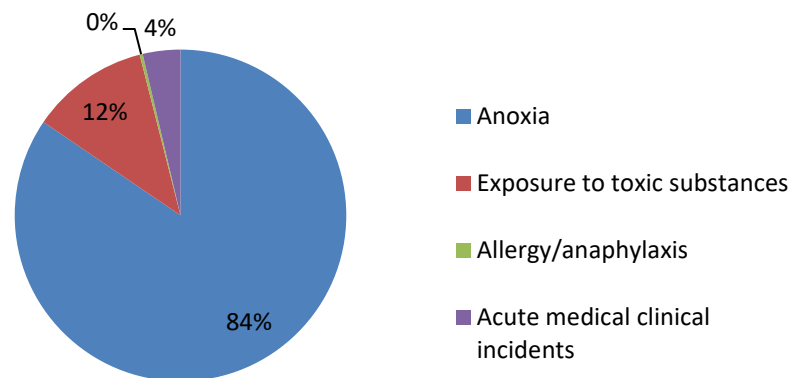
In addition to CDC-defined TBI, there are many brain injuries that have non-traumatic etiologies. These we have classified as NTBI (Non-Traumatic Brain Injuries). (See Appendix for diagnosis codes.) Because these diagnoses are not included in the CDC definition of TBI, they have been analyzed separately. We have broken NTBI into 4 different categories.

These categories of brain injuries caused by non-traumatic incidents and include:

- anoxia/hypoxia
- allergy/anaphylaxis
- acute medical clinical incidents
- toxic substances

This represents a significant widening of our definition from previous years (previously labeled Acquired Brain Injury or ABI). In 2021, there were 129,158 Kentucky residents identified in Kentucky hospitals with non-fatal, non-traumatic incidences of brain injury. This includes both inpatient (99,905) and ED (29,253) cases. The crude incidence rate for 2021 was 2,885 per 100,000 population.

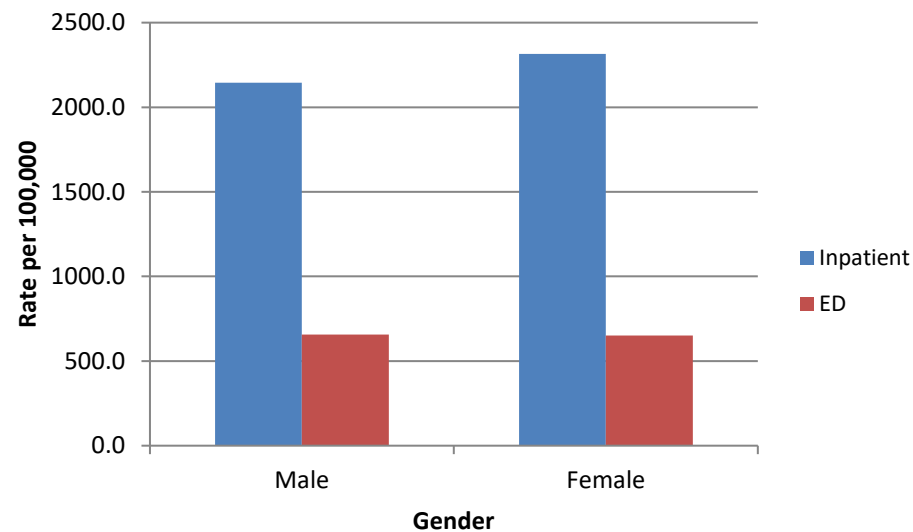
Figure 17: Non-Fatal, Non-Traumatic Brain Injury (NTBI) by Type, Kentucky, 2021



NTBI by Gender: Comparing the Rates

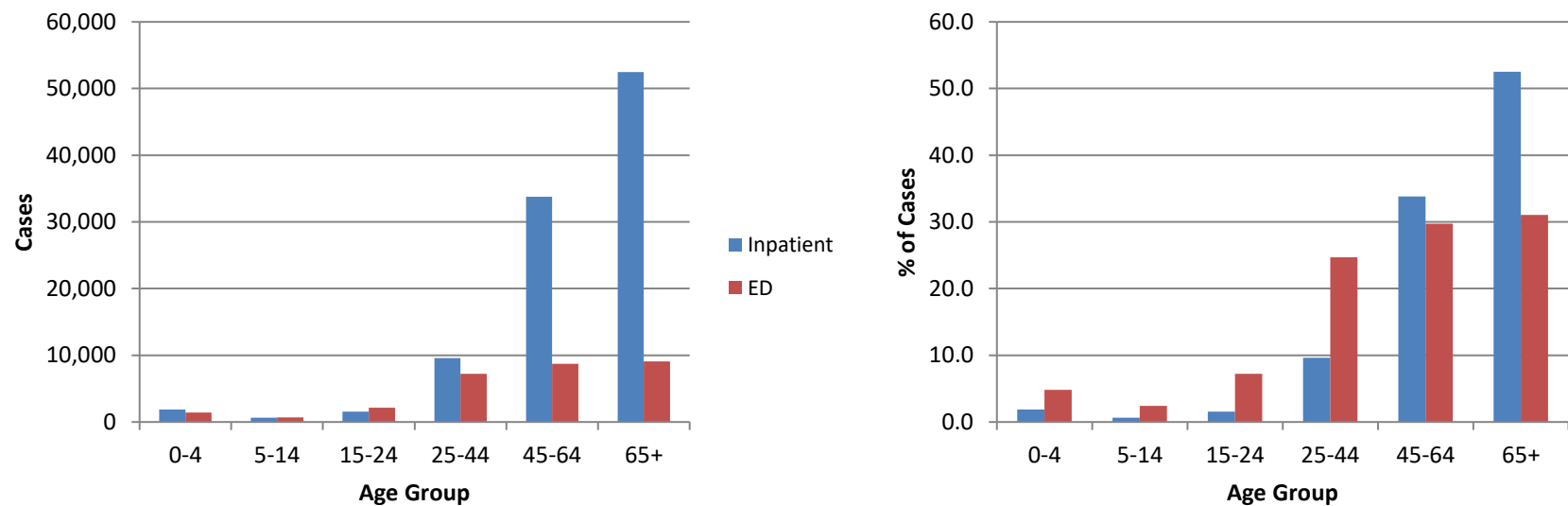
The following figure, **Figure 18**, is a graph depicting the rates of non-fatal NTBI-related ED visits and hospitalizations by gender. The y axis represents the rate per 100,000 population. Rates were slightly higher for males in ED NTBI cases with females having the higher overall rate between inpatient and ED.

Figure 18: Rates of Non-Fatal Non-Traumatic Brain Injury-Related Emergency Department Visits and Hospitalizations, by Gender, Kentucky, 2021



NTBI by Age: Comparing the Numbers

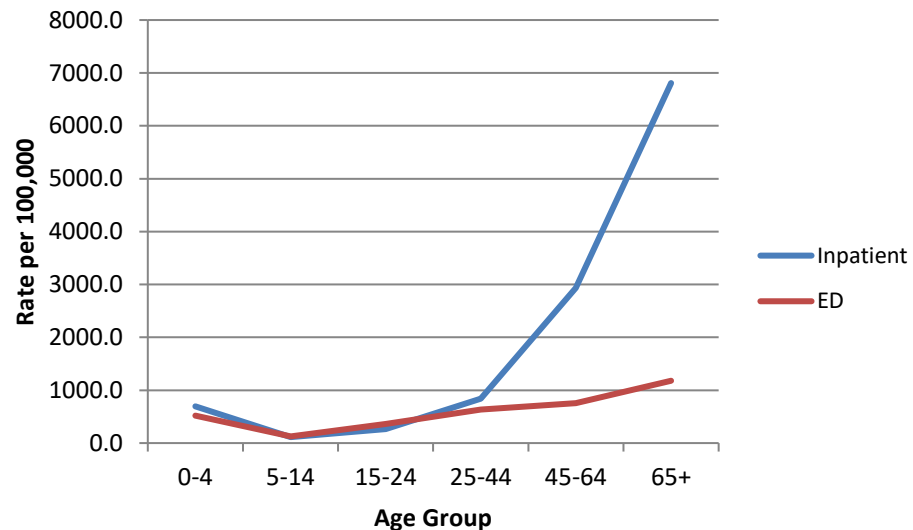
Figure 19: Numbers of Non-Fatal Non-Traumatic Brain Injury-Related Emergency Department Visits, and Hospitalizations, by Age Group, Kentucky, 2021



NTBI by Age: Comparing the Rates

The following figure, **Figure 20**, is a graph depicting the annual rate of NTBI-related ED visits and hospitalizations by age groups in Kentucky for 2021. The y axis represents the rate per 100,000 population. During 2021, the highest rate of non-fatal NTBI-related ED visits at 1179 per 100,000 population were those in the 65+ age group. The highest rates of non-fatal NTBI-related hospitalization also occurred among adults age 65 years or older (6,808 per 100,000).

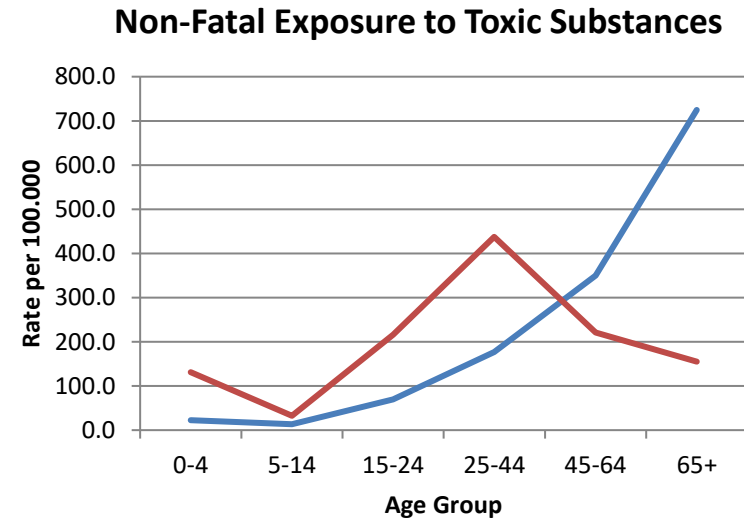
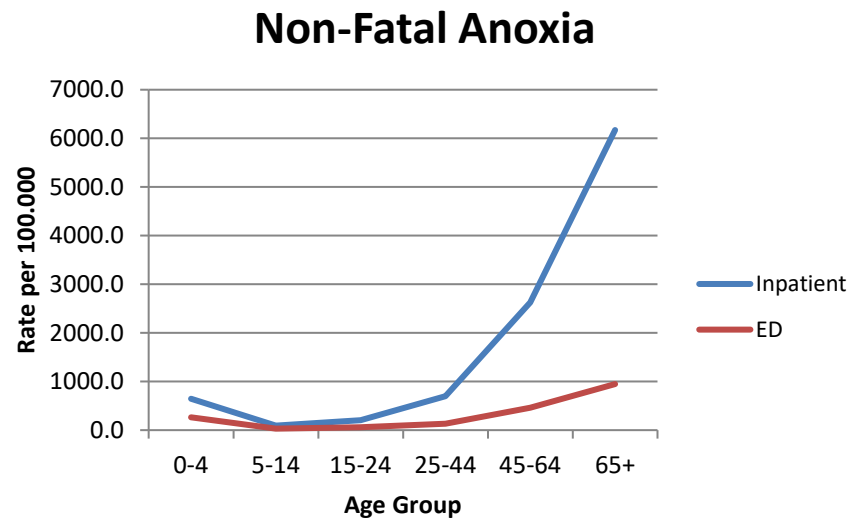
Figure 20: Rates of Non-Fatal Non-Traumatic Brain Injury-Related Emergency Department Visits and Hospitalizations, by Age Group, Kentucky, 2021



NTBI by Age and Type: Comparing the Rates

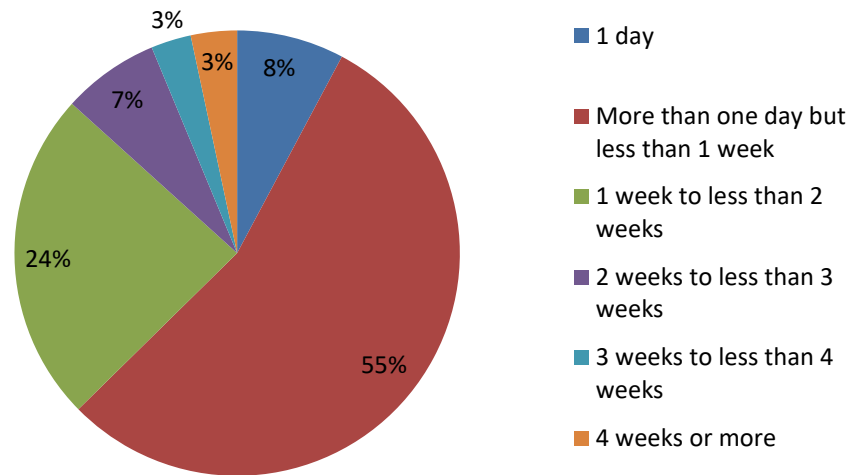
Nearly all inpatient NTBI (84.5%) were a result of anoxia/hypoxia. Anoxia/hypoxia was also the leading cause of NTBI in ED (51.7%) with exposure to toxic substances (ETS) following (35.5%). Over 6 out of 10 ETS cases included poisoning by narcotics, hallucinogens, sedatives, hypnotics, central nervous system depressants/anesthetics and toxic effects of alcohol. Over 89% of all anoxia cases were due to respiratory failure with hypoxia or hypercapnia. In non-fatal NTBI inpatient visits, anoxia tends to affect older people (ages 45 and over) considerably more often than younger people, whereas ETS also affects persons 25 and older.

Figure 21: Rates of Non-Fatal Non-Traumatic Brain Injury-Related Emergency Department Visits, and Hospitalizations, by Age Group and Type, Kentucky, 2021



The length of stay (LOS) for hospitalized, non-fatal NTBI (n=99,905) ranged from 1 day to 805 days. The mean LOS was 7.6 days with a median LOS of 5 days. Figure 22 shows the distribution of stays for those hospitalized with NTBI. Over one in three admitted (inpatient) NTBI injuries stayed for 1 week or longer.

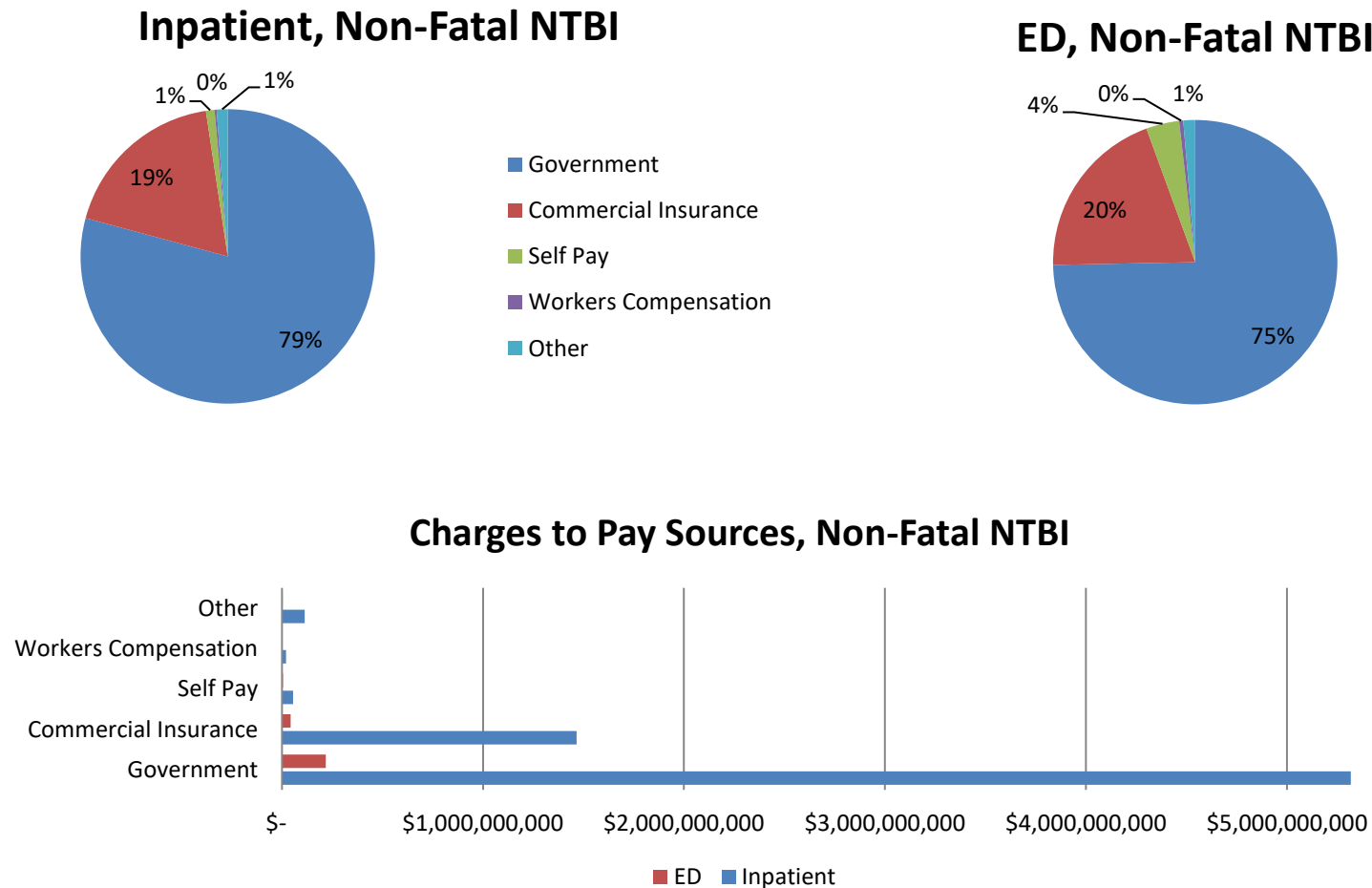
Figure 22: Non-Fatal Non-Traumatic Brain Injury-Hospitalization Length of Stay, Kentucky, 2021



For non-fatal inpatient NTBIs, 49,174 (49.2%) had a disposition other than “routine”. The three most frequent non-routine discharges were “skilled nursing facility”, “home health”, and “rehabilitation”. A total of 34,389 inpatient discharges had one of these three dispositions. ED discharges were most likely (68.4%) routinely discharged to home or self care (routine) with “inpatient – other short term hospital” being the most frequent non-routine discharge.

Government sources were the most often primary payers billed for both inpatient (79.2%) and ED (74.7%) cases for non-fatal NTBI. Please note that the amount billed by the hospital will generally be larger than the amount actually paid after adjudication of the claim.

Figure 23: Non-Fatal Non-Traumatic Brain Injury-Emergency Department and Hospitalizations, Payer Source and Charges, Kentucky, 2021



In general, as with TBI, the more populous counties had high numbers of NTBI. However, only two of the 25 most populous counties appeared in the top 25 counties when ranked by age-adjusted rate for hospitalized cases. Whitley, which ranks 29th with respect to county population, had the highest age adjusted rate of inpatient NTBI in the state. Leading the state for age adjusted rate for ED cases was Powell County, the 90th (most populated) county when ranked by population size, followed by Estill, Carroll and Leslie counties, which are ranked 79th, 96th, and 100th in population. The counties with the highest inpatient rates were concentrated in eastern Kentucky (Figure 26).

The following figures map both the frequency of NTBI in Kentucky counties (Figures 24 and 25) as well as the age adjusted rate of NTBI in each county (Figures 26 and 27) for inpatient and outpatient NTBIs. It should be noted that these mappings include ALL inpatient NTBI cases (Figures 24 and 26) as well as ALL ED NTBI cases (Figures 25 and 27) – including those that died at the hospital. Fatalities are not included in other analysis in this report unless noted but are included here to capture a visual representation of the magnitude of the problem of NTBI in each county. These numbers DO NOT include those that died before admission to an acute care hospital.

Multiple tables can be found in the Appendix detailing specific rates and frequencies by county, frequency, and age adjusted rates for both inpatient and ED NTBIs.

NTBI Hospitalization Cases by County, Kentucky 2021

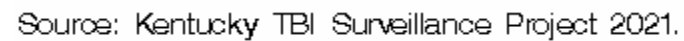
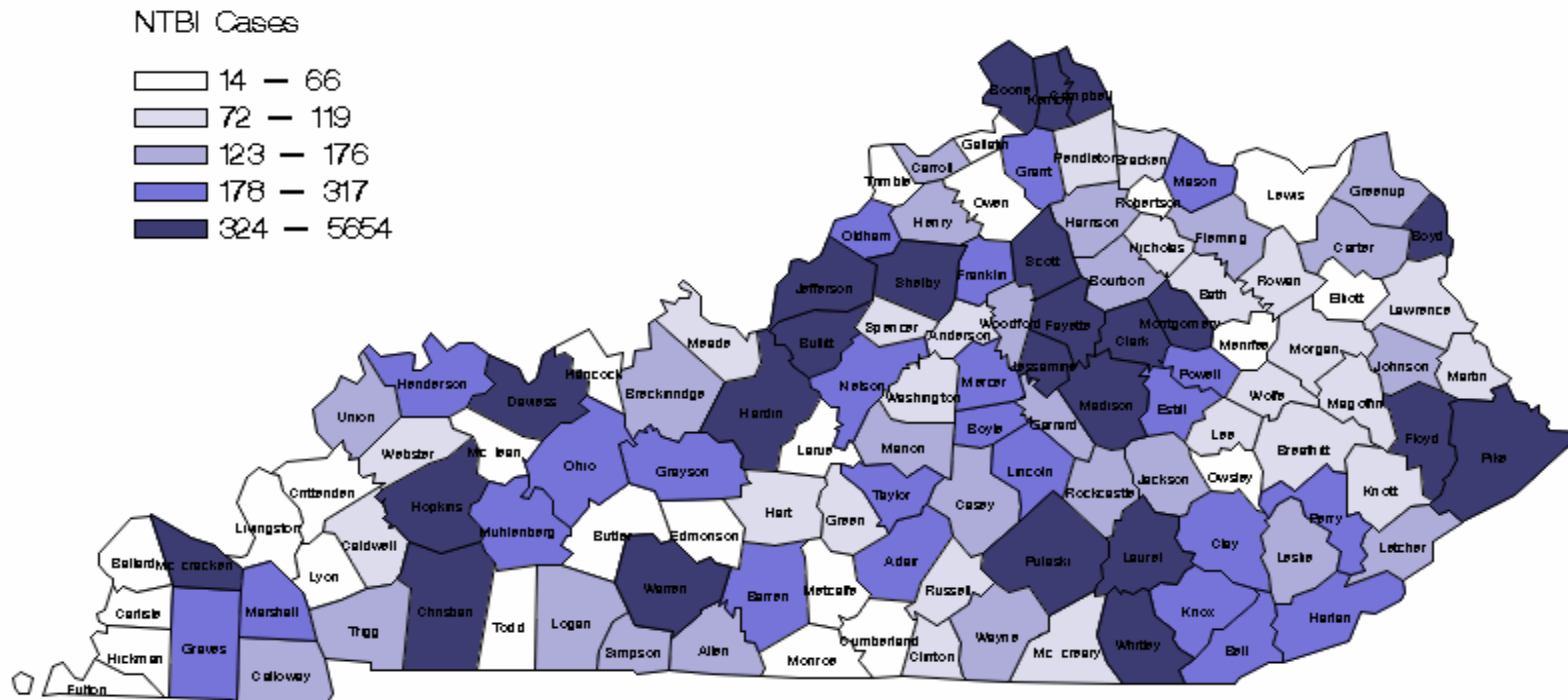


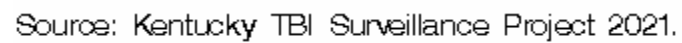
Figure 25.

NTBI ED Cases by County, Kentucky 2021

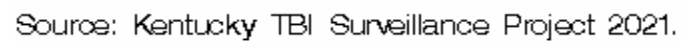


Source: Kentucky TBI Surveillance Project 2021.

Age-Adjusted NTBI Hospitalization Rates by County, Kentucky 2021



Age-Adjusted NTBI ED Rates by County, Kentucky 2021



Spinal Cord Injury in Kentucky

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 203 non-fatal inpatient SCI cases for Kentucky residents identified in 2021 as well as 75 non-fatal ED cases. The crude incidence rate of any non-fatal SCI was 6.2 per 100,000 population.

SCI by Gender: Comparing the Rates

Figure 28: Rates of Non-Fatal Spinal Cord Injury-Related Emergency Department Visits and Hospitalizations, by Gender, Kentucky, 2021

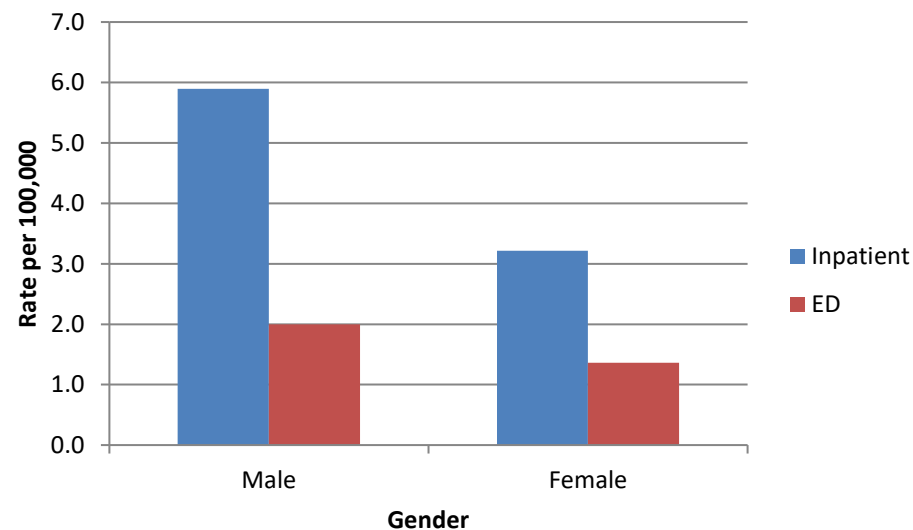
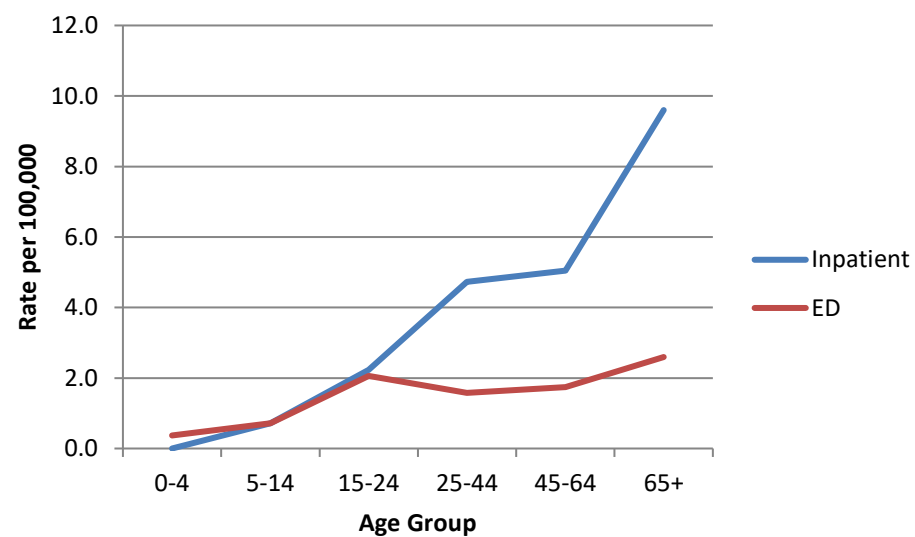
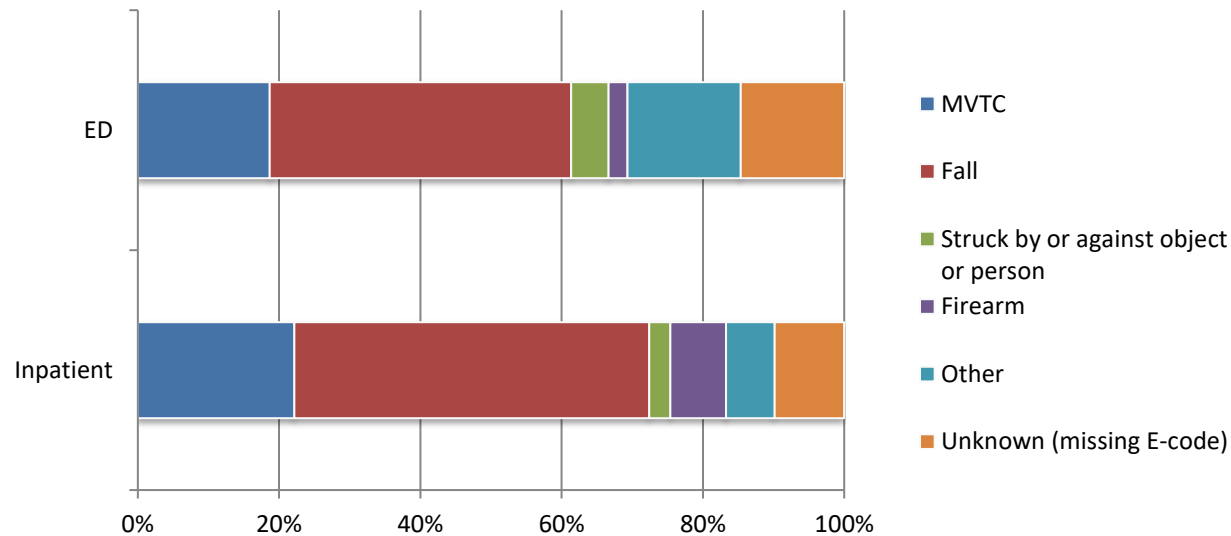


Figure 29: Rates of Spinal Cord Injury-Related Emergency Department Visits and Hospitalizations, by Age Group, Kentucky, 2021



The highest age-specific rates were found in 65+ age group for both ED and inpatient admissions.

Figure 30: Non-Fatal Spinal Cord Injury-Related Emergency Department Visits and Hospitalizations by External Cause, Kentucky, 2021

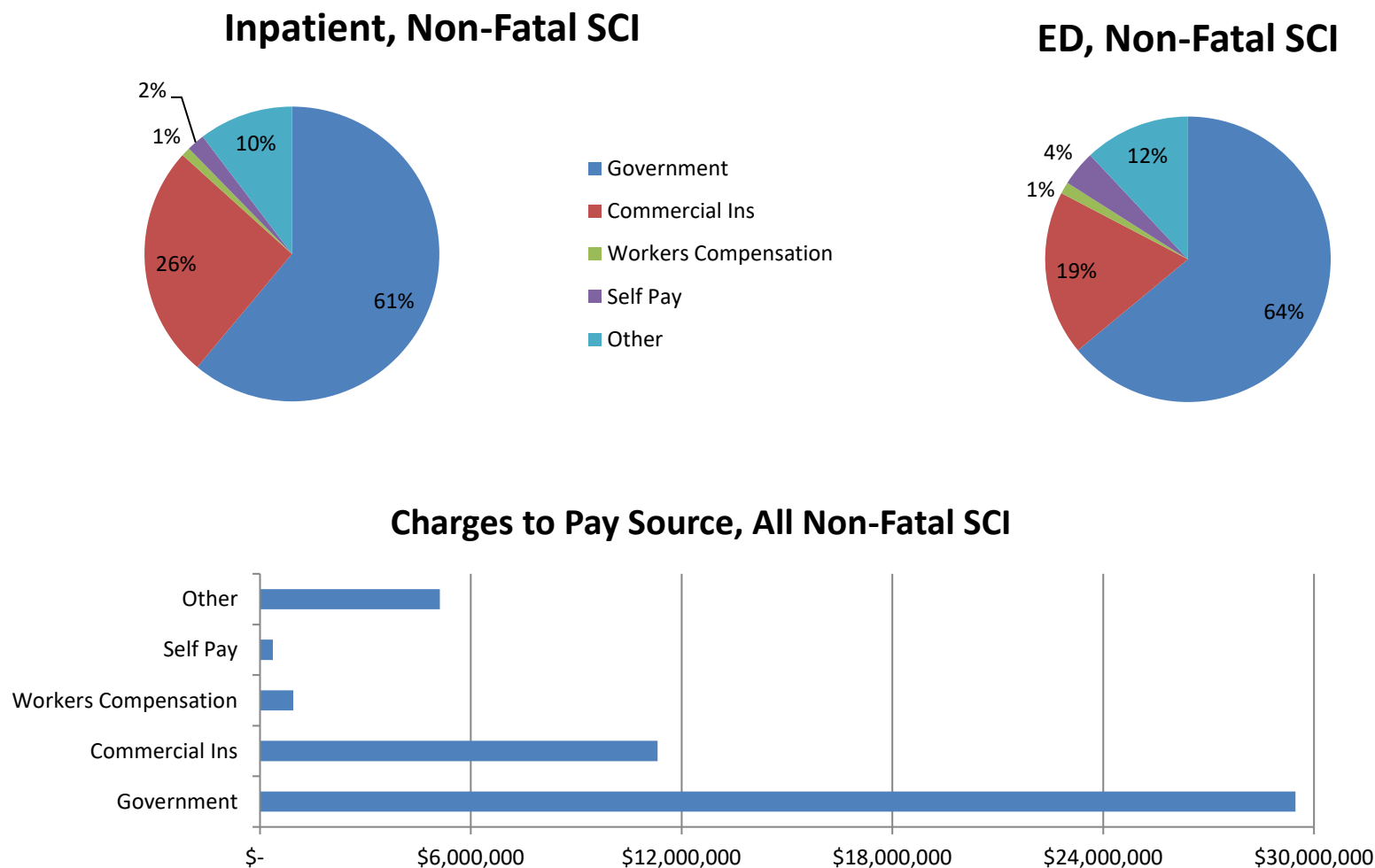


Among non-fatal SCI's for which an E-code was reported, falls were the leading mechanisms of injury for both inpatient and ED SCI visits. Motor vehicle crashes were the second leading cause of SCI in both hospitalizations and ED visits.

Hospitalized SCI patients had a length of stay (LOS) varying from 1 day to 265 days. The mean LOS was 14 days with a median of 10 days. Just over 3 out of 4 (76.4%) of the non-fatal inpatient SCI discharges had dispositions other than "routine", while 42.7% of ED discharges were non-routine. In total, over 2 out of 3 of all SCI non-fatal discharges went on to receive further care. In comparison, non-fatal TBI inpatient visits were routinely discharged 48.1% of the time and TBI visits to the ED were routinely discharged about 81.9% of the time. Overall, almost 3 out of 4 non-fatal TBI discharges were discharged to home or self care (routine).

Government sources were the primary payer billed for acute care charges in over 6 out of 10 of all non-fatal SCI. Government payers were billed over \$29.5 million in 2021, and commercial payers over \$11.3 million.

Figure 31: Non-Fatal Spinal Cord Injury-Emergency Department and Hospitalizations, Payer Source and Charges, Kentucky, 2021



Cerebrovascular Disease in Kentucky

The highest death rates for cerebrovascular disease (stroke) occur in the southeastern US which has been dubbed the “stroke belt”. This region consists of a group of 11 southeastern states that have an age-adjusted stroke mortality rate more than 10% above the national average. Kentucky is included in this region. In 2021, over 20,000 non-fatal hospital visits by Kentucky residents were coded with stroke related ICD-10-CM codes in one or more diagnosis fields. 75.9% inpatient admissions coded for stroke listed stroke as the principal diagnosis. There were 12,583 non-fatal inpatient stroke cases for Kentucky residents identified in 2021 as well as 7,668 non-fatal ED cases. The crude incidence rate was 452 per 100,000 population.

Stroke by Gender: Comparing the Rates

Figure 32: Rates of Non-Fatal Stroke Related Emergency Department Visits and Hospitalizations, by Gender, Kentucky, 2021

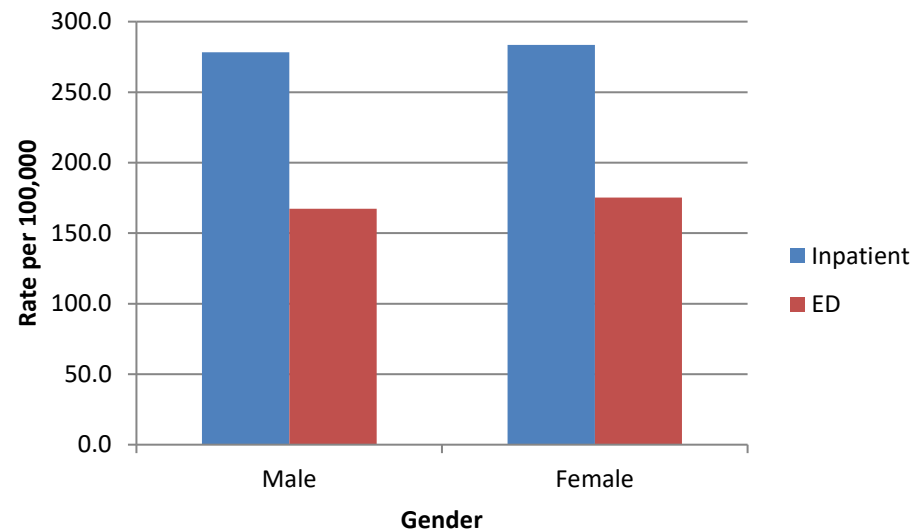
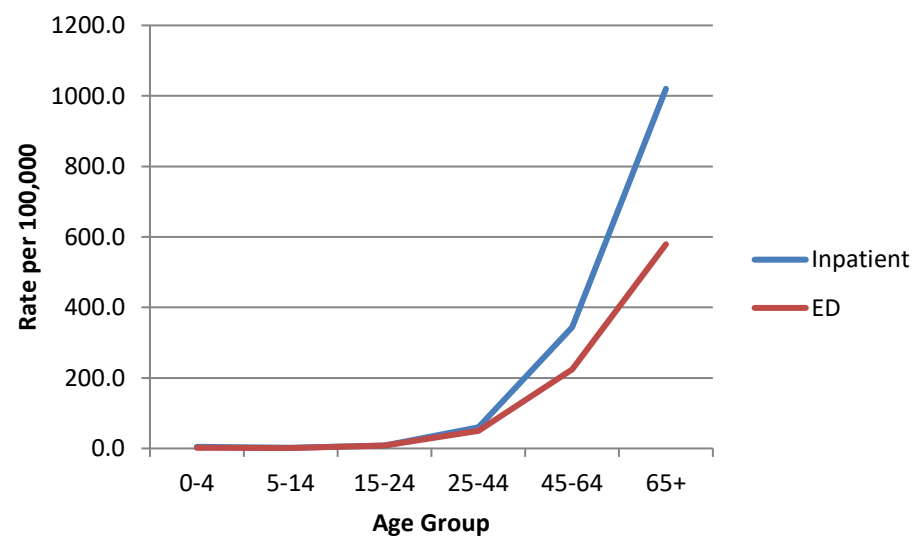


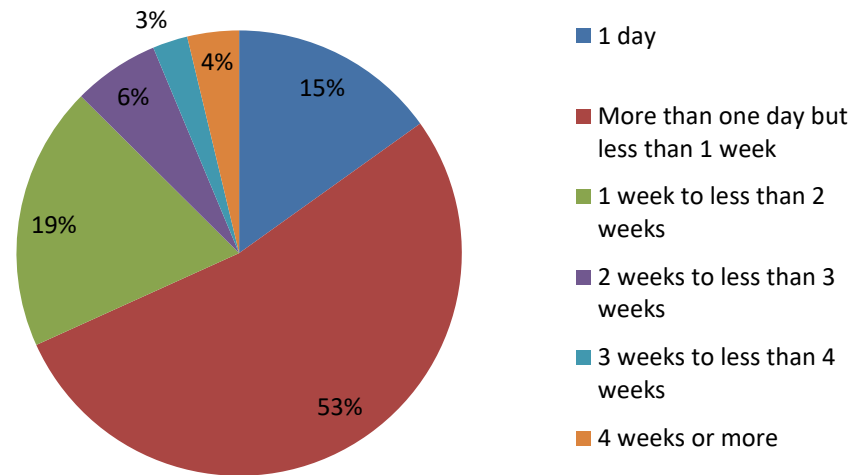
Figure 33: Rates of Stroke Related Emergency Department Visits and Hospitalizations, by Age Group, Kentucky, 2021



The highest age-specific rates were found in the 65 or older age group for both non-fatal inpatient and ED stroke cases.

The length of stay (LOS) for non-fatal stroke related hospitalizations (n=12,583) ranged from 1 day to 213 days. The mean LOS was 7 days with a median LOS of 4 days. Figure 34 shows the distribution of stays for those hospitalized with a stroke diagnosis. Almost one out of three admitted (inpatient) stroke related hospitalizations stayed for 1 week or longer.

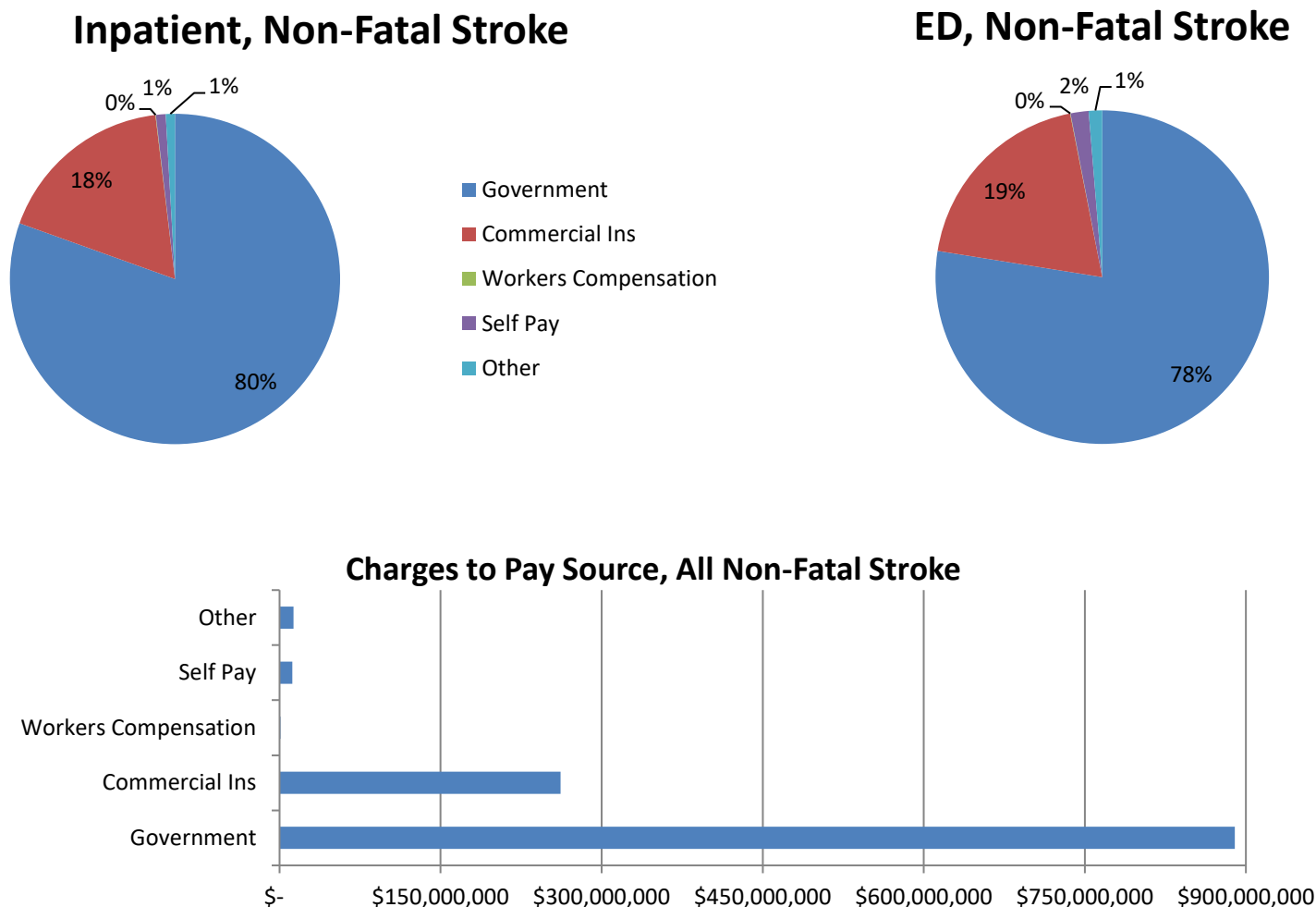
Figure 34: Non-Fatal Stroke Related Hospitalization Length of Stay, Kentucky, 2021



For non-fatal stroke related hospitalizations, 7,597 (60.4%) had a disposition other than “routine”. The three most frequent non-routine discharges were “skilled nursing facility”, “home health”, and “rehabilitation”. A total of 5,713 inpatient discharges had one of these three dispositions. ED discharges were routinely discharged to home or self care (routine) just over half the time (55.6%) with “inpatient – other” being the most frequent non-routine discharge (38.3%).

Government sources were the primary payer billed for acute care charges in almost 8 out of 10 of all non-fatal stroke related hospital visits. Government payers were billed almost \$890 million in 2021, and commercial payers almost \$262 million.

Figure 35: Non-Fatal Stroke Related Emergency Department Visits and Hospitalizations, Payer Source and Charges, Kentucky, 2021



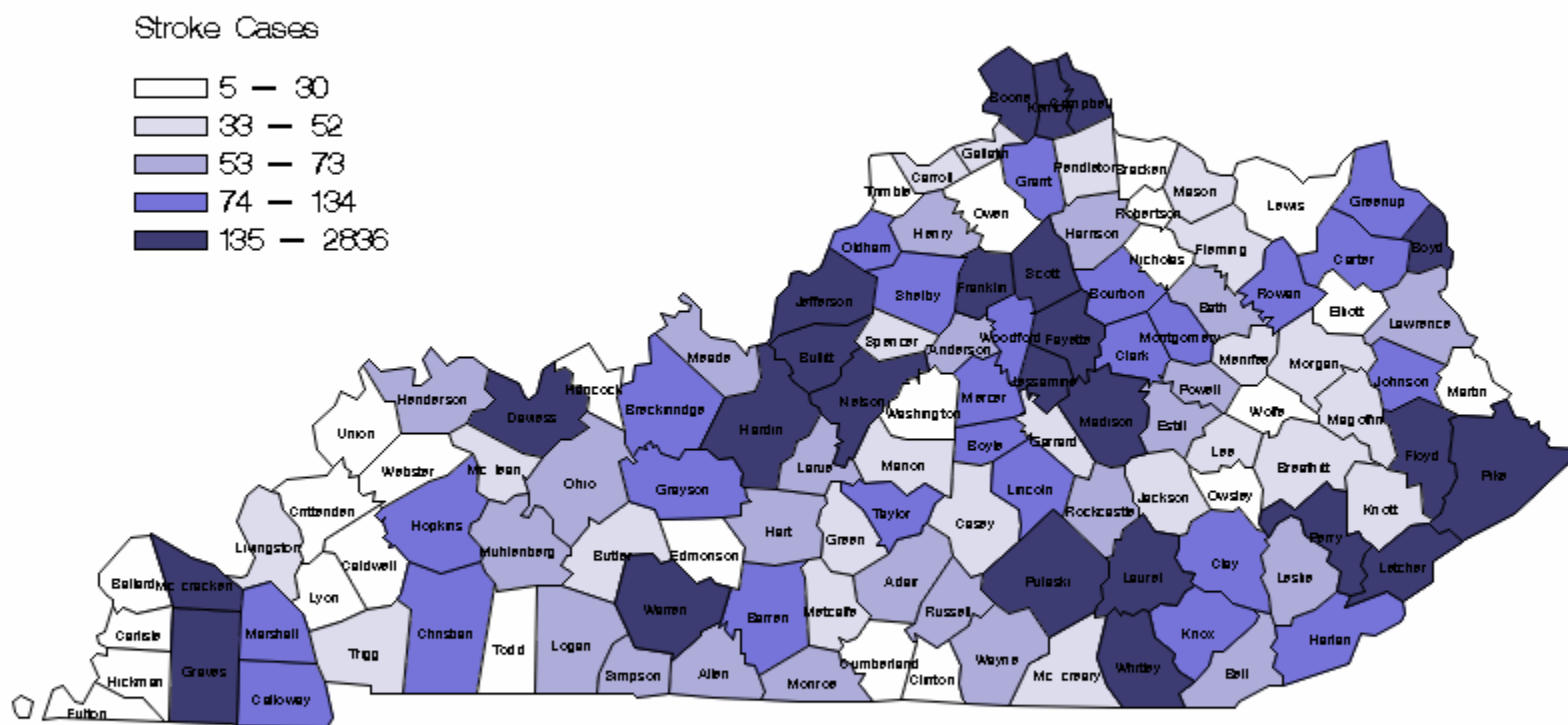
As one would expect, the incidence of stroke was highest in the larger counties. The top four in overall (inpatient and ED combined) stroke incidence (Jefferson, Fayette, Hardin and Kenton) are the four of the six most populous counties in Kentucky. Notable exceptions include Leslie, Whitley, and Monroe Counties, which were ranked 1st, 2nd, and 3rd in age adjusted rate for stroke but were 100th, 29th, and 97th in population (respectively). Lee (111th) was also in the top ten counties with highest age adjusted rates despite it's smaller population. Several southern border counties may have significant numbers of residents treated in Tennessee hospitals. Prominent examples include Christian, Whitley, Warren, Bell, Harlan, Graves, Logan, and McCracken. This illustrates an important point: *if this report shows a county to have a high rate of stroke, 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.*

The following illustrations map both the frequency of stroke hospital visits in Kentucky counties (Figures 36 and 37) as well as the age adjusted rate of stroke in each county (Figures 38 and 39) for inpatient and outpatient stroke records. It should be noted that these mappings include ALL inpatient stroke cases (Figures 36 and 38) as well as ALL ED stroke cases (Figures 37 and 39) – including those that died at the hospital. Fatalities are not included in other analysis in this report unless noted but are included here to capture a visual representation of the magnitude of the problem of stroke in each county. These numbers DO NOT include those that died before admission to an acute care hospital.

Multiple tables can be found in the Appendix detailing specific rates and frequencies by county, frequency, and age adjusted rates for both inpatient and ED stroke records

Figure 36.

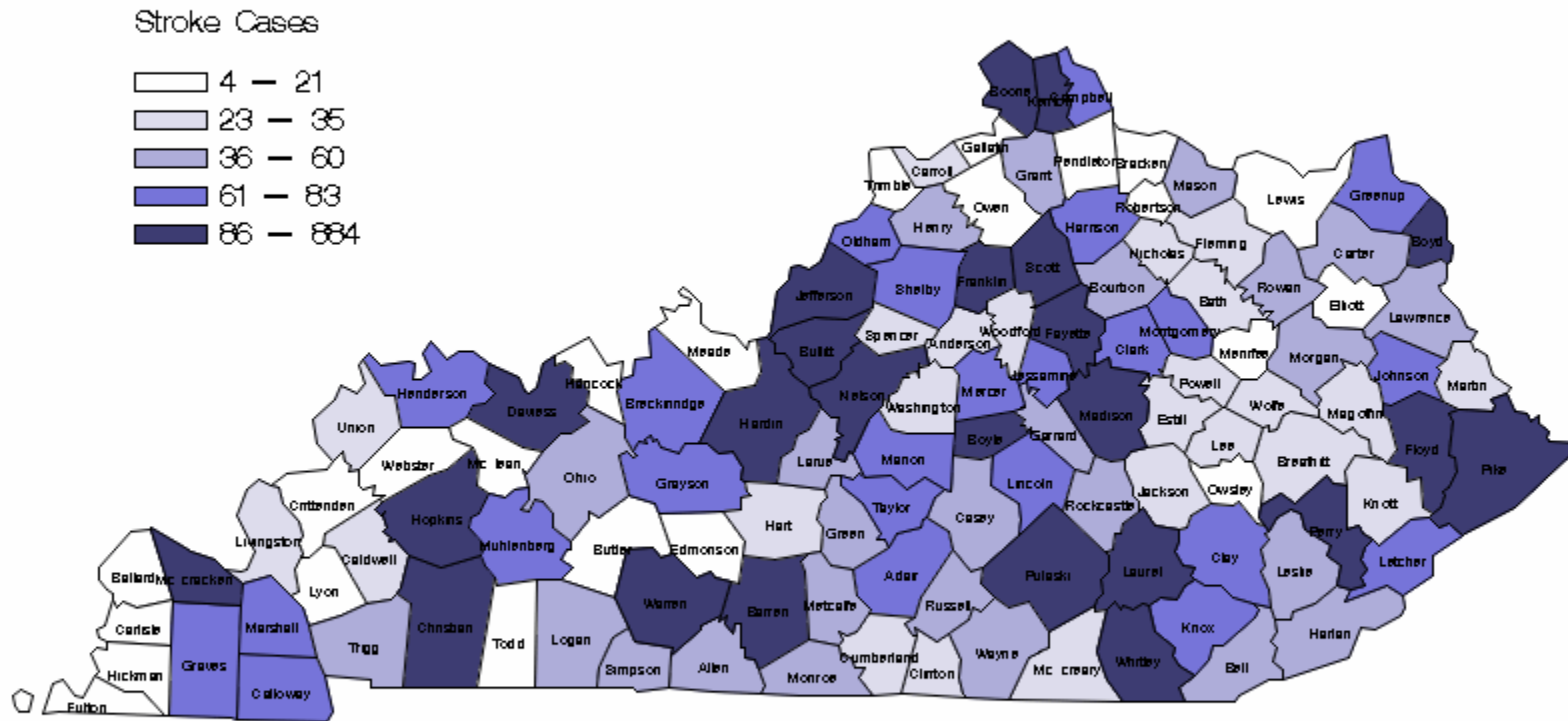
Stroke Hospitalization Cases by County, Kentucky 2021



Source: Kentucky TBI Surveillance Project 2021.

Figure 37.

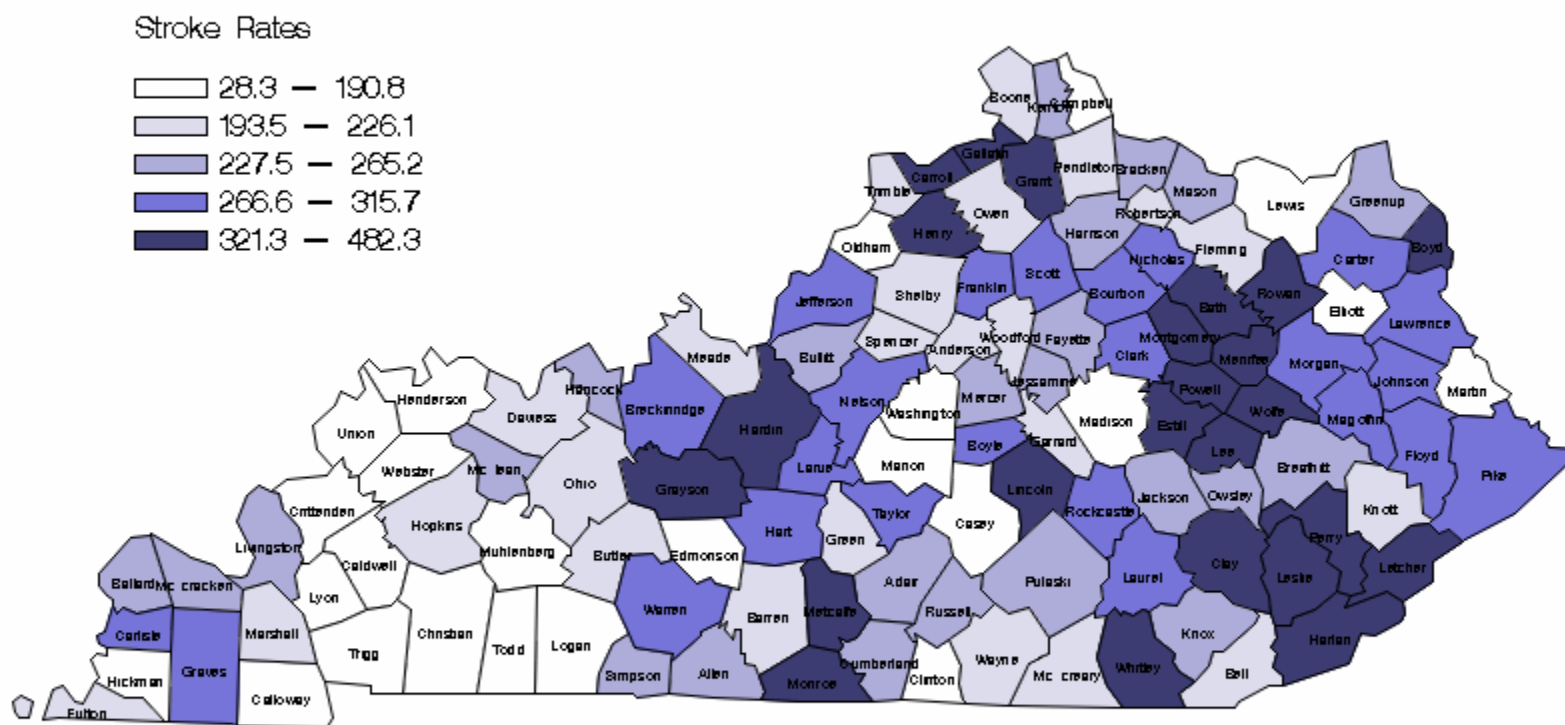
Stroke ED Cases by County, Kentucky 2021



Source: Kentucky TBI Surveillance Project 2021.

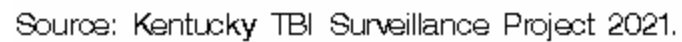
Figure 38.

Age—Adjusted Stroke Hospitalization Rates by County, Kentucky 2021



Source: Kentucky TBI Surveillance Project 2021.

Age-Adjusted Stroke ED Rates by County, Kentucky 2021



Conclusion

Over 160k non-fatal central nervous system injury-related ED visits and hospitalizations occurred in Kentucky in 2021. The findings show the importance of including ED visits because of the large number of TBIs seen only in that setting, especially among children. Although this report provides data on a wide range of CNSI occurring in Kentucky, it still does not capture all of them. It does not include those treated by emergency medical services that refused transport to a hospital, or those hospitalized outside of Kentucky nor does it include those seen by non-hospital medical services or who sought no care at all. While the 2021 data is not recommended for use in comparisons with pre-2016 reports due to coding changes made in the third quarter of 2015, the data is still important when discussing the larger issue of brain injury in Kentucky. Many people recover from their injuries, but in 2021 alone, almost 440 Kentuckians per day received either inpatient or ED care for a CNSI, many of which will result in some long term disability. Thus, brain and spinal cord injury prevention, improved acute care and rehabilitation to reduce the likelihood of injury-related disability, and also increased access to services for those who do not fully recover are critical to improving quality of life of persons following a CNSI.

Appendix A: Tables and Figures

For the following tables: Unless otherwise noted, persons who were hospitalized or died were excluded from the data for ED Visits. For Hospitalizations, in-hospital deaths were excluded. The average annual rate is per 100,000 population. Rates calculated using the most recent available Kentucky population estimates (2020) and are per 100,000.

Table 1: Non-Fatal TBI ED Visits and Hospitalizations by Age Group, Kentucky, 2021

Age	Inpatient			Outpatient			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	98	14.5	36.3	578	85.5	214.0	676	100.0	250.3
5-14	92	6.8	16.4	1254	93.2	223.7	1,346	100.0	240.1
15-24	236	9.1	40.5	2358	90.9	404.2	2,594	100.0	444.7
25-44	544	17.2	47.6	2613	82.8	228.8	3,157	100.0	276.4
45-64	825	28.7	71.7	2051	71.3	178.3	2,876	100.0	250.0
65+	1,671	41.1	216.8	2395	58.9	310.7	4,066	100.0	527.5
Total	3,466	23.6	77.4	11,249	76.4	251.2	14,715	100.0	328.7

Table 2: Non-Fatal TBI ED Visits and Hospitalizations by Gender, Kentucky, 2021

Age	Inpatient			ED			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Male	2,064	25.8	93.6	5,931	74.2	268.9	7,995	100.0	362.5
Female	1,402	20.9	61.7	5,317	79.1	234.0	6,719	100.0	295.7
Total	3,466	23.6	77.4	11,248	76.4	251.2	14,714	100.0	328.6

Table 3: Non-Fatal TBI ED Visits and Hospitalizations by External Cause of Injury, Kentucky, 2021

Mechanism of Injury	Inpatient			ED			Total		
	Number	Pct.	Rate	Number	Pct.	Rate	Number	Pct.	Rate
Motor vehicle traffic crash	760	27.0	17.0	2,055	73.0	45.9	2,815	100.0	62.9
Fall	1,761	27.3	39.3	4,686	72.7	104.7	6,447	100.0	144.0
Firearm	40	71.4	0.9	16	28.6	0.4	56	100.0	1.3
Non-traffic land transport	49	15.7	1.1	264	84.3	5.9	313	100.0	7.0
Struck by object or person	135	5.2	3.0	2,439	94.8	54.5	2,574	100.0	57.5
Non-traffic pedal cycle	13	14.6	0.3	76	85.4	1.7	89	100.0	2.0
Machinery	5	27.8	0.1	13	72.2	0.3	18	100.0	0.4
Other	259	21.2	5.8	962	78.8	21.5	1,221	100.0	27.3
Unknown (missing E-code)	444	37.6	9.9	738	62.4	16.5	1,182	100.0	26.4
Total	3,466	23.6	77.4	11,249	76.4	251.2	14,715	100.0	328.7

Table 4: Leading Causes of Non-Fatal TBI ED Visits and Hospitalizations for Ages 00-04, Kentucky, 2021

Mechanism of Injury	Inpatient		ED		Total	
	Number	Percent	Number	Percent	Number	Percent
Fall	39	39.8	426	73.7	465	68.8
Motor vehicle traffic crash	11	11.2	14	2.4	25	3.7
Struck by or against object or person	7	7.1	54	9.3	61	9.0
Non-traffic land transportation	4	4.1	7	1.2	11	1.6
Other (including non-specific codes)	21	21.4	42	7.3	63	9.3
Unknown (missing E-code)	16	16.3	35	6.1	51	7.5
Total	98	100.0	578	100.0	676	100.0

Table 5: Leading Causes of Non-Fatal TBI ED Visits and Hospitalizations for Ages 05-14, Kentucky, 2021

Mechanism of Injury	Inpatient		ED		Total	
	Number	Percent	Number	Percent	Number	Percent
Motor vehicle traffic crash	28	30.4	123	9.8	151	11.2
Fall	15	16.3	435	34.7	450	33.4
Non-traffic land transportation	10	10.9	54	4.3	64	4.8
Other pedal cycle	6	6.5	37	3.0	43	3.2
Struck by or against object or person	11	12.0	412	32.9	423	31.4
Other (including non-specific codes)	20	21.7	121	9.6	141	10.5
Unknown (missing E-code)	2	2.2	72	5.7	74	5.5
Total	92	100.0	1,254	100.0	1,346	100.0

Table 6: Leading Causes of Non-Fatal TBI ED Visits and Hospitalizations for Ages 15-24, Kentucky, 2021

Mechanism of Injury	Inpatient		ED		Total	
	Number	Percent	Number	Percent	Number	Percent
Motor vehicle traffic crash	115	48.7	655	27.8	770	29.7
Firearm	13	5.5	4	0.2	17	0.7
Non-traffic land transportation	11	4.7	76	3.2	87	3.4
Fall	28	11.9	518	22.0	546	21.0
Struck by or against object or person	11	4.7	709	30.1	720	27.8
Other (including non-specific codes)	38	16.1	230	9.8	268	10.3
Unknown (missing E-code)	20	8.5	166	7.0	186	7.2
Total	236	100.0	2,358	100.0	2,594	100.0

Table 7: Leading Causes of Non-Fatal TBI ED Visits and Hospitalizations for Ages 25-44, Kentucky, 2021

Mechanism of Injury	Inpatient		ED		Total	
	Number	Percent	Number	Percent	Number	Percent
Motor vehicle traffic crash	246	45.2	709	27.1	955	30.3
Firearm	17	3.1	9	0.3	26	0.8
Fall	82	15.1	617	23.6	699	22.1
Struck by or against object or person	35	6.4	717	27.4	752	23.8
Non-traffic land transportation	11	2.0	83	3.2	94	3.0
Machinery	1	0.2	6	0.2	7	0.2
Other (including non-specific codes)	75	13.8	318	12.2	393	12.4
Unknown (missing E-code)	77	14.2	154	5.9	231	7.3
Total	544	100.0	2,613	100.0	3,157	100.0

Table 8: Leading Causes of Non-Fatal TBI ED Visits and Hospitalizations for Ages 45-64, Kentucky, 2021

Mechanism of Injury	Inpatient		ED		Total	
	Number	Percent	Number	Percent	Number	Percent
Fall	329	39.9	923	45.0	1,252	43.5
Motor vehicle traffic crash	220	26.7	377	18.4	597	20.8
Firearm	4	0.5	3	0.1	7	0.2
Struck by or against object or person	48	5.8	388	18.9	436	15.2
Non-traffic land transportation	12	1.5	28	1.4	40	1.4
Other (including non-specific codes)	76	9.2	191	9.3	267	9.3
Unknown (missing E-code)	136	16.5	141	6.9	277	9.6
Total	825	100.0	2,051	100.0	2,876	100.0

Table 9: Leading Causes of Non-Fatal TBI ED Visits and Hospitalizations for Ages 65 or Over, Kentucky, 2021

Mechanism of Injury	Inpatient		ED		Total	
	Number	Percent	Number	Percent	Number	Percent
Fall	1,268	75.9	1,767	73.8	3,035	74.6
Motor vehicle traffic crash	140	8.4	177	7.4	317	7.8
Firearm	1	0.1	0	0.0	1	0.0
Struck by or against object or person	23	1.4	159	6.6	182	4.5
Non-traffic land transportation	1	0.1	16	0.7	17	0.4
Other (including non-specific codes)	45	2.7	106	4.4	151	3.7
Unknown (missing E-code)	193	11.5	170	7.1	363	8.9
Total	1,671	100.0	2,395	100.0	4,066	100.0

Table 10: Hospital Discharges by Disposition for Non-Fatal TBI ED Visits and Hospitalizations, Kentucky, 2021

Discharge Disposition	Inpatient		ED	
	Number	Percent	Number	Percent
Routine discharge (home/self care)	1,668	48.1	9,213	81.9
Skilled nursing facility (SNF)	470	13.6	97	0.9
Home health	294	8.5	23	0.2
Inpatient-other short-term hospital	64	1.8	1,302	11.6
Intermediate care facility (ICF)	23	0.7	5	0.0
Rehab	582	16.8	21	0.2
Other	365	10.5	588	5.2
Total	3,466	100.0	11,249	100.0

Table 11: Incidence of All Inpatient TBI* by County, Sorted by County, Kentucky, 2021

***Includes inpatient deaths as well as non-fatal inpatient cases**

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	12	0.3	57.3	61.4	Grant	21	0.5	83.7	82.7	McLean	9	0.2	83.1	99.2
Allen	*	-	-	-	Graves	30	0.8	63.6	81.5	Meade	24	0.6	81.0	83.9
Anderson	20	0.5	83.7	87.6	Grayson	26	0.7	87.5	98.2	Menifee	7	0.2	102.9	107.7
Ballard	*	-	-	-	Green	10	0.3	68.9	91.0	Mercer	22	0.6	83.5	100.5
Barren	26	0.7	46.9	58.7	Greenup	15	0.4	32.7	43.0	Metcalfe	*	-	-	-
Bath	11	0.3	99.3	88.1	Hancock	11	0.3	103.7	125.8	Monroe	*	-	-	-
Bell	10	0.3	35.9	39.2	Hardin	90	2.3	76.4	80.9	Montgomery	29	0.7	88.9	102.9
Boone	64	1.7	44.2	47.3	Harlan	29	0.7	107.3	113.4	Morgan	8	0.2	50.7	60.9
Bourbon	23	0.6	110.3	115.6	Harrison	31	0.8	151.2	163.8	Muhlenberg	25	0.6	68.6	82.1
Boyd	22	0.6	33.9	47.3	Hart	12	0.3	59.5	63.1	Nelson	49	1.3	98.8	105.5
Boyle	27	0.7	80.2	88.9	Henderson	10	0.3	23.2	22.4	Nicholas	5	0.1	66.3	69.1
Breckenridge	11	0.3	131.0	132.8	Henry	16	0.4	78.5	99.6	Ohio	18	0.5	65.9	75.3
Breathitt	12	0.3	90.4	95.6	Hickman	*	-	-	-	Oldham	46	1.2	71.5	68.7
Breckinridge	25	0.6	97.6	121.7	Hopkins	5	0.1	10.0	11.2	Owen	6	0.2	49.5	54.5
Bullitt	65	1.7	73.1	79.1	Jackson	12	0.3	87.6	90.0	Owsley	5	0.1	92.0	115.4
Butler	*	-	-	-	Jefferson	995	25.7	116.9	129.7	Pendleton	9	0.2	44.9	61.7
Caldwell	8	0.2	43.7	63.1	Jessamine	46	1.2	76.1	85.1	Perry	37	1.0	129.6	145.3
Calloway	22	0.6	44.0	56.0	Johnson	21	0.5	77.0	95.4	Pike	100	2.6	150.4	175.3
Campbell	49	1.3	42.5	52.1	Kenton	98	2.5	53.5	58.4	Powell	8	0.2	56.3	65.5
Carlisle	*	-	-	-	Knott	12	0.3	87.4	82.7	Pulaski	71	1.8	91.8	108.3
Carroll	9	0.2	79.5	83.9	Knox	21	0.5	62.5	67.7	Robertson	*	-	-	-
Carter	21	0.5	70.5	79.1	Larue	11	0.3	66.6	76.2	Rockcastle	15	0.4	78.7	89.6
Casey	6	0.2	41.9	37.3	Laurel	35	0.9	49.5	57.2	Rowan	14	0.4	58.3	56.7
Christian	14	0.4	19.9	19.6	Lawrence	7	0.2	44.2	45.3	Russell	12	0.3	60.5	66.7
Clark	38	1.0	94.3	104.2	Lee	10	0.3	111.8	137.6	Scott	38	1.0	65.4	65.0
Clay	28	0.7	123.5	142.6	Leslie	12	0.3	141.1	124.5	Shelby	36	0.9	71.0	72.6
Clinton	5	0.1	38.0	49.5	Letcher	30	0.8	117.3	141.4	Simpson	7	0.2	33.9	37.6
Crittenden	5	0.1	47.6	56.5	Lewis	9	0.2	68.1	67.9	Spencer	10	0.3	48.0	51.1
Cumberland	9	0.2	89.5	138.0	Lincoln	32	0.8	123.7	130.8	Taylor	17	0.4	64.3	66.1
Daviess	106	2.7	90.6	103.9	Livingston	5	0.1	35.3	55.3	Todd	0	0.0	0.0	0.0
Edmonson	5	0.1	35.3	40.9	Logan	6	0.2	17.6	21.9	Trigg	9	0.2	47.0	60.9
Elliott	6	0.2	84.2	81.4	Lyon	5	0.1	43.0	61.5	Trimble	8	0.2	73.0	94.3
Estill	23	0.6	152.4	163.0	Madison	53	1.4	52.5	56.2	Union	0	0.0	0.0	0.0
Fayette	296	7.6	87.6	91.2	Magoffin	12	0.3	92.1	99.9	Warren	56	1.4	40.8	41.6
Fleming	15	0.4	98.6	102.7	Marion	29	0.7	129.0	150.2	Washington	27	0.7	190.4	222.3
Floyd	46	1.2	123.8	131.5	Marshall	25	0.6	53.2	80.2	Wayne	29	0.7	116.3	143.5
Franklin	57	1.5	93.4	111.5	Martin	11	0.3	82.7	99.7	Webster	5	0.1	39.2	38.7
Fulton	*	-	-	-	Mason	10	0.3	45.3	58.7	Whitley	60	1.6	149.5	164.6
Gallatin	*	-	-	-	McCracken	58	1.5	64.7	88.4	Wolfe	7	0.2	85.4	98.5
Garrard	16	0.4	89.2	90.3	McCreary	11	0.3	57.9	64.4	Woodford	19	0.5	65.1	71.0

* 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 All ED TBI* by County, Sorted by County, Kentucky, 2021

***Includes ED deaths as well as non-fatal ED cases**

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude
Adair	67	0.6	338.4	342.6	Grant	42	0.4	173.9	165.4	McLean	23	0.2	272.0	253.4
Allen	45	0.4	206.6	211.2	Graves	103	0.9	276.8	279.8	Meade	39	0.3	145.6	136.3
Anderson	76	0.7	340.3	332.9	Grayson	112	1.0	426.2	423.0	Menifee	17	0.2	247.9	261.5
Ballard	8	0.1	83.2	103.0	Green	43	0.4	420.1	391.1	Mercer	59	0.5	278.0	269.5
Barren	106	0.9	235.2	239.3	Greenup	60	0.5	152.9	172.1	Metcalf	22	0.2	214.6	218.7
Bath	34	0.3	285.6	272.4	Hancock	24	0.2	271.2	274.5	Monroe	11	0.1	91.6	104.3
Bell	77	0.7	338.7	302.2	Hardin	368	3.3	332.2	330.6	Montgomery	83	0.7	296.9	294.5
Boone	145	1.3	110.8	107.1	Harlan	97	0.9	415.2	379.4	Morgan	17	0.2	145.9	129.4
Bourbon	57	0.5	285.8	286.4	Harrison	118	1.0	597.0	623.7	Muhlenberg	99	0.9	326.4	325.0
Boyd	106	0.9	222.2	227.9	Hart	54	0.5	263.1	284.0	Nelson	145	1.3	319.2	312.2
Boyle	98	0.9	295.6	322.7	Henderson	117	1.0	267.7	261.5	Nicholas	27	0.2	378.5	373.2
Bracken	35	0.3	423.1	422.4	Henry	52	0.5	340.7	323.6	Ohio	117	1.0	515.6	489.6
Breathitt	30	0.3	276.9	239.0	Hickman	8	0.1	201.8	183.3	Oldham	140	1.2	215.9	209.0
Breckinridge	72	0.6	332.1	350.6	Hopkins	105	0.9	233.8	235.1	Owen	16	0.1	159.4	145.2
Bullitt	128	1.1	169.9	155.8	Jackson	26	0.2	214.6	194.9	Owsley	10	0.1	204.4	230.9
Butler	31	0.3	260.1	244.0	Jefferson	1798	15.9	237.1	234.3	Pendleton	23	0.2	158.9	157.7
Caldwell	26	0.2	174.4	204.9	Jessamine	130	1.2	244.0	240.5	Perry	80	0.7	316.7	314.3
Calloway	196	1.7	467.9	498.7	Johnson	117	1.0	513.0	531.8	Pike	111	1.0	202.0	194.5
Campbell	65	0.6	68.3	69.1	Kenton	186	1.6	114.5	110.7	Powell	49	0.4	406.4	401.0
Carlisle	13	0.1	313.6	277.1	Knott	36	0.3	273.0	248.1	Pulaski	142	1.3	231.0	216.7
Carroll	41	0.4	404.4	382.1	Knox	113	1.0	368.6	364.3	Robertson	12	0.1	552.4	561.8
Carter	47	0.4	186.2	177.1	Larue	61	0.5	401.0	422.7	Rockcastle	44	0.4	249.1	262.7
Casey	42	0.4	260.3	261.4	Laurel	146	1.3	249.3	238.4	Rowan	39	0.3	154.4	158.0
Christian	122	1.1	169.1	170.7	Lawrence	31	0.3	213.1	200.8	Russell	43	0.4	257.6	238.9
Clark	189	1.7	529.0	518.3	Lee	21	0.2	279.7	288.9	Scott	177	1.6	308.7	302.7
Clay	82	0.7	430.7	417.7	Leslie	29	0.3	344.4	300.9	Shelby	103	0.9	212.1	207.6
Clinton	20	0.2	215.1	197.8	Letcher	153	1.4	762.8	721.3	Simpson	75	0.7	417.0	402.5
Crittenden	27	0.2	295.5	305.2	Lewis	35	0.3	243.1	263.9	Spencer	30	0.3	173.9	153.2
Cumberland	14	0.1	214.8	214.6	Lincoln	83	0.7	348.5	339.2	Taylor	88	0.8	320.4	342.3
Daviess	300	2.7	305.5	294.2	Livingston	18	0.2	245.0	199.1	Todd	21	0.2	177.8	168.7
Edmonson	18	0.2	164.7	147.1	Logan	76	0.7	259.0	277.2	Trigg	31	0.3	193.9	209.8
Elliott	7	0.1	101.5	95.0	Lyon	25	0.2	318.7	307.4	Trimble	15	0.1	181.7	176.9
Estill	48	0.4	352.5	340.2	Madison	205	1.8	208.4	217.5	Union	43	0.4	326.6	297.7
Fayette	881	7.8	271.2	271.3	Magoffin	41	0.4	355.5	341.2	Warren	238	2.1	173.0	176.9
Fleming	49	0.4	331.9	335.5	Marion	59	0.5	309.5	305.5	Washington	32	0.3	226.4	263.4
Floyd	121	1.1	352.5	346.0	Marshall	63	0.6	205.7	202.2	Wayne	60	0.5	312.4	296.9
Franklin	185	1.6	354.4	361.9	Martin	38	0.3	357.9	344.5	Webster	31	0.3	238.3	239.9
Fulton	5	0.0	72.4	84.0	Mason	50	0.4	281.0	293.5	Whitley	165	1.5	436.7	452.7
Gallatin	9	0.1	108.6	102.5	McCracken	136	1.2	219.9	207.2	Wolfe	17	0.2	218.3	239.2
Garrard	58	0.5	362.2	327.3	McCreary	47	0.4	289.2	275.3	Woodford	103	0.9	399.8	384.8

Table 13: Incidence of All Inpatient TBI* by County, Sorted by Frequency, Kentucky, 2021

***Includes inpatient deaths as well as non-fatal inpatient cases**

Age-Adjusted Crude					Age-Adjusted Crude					Age-Adjusted Crude				
County	Freq	Percent	Rate	Rate	County	Freq	Percent	Rate	Rate	County	Freq	Percent	Rate	Rate
Jefferson	995	25.7	116.9	129.7	Meade	24	0.6	81.0	83.9	Spencer	10	0.3	48.0	51.1
Fayette	296	7.6	87.6	91.2	Bourbon	23	0.6	110.3	115.6	Carroll	9	0.2	79.5	83.9
Daviess	106	2.7	90.6	103.9	Estill	23	0.6	152.4	163.0	Cumberland	9	0.2	89.5	138.0
Pike	100	2.6	150.4	175.3	Boyd	22	0.6	33.9	47.3	Lewis	9	0.2	68.1	67.9
Kenton	98	2.5	53.5	58.4	Calloway	22	0.6	44.0	56.0	McLean	9	0.2	83.1	99.2
Hardin	90	2.3	76.4	80.9	Mercer	22	0.6	83.5	100.5	Pendleton	9	0.2	44.9	61.7
Pulaski	71	1.8	91.8	108.3	Carter	21	0.5	70.5	79.1	Trigg	9	0.2	47.0	60.9
Bullitt	65	1.7	73.1	79.1	Grant	21	0.5	83.7	82.7	Caldwell	8	0.2	43.7	63.1
Boone	64	1.7	44.2	47.3	Johnson	21	0.5	77.0	95.4	Morgan	8	0.2	50.7	60.9
Whitley	60	1.6	149.5	164.6	Knox	21	0.5	62.5	67.7	Powell	8	0.2	56.3	65.5
McCracken	58	1.5	64.7	88.4	Anderson	20	0.5	83.7	87.6	Trimble	8	0.2	73.0	94.3
Franklin	57	1.5	93.4	111.5	Woodford	19	0.5	65.1	71.0	Lawrence	7	0.2	44.2	45.3
Warren	56	1.4	40.8	41.6	Ohio	18	0.5	65.9	75.3	Menifee	7	0.2	102.9	107.7
Madison	53	1.4	52.5	56.2	Taylor	17	0.4	64.3	66.1	Simpson	7	0.2	33.9	37.6
Campbell	49	1.3	42.5	52.1	Garrard	16	0.4	89.2	90.3	Wolfe	7	0.2	85.4	98.5
Nelson	49	1.3	98.8	105.5	Henry	16	0.4	78.5	99.6	Casey	6	0.2	41.9	37.3
Floyd	46	1.2	123.8	131.5	Fleming	15	0.4	98.6	102.7	Elliott	6	0.2	84.2	81.4
Jessamine	46	1.2	76.1	85.1	Greenup	15	0.4	32.7	43.0	Logan	6	0.2	17.6	21.9
Oldham	46	1.2	71.5	68.7	Rockcastle	15	0.4	78.7	89.6	Owen	6	0.2	49.5	54.5
Clark	38	1.0	94.3	104.2	Christian	14	0.4	19.9	19.6	Clinton	5	0.1	38.0	49.5
Scott	38	1.0	65.4	65.0	Rowan	14	0.4	58.3	56.7	Crittenden	5	0.1	47.6	56.5
Perry	37	1.0	129.6	145.3	Adair	12	0.3	57.3	61.4	Edmonson	5	0.1	35.3	40.9
Shelby	36	0.9	71.0	72.6	Breathitt	12	0.3	90.4	95.6	Hopkins	5	0.1	10.0	11.2
Laurel	35	0.9	49.5	57.2	Hart	12	0.3	59.5	63.1	Livingston	5	0.1	35.3	55.3
Lincoln	32	0.8	123.7	130.8	Jackson	12	0.3	87.6	90.0	Lyon	5	0.1	43.0	61.5
Harrison	31	0.8	151.2	163.8	Knott	12	0.3	87.4	82.7	Nicholas	5	0.1	66.3	69.1
Graves	30	0.8	63.6	81.5	Leslie	12	0.3	141.1	124.5	Owsley	5	0.1	92.0	115.4
Letcher	30	0.8	117.3	141.4	Magoffin	12	0.3	92.1	99.9	Webster	5	0.1	39.2	38.7
Harlan	29	0.7	107.3	113.4	Russell	12	0.3	60.5	66.7	Allen	*	-	-	-
Marion	29	0.7	129.0	150.2	Bath	11	0.3	99.3	88.1	Fulton	*	-	-	-
Montgomery	29	0.7	88.9	102.9	Bracken	11	0.3	131.0	132.8	Gallatin	*	-	-	-
Wayne	29	0.7	116.3	143.5	Hancock	11	0.3	103.7	125.8	Monroe	*	-	-	-
Clay	28	0.7	123.5	142.6	Larue	11	0.3	66.6	76.2	Robertson	*	-	-	-
Boyle	27	0.7	80.2	88.9	Martin	11	0.3	82.7	99.7	Carlisle	*	-	-	-
Washington	27	0.7	190.4	222.3	McCreary	11	0.3	57.9	64.4	Metcalfe	*	-	-	-
Barren	26	0.7	46.9	58.7	Bell	10	0.3	35.9	39.2	Butler	*	-	-	-
Grayson	26	0.7	87.5	98.2	Green	10	0.3	68.9	91.0	Ballard	*	-	-	-
Breckinridge	25	0.6	97.6	121.7	Henderson	10	0.3	23.2	22.4	Hickman	*	-	-	-
Marshall	25	0.6	53.2	80.2	Lee	10	0.3	111.8	137.6	Todd	*	-	-	-
Muhlenberg	25	0.6	68.6	82.1	Mason	10	0.3	45.3	58.7	Union	*	-	-	-

* At least one but fewer than five

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

Table 14: Incidence of All ED TBI* by County, Sorted by Frequency, Kentucky, 2021

*Includes ED deaths as well as non-fatal ED cases

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude
Jefferson	1798	15.9	237.1	234.3	Lincoln	83	0.7	348.5	339.2	Bracken	35	0.3	423.1	422.4
Fayette	881	7.8	271.2	271.3	Montgomery	83	0.7	296.9	294.5	Lewis	35	0.3	243.1	263.9
Hardin	368	3.3	332.2	330.6	Clay	82	0.7	430.7	417.7	Bath	34	0.3	285.6	272.4
Daviess	300	2.7	305.5	294.2	Perry	80	0.7	316.7	314.3	Washington	32	0.3	226.4	263.4
Warren	238	2.1	173.0	176.9	Bell	77	0.7	338.7	302.2	Butler	31	0.3	260.1	244.0
Madison	205	1.8	208.4	217.5	Anderson	76	0.7	340.3	332.9	Lawrence	31	0.3	213.1	200.8
Calloway	196	1.7	467.9	498.7	Logan	76	0.7	259.0	277.2	Trigg	31	0.3	193.9	209.8
Clark	189	1.7	529.0	518.3	Simpson	75	0.7	417.0	402.5	Webster	31	0.3	238.3	239.9
Kenton	186	1.6	114.5	110.7	Breckinridge	72	0.6	332.1	350.6	Breathitt	30	0.3	276.9	239.0
Franklin	185	1.6	354.4	361.9	Adair	67	0.6	338.4	342.6	Spencer	30	0.3	173.9	153.2
Scott	177	1.6	308.7	302.7	Campbell	65	0.6	68.3	69.1	Leslie	29	0.3	344.4	300.9
Whitley	165	1.5	436.7	452.7	Marshall	63	0.6	205.7	202.2	Crittenden	27	0.2	295.5	305.2
Letcher	153	1.4	762.8	721.3	Larue	61	0.5	401.0	422.7	Nicholas	27	0.2	378.5	373.2
Laurel	146	1.3	249.3	238.4	Greenup	60	0.5	152.9	172.1	Caldwell	26	0.2	174.4	204.9
Boone	145	1.3	110.8	107.1	Wayne	60	0.5	312.4	296.9	Jackson	26	0.2	214.6	194.9
Nelson	145	1.3	319.2	312.2	Marion	59	0.5	309.5	305.5	Lyon	25	0.2	318.7	307.4
Pulaski	142	1.3	231.0	216.7	Mercer	59	0.5	278.0	269.5	Hancock	24	0.2	271.2	274.5
Oldham	140	1.2	215.9	209.0	Garrard	58	0.5	362.2	327.3	McLean	23	0.2	272.0	253.4
McCracken	136	1.2	219.9	207.2	Bourbon	57	0.5	285.8	286.4	Pendleton	23	0.2	158.9	157.7
Jessamine	130	1.2	244.0	240.5	Hart	54	0.5	263.1	284.0	Metcalfe	22	0.2	214.6	218.7
Bullitt	128	1.1	169.9	155.8	Henry	52	0.5	340.7	323.6	Lee	21	0.2	279.7	288.9
Christian	122	1.1	169.1	170.7	Mason	50	0.4	281.0	293.5	Todd	21	0.2	177.8	168.7
Floyd	121	1.1	352.5	346.0	Fleming	49	0.4	331.9	335.5	Clinton	20	0.2	215.1	197.8
Harrison	118	1.0	597.0	623.7	Powell	49	0.4	406.4	401.0	Edmonson	18	0.2	164.7	147.1
Henderson	117	1.0	267.7	261.5	Estill	48	0.4	352.5	340.2	Livingston	18	0.2	245.0	199.1
Johnson	117	1.0	513.0	531.8	Carter	47	0.4	186.2	177.1	Menifee	17	0.2	247.9	261.5
Ohio	117	1.0	515.6	489.6	McCreary	47	0.4	289.2	275.3	Morgan	17	0.2	145.9	129.4
Knox	113	1.0	368.6	364.3	Allen	45	0.4	206.6	211.2	Wolfe	17	0.2	218.3	239.2
Grayson	112	1.0	426.2	423.0	Rockcastle	44	0.4	249.1	262.7	Owen	16	0.1	159.4	145.2
Pike	111	1.0	202.0	194.5	Green	43	0.4	420.1	391.1	Trimble	15	0.1	181.7	176.9
Barren	106	0.9	235.2	239.3	Russell	43	0.4	257.6	238.9	Cumberland	14	0.1	214.8	214.6
Boyd	106	0.9	222.2	227.9	Union	43	0.4	326.6	297.7	Carlisle	13	0.1	313.6	277.1
Hopkins	105	0.9	233.8	235.1	Casey	42	0.4	260.3	261.4	Robertson	12	0.1	552.4	561.8
Graves	103	0.9	276.8	279.8	Grant	42	0.4	173.9	165.4	Monroe	11	0.1	91.6	104.3
Shelby	103	0.9	212.1	207.6	Carroll	41	0.4	404.4	382.1	Owsley	10	0.1	204.4	230.9
Woodford	103	0.9	399.8	384.8	Magoffin	41	0.4	355.5	341.2	Gallatin	9	0.1	108.6	102.5
Muhlenberg	99	0.9	326.4	325.0	Meade	39	0.3	145.6	136.3	Ballard	8	0.1	83.2	103.0
Boyle	98	0.9	295.6	322.7	Rowan	39	0.3	154.4	158.0	Hickman	8	0.1	201.8	183.3
Harlan	97	0.9	415.2	379.4	Martin	38	0.3	357.9	344.5	Elliott	7	0.1	101.5	95.0
Taylor	88	0.8	320.4	342.3	Knott	36	0.3	273.0	248.1	Fulton	5	0.0	72.4	84.0

Table 15: Incidence of All Inpatient TBI* by County, Sorted by Age Adjusted Rate, Kentucky, 2021

***Includes inpatient deaths as well as non-fatal inpatient cases**

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude Rate		Freq	Percent	Rate	Crude Rate		Freq	Percent	Rate	Crude Rate
Robertson	*	-	-	-	Elliott	6	0.2	84.2	81.4	Morgan	8	0.2	50.7	60.9
Washington	27	0.7	190.4	222.3	Anderson	20	0.5	83.7	87.6	Laurel	35	0.9042	49.5	57.2
Estill	23	0.6	152.4	163.0	Grant	21	0.5	83.7	82.7	Owen	6	0.2	49.5	54.5
Harrison	31	0.8	151.2	163.8	Mercer	22	0.6	83.5	100.5	Gallatin	*	-	-	-
Pike	100	2.6	150.4	175.3	McLean	9	0.2	83.1	99.2	Spencer	10	0.3	48.0	51.1
Whitley	60	1.6	149.5	164.6	Martin	11	0.3	82.7	99.7	Crittenden	5	0.1	47.6	56.5
Leslie	12	0.3	141.1	124.5	Meade	24	0.6	81.0	83.9	Trigg	9	0.2	47.0	60.9
Bracken	11	0.3	131.0	132.8	Boyle	27	0.7	80.2	88.9	Barren	26	0.7	46.9	58.7
Perry	37	1.0	129.6	145.3	Carroll	9	0.2	79.5	83.9	Mason	10	0.3	45.3	58.7
Marion	29	0.7	129.0	150.2	Rockcastle	15	0.4	78.7	89.6	Pendleton	9	0.2	44.9	61.7
Floyd	46	1.2	123.8	131.5	Henry	16	0.4	78.5	99.6	Lawrence	7	0.2	44.2	45.3
Lincoln	32	0.8	123.7	130.8	Johnson	21	0.5	77.0	95.4	Boone	64	1.7	44.2	47.3
Clay	28	0.7	123.5	142.6	Hardin	90	2.3	76.4	80.9	Calloway	22	0.6	44.0	56.0
Letcher	30	0.8	117.3	141.4	Jessamine	46	1.2	76.1	85.1	Fulton	*	-	-	-
Jefferson	995	25.7	116.9	129.7	Bullitt	65	1.7	73.1	79.1	Caldwell	8	0.2	43.7	63.1
Wayne	29	0.7	116.3	143.5	Trimble	8	0.2	73.0	94.3	Lyon	5	0.1	43.0	61.5
Lee	10	0.3	111.8	137.6	Oldham	46	1.2	71.5	68.7	Campbell	49	1.3	42.5	52.1
Bourbon	23	0.6	110.3	115.6	Shelby	36	0.9	71.0	72.6	Casey	6	0.2	41.9	37.3
Harlan	29	0.7	107.3	113.4	Carter	21	0.5	70.5	79.1	Warren	56	1.4	40.8	41.6
Hancock	11	0.3	103.7	125.8	Green	10	0.3	68.9	91.0	Webster	5	0.1	39.2	38.7
Menifee	7	0.2	102.9	107.7	Muhlenberg	25	0.6	68.6	82.1	Carlisle	*	-	-	-
Bath	11	0.3	99.3	88.1	Lewis	9	0.2	68.1	67.9	Clinton	5	0.1	38.0	49.5
Nelson	49	1.3	98.8	105.5	Larue	11	0.3	66.6	76.2	Bell	10	0.3	35.9	39.2
Fleming	15	0.4	98.6	102.7	Nicholas	5	0.1	66.3	69.1	Livingston	5	0.1	35.3	55.3
Breckinridge	25	0.6	97.6	121.7	Ohio	18	0.5	65.9	75.3	Edmonson	5	0.1	35.3	40.9
Clark	38	1.0	94.3	104.2	Scott	38	1.0	65.4	65.0	Boyd	22	0.6	33.9	47.3
Franklin	57	1.5	93.4	111.5	Woodford	19	0.5	65.1	71.0	Simpson	7	0.2	33.9	37.6
Magoffin	12	0.3	92.1	99.9	McCracken	58	1.5	64.7	88.4	Greenup	15	0.4	32.7	43.0
Owsley	5	0.1	92.0	115.4	Taylor	17	0.4	64.3	66.1	Hickman	*	-	-	-
Pulaski	71	1.8	91.8	108.3	Graves	30	0.8	63.6	81.5	Monroe	*	-	-	-
Daviess	106	2.7	90.6	103.9	Knox	21	0.5	62.5	67.7	Henderson	10	0.3	23.2	22.4
Breathitt	12	0.3	90.4	95.6	Russell	12	0.3	60.5	66.7	Metcalfe	*	-	-	-
Cumberland	9	0.2	89.5	138.0	Hart	12	0.3	59.5	63.1	Christian	14	0.4	19.9	19.6
Garrard	16	0.4	89.2	90.3	Rowan	14	0.4	58.3	56.7	Logan	6	0.2	17.6	21.9
Montgomery	29	0.7	88.9	102.9	McCreary	11	0.3	57.9	64.4	Allen	*	-	-	-
Fayette	296	7.6	87.6	91.2	Adair	12	0.3	57.3	61.4	Butler	*	-	-	-
Jackson	12	0.3	87.6	90.0	Powell	8	0.2	56.3	65.5	Hopkins	5	0.1	10.0	11.2
Grayson	26	0.7	87.5	98.2	Kenton	98	2.5	53.5	58.4	Ballard	*	-	-	-
Knott	12	0.3	87.4	82.7	Marshall	25	0.6	53.2	80.2	Todd	0	0.0	0.0	0.0
Wolfe	7	0.2	85.4	98.5	Madison	53	1.4	52.5	56.2	Union	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 16: Incidence of All ED TBI* by County, Sorted by Age Adjusted Rate, Kentucky, 2021

*Includes ED deaths as well as non-fatal ED cases

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude
Letcher	153	1.4	762.8	721.3	Perry	80	0.7	316.7	314.3	McCracken	136	1.2	219.9	207.2
Harrison	118	1.0	597.0	623.7	Carlisle	13	0.1	313.6	277.1	Wolfe	17	0.2	218.3	239.2
Robertson	12	0.1	552.4	561.8	Wayne	60	0.5	312.4	296.9	Oldham	140	1.2	215.9	209.0
Clark	189	1.7	529.0	518.3	Marion	59	0.5	309.5	305.5	Clinton	20	0.2	215.1	197.8
Ohio	117	1.0	515.6	489.6	Scott	177	1.6	308.7	302.7	Cumberland	14	0.1	214.8	214.6
Johnson	117	1.0	513.0	531.8	Daviess	300	2.7	305.5	294.2	Jackson	26	0.2	214.6	194.9
Calloway	196	1.7	467.9	498.7	Montgomery	83	0.7	296.9	294.5	Metcalfe	22	0.2	214.6	218.7
Whitley	165	1.5	436.7	452.7	Boyle	98	0.9	295.6	322.7	Lawrence	31	0.3	213.1	200.8
Clay	82	0.7	430.7	417.7	Crittenden	27	0.2	295.5	305.2	Shelby	103	0.9	212.1	207.6
Grayson	112	1.0	426.2	423.0	McCreary	47	0.4	289.2	275.3	Madison	205	1.8	208.4	217.5
Bracken	35	0.3	423.1	422.4	Bourbon	57	0.5	285.8	286.4	Allen	45	0.4	206.6	211.2
Green	43	0.4	420.1	391.1	Bath	34	0.3	285.6	272.4	Marshall	63	0.6	205.7	202.2
Simpson	75	0.7	417.0	402.5	Mason	50	0.4	281.0	293.5	Owsley	10	0.1	204.4	230.9
Harlan	97	0.9	415.2	379.4	Lee	21	0.2	279.7	288.9	Pike	111	1.0	202.0	194.5
Powell	49	0.4	406.4	401.0	Mercer	59	0.5	278.0	269.5	Hickman	8	0.1	201.8	183.3
Carroll	41	0.4	404.4	382.1	Breathitt	30	0.3	276.9	239.0	Trigg	31	0.3	193.9	209.8
Larue	61	0.5	401.0	422.7	Graves	103	0.9	276.8	279.8	Carter	47	0.4	186.2	177.1
Woodford	103	0.9	399.8	384.8	Knott	36	0.3	273.0	248.1	Trimble	15	0.1	181.7	176.9
Nicholas	27	0.2	378.5	373.2	McLean	23	0.2	272.0	253.4	Todd	21	0.2	177.8	168.7
Knox	113	1.0	368.6	364.3	Hancock	24	0.2	271.2	274.5	Caldwell	26	0.2	174.4	204.9
Garrard	58	0.5	362.2	327.3	Fayette	881	7.8	271.2	271.3	Spencer	30	0.3	173.9	153.2
Martin	38	0.3	357.9	344.5	Henderson	117	1.0	267.7	261.5	Grant	42	0.4	173.9	165.4
Magoffin	41	0.4	355.5	341.2	Hart	54	0.5	263.1	284.0	Warren	238	2.1	173.0	176.9
Franklin	185	1.6	354.4	361.9	Casey	42	0.4	260.3	261.4	Bullitt	128	1.1	169.9	155.8
Floyd	121	1.1	352.5	346.0	Butler	31	0.3	260.1	244.0	Christian	122	1.1	169.1	170.7
Estill	48	0.4	352.5	340.2	Logan	76	0.7	259.0	277.2	Edmonson	18	0.2	164.7	147.1
Lincoln	83	0.7	348.5	339.2	Russell	43	0.4	257.6	238.9	Owen	16	0.1	159.4	145.2
Leslie	29	0.3	344.4	300.9	Laurel	146	1.3	249.3	238.4	Pendleton	23	0.2	158.9	157.7
Henry	52	0.5	340.7	323.6	Rockcastle	44	0.4	249.1	262.7	Rowan	39	0.3	154.4	158.0
Anderson	76	0.7	340.3	332.9	Menifee	17	0.2	247.9	261.5	Greenup	60	0.5	152.9	172.1
Bell	77	0.7	338.7	302.2	Livingston	18	0.2	245.0	199.1	Morgan	17	0.2	145.9	129.4
Adair	67	0.6	338.4	342.6	Jessamine	130	1.2	244.0	240.5	Meade	39	0.3	145.6	136.3
Hardin	368	3.3	332.2	330.6	Lewis	35	0.3	243.1	263.9	Kenton	186	1.6	114.5	110.7
Breckinridge	72	0.6	332.1	350.6	Webster	31	0.3	238.3	239.9	Boone	145	1.3	110.8	107.1
Fleming	49	0.4	331.9	335.5	Jefferson	1798	15.9	237.1	234.3	Gallatin	9	0.1	108.6	102.5
Union	43	0.4	326.6	297.7	Barren	106	0.9	235.2	239.3	Elliott	7	0.1	101.5	95.0
Muhlenberg	99	0.9	326.4	325.0	Hopkins	105	0.9	233.8	235.1	Monroe	11	0.1	91.6	104.3
Taylor	88	0.8	320.4	342.3	Pulaski	142	1.3	231.0	216.7	Ballard	8	0.1	83.2	103.0
Nelson	145	1.3	319.2	312.2	Washington	32	0.3	226.4	263.4	Fulton	5	0.0	72.4	84.0
Lyon	25	0.2	318.7	307.4	Boyd	106	0.9	222.2	227.9	Campbell	65	0.6	68.3	69.1

Table 17: Length of Stay for Non-Fatal Inpatient TBI, Kentucky, 2021

Length of Stay	Number	Percent*
1 day	585	16.9
More than one day but less than 1 week	1627	46.9
1 week to less than 2 weeks	684	19.7
2 weeks to less than 3 weeks	260	7.5
3 weeks to less than 4 weeks	130	3.8
4 weeks or more	180	5.2
Total	3466	100.0

*Percent of hospitalized TBI

Table 18: Work Related Non-Fatal TBI, Kentucky 2021

Inpatient Work TBI (n=40)	LOS Days	Cost
Mean	6.1	\$97,799
Median	3	\$49,514
Min, Max	1-31	\$353,\$666,354
Sum of Charges		\$3,911,977

ED Work TBI (n=394)	Cost
Mean	\$5,184
Median	\$3,046
Min, Max	\$6,\$55,933
Sum of Charges	\$2,042,669

Table 19: Primary Payer and Charges for Non-Fatal Inpatient TBI, Kentucky, 2021

Payer	Number of Discharges	Percent of Discharges	Total Hospital Charges
Government	2,410	69.5	\$ 224,365,524
Commercial Ins	584	16.8	\$ 73,178,192
Self Pay	50	1.4	\$ 3,530,111
Workers Compensation	40	1.2	\$ 3,911,977
Other	382	11.0	\$ 56,232,130
Total	3,466	100.0	\$ 361,217,934

Table 20: Primary Payer and Charges for Non-Fatal ED TBI, Kentucky, 2021

Payer	Number of Discharges	Percent of Discharges	Total Hospital Charges
Government	6,223	55.3	\$ 49,098,376
Commercial Ins	2,937	26.1	\$ 18,064,745
Self Pay	564	5.0	\$ 4,228,554
Workers Compensation	394	3.5	\$ 2,042,669
Other	1,131	10.1	\$ 11,911,699
Total	11,249	100.0	\$ 85,346,043

Table 21: Non-Fatal NTBI by Age Group, Kentucky, 2021

Age	Inpatient			ED			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	1,870	57.0	692.4	1,410	43.0	522.1	3,280	100.0	1214.4
5-14	633	47.2	112.9	708	52.8	126.3	1,341	100.0	239.2
15-24	1,556	42.4	266.7	2,118	57.6	363.1	3,674	100.0	629.8
25-44	9,600	57.0	840.6	7,230	43.0	633.1	16,830	100.0	1473.7
45-64	33,767	79.5	2935.2	8,702	20.5	756.4	42,469	100.0	3691.7
65+	52,479	85.2	6808.1	9,085	14.8	1178.6	61,564	100.0	7986.7
Total	99,905	77.4	2231.4	29,253	22.6	653.4	129,158	100.0	2884.8

Table 22: Non-Fatal NTBI by Gender, Kentucky, 2021

Age	Inpatient			ED			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Male	47,309	76.6	2145.2	14,475	23.4	656.4	61,784	100.0	2801.6
Female	52,595	78.1	2315.0	14,777	21.9	650.4	67,372	100.0	2965.4
Total	99,904	77.4	2231.4	29,252	22.6	653.3	129,156	100.0	2884.7

Table 23: Incidence of All Inpatient NTBI* by County, Sorted by County, Kentucky, 2021

***Includes inpatient deaths as well as non-fatal inpatient cases**

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	441	0.4	1766.9	2255.2	Grant	830	0.7	2972.1	3269.4	McLean	210	0.2	1707.4	2314.1
Allen	427	0.4	1560.1	2004.4	Graves	1121	1.0	2323.5	3044.7	Meade	488	0.4	1463.0	1705.3
Anderson	589	0.5	2119.0	2579.6	Grayson	966	0.9	2994.7	3648.0	Menifee	234	0.2	2465.3	3598.9
Ballard	165	0.1	1425.5	2123.8	Green	226	0.2	1445.8	2055.5	Mercer	581	0.5	2032.4	2654.3
Barren	1060	0.9	1851.2	2392.8	Greenup	827	0.7	1684.1	2372.0	Metcalfe	342	0.3	2598.9	3400.3
Bath	421	0.4	2689.3	3373.1	Hancock	164	0.1	1520.0	1876.0	Monroe	278	0.2	2015.9	2635.3
Bell	720	0.6	2202.0	2825.5	Hardin	2723	2.4	2195.0	2446.3	Montgomery	890	0.8	2589.2	3157.6
Boone	2624	2.3	1764.0	1938.0	Harlan	1287	1.1	3947.2	5034.0	Morgan	349	0.3	2070.1	2655.6
Bourbon	524	0.5	1968.6	2633.0	Harrison	430	0.4	1764.1	2272.7	Muhlenberg	809	0.7	1993.6	2656.2
Boyd	1690	1.5	2673.6	3633.2	Hart	405	0.4	1703.0	2130.1	Nelson	1310	1.2	2393.1	2820.2
Boyle	738	0.7	1942.4	2430.3	Henderson	776	0.7	1315.7	1734.5	Nicholas	202	0.2	2290.9	2792.4
Bracken	263	0.2	2419.0	3174.0	Henry	519	0.5	2678.6	3230.2	Ohio	521	0.5	1768.8	2180.0
Breathitt	559	0.5	3516.4	4454.2	Hickman	121	0.1	1717.9	2772.7	Oldham	961	0.9	1362.5	1434.4
Breckinridge	435	0.4	1632.6	2118.1	Hopkins	1257	1.1	2154.7	2814.5	Owen	231	0.2	1673.0	2096.8
Bullitt	1856	1.6	1884.4	2258.4	Jackson	516	0.5	2948.5	3868.1	Owsley	244	0.2	4233.4	5633.8
Butler	277	0.2	1719.5	2180.6	Jefferson	21034	18.7	2316.6	2740.8	Pendleton	418	0.4	2366.8	2865.8
Caldwell	221	0.2	1253.0	1741.9	Jessamine	1275	1.1	2001.5	2358.6	Perry	1415	1.3	4438.3	5558.6
Calloway	619	0.5	1349.8	1575.1	Johnson	809	0.7	2806.7	3676.9	Pike	2178	1.9	2919.9	3817.2
Campbell	1770	1.6	1544.3	1882.6	Kenton	3535	3.1	1857.3	2104.8	Powell	510	0.5	3514.7	4174.2
Carlisle	125	0.1	1969.9	2664.1	Knott	471	0.4	2439.0	3245.6	Pulaski	1745	1.5	2033.9	2662.9
Carroll	302	0.3	2396.9	2814.5	Knox	772	0.7	1986.3	2488.6	Robertson	45	0.0	1429.5	2106.7
Carter	846	0.8	2509.8	3187.4	Larue	396	0.4	2122.1	2744.1	Rockcastle	275	0.2	1261.3	1641.8
Casey	311	0.3	1490.2	1935.8	Laurel	1940	1.7	2623.5	3168.0	Rowan	676	0.6	2628.3	2738.8
Christian	1112	1.0	1716.9	1555.7	Lawrence	537	0.5	2779.7	3478.9	Russell	315	0.3	1229.2	1750.2
Clark	1057	0.9	2294.8	2898.8	Lee	340	0.3	3675.8	4678.0	Scott	1151	1.0	1962.7	1968.5
Clay	842	0.7	3507.4	4289.1	Leslie	454	0.4	3557.0	4711.0	Shelby	974	0.9	1667.9	1963.3
Clinton	177	0.2	1312.6	1750.7	Letcher	918	0.8	3246.9	4327.5	Simpson	319	0.3	1383.8	1711.8
Crittenden	138	0.1	1111.4	1559.9	Lewis	189	0.2	1051.9	1425.1	Spencer	463	0.4	2019.0	2364.1
Cumberland	147	0.1	1565.5	2253.6	Lincoln	670	0.6	2132.4	2738.5	Taylor	707	0.6	2291.8	2750.2
Daviess	1945	1.7	1598.7	1907.3	Livingston	273	0.2	2081.5	3019.6	Todd	150	0.1	1016.3	1205.0
Edmonson	225	0.2	1294.5	1839.0	Logan	522	0.5	1457.8	1904.0	Trigg	280	0.2	1296.1	1895.0
Elliott	210	0.2	2106.6	2848.6	Lyon	206	0.2	1460.7	2532.9	Trimble	198	0.2	1833.3	2334.6
Estill	566	0.5	3069.1	4011.6	Madison	2057	1.8	2078.9	2182.2	Union	196	0.2	1150.3	1357.1
Fayette	6220	5.5	1809.9	1915.4	Magoffin	415	0.4	2669.7	3453.4	Warren	2180	1.9	1595.7	1620.7
Fleming	419	0.4	2269.2	2869.3	Marion	460	0.4	2023.9	2381.7	Washington	314	0.3	2034.8	2585.0
Floyd	1281	1.1	2814.5	3662.7	Marshall	739	0.7	1602.6	2371.4	Wayne	495	0.4	1768.9	2449.4
Franklin	1521	1.3	2396.9	2975.5	Martin	288	0.3	2205.1	2610.8	Webster	281	0.2	1721.9	2174.4
Fulton	165	0.1	1887.3	2772.2	Mason	444	0.4	2066.9	2606.4	Whitley	1981	1.8	4710.1	5434.7
Gallatin	225	0.2	2135.6	2562.9	McCracken	1744	1.5	1965.8	2656.8	Wolfe	295	0.3	3221.9	4151.4
Garrard	493	0.4	2162.2	2782.3	McCreary	546	0.5	2627.3	3198.4	Woodford	574	0.5	1697.6	2144.6

Table 24: Incidence of All ED NTBI* by County, Sorted by County, Kentucky, 2021

*Includes ED deaths as well as non-fatal ED cases

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude
Adair	201	0.7	843.8	1027.9	Grant	312	1.0	1168.1	1229.0	McLean	64	0.2	530.9	705.2
Allen	123	0.4	503.7	577.4	Graves	181	0.6	449.9	491.6	Meade	72	0.2	245.1	251.6
Anderson	113	0.4	489.1	494.9	Grayson	209	0.7	712.5	789.3	Menifee	48	0.2	661.2	738.2
Ballard	27	0.1	296.1	347.5	Green	99	0.3	745.0	900.4	Mercer	219	0.7	938.7	1000.5
Barren	191	0.6	376.2	431.2	Greenup	126	0.4	328.5	361.4	Metcalf	51	0.2	432.4	507.1
Bath	117	0.4	870.7	937.4	Hancock	45	0.2	424.5	514.8	Monroe	61	0.2	565.3	578.3
Bell	182	0.6	614.4	714.2	Hardin	568	1.9	501.1	510.3	Montgomery	333	1.1	1075.0	1181.4
Boone	465	1.6	344.5	343.4	Harlan	261	0.9	873.9	1020.9	Morgan	119	0.4	769.9	905.5
Bourbon	167	0.6	794.3	839.2	Harrison	174	0.6	841.9	919.7	Muhlenberg	262	0.9	715.1	860.2
Boyd	334	1.1	675.7	718.0	Hart	115	0.4	537.8	604.9	Nelson	317	1.1	625.7	682.5
Boyle	273	0.9	839.2	899.0	Henderson	266	0.9	512.4	594.6	Nicholas	80	0.3	979.7	1105.9
Bracken	79	0.3	821.8	953.4	Henry	160	0.5	911.5	995.8	Ohio	284	0.9	993.0	1188.3
Breathitt	75	0.3	556.3	597.6	Hickman	14	0.0	226.8	320.8	Oldham	245	0.8	375.7	365.7
Breckinridge	137	0.5	564.7	667.1	Hopkins	355	1.2	653.6	794.9	Owen	57	0.2	408.3	517.4
Bullitt	515	1.7	600.3	626.7	Jackson	135	0.5	805.2	1012.0	Owsley	47	0.2	807.8	1085.2
Butler	54	0.2	362.6	425.1	Jefferson	5654	18.9	711.0	736.7	Pendleton	80	0.3	562.9	548.5
Caldwell	101	0.3	647.4	796.1	Jessamine	391	1.3	695.1	723.3	Perry	248	0.8	864.3	974.2
Calloway	174	0.6	417.2	442.8	Johnson	145	0.5	561.1	659.0	Pike	579	1.9	841.2	1014.8
Campbell	454	1.5	479.3	482.9	Kenton	887	3.0	523.0	528.1	Powell	179	0.6	1332.2	1465.1
Carlisle	29	0.1	558.6	618.1	Knott	89	0.3	535.2	613.3	Pulaski	484	1.6	646.8	738.6
Carroll	142	0.5	1236.2	1323.4	Knox	244	0.8	699.1	786.5	Robertson	21	0.1	732.8	983.2
Carter	148	0.5	558.6	557.6	Larue	61	0.2	406.8	422.7	Rockcastle	126	0.4	706.9	752.2
Casey	162	0.5	847.8	1008.3	Laurel	406	1.4	608.6	663.0	Rowan	107	0.4	469.6	433.5
Christian	343	1.1	518.1	479.9	Lawrence	72	0.2	401.3	466.4	Russell	99	0.3	476.9	550.1
Clark	371	1.2	934.0	1017.5	Lee	77	0.3	872.2	1059.4	Scott	466	1.6	795.8	797.0
Clay	200	0.7	925.8	1018.8	Leslie	155	0.5	1221.4	1608.4	Shelby	330	1.1	617.4	665.2
Clinton	90	0.3	709.6	890.2	Letcher	151	0.5	654.5	711.8	Simpson	149	0.5	702.7	799.6
Crittenden	39	0.1	374.1	440.8	Lewis	62	0.2	416.4	467.5	Spencer	101	0.3	487.6	515.7
Cumberland	66	0.2	745.3	1011.8	Lincoln	259	0.9	893.8	1058.6	Taylor	277	0.9	1032.9	1077.5
Daviess	580	1.9	527.7	568.8	Livingston	52	0.2	500.1	575.2	Todd	52	0.2	395.2	417.7
Edmonson	33	0.1	240.7	269.7	Logan	158	0.5	533.1	576.3	Trigg	133	0.4	737.3	900.1
Elliott	39	0.1	507.6	529.0	Lyon	29	0.1	282.2	356.6	Trimble	51	0.2	514.6	601.3
Estill	207	0.7	1307.5	1467.2	Madison	667	2.2	706.9	707.6	Union	135	0.5	859.5	934.7
Fayette	1445	4.8	436.6	445.0	Magoffin	96	0.3	686.8	798.9	Warren	533	1.8	400.2	396.3
Fleming	161	0.5	963.1	1102.5	Marion	153	0.5	731.6	792.2	Washington	86	0.3	677.8	708.0
Floyd	452	1.5	1125.4	1292.4	Marshall	213	0.7	482.8	683.5	Wayne	165	0.6	631.0	816.5
Franklin	282	0.9	552.1	551.7	Martin	73	0.2	570.1	661.8	Webster	89	0.3	590.3	688.7
Fulton	15	0.1	160.1	252.0	Mason	178	0.6	985.1	1044.9	Whitley	380	1.3	968.0	1042.5
Gallatin	61	0.2	689.4	694.8	McCracken	324	1.1	442.5	493.6	Wolfe	86	0.3	1069.0	1210.2
Garrard	176	0.6	943.8	993.3	McCreary	117	0.4	595.6	685.4	Woodford	135	0.5	475.3	504.4

Table 25: Incidence of All Inpatient NTBI* by County, Sorted by Frequency, Kentucky, 2021

*Includes inpatient deaths as well as non-fatal inpatient cases

County	Freq	Percent	Age-Adjusted		County	Freq	Percent	Age-Adjusted		County	Freq	Percent	Age-Adjusted	
			Rate	Crude Rate				Rate	Crude Rate				Rate	Crude Rate
Jefferson	21034	18.7	2316.6	2740.8	Knox	772	0.7	1986.3	2488.6	Metcalfe	342	0.3	2598.9	3400.3
Fayette	6220	5.5	1809.9	1915.4	Marshall	739	0.7	1602.6	2371.4	Lee	340	0.3	3675.8	4678.0
Kenton	3535	3.1	1857.3	2104.8	Boyle	738	0.7	1942.4	2430.3	Simpson	319	0.3	1383.8	1711.8
Hardin	2723	2.4	2195.0	2446.3	Bell	720	0.6	2202.0	2825.5	Russell	315	0.3	1229.2	1750.2
Boone	2624	2.3	1764.0	1938.0	Taylor	707	0.6	2291.8	2750.2	Washington	314	0.3	2034.8	2585.0
Warren	2180	1.9	1595.7	1620.7	Rowan	676	0.6	2628.3	2738.8	Casey	311	0.3	1490.2	1935.8
Pike	2178	1.9	2919.9	3817.2	Lincoln	670	0.6	2132.4	2738.5	Carroll	302	0.3	2396.9	2814.5
Madison	2057	1.8	2078.9	2182.2	Calloway	619	0.5	1349.8	1575.1	Wolfe	295	0.3	3221.9	4151.4
Whitley	1981	1.8	4710.1	5434.7	Anderson	589	0.5	2119.0	2579.6	Martin	288	0.3	2205.1	2610.8
Daviess	1945	1.7	1598.7	1907.3	Mercer	581	0.5	2032.4	2654.3	Webster	281	0.2	1721.9	2174.4
Laurel	1940	1.7	2623.5	3168.0	Woodford	574	0.5	1697.6	2144.6	Trigg	280	0.2	1296.1	1895.0
Bullitt	1856	1.6	1884.4	2258.4	Estill	566	0.5	3069.1	4011.6	Monroe	278	0.2	2015.9	2635.3
Campbell	1770	1.6	1544.3	1882.6	Breathitt	559	0.5	3516.4	4454.2	Butler	277	0.2	1719.5	2180.6
Pulaski	1745	1.5	2033.9	2662.9	McCreary	546	0.5	2627.3	3198.4	Rockcastle	275	0.2	1261.3	1641.8
McCracken	1744	1.5	1965.8	2656.8	Lawrence	537	0.5	2779.7	3478.9	Livingston	273	0.2	2081.5	3019.6
Boyd	1690	1.5	2673.6	3633.2	Bourbon	524	0.5	1968.6	2633.0	Bracken	263	0.2	2419.0	3174.0
Franklin	1521	1.3	2396.9	2975.5	Logan	522	0.5	1457.8	1904.0	Owsley	244	0.2	4233.4	5633.8
Perry	1415	1.3	4438.3	5558.6	Ohio	521	0.5	1768.8	2180.0	Menifee	234	0.2	2465.3	3598.9
Nelson	1310	1.2	2393.1	2820.2	Henry	519	0.5	2678.6	3230.2	Owen	231	0.2	1673.0	2096.8
Harlan	1287	1.1	3947.2	5034.0	Jackson	516	0.5	2948.5	3868.1	Green	226	0.2	1445.8	2055.5
Floyd	1281	1.1	2814.5	3662.7	Powell	510	0.5	3514.7	4174.2	Edmonson	225	0.2	1294.5	1839.0
Jessamine	1275	1.1	2001.5	2358.6	Wayne	495	0.4	1768.9	2449.4	Gallatin	225	0.2	2135.6	2562.9
Hopkins	1257	1.1	2154.7	2814.5	Garrard	493	0.4	2162.2	2782.3	Caldwell	221	0.2	1253.0	1741.9
Scott	1151	1.0	1962.7	1968.5	Meade	488	0.4	1463.0	1705.3	Elliott	210	0.2	2106.6	2848.6
Graves	1121	1.0	2323.5	3044.7	Knott	471	0.4	2439.0	3245.6	McLean	210	0.2	1707.4	2314.1
Christian	1112	1.0	1716.9	1555.7	Spencer	463	0.4	2019.0	2364.1	Lyon	206	0.2	1460.7	2532.9
Barren	1060	0.9	1851.2	2392.8	Marion	460	0.4	2023.9	2381.7	Nicholas	202	0.2	2290.9	2792.4
Clark	1057	0.9	2294.8	2898.8	Leslie	454	0.4	3557.0	4711.0	Trimble	198	0.2	1833.3	2334.6
Shelby	974	0.9	1667.9	1963.3	Mason	444	0.4	2066.9	2606.4	Union	196	0.2	1150.3	1357.1
Grayson	966	0.9	2994.7	3648.0	Adair	441	0.4	1766.9	2255.2	Lewis	189	0.2	1051.9	1425.1
Oldham	961	0.9	1362.5	1434.4	Breckinridge	435	0.4	1632.6	2118.1	Clinton	177	0.2	1312.6	1750.7
Letcher	918	0.8	3246.9	4327.5	Harrison	430	0.4	1764.1	2272.7	Ballard	165	0.1	1425.5	2123.8
Montgomery	890	0.8	2589.2	3157.6	Allen	427	0.4	1560.1	2004.4	Fulton	165	0.1	1887.3	2772.2
Carter	846	0.8	2509.8	3187.4	Bath	421	0.4	2689.3	3373.1	Hancock	164	0.1	1520.0	1876.0
Clay	842	0.7	3507.4	4289.1	Fleming	419	0.4	2269.2	2869.3	Todd	150	0.1	1016.3	1205.0
Grant	830	0.7	2972.1	3269.4	Pendleton	418	0.4	2366.8	2865.8	Cumberland	147	0.1	1565.5	2253.6
Greenup	827	0.7	1684.1	2372.0	Magoffin	415	0.4	2669.7	3453.4	Crittenden	138	0.1	1111.4	1559.9
Johnson	809	0.7	2806.7	3676.9	Hart	405	0.4	1703.0	2130.1	Carlisle	125	0.1	1969.9	2664.1
Muhlenberg	809	0.7	1993.6	2656.2	Larue	396	0.4	2122.1	2744.1	Hickman	121	0.1	1717.9	2772.7
Henderson	776	0.7	1315.7	1734.5	Morgan	349	0.3	2070.1	2655.6	Robertson	45	0.0	1429.5	2106.7

Table 26: Incidence of All ED NTBI* by County, Sorted by Frequency, Kentucky, 2021

*Includes ED deaths as well as non-fatal ED cases

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude
Jefferson	5654	18.9	711.0	736.7	Estill	207	0.7	1307.5	1467.2	Green	99	0.3	745.0	900.4
Fayette	1445	4.8	436.6	445.0	Adair	201	0.7	843.8	1027.9	Russell	99	0.3	476.9	550.1
Kenton	887	3.0	523.0	528.1	Clay	200	0.7	925.8	1018.8	Magoffin	96	0.3	686.8	798.9
Madison	667	2.2	706.9	707.6	Barren	191	0.6	376.2	431.2	Clinton	90	0.3	709.6	890.2
Daviess	580	1.9	527.7	568.8	Bell	182	0.6	614.4	714.2	Knott	89	0.3	535.2	613.3
Pike	579	1.9	841.2	1014.8	Graves	181	0.6	449.9	491.6	Webster	89	0.3	590.3	688.7
Hardin	568	1.9	501.1	510.3	Powell	179	0.6	1332.2	1465.1	Washington	86	0.3	677.8	708.0
Warren	533	1.8	400.2	396.3	Mason	178	0.6	985.1	1044.9	Wolfe	86	0.3	1069.0	1210.2
Bullitt	515	1.7	600.3	626.7	Garrard	176	0.6	943.8	993.3	Nicholas	80	0.3	979.7	1105.9
Pulaski	484	1.6	646.8	738.6	Calloway	174	0.6	417.2	442.8	Pendleton	80	0.3	562.9	548.5
Scott	466	1.6	795.8	797.0	Harrison	174	0.6	841.9	919.7	Bracken	79	0.3	821.8	953.4
Boone	465	1.6	344.5	343.4	Bourbon	167	0.6	794.3	839.2	Lee	77	0.3	872.2	1059.4
Campbell	454	1.5	479.3	482.9	Wayne	165	0.6	631.0	816.5	Breathitt	75	0.3	556.3	597.6
Floyd	452	1.5	1125.4	1292.4	Casey	162	0.5	847.8	1008.3	Martin	73	0.2	570.1	661.8
Laurel	406	1.4	608.6	663.0	Fleming	161	0.5	963.1	1102.5	Lawrence	72	0.2	401.3	466.4
Jessamine	391	1.3	695.1	723.3	Henry	160	0.5	911.5	995.8	Meade	72	0.2	245.1	251.6
Whitley	380	1.3	968.0	1042.5	Logan	158	0.5	533.1	576.3	Cumberland	66	0.2	745.3	1011.8
Clark	371	1.2	934.0	1017.5	Leslie	155	0.5	1221.4	1608.4	McLean	64	0.2	530.9	705.2
Hopkins	355	1.2	653.6	794.9	Marion	153	0.5	731.6	792.2	Lewis	62	0.2	416.4	467.5
Christian	343	1.1	518.1	479.9	Letcher	151	0.5	654.5	711.8	Gallatin	61	0.2	689.4	694.8
Boyd	334	1.1	675.7	718.0	Simpson	149	0.5	702.7	799.6	Larue	61	0.2	406.8	422.7
Montgomery	333	1.1	1075.0	1181.4	Carter	148	0.5	558.6	557.6	Monroe	61	0.2	565.3	578.3
Shelby	330	1.1	617.4	665.2	Johnson	145	0.5	561.1	659.0	Owen	57	0.2	408.3	517.4
McCracken	324	1.1	442.5	493.6	Carroll	142	0.5	1236.2	1323.4	Butler	54	0.2	362.6	425.1
Nelson	317	1.1	625.7	682.5	Breckinridge	137	0.5	564.7	667.1	Livingston	52	0.2	500.1	575.2
Grant	312	1.0	1168.1	1229.0	Jackson	135	0.5	805.2	1012.0	Todd	52	0.2	395.2	417.7
Ohio	284	0.9	993.0	1188.3	Union	135	0.5	859.5	934.7	Metcalf	51	0.2	432.4	507.1
Franklin	282	0.9	552.1	551.7	Woodford	135	0.5	475.3	504.4	Trimble	51	0.2	514.6	601.3
Taylor	277	0.9	1032.9	1077.5	Trigg	133	0.4	737.3	900.1	Menifee	48	0.2	661.2	738.2
Boyle	273	0.9	839.2	899.0	Greenup	126	0.4	328.5	361.4	Owsley	47	0.2	807.8	1085.2
Henderson	266	0.9	512.4	594.6	Rockcastle	126	0.4	706.9	752.2	Hancock	45	0.2	424.5	514.8
Muhlenberg	262	0.9	715.1	860.2	Allen	123	0.4	503.7	577.4	Crittenden	39	0.1	374.1	440.8
Harlan	261	0.9	873.9	1020.9	Morgan	119	0.4	769.9	905.5	Elliott	39	0.1	507.6	529.0
Lincoln	259	0.9	893.8	1058.6	Bath	117	0.4	870.7	937.4	Edmonson	33	0.1	240.7	269.7
Perry	248	0.8	864.3	974.2	McCreary	117	0.4	595.6	685.4	Carlisle	29	0.1	558.6	618.1
Oldham	245	0.8	375.7	365.7	Hart	115	0.4	537.8	604.9	Lyon	29	0.1	282.2	356.6
Knox	244	0.8	699.1	786.5	Anderson	113	0.4	489.1	494.9	Ballard	27	0.1	296.1	347.5
Mercer	219	0.7	938.7	1000.5	Rowan	107	0.4	469.6	433.5	Robertson	21	0.1	732.8	983.2
Marshall	213	0.7	482.8	683.5	Caldwell	101	0.3	647.4	796.1	Fulton	15	0.1	160.1	252.0
Grayson	209	0.7	712.5	789.3	Spencer	101	0.3	487.6	515.7	Hickman	14	0.0	226.8	320.8

Table 27: Incidence of All Inpatient NTBI* by County, Sorted by Age Adjusted Rate, Kentucky, 2021

***Includes inpatient deaths as well as non-fatal inpatient cases**

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude
Whitley	1981	1.8	4710.1	5434.7	Nicholas	202	0.2	2290.9	2792.4	Boone	2624	2.3	1764.0	1938.0
Perry	1415	1.3	4438.3	5558.6	Fleming	419	0.4	2269.2	2869.3	Webster	281	0.2	1721.9	2174.4
Ow sley	244	0.2	4233.4	5633.8	Martin	288	0.3	2205.1	2610.8	Butler	277	0.2	1719.5	2180.6
Harlan	1287	1.1	3947.2	5034.0	Bell	720	0.6	2202.0	2825.5	Hickman	121	0.1	1717.9	2772.7
Lee	340	0.3	3675.8	4678.0	Hardin	2723	2.4	2195.0	2446.3	Christian	1112	1.0	1716.9	1555.7
Leslie	454	0.4	3557.0	4711.0	Garrard	493	0.4	2162.2	2782.3	McLean	210	0.2	1707.4	2314.1
Breathitt	559	0.5	3516.4	4454.2	Hopkins	1257	1.1	2154.7	2814.5	Hart	405	0.4	1703.0	2130.1
Pow ell	510	0.5	3514.7	4174.2	Gallatin	225	0.2	2135.6	2562.9	Woodford	574	0.5	1697.6	2144.6
Clay	842	0.7	3507.4	4289.1	Lincoln	670	0.6	2132.4	2738.5	Greenup	827	0.7	1684.1	2372.0
Letcher	918	0.8	3246.9	4327.5	Larue	396	0.4	2122.1	2744.1	Ow en	231	0.2	1673.0	2096.8
Wolfe	295	0.3	3221.9	4151.4	Anderson	589	0.5	2119.0	2579.6	Shelby	974	0.9	1667.9	1963.3
Estill	566	0.5	3069.1	4011.6	Elliott	210	0.2	2106.6	2848.6	Breckinridge	435	0.4	1632.6	2118.1
Grayson	966	0.9	2994.7	3648.0	Livingston	273	0.2	2081.5	3019.6	Marshall	739	0.7	1602.6	2371.4
Grant	830	0.7	2972.1	3269.4	Madison	2057	1.8	2078.9	2182.2	Daviess	1945	1.7	1598.7	1907.3
Jackson	516	0.5	2948.5	3868.1	Morgan	349	0.3	2070.1	2655.6	Warren	2180	1.9	1595.7	1620.7
Pike	2178	1.9	2919.9	3817.2	Mason	444	0.4	2066.9	2606.4	Cumberland	147	0.1	1565.5	2253.6
Floyd	1281	1.1	2814.5	3662.7	Washington	314	0.3	2034.8	2585.0	Allen	427	0.4	1560.1	2004.4
Johnson	809	0.7	2806.7	3676.9	Pulaski	1745	1.5	2033.9	2662.9	Campbell	1770	1.6	1544.3	1882.6
Law rence	537	0.5	2779.7	3478.9	Mercer	581	0.5	2032.4	2654.3	Hancock	164	0.1	1520.0	1876.0
Bath	421	0.4	2689.3	3373.1	Marion	460	0.4	2023.9	2381.7	Casey	311	0.3	1490.2	1935.8
Henry	519	0.5	2678.6	3230.2	Spencer	463	0.4	2019.0	2364.1	Meade	488	0.4	1463.0	1705.3
Boyd	1690	1.5	2673.6	3633.2	Monroe	278	0.2	2015.9	2635.3	Lyon	206	0.2	1460.7	2532.9
Magoffin	415	0.4	2669.7	3453.4	Jessamine	1275	1.1	2001.5	2358.6	Logan	522	0.5	1457.8	1904.0
Row an	676	0.6	2628.3	2738.8	Muhlenberg	809	0.7	1993.6	2656.2	Green	226	0.2	1445.8	2055.5
McCreary	546	0.5	2627.3	3198.4	Knox	772	0.7	1986.3	2488.6	Robertson	45	0.0	1429.5	2106.7
Laurel	1940	1.7	2623.5	3168.0	Carlisle	125	0.1	1969.9	2664.1	Ballard	165	0.1	1425.5	2123.8
Metcalfe	342	0.3	2598.9	3400.3	Bourbon	524	0.5	1968.6	2633.0	Simpson	319	0.3	1383.8	1711.8
Montgomery	890	0.8	2589.2	3157.6	McCracken	1744	1.5	1965.8	2656.8	Oldham	961	0.9	1362.5	1434.4
Carter	846	0.8	2509.8	3187.4	Scott	1151	1.0	1962.7	1968.5	Callow ay	619	0.5	1349.8	1575.1
Menifee	234	0.2	2465.3	3598.9	Boyle	738	0.7	1942.4	2430.3	Henderson	776	0.7	1315.7	1734.5
Knott	471	0.4	2439.0	3245.6	Fulton	165	0.1	1887.3	2772.2	Clinton	177	0.2	1312.6	1750.7
Bracken	263	0.2	2419.0	3174.0	Bullitt	1856	1.6	1884.4	2258.4	Trigg	280	0.2	1296.1	1895.0
Franklin	1521	1.3	2396.9	2975.5	Kenton	3535	3.1	1857.3	2104.8	Edmonson	225	0.2	1294.5	1839.0
Carroll	302	0.3	2396.9	2814.5	Barren	1060	0.9	1851.2	2392.8	Rockcastle	275	0.2	1261.3	1641.8
Nelson	1310	1.2	2393.1	2820.2	Trimble	198	0.2	1833.3	2334.6	Caldw ell	221	0.2	1253.0	1741.9
Pendleton	418	0.4	2366.8	2865.8	Fayette	6220	5.5	1809.9	1915.4	Russell	315	0.3	1229.2	1750.2
Graves	1121	1.0	2323.5	3044.7	Wayne	495	0.4	1768.9	2449.4	Union	196	0.2	1150.3	1357.1
Jefferson	####	18.7	2316.6	2740.8	Ohio	521	0.5	1768.8	2180.0	Crittenden	138	0.1	1111.4	1559.9
Clark	1057	0.9	2294.8	2898.8	Adair	441	0.4	1766.9	2255.2	Lew is	189	0.2	1051.9	1425.1
Taylor	707	0.6	2291.8	2750.2	Harrison	430	0.4	1764.1	2272.7	Todd	150	0.1	1016.3	1205.0

Table 28: Incidence of All ED NTBI* by County, Sorted by Age Adjusted Rate, Kentucky, 2021

***Includes inpatient deaths as well as non-fatal inpatient cases**

Age-Adjusted Crude					Age-Adjusted Crude					Age-Adjusted Crude				
County	Freq	Percent	Rate	Rate	County	Freq	Percent	Rate	Rate	County	Freq	Percent	Rate	Rate
Powell	179	0.6	1332.2	1465.1	Marion	153	0.5	731.6	792.2	Daviess	580	1.9	527.7	568.8
Estill	207	0.7	1307.5	1467.2	Muhlenberg	262	0.9	715.1	860.2	Kenton	887	3.0	523.0	528.1
Carroll	142	0.5	1236.2	1323.4	Grayson	209	0.7	712.5	789.3	Christian	343	1.1	518.1	479.9
Leslie	155	0.5	1221.4	1608.4	Jefferson	5654	18.9	711.0	736.7	Trimble	51	0.2	514.6	601.3
Grant	312	1.0	1168.1	1229.0	Clinton	90	0.3	709.6	890.2	Henderson	266	0.9	512.4	594.6
Floyd	452	1.5	1125.4	1292.4	Madison	667	2.2	706.9	707.6	Elliott	39	0.1	507.6	529.0
Montgomery	333	1.1	1075.0	1181.4	Rockcastle	126	0.4	706.9	752.2	Allen	123	0.4	503.7	577.4
Wolfe	86	0.3	1069.0	1210.2	Simpson	149	0.5	702.7	799.6	Hardin	568	1.9	501.1	510.3
Taylor	277	0.9	1032.9	1077.5	Knox	244	0.8	699.1	786.5	Livingston	52	0.2	500.1	575.2
Ohio	284	0.9	993.0	1188.3	Jessamine	391	1.3	695.1	723.3	Anderson	113	0.4	489.1	494.9
Mason	178	0.6	985.1	1044.9	Gallatin	61	0.2	689.4	694.8	Spencer	101	0.3	487.6	515.7
Nicholas	80	0.3	979.7	1105.9	Magoffin	96	0.3	686.8	798.9	Marshall	213	0.7	482.8	683.5
Whitley	380	1.3	968.0	1042.5	Washington	86	0.3	677.8	708.0	Campbell	454	1.5	479.3	482.9
Fleming	161	0.5	963.1	1102.5	Boyd	334	1.1	675.7	718.0	Russell	99	0.3	476.9	550.1
Garrard	176	0.6	943.8	993.3	Menifee	48	0.2	661.2	738.2	Woodford	135	0.5	475.3	504.4
Mercer	219	0.7	938.7	1000.5	Letcher	151	0.5	654.5	711.8	Rowan	107	0.4	469.6	433.5
Clark	371	1.2	934.0	1017.5	Hopkins	355	1.2	653.6	794.9	Graves	181	0.6	449.9	491.6
Clay	200	0.7	925.8	1018.8	Caldwell	101	0.3	647.4	796.1	McCracken	324	1.1	442.5	493.6
Henry	160	0.5	911.5	995.8	Pulaski	484	1.6	646.8	738.6	Fayette	1445	4.8	436.6	445.0
Lincoln	259	0.9	893.8	1058.6	Wayne	165	0.6	631.0	816.5	Metcalfe	51	0.2	432.4	507.1
Harlan	261	0.9	873.9	1020.9	Nelson	317	1.1	625.7	682.5	Hancock	45	0.2	424.5	514.8
Lee	77	0.3	872.2	1059.4	Shelby	330	1.1	617.4	665.2	Calloway	174	0.6	417.2	442.8
Bath	117	0.4	870.7	937.4	Bell	182	0.6	614.4	714.2	Lewis	62	0.2	416.4	467.5
Perry	248	0.8	864.3	974.2	Laurel	406	1.4	608.6	663.0	Owen	57	0.2	408.3	517.4
Union	135	0.5	859.5	934.7	Bullitt	515	1.7	600.3	626.7	Larue	61	0.2	406.8	422.7
Casey	162	0.5	847.8	1008.3	McCreary	117	0.4	595.6	685.4	Lawrence	72	0.2	401.3	466.4
Adair	201	0.7	843.8	1027.9	Webster	89	0.3	590.3	688.7	Warren	533	1.8	400.2	396.3
Harrison	174	0.6	841.9	919.7	Martin	73	0.2	570.1	661.8	Todd	52	0.2	395.2	417.7
Pike	579	1.9	841.2	1014.8	Monroe	61	0.2	565.3	578.3	Barren	191	0.6	376.2	431.2
Boyle	273	0.9	839.2	899.0	Breckinridge	137	0.5	564.7	667.1	Oldham	245	0.8	375.7	365.7
Bracken	79	0.3	821.8	953.4	Pendleton	80	0.3	562.9	548.5	Crittenden	39	0.1	374.1	440.8
Owsley	47	0.2	807.8	1085.2	Johnson	145	0.5	561.1	659.0	Butler	54	0.2	362.6	425.1
Jackson	135	0.5	805.2	1012.0	Carter	148	0.5	558.6	557.6	Boone	465	1.6	344.5	343.4
Scott	466	1.6	795.8	797.0	Carlisle	29	0.1	558.6	618.1	Greenup	126	0.4	328.5	361.4
Bourbon	167	0.6	794.3	839.2	Breathitt	75	0.3	556.3	597.6	Ballard	27	0.1	296.1	347.5
Morgan	119	0.4	769.9	905.5	Franklin	282	0.9	552.1	551.7	Lyon	29	0.1	282.2	356.6
Cumberland	66	0.2	745.3	1011.8	Hart	115	0.4	537.8	604.9	Meade	72	0.2	245.1	251.6
Green	99	0.3	745.0	900.4	Knott	89	0.3	535.2	613.3	Edmonson	33	0.1	240.7	269.7
Trigg	133	0.4	737.3	900.1	Logan	158	0.5	533.1	576.3	Hickman	14	0.0	226.8	320.8
Robertson	21	0.1	732.8	983.2	McLean	64	0.2	530.9	705.2	Fulton	15	0.1	160.1	252.0

Table 29: Causes of Non-Fatal NTBI, Kentucky, 2021

ABI Category	Inpatient		ED	
	Number	Percent	Number	Percent
Anoxia	89,225	84.5	15,328	51.7
Exposure to toxic substances	12,169	11.5	10,531	35.5
Allergy/anaphylaxis	310	0.3	2,577	8.7
Acute medical clinical incidents	3,873	3.7	1,214	4.1

* 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 previous tables.

Table 30: Non-Fatal Anoxia by Age Group, Kentucky, 2021

Age	Inpatient			ED			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	1,747	71.2	646.8	705	28.8	261.0	2,452	100.0	907.9
5-14	522	74.8	93.1	176	25.2	31.4	698	100.0	124.5
15-24	1,176	77.5	201.6	341	22.5	58.5	1,517	100.0	260.0
25-44	7,987	84.2	699.4	1,504	15.8	131.7	9,491	100.0	831.1
45-64	30,227	85.1	2627.5	5,297	14.9	460.4	35,524	100.0	3088.0
65+	47,566	86.7	6170.7	7,305	13.3	947.7	54,871	100.0	7118.4
Total	89,225	85.3	1992.9	15,328	14.7	342.4	104,553	100.0	2335.2

Table 31: Diagnosis Distribution for Non-Fatal Anoxia, Kentucky, 2021

Diagnosis	Description	Inpatient		ED	
		Number	Percent	Number	Percent
G91(.0-.2)	Communicating hydrocephalus	643	0.72	144	0.94
G931	Anoxic brain damage, NEC	201	0.23	107	0.70
J96	Respiratory failure, NEC w/hypoxia or hypercapnia	79,636	89.25	9,413	61.41
R090	Asphyxia and hypoxemia	8,676	9.72	5,310	34.64
T71	Asphyxiation	60	0.07	257	1.68
T751	Unspec effects of drowning and non-fatal submersion	9	0.01	97	0.63
Total		89,225	100.00	15,328	100.00

Table 32: Non-Fatal Exposure to Toxic Substances by Age Group, Kentucky, 2021

Age	Inpatient			ED			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	61	14.7	22.6	355	85.3	131.4	416	100.0	154.0
5-14	75	29.2	13.4	182	70.8	32.5	257	100.0	45.8
15-24	405	24.3	69.4	1,261	75.7	216.2	1,666	100.0	285.6
25-44	2,018	28.8	176.7	4,996	71.2	437.5	7,014	100.0	614.2
45-64	4,024	61.3	349.8	2,540	38.7	220.8	6,564	100.0	570.6
65+	5,586	82.4	724.7	1,197	17.6	155.3	6,783	100.0	880.0
Total	12,169	53.6	271.8	10,531	46.4	235.2	22,700	100.0	507.0

Table 33: Diagnosis Distribution for Non-Fatal Exposure to Toxic Substances, Kentucky, 2021

Diagnosis	Description	Inpatient		ED	
		Number	Percent	Number	Percent
G92	Toxic encephalopathy	6134	50.4	515	4.9
T40	Poisoning by narcotics and hallucinogens	2765	22.7	6698	63.6
T41	Poisoning by anesthetics and therapeutic gases	169	1.4	66	0.6
T42(.3-.7)	Poisoning by antiepileptic and sedative hypnotic drugs	1163	9.6	1146	10.9
T45.5	Poisoning by anticoagulants and antithrombotic drugs	1432	11.8	412	3.9
T51	Toxic effect of alcohol	124	1.0	175	1.7
T56	Toxic effect of metals	23	0.2	51	0.5
T57	Toxic effect of other inorganic substances	1	0.0	1	0.0
T58	Toxic effect of carbon monoxide	33	0.3	224	2.1
T60	Toxic effect of pesticides	7	0.1	69	0.7
T61	Toxic effect of noxious substances eaten as seafood	0	0.0	17	0.2
T62	Toxic effect of other noxious substances eaten as food	6	0.0	63	0.6
T65	Toxic effect of other unspecified substances	85	0.7	1051	10.0
T81.1	Postprocedural shock	179	1.5	2	0.0
T88.2	Shock due to anesthesia	7	0.1	0	0.0
T88.5	Other complications of anesthesia	41	0.3	41	0.4
Total		12169	100.0	10531	100.0

Table 34: Length of Stay for Non-Fatal Inpatient NTBI, Kentucky, 2021

Length of Stay	Number	Percent*
1 day	7791	7.8
More than one day but less than 1 week	54781	54.8
1 week to less than 2 weeks	24045	24.1
2 weeks to less than 3 weeks	7028	7.0
3 weeks to less than 4 weeks	2911	2.9
4 weeks or more	3349	3.4
Total	99905	100.0

*Percent of hospitalized NTBI

Table 35: Discharge Disposition for Non-Fatal NTBI, Kentucky, 2021

Discharge Disposition	Inpatient		ED	
	Number	Percent	Number	Percent
Routine discharge (home/self care)	50,731	50.8	19,820	68.4
Skilled nursing facility (SNF)	13,023	13.0	822	2.8
Home health	16,216	16.2	639	2.2
Inpatient-other type facility	57	0.1	216	0.7
Inpatient-other short-term hospital	3,318	3.3	3,787	13.1
Intermediate care facility (ICF)	846	0.8	51	0.2
Rehab	5,150	5.2	133	0.5
Other	10,564	10.6	3,526	12.2
Total	99,905	100.0	28,994	100.0

Table 36: Primary Payer and Charges for Non-Fatal Inpatient NTBI, Kentucky, 2021

Payer	Number of Discharges	Percent of Discharges	Total Hospital Charges
Government	79,119	79.2	\$ 5,317,764,830
Commercial Insurance	18,414	18.4	\$ 1,466,152,153
Self Pay	942	0.9	\$ 55,721,581
Workers Compensation	225	0.2	\$ 19,924,012
Other	1205	1.2	\$ 112,616,990
Total	99,905	100.0	\$ 6,972,179,566

Table 37: Primary Payer and Charges for Non-Fatal ED NTBI, Kentucky, 2021

Payer	Number of Discharges	Percent of Discharges	Total Hospital Charges
Government	17,709	76.6	\$ 146,521,715
Commercial Insurance	3,890	16.8	\$ 26,994,075
Self Pay	1,135	4.9	\$ 3,524,699
Workers Compensation	105	0.5	\$ 390,991
Other	281	1.2	\$ 1,969,911
Total	23,120	100.0	\$ 179,401,392

Table 38: Non-Fatal SCI by Age Group, Kentucky, 2021

Payer	Number of Discharges	Percent of Discharges	Total Hospital Charges
Government	21,852	74.7	\$ 217,516,157
Commercial Insurance	5,772	19.7	\$ 43,520,085
Self Pay	1,101	3.8	\$ 4,221,449
Workers Compensation	137	0.5	\$ 701,669
Other	394	1.3	\$ 3,794,427
Total	29,256	100.0	\$ 269,753,787

Table 39: Non-Fatal SCI by Gender, Kentucky, 2021

Age	Inpatient			ED			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Male	130	74.7	5.9	44	25.3	2.0	174	100.0	7.9
Female	73	70.2	3.2	31	29.8	1.4	104	100.0	4.6
Total	203	73.0	4.5	75	27.0	1.7	278	100.0	6.2

Table 40: Leading Causes of Non-Fatal SCI, Kentucky, 2021

Mechanism of Injury	Inpatient			ED			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Motor vehicle traffic crash	45	76.3	1.0	14	23.7	0.3	59	100.0	1.3
Fall	102	76.1	2.3	32	23.9	0.7	134	100.0	3.0
Non-traffic land transportation	1	33.3	0.0	2	66.7	0.0	3	100.0	0.1
Struck by or against object or person	6	60.0	0.1	4	40.0	0.1	10	100.0	0.2
Firearm	16	88.9	0.4	2	11.1	0.0	18	100.0	0.4
Other	13	56.5	0.3	10	43.5	0.2	23	100.0	0.5
Unknown (missing E-code)	20	64.5	0.4	11	35.5	0.2	31	100.0	0.7
Total	203	73.0	4.5	75	27.0	1.7	278	100.0	6.2

Table 41: Length of Stay for Non-Fatal Inpatient SCI, Kentucky, 2021

Length of Stay	Number	Percent*
1 day	10	4.9
More than one day but less than 1 week	50	24.6
1 week to less than 2 weeks	78	38.4
2 weeks to less than 3 weeks	30	14.8
3 weeks to less than 4 weeks	14	6.9
4 weeks or more	21	10.3
Total	203	100.0

*Percent of hospitalized SCI

Mean	14
Median	10
Min, Max	1-265

Table 42: Discharge Disposition for Non-Fatal SCI, Kentucky, 2021

Discharge Disposition	Inpatient		ED	
	Number	Percent	Number	Percent
Routine discharge (home/self care)	48	23.6	43	57.3
Home health	9	4.4	1	1.3
Skilled nursing facility (SNF)	25	12.3	1	1.3
Inpatient-other	5	2.5	24	32.0
Rehab	101	49.8	0	0.0
Other	15	7.4	6	8.0
Total	203	100.0	75	100.0

Table 43: Primary Payer and Charges for Non-Fatal Inpatient SCI, Kentucky, 2021

Payer	Number of Discharges	Percent of Discharges	Total Hospital Discharges
Government	124	61.1	\$ 28,978,122
Commercial Ins	52	25.6	\$ 11,185,285
Workers Compensation	2	1.0	\$ 928,550
Self Pay	4	2.0	\$ 367,628
Other	21	10.3	\$ 5,019,099
Total	203	100.0	\$46,478,684

Table 44: Primary Payer and Charges for Non-Fatal ED SCI, Kentucky, 2021

Payer	Number of Discharges	Percent of Discharges	Total Hospital Discharges
Government	48	64.0	\$ 496,644
Commercial Ins	14	18.7	\$ 132,391
Workers Compensation	1	1.3	\$ 17,000
Self Pay	3	4.0	\$ 1,971
Other	9	12.0	\$ 102,792
Total	75	100.0	\$750,798

Table 45: Non-Fatal Stroke by Age Group, Kentucky, 2021

Age	Inpatient			ED			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
0-4	13	0.0	4.8	4	0.0	1.5	17	100.0	6.3
5-14	11	183.3	2.0	6	35.3	1.1	17	100.0	3.0
15-24	49	52.1	8.4	45	47.9	7.7	94	100.0	16.1
25-44	687	54.5	60.2	574	45.5	50.3	1,261	100.0	110.4
45-64	3,960	60.6	344.2	2,575	39.4	223.8	6,535	100.0	568.1
65+	7,863	63.8	1020.1	4,464	36.2	579.1	12,327	100.0	1599.2
Total	12,583	62.1	281.0	7,668	37.9	171.3	20,251	100.0	452.3

Table 46: Non-Fatal Stroke by Gender, Kentucky, 2021

Age	Inpatient			ED			Total		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Male	6,139	62.5	278.4	3,687	37.5	167.2	9,826	100.0	445.6
Female	6,443	61.8	283.6	3,979	38.2	175.1	10,422	100.0	458.7
Total	12,582	62.1	281.0	7,666	37.9	171.2	20,248	100.0	452.2

Table 47: Length of Stay for Non-Fatal Inpatient Stroke, Kentucky, 2021

Length of Stay	Number	Percent*
1 day	1,902	15.1
More than one day but less than 1 week	6,684	53.1
1 week to less than 2 weeks	2,416	19.2
2 weeks to less than 3 weeks	788	6.3
3 weeks to less than 4 weeks	321	2.6
4 weeks or more	472	3.8
Total	12,583	100.0

*Percent of hospitalized Stroke

Table 48: Discharge Disposition for Non-Fatal Stroke, Kentucky, 2021

Discharge Disposition	Inpatient		ED	
	Number	Percent	Number	Percent
Routine discharge (home/self care)	4,986	39.6	4,209	55.6
Home health	1,656	13.2	148	0.0
Skilled nursing facility (SNF)	1,821	14.5	199	0.0
Inpatient-other	354	2.8	2,272	38.3
Intermediate Care Facility	84	0.7	18	2.5
Rehab	2,236	17.8	46	0.6
Other	1,446	11.5	749	3.7
Total	12,583	100.0	7641	100.0

Table 49: Primary Payer and Charges for Non-Fatal Inpatient Stroke, Kentucky, 2021

Payer	Number of Discharges	Percent of Discharges	Total Hospital Discharges
Government	10,127	80.5	788,970,415
Commercial Ins	2,218	17.6	236,028,819
Workers Compensation	5	0.0	885,179
Self Pay	120	1.0	9,817,323
Other	113	0.9	11,710,475
Total	12,583	100.0	\$1,047,412,211

Table 50: Primary Payer and Charges for Non-Fatal ED Stroke, Kentucky, 2021

Payer	Number of Discharges	Percent of Discharges	Total Hospital Discharges
Government	5,944	77.5	\$ 100,814,723
Commercial Ins	1,487	19.4	\$ 25,756,703
Workers Compensation	3	0.0	\$ 62,327
Self Pay	134	1.7	\$ 2,066,741
Other	100	1.3	\$ 1,367,063
Total	7,668	100.0	\$130,067,557

Table 51: Incidence of All Inpatient Stroke* by County, Sorted by County, Kentucky, 2021

*Includes inpatient deaths as well as non-fatal inpatient cases

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude
Adair	70	0.5	260.8	358.0	Grant	95	0.7	335.6	374.2	McLean	34	0.2	264.4	374.7
Allen	65	0.5	235.0	305.1	Graves	155	1.1	313.9	421.0	Meade	71	0.5	222.1	248.1
Anderson	62	0.4	204.1	271.5	Grayson	131	0.9	385.6	494.7	Menifee	35	0.2	386.5	538.3
Ballard	24	0.2	241.2	308.9	Green	36	0.3	211.1	327.4	Mercer	75	0.5	255.2	342.6
Barren	124	0.9	211.9	279.9	Greenup	134	0.9	256.0	384.3	Metcalfe	47	0.3	363.5	467.3
Bath	59	0.4	369.4	472.7	Hancock	30	0.2	262.0	343.2	Monroe	56	0.4	386.6	530.9
Bell	72	0.5	214.1	282.6	Hardin	414	2.9	329.2	371.9	Montgomery	116	0.8	325.1	411.6
Boone	302	2.1	206.0	223.0	Harlan	133	0.9	394.2	520.2	Morgan	44	0.3	276.1	334.8
Bourbon	74	0.5	275.1	371.8	Harrison	63	0.4	255.9	333.0	Muhlenberg	65	0.5	144.3	213.4
Boyd	227	1.6	339.9	488.0	Hart	66	0.5	276.1	347.1	Nelson	144	1.0	266.6	310.0
Boyle	108	0.8	272.6	355.6	Henderson	58	0.4	99.8	129.6	Nicholas	28	0.2	311.0	387.1
Bracken	24	0.2	235.0	289.6	Henry	66	0.5	324.4	410.8	Ohio	63	0.4	204.1	263.6
Breathitt	44	0.3	258.9	350.6	Hickman	9	0.1	130.0	206.2	Oldham	127	0.9	183.9	189.6
Breckinridge	82	0.6	278.8	399.3	Hopkins	116	0.8	193.5	259.7	Owen	30	0.2	197.4	272.3
Bullitt	234	1.7	237.6	284.7	Jackson	43	0.3	252.0	322.3	Owsley	17	0.1	245.8	392.5
Butler	37	0.3	215.9	291.3	Jefferson	2836	20.0	302.7	369.5	Pendleton	41	0.3	204.0	281.1
Caldwell	24	0.2	126.0	189.2	Jessamine	151	1.1	239.0	279.3	Perry	135	1.0	416.1	530.3
Calloway	78	0.6	160.8	198.5	Johnson	85	0.6	287.4	386.3	Pike	231	1.6	294.6	404.9
Campbell	199	1.4	166.8	211.7	Kenton	442	3.1	227.5	263.2	Powell	57	0.4	424.0	466.5
Carlisle	20	0.1	273.2	426.3	Knott	46	0.3	217.3	317.0	Pulaski	233	1.6	258.5	355.6
Carroll	45	0.3	347.3	419.4	Knox	105	0.7	265.2	338.5	Robertson	8	0.1	198.5	374.5
Carter	108	0.8	315.7	406.9	Larue	58	0.4	293.8	401.9	Rockcastle	65	0.5	276.5	388.1
Casey	39	0.3	190.1	242.7	Laurel	202	1.4	271.0	329.9	Rowan	85	0.6	333.7	344.4
Christian	96	0.7	142.1	134.3	Lawrence	54	0.4	282.6	349.8	Russell	70	0.5	253.0	388.9
Clark	134	0.9	286.2	367.5	Lee	35	0.2	358.9	481.6	Scott	157	1.1	272.0	268.5
Clay	97	0.7	411.4	494.1	Leslie	53	0.4	396.0	550.0	Shelby	128	0.9	218.1	258.0
Clinton	26	0.2	169.5	257.2	Letcher	138	1.0	473.9	650.5	Simpson	59	0.4	252.0	316.6
Crittenden	22	0.2	164.4	248.7	Lewis	25	0.2	145.2	188.5	Spencer	51	0.4	220.2	260.4
Cumberland	22	0.2	240.3	337.3	Lincoln	111	0.8	341.6	453.7	Taylor	102	0.7	308.1	396.8
Daviess	256	1.8	200.5	251.0	Livingston	37	0.3	264.4	409.2	Todd	15	0.1	101.6	120.5
Edmonson	30	0.2	161.5	245.2	Logan	73	0.5	190.8	266.3	Trigg	33	0.2	151.6	223.3
Elliott	14	0.1	121.5	189.9	Lyon	26	0.2	189.6	319.7	Trimble	25	0.2	226.1	294.8
Estill	59	0.4	321.3	418.2	Madison	190	1.3	187.9	201.6	Union	5	0.0	28.3	34.6
Fayette	786	5.5	229.7	242.0	Magoffin	43	0.3	272.9	357.8	Warren	390	2.8	282.6	289.9
Fleming	44	0.3	224.5	301.3	Marion	36	0.3	153.8	186.4	Washington	25	0.2	149.2	205.8
Floyd	137	1.0	298.0	391.7	Marshall	98	0.7	207.3	314.5	Wayne	59	0.4	195.6	291.9
Franklin	208	1.5	314.6	406.9	Martin	20	0.1	148.6	181.3	Webster	26	0.2	143.1	201.2
Fulton	16	0.1	209.5	268.8	Mason	52	0.4	239.6	305.3	Whitley	204	1.4	482.3	559.7
Gallatin	37	0.3	336.4	421.5	McCracken	240	1.7	257.8	365.6	Wolfe	30	0.2	322.7	422.2
Garrard	52	0.4	208.7	293.5	McCreary	47	0.3	221.3	275.3	Woodford	74	0.5	216.5	276.5

Table 52: Incidence of All ED Stroke* by County, Sorted by County, Kentucky, 2021

*Includes ED deaths as well as non-fatal ED cases

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude
Adair	72	0.9	259.8	368.2	Grant	60	0.8	208.0	236.3	McLean	17	0.2	127.7	187.3
Allen	43	0.6	152.0	201.9	Graves	67	0.9	136.7	182.0	Meade	18	0.2	55.0	62.9
Anderson	23	0.3	81.9	100.7	Grayson	65	0.8	198.5	245.5	Menifee	20	0.3	212.3	307.6
Ballard	7	0.1	81.8	90.1	Green	45	0.6	284.6	409.3	Mercer	66	0.9	234.2	301.5
Barren	101	1.3	175.8	228.0	Greenup	70	0.9	143.4	200.8	Metcalfe	36	0.5	290.5	357.9
Bath	32	0.4	202.6	256.4	Hancock	11	0.1	88.0	125.8	Monroe	52	0.7	345.4	492.9
Bell	59	0.8	168.9	231.5	Hardin	178	2.3	143.6	159.9	Montgomery	71	0.9	192.8	251.9
Boone	118	1.5	81.0	87.2	Harlan	55	0.7	162.6	215.1	Morgan	38	0.5	228.1	289.1
Bourbon	41	0.5	166.2	206.0	Harrison	61	0.8	255.9	322.4	Muhlenberg	68	0.9	165.9	223.3
Boyd	110	1.4	167.6	236.5	Hart	35	0.5	161.0	184.1	Nelson	122	1.6	223.8	262.6
Boyle	105	1.4	266.6	345.8	Henderson	63	0.8	108.6	140.8	Nicholas	23	0.3	251.3	317.9
Bracken	20	0.3	209.9	241.4	Henry	42	0.5	235.1	261.4	Ohio	50	0.6	163.3	209.2
Breathitt	25	0.3	163.1	199.2	Hickman	6	0.1	70.7	137.5	Oldham	69	0.9	99.0	103.0
Breckinridge	65	0.8	240.8	316.5	Hopkins	110	1.4	190.9	246.3	Owen	17	0.2	131.2	154.3
Bullitt	94	1.2	92.6	114.4	Jackson	33	0.4	190.0	247.4	Owsley	14	0.2	222.9	323.3
Butler	11	0.1	57.2	86.6	Jefferson	884	11.5	94.4	115.2	Pendleton	13	0.2	63.2	89.1
Caldwell	27	0.4	144.5	212.8	Jessamine	72	0.9	112.3	133.2	Perry	86	1.1	277.3	337.8
Calloway	67	0.9	130.7	170.5	Johnson	80	1.0	269.4	363.6	Pike	170	2.2	218.6	297.9
Campbell	62	0.8	52.3	65.9	Kenton	135	1.8	70.2	80.4	Powell	28	0.4	184.4	229.2
Carlisle	9	0.1	128.4	191.8	Knott	33	0.4	176.6	227.4	Pulaski	170	2.2	198.1	259.4
Carroll	24	0.3	197.4	223.7	Knox	76	1.0	193.0	245.0	Robertson	7	0.1	200.1	327.7
Carter	53	0.7	160.3	199.7	Larue	36	0.5	180.9	249.5	Rockcastle	47	0.6	209.0	280.6
Casey	36	0.5	162.6	224.1	Laurel	134	1.7	183.9	218.8	Rowan	56	0.7	225.6	226.9
Christian	91	1.2	137.1	127.3	Lawrence	53	0.7	267.2	343.4	Russell	56	0.7	234.6	311.1
Clark	71	0.9	155.4	194.7	Lee	24	0.3	246.0	330.2	Scott	99	1.3	173.7	169.3
Clay	65	0.8	271.9	331.1	Leslie	55	0.7	428.9	570.7	Shelby	69	0.9	117.8	139.1
Clinton	34	0.4	228.6	336.3	Letcher	70	0.9	256.5	330.0	Simpson	56	0.7	237.4	300.5
Crittenden	21	0.3	167.0	237.4	Lewis	21	0.3	113.6	158.3	Spencer	23	0.3	96.0	117.4
Cumberland	28	0.4	273.7	429.3	Lincoln	83	1.1	256.6	339.2	Taylor	78	1.0	241.6	303.4
Daviess	114	1.5	90.9	111.8	Livingston	24	0.3	189.2	265.5	Todd	13	0.2	90.9	104.4
Edmonson	15	0.2	97.5	122.6	Logan	55	0.7	155.3	200.6	Trigg	47	0.6	201.7	318.1
Elliott	7	0.1	72.0	95.0	Lyon	9	0.1	59.3	110.7	Trimble	*	-	-	-
Estill	33	0.4	199.1	233.9	Madison	123	1.6	123.5	130.5	Union	29	0.4	166.9	200.8
Fayette	248	3.2	73.3	76.4	Magoffin	35	0.5	213.7	291.3	Warren	162	2.1	123.0	120.4
Fleming	35	0.5	183.4	239.7	Marion	63	0.8	260.1	326.2	Washington	31	0.4	194.7	255.2
Floyd	140	1.8	312.2	400.3	Marshall	78	1.0	149.6	250.3	Wayne	53	0.7	202.5	262.3
Franklin	112	1.5	177.1	219.1	Martin	25	0.3	211.0	226.6	Webster	19	0.2	125.7	147.0
Fulton	*	-	-	-	Mason	39	0.5	179.0	228.9	Whitley	129	1.7	299.9	353.9
Gallatin	8	0.1	74.6	91.1	McCracken	102	1.3	116.6	155.4	Wolfe	23	0.3	252.0	323.7
Garrard	47	0.6	196.9	265.3	McCreary	32	0.4	162.9	187.5	Woodford	35	0.5	98.9	130.8

* At least one but fewer than five

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

Table 53: Incidence of All Inpatient Stroke* by County, Sorted by Frequency, Kentucky, 2021

*Includes inpatient deaths as well as non-fatal inpatient cases

Age-Adjusted Crude					Age-Adjusted Crude					Age-Adjusted Crude				
County	Freq	Percent	Rate	Rate	County	Freq	Percent	Rate	Rate	County	Freq	Percent	Rate	Rate
Jefferson	2836	20.0	302.7	369.5	Christian	96	0.7	142.1	134.3	Fleming	44	0.3	224.5	301.3
Fayette	786	5.5	229.7	242.0	Grant	95	0.7	335.6	374.2	Morgan	44	0.3	276.1	334.8
Kenton	442	3.1	227.5	263.2	Johnson	85	0.6	287.4	386.3	Jackson	43	0.3	252.0	322.3
Hardin	414	2.9	329.2	371.9	Rowan	85	0.6	333.7	344.4	Magoffin	43	0.3	272.9	357.8
Warren	390	2.8	282.6	289.9	Breckinridge	82	0.6	278.8	399.3	Pendleton	41	0.3	204.0	281.1
Boone	302	2.1	206.0	223.0	Calloway	78	0.6	160.8	198.5	Casey	39	0.3	190.1	242.7
Daviess	256	1.8	200.5	251.0	Mercer	75	0.5	255.2	342.6	Butler	37	0.3	215.9	291.3
McCracken	240	1.7	257.8	365.6	Bourbon	74	0.5	275.1	371.8	Gallatin	37	0.3	336.4	421.5
Bullitt	234	1.7	237.6	284.7	Woodford	74	0.5	216.5	276.5	Livingston	37	0.3	264.4	409.2
Pulaski	233	1.6	258.5	355.6	Logan	73	0.5	190.8	266.3	Green	36	0.3	211.1	327.4
Pike	231	1.6	294.6	404.9	Bell	72	0.5	214.1	282.6	Marion	36	0.3	153.8	186.4
Boyd	227	1.6	339.9	488.0	Meade	71	0.5	222.1	248.1	Lee	35	0.2	358.9	481.6
Franklin	208	1.5	314.6	406.9	Adair	70	0.5	260.8	358.0	Menifee	35	0.2	386.5	538.3
Whitley	204	1.4	482.3	559.7	Russell	70	0.5	253.0	388.9	McLean	34	0.2	264.4	374.7
Laurel	202	1.4	271.0	329.9	Hart	66	0.5	276.1	347.1	Trigg	33	0.2	151.6	223.3
Campbell	199	1.4	166.8	211.7	Henry	66	0.5	324.4	410.8	Edmonson	30	0.2	161.5	245.2
Madison	190	1.3	187.9	201.6	Allen	65	0.5	235.0	305.1	Hancock	30	0.2	262.0	343.2
Scott	157	1.1	272.0	268.5	Muhlenberg	65	0.5	144.3	213.4	Owen	30	0.2	197.4	272.3
Graves	155	1.1	313.9	421.0	Rockcastle	65	0.5	276.5	388.1	Wolfe	30	0.2	322.7	422.2
Jessamine	151	1.1	239.0	279.3	Harrison	63	0.4	255.9	333.0	Nicholas	28	0.2	311.0	387.1
Nelson	144	1.0	266.6	310.0	Ohio	63	0.4	204.1	263.6	Clinton	26	0.2	169.5	257.2
Letcher	138	1.0	473.9	650.5	Anderson	62	0.4	204.1	271.5	Lyon	26	0.2	189.6	319.7
Floyd	137	1.0	298.0	391.7	Bath	59	0.4	369.4	472.7	Webster	26	0.2	143.1	201.2
Perry	135	1.0	416.1	530.3	Estill	59	0.4	321.3	418.2	Lewis	25	0.2	145.2	188.5
Clark	134	0.9	286.2	367.5	Simpson	59	0.4	252.0	316.6	Trimble	25	0.2	226.1	294.8
Greenup	134	0.9	256.0	384.3	Wayne	59	0.4	195.6	291.9	Washington	25	0.2	149.2	205.8
Harlan	133	0.9	394.2	520.2	Henderson	58	0.4	99.8	129.6	Ballard	24	0.2	241.2	308.9
Grayson	131	0.9	385.6	494.7	Larue	58	0.4	293.8	401.9	Bracken	24	0.2	235.0	289.6
Shelby	128	0.9	218.1	258.0	Powell	57	0.4	424.0	466.5	Caldwell	24	0.2	126.0	189.2
Oldham	127	0.9	183.9	189.6	Monroe	56	0.4	386.6	530.9	Crittenden	22	0.2	164.4	248.7
Barren	124	0.9	211.9	279.9	Lawrence	54	0.4	282.6	349.8	Cumberland	22	0.2	240.3	337.3
Hopkins	116	0.8	193.5	259.7	Leslie	53	0.4	396.0	550.0	Carlisle	20	0.1	273.2	426.3
Montgomery	116	0.8	325.1	411.6	Garrard	52	0.4	208.7	293.5	Martin	20	0.1	148.6	181.3
Lincoln	111	0.8	341.6	453.7	Mason	52	0.4	239.6	305.3	Owsley	17	0.1	245.8	392.5
Boyle	108	0.8	272.6	355.6	Spencer	51	0.4	220.2	260.4	Fulton	16	0.1	209.5	268.8
Carter	108	0.8	315.7	406.9	McCreary	47	0.3	221.3	275.3	Todd	15	0.1	101.6	120.5
Knox	105	0.7	265.2	338.5	Metcalfe	47	0.3	363.5	467.3	Elliott	14	0.1	121.5	189.9
Taylor	102	0.7	308.1	396.8	Knott	46	0.3	217.3	317.0	Hickman	9	0.1	130.0	206.2
Marshall	98	0.7	207.3	314.5	Carroll	45	0.3	347.3	419.4	Robertson	8	0.1	198.5	374.5
Clay	97	0.7	411.4	494.1	Breathitt	44	0.3	258.9	350.6	Union	5	0.0	28.3	34.6

Table 54: Incidence of All ED Stroke* by County, Sorted by Frequency, Kentucky, 2021

*Includes ED deaths as well as non-fatal ED cases

County	Age-Adjusted				County	Age-Adjusted				County	Age-Adjusted			
	Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude		Freq	Percent	Rate	Crude
Jefferson	884	11.5	94.4	115.2	Mercer	66	0.9	234.2	301.5	Knott	33	0.4	176.6	227.4
Fayette	248	3.2	73.3	76.4	Breckinridge	65	0.8	240.8	316.5	Bath	32	0.4	202.6	256.4
Hardin	178	2.3	143.6	159.9	Clay	65	0.8	271.9	331.1	McCreary	32	0.4	162.9	187.5
Pike	170	2.2	218.6	297.9	Grayson	65	0.8	198.5	245.5	Washington	31	0.4	194.7	255.2
Pulaski	170	2.2	198.1	259.4	Henderson	63	0.8	108.6	140.8	Union	29	0.4	166.9	200.8
Warren	162	2.1	123.0	120.4	Marion	63	0.8	260.1	326.2	Cumberland	28	0.4	273.7	429.3
Floyd	140	1.8	312.2	400.3	Campbell	62	0.8	52.3	65.9	Powell	28	0.4	184.4	229.2
Kenton	135	1.8	70.2	80.4	Harrison	61	0.8	255.9	322.4	Caldwell	27	0.4	144.5	212.8
Laurel	134	1.7	183.9	218.8	Grant	60	0.8	208.0	236.3	Breathitt	25	0.3	163.1	199.2
Whitley	129	1.7	299.9	353.9	Bell	59	0.8	168.9	231.5	Martin	25	0.3	211.0	226.6
Madison	123	1.6	123.5	130.5	Rowan	56	0.7	225.6	226.9	Carroll	24	0.3	197.4	223.7
Nelson	122	1.6	223.8	262.6	Russell	56	0.7	234.6	311.1	Lee	24	0.3	246.0	330.2
Boone	118	1.5	81.0	87.2	Simpson	56	0.7	237.4	300.5	Livingston	24	0.3	189.2	265.5
Daviess	114	1.5	90.9	111.8	Harlan	55	0.7	162.6	215.1	Anderson	23	0.3	81.9	100.7
Franklin	112	1.5	177.1	219.1	Leslie	55	0.7	428.9	570.7	Nicholas	23	0.3	251.3	317.9
Boyd	110	1.4	167.6	236.5	Logan	55	0.7	155.3	200.6	Spencer	23	0.3	96.0	117.4
Hopkins	110	1.4	190.9	246.3	Carter	53	0.7	160.3	199.7	Wolfe	23	0.3	252.0	323.7
Boyle	105	1.4	266.6	345.8	Lawrence	53	0.7	267.2	343.4	Crittenden	21	0.3	167.0	237.4
McCracken	102	1.3	116.6	155.4	Wayne	53	0.7	202.5	262.3	Lewis	21	0.3	113.6	158.3
Barren	101	1.3	175.8	228.0	Monroe	52	0.7	345.4	492.9	Bracken	20	0.3	209.9	241.4
Scott	99	1.3	173.7	169.3	Ohio	50	0.6	163.3	209.2	Menifee	20	0.3	212.3	307.6
Bullitt	94	1.2	92.6	114.4	Garrard	47	0.6	196.9	265.3	Webster	19	0.2	125.7	147.0
Christian	91	1.2	137.1	127.3	Rockcastle	47	0.6	209.0	280.6	Meade	18	0.2	55.0	62.9
Perry	86	1.1	277.3	337.8	Trigg	47	0.6	201.7	318.1	McLean	17	0.2	127.7	187.3
Lincoln	83	1.1	256.6	339.2	Green	45	0.6	284.6	409.3	Owen	17	0.2	131.2	154.3
Johnson	80	1.0	269.4	363.6	Allen	43	0.6	152.0	201.9	Edmonson	15	0.2	97.5	122.6
Marshall	78	1.0	149.6	250.3	Henry	42	0.5	235.1	261.4	Owsley	14	0.2	222.9	323.3
Taylor	78	1.0	241.6	303.4	Bourbon	41	0.5	166.2	206.0	Pendleton	13	0.2	63.2	89.1
Knox	76	1.0	193.0	245.0	Mason	39	0.5	179.0	228.9	Todd	13	0.2	90.9	104.4
Adair	72	0.9	259.8	368.2	Morgan	38	0.5	228.1	289.1	Butler	11	0.1	57.2	86.6
Jessamine	72	0.9	112.3	133.2	Casey	36	0.5	162.6	224.1	Hancock	11	0.1	88.0	125.8
Clark	71	0.9	155.4	194.7	Larue	36	0.5	180.9	249.5	Carlisle	9	0.1	128.4	191.8
Montgomery	71	0.9	192.8	251.9	Metcalfe	36	0.5	290.5	357.9	Lyon	9	0.1	59.3	110.7
Greenup	70	0.9	143.4	200.8	Fleming	35	0.5	183.4	239.7	Gallatin	8	0.1	74.6	91.1
Letcher	70	0.9	256.5	330.0	Hart	35	0.5	161.0	184.1	Ballard	7	0.1	81.8	90.1
Oldham	69	0.9	99.0	103.0	Magoffin	35	0.5	213.7	291.3	Elliott	7	0.1	72.0	95.0
Shelby	69	0.9	117.8	139.1	Woodford	35	0.5	98.9	130.8	Robertson	7	0.1	200.1	327.7
Muhlenberg	68	0.9	165.9	223.3	Clinton	34	0.4	228.6	336.3	Hickman	6	0.1	70.7	137.5
Calloway	67	0.9	130.7	170.5	Estill	33	0.4	199.1	233.9	Fulton	*	-	-	-
Graves	67	0.9	136.7	182.0	Jackson	33	0.4	190.0	247.4	Trimble	*	-	-	-

* At least one but fewer than five

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

Appendix B: Methods, Abbreviations, Definitions and Data

Methods

Data used for surveillance were received electronically. Hospital Discharge Data (HDD) files from the Kentucky Office of Health Policy are routinely received by the Kentucky Injury Prevention and Research Center (KIPRC) for surveillance purposes. These files now include both emergency department billing data as well as inpatient hospitalization billing data. The calendar year of 2015 marks the initial use of new ICD-10-CM coding on hospital medical records. This new coding began 10/2015, leaving the year with three quarters of the old coding and a final quarter with the new coding. General equivalency mappings (GEMs) have been used to translate ICD-9 coding to ICD-10 coding but further discussion and exploration is needed to ascertain the coding going forward.

Crude incidence rates were calculated for each injury type by dividing the number of injuries by 4,477,251, the most recent estimated population of Kentucky according to the Kentucky State Data Center, and then multiplying by 100,000. This figure represents the number of TBI, NTBI, SCI or stroke that occurred per 100,000 residents of Kentucky. Age-adjusted rates were calculated using the Year 2000 Standard Population. Data analysis, including mapping, was performed using SAS Version 9.4.

Abbreviations

- TBI – Traumatic Brain Injury
- NTBI – Non-traumatic Brain Injury
- SCI – Spinal Cord Injury
- CNSI – Central Nervous System Injury
- MVTC – Motor Vehicle Traffic Crash
- ETS – Exposure to Toxic Substances
- KIPRC – Kentucky Injury Prevention and Research Center

Identification of Cases

Traumatic brain injury case definition

The Centers for Disease Control and Prevention (CDC) have established standards for TBI case identification (CDC, 1995). Hospitals are currently using ICD-10 codes for injury coding. Definitions are being developed using the new ICD-10 coding. The following ICD-10 codes were used to identify TBI records:

- Fracture of vault or base of skull: S02.0 - S02.1
- Fractures of other specified skull and facial bones or unspecified fracture of skull: S02.8, S02.91
- Intracranial injury, including concussion, cerebral edema, diffuse and focal traumatic brain injury, epidural/subdural/subarachnoid hemorrhage and unspecified intracranial injury: S06.0-S06.9
- Crushing injury of skull: S07.1
- Shaken infant syndrome: T74.4

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

Non-traumatic 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 NTBI. 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-10 diagnosis codes, as follows:

- Anoxia: G91(.0-.2), G93.1, J96, R09.0, T71, T751
- Allergy/Anaphylaxis: T78.0, T78.2, T80.5, T80.6, T88.1, T88.6
- Acute Medical Clinical Incidents: G00, G01, G02, G03, G04(.0,2,3,8,9), G05, G06.0, G07, A39.0, A39.81, A85, A86, A87, A88.8, A89, C70.0, C71, C79.3, D32.0, D33(.0-.2), D42.0, D43(.0-.2), D49.6, G37.4, A83, B00.4, B01(.0,1), B02(.0,1), B37.5
- Toxic Substances: G92, T40, T41, T42(.3-.7), T45.5, T51, T56, T57, T58, T60, T61, T62, T64, T65, T81.1, T88.2, T88.5

Anoxia includes but is not limited to:

- brain damage related to hereditary and degenerative diseases of the central nervous system
- nervous system complications (related to medical care)
- drowning and nonfatal submersion
- asphyxia

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

Spinal cord injury case definition

SCI was defined by the following ICD-10 diagnosis codes:

- Concussion and edema of cervical/thoracic/lumbar and sacral spinal cord or other and unspecified injuries: S14.0, S14.1, S24.0, S24.1, S34.0, S34.1
- Injury of cauda equina: S34.3

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

Stroke case definition

The following ICD-10 diagnosis codes (n-codes) were used for identifying stroke cases in HDD:

- Hemorrhages (subarachnoid, intracerebral): I60, I61
- Cerebral infarction: I63
- Occlusion and stenosis of precerebral arteries (not resulting in cerebral infarction): I65
- Transient cerebral ischemic attacks: G45

If one or more of these codes was found in any of the diagnosis code fields in the HDD, the record was determined to be a stroke related hospital visit. It is anticipated that this definition will be fine tuned in future reports.