

Special Emphasis Report: Traumatic Brain Injury

UNDERSTANDING TBI

Traumatic brain injury (TBI) is a serious public health problem in the United States. A TBI is caused by a bump, blow, jolt to, or penetration of the head that disrupts the normal function of the brain. Each year, traumatic brain injuries contribute to a substantial number of deaths and individuals with permanent disability.

Impact and Magnitude of TBI

During 2023, TBI was reported as a cause of death for 1,139 people in Kentucky (for a rate of 23 per 100,000 population). A total of 10,444 (237 per 100,000 population) emergency department (ED) visits were made by Kentuckians to receive treatment or care for a nonfatal TBI. There were an additional 2,848 (56 per 100,000 population) inpatient hospitalizations for nonfatal TBI in Kentucky. In all instances, the TBI was either the only injury or one of several injuries and/or medical conditions listed.

Mechanism and Intent of TBI

Injury mechanisms, as measured by rate per 100,000 people, vary across the three severity levels. Unintentional falls were the leading injury mechanism of TBI-related deaths and nonfatal TBI-related hospitalizations and ED visits in Kentucky. The majority of TBI injuries were without deliberate or purposefully inflicted intent (unintentional), followed by self-directed violence (suicide, see Table 1).

TBI by Age and Sex

The highest rates of TBI-related deaths¹ in Kentucky were among males aged 65-74, as shown in Figure 2. Among those with TBI-related inpatient hospitalizations,² persons aged 75-84 were most affected. Persons aged 15-19 made the most TBI-related emergency department visits by rate per 100,000.²

¹TBI was reported as a mechanism of death on the death certificate alone or in combination with other injuries or conditions.

²TBI alone or in combination with other injuries or conditions.

³Note that mechanism and intent are not mutually exclusive, and these counts should not be summed.

⁴Other included undetermined and legal/war intents.

*Per state data policies, deaths of five and greater than zero were suppressed, and ED visits/hospitalizations less than five and greater than zero were suppressed.

Rates are age-adjusted; rates based on counts of 20 or fewer may be unstable and are not available for reporting.

FIGURE 1: Percentage of Annual TBI-Related Deaths, Hospitalizations, and Emergency Department Visits in Kentucky by Leading Mechanism or Intent, 2023^{1,2,3}

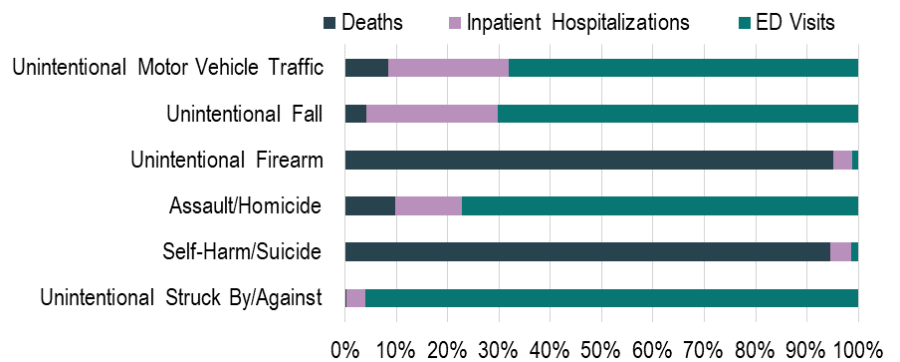
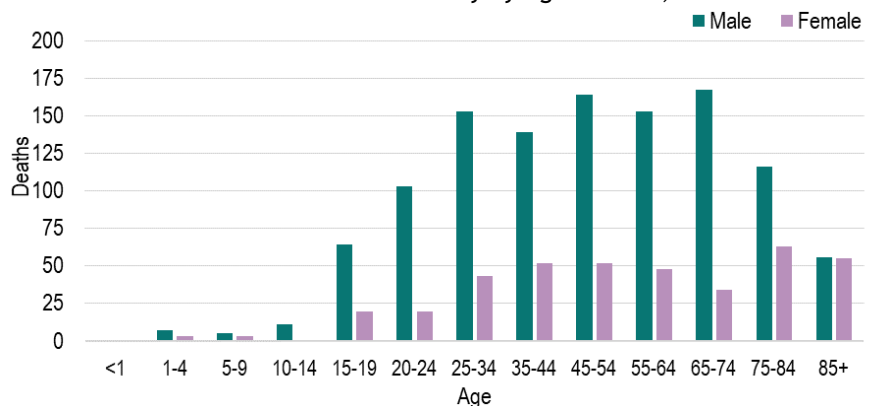


TABLE 1: TBI-Related Deaths and Age-Adjusted Rates per 100,000 Kentuckians by Injury Mechanism and Intent, 2023¹

		Count	Rate per 100K People
MECHANISM	Unintentional Fall	250	5
	Unintentional Motor Vehicle Traffic	208	4
	Unintentional Struck By/Against	9	n/a
	Unintentional Firearm	*	n/a
INTENT	Unintentional	583	12
	Suicide	440	9
	Homicide	97	2
	Other ⁴	19	n/a

FIGURE 2: TBI-Related Deaths in Kentucky by Age and Sex, 2023¹



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National TBI Prevention Strategies

The National Center for Injury Prevention and Control (Injury Center) of the Centers for Disease Control and Prevention (CDC) is committed to protecting people against preventable TBI by putting science into action.

To Help Older Adults: Make CDC’s STEADI Part of Every Medical Practice.

STEADI (Stopping Elderly Accidents, Deaths, and Injuries) is a toolkit to help health care providers incorporate fall risk assessment and individualized fall interventions (e.g., exercise, medication management, and vitamin D supplementation) into their practice. Learn more: www.cdc.gov/STEADI

To Help Young Athletes: Get a HEADS UP on Creating a Culture of Concussion Safety in Sports.

HEADS UP educational materials are designed to support individuals (such as coaches and health care providers) and organizations (such as schools and sports programs) with their concussion safety efforts. Learn more: www.cdc.gov/HEADSUP

To Help Parents and Teen Drivers: “Parents Are the Key” to Teen Driver Safety.

Parents Are the Key—materials help parents, pediatricians, and communities keep teen drivers safe on the road. Learn more: www.cdc.gov/ParentsAretheKey

Note: TBI-related cases were identified by first limiting the datasets to injury cases based on external cause of injury (deaths), primary diagnosis (hospitalizations), or both (ED visits) among Kentucky residents. Deaths were excluded from inpatient hospitalization counts. ED visits excluded deaths and those resulting in inpatient hospitalizations. All fields were then searched for TBI diagnostic codes. Age-adjusted rates were adjusted to the year 2000 standard populations. Both ED visits and hospitalizations represent encounters of care (not individuals) and could be greater than the number of individual patients treated.

TBI by Population

Certain populations have higher rates of TBI and may need specific prevention measures. In Kentucky, the group with the highest fatal TBI age-adjusted rate was non-Hispanic Blacks. The group with the highest nonfatal TBI age-adjusted rate was non-Hispanic Whites.

TABLE 2: TBI Rates in Kentucky by Race and Ethnicity, 2023

Race and Ethnicity	Fatal		Nonfatal	
	Count	Rate	Count	Rate
American Indian/Alaska Native	0	n/a	18	204
Asian/Native Hawaiian/Pacific Islander	7	n/a	93	135
Black, Not Hispanic	88	23	1,284	139
Hispanic	*	n/a	512	272
Other Race, Not Hispanic	25	n/a	115	145
White, Not Hispanic	1,015	24	11,270	300



Kentucky Traumatic Brain Injury Prevention Activities

The CDC’s Core State Injury Prevention Program funds the Kentucky Violence Injury Prevention Program (KVIPP) to estimate the impact of TBIs through robust data surveillance to define the groups most affected and to work with partners to address TBIs in disproportionately affected communities. Specific strategies include working with the Kentucky Safety and Prevention Alignment Network (KSPAN) partners to support implementation of evidence-based Checkpoints™ with parent(s)/caregiver(s) and teen drivers; working with law enforcement to conduct safe and legal sobriety checkpoints; educating students and at-risk mothers on preventing pediatric abusive head trauma and safe sleep environments ([Keeping Infants Safe](http://www.safekentucky.org)) to support KY Revised State 158.303 (enacted in 2011); preventing secondary TBIs among communities through evidence-based gatekeeper trainings; distributing firearm locks, medication lock boxes, and educational resources to young families; working to prevent unintentional injuries, suicide, and injury risk factors among military-connected families; and supporting communities to address and prevent older adult falls. Learn more: www.safekentucky.org.

Enacted in 2023, KY Senate Bill 42 requires that identification badges issued to public middle and high school students list the contact information for national crisis hotlines specializing in domestic violence, sexual assault, and suicide, etc., to increase awareness of injury and violence prevention resources.

Working with local communities and individuals, the Brain Injury Alliance of Kentucky ([BIAK](http://www.biaak.org)) distributes helmets, provides hospital outreach to those affected by TBI, plans Brain Injury Summits, and works with the Kentucky TBI Trust Fund to launch a community-based concussion management program (REAP: Reduce/Remove, Educate, Adjust/Accommodate, Pace), creating a safety net for all students returning to the classroom post-concussion. The TBI Trust Fund works to serve those who survive TBI by providing opportunities to access the services and supports they need to live in the community.

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