

SURVEILLANCE REPORT

Traumatic Brain Injury-related Hospitalizations and Deaths by Age Group, Sex, and Mechanism of Injury

UNITED STATES 2016 / 2017



TABLE 1 – Estimated number and rate* of traumatic brain injury-related (TBI) hospitalizations† by age group and mechanism of injury – United States, 2016 and 2017

AGE GROUP (YRS)	YEAR	Motor vehicle traffic crashes		Unintentional falls‡		Unintentionally struck by or against an object		Other or unspecified unintentional injury		Intentional self-harm§		Assault		Other¶	
		NO.	RATE* (95% CI)	NO.	RATE* (95% CI)	NO.	RATE* (95% CI)	NO.	RATE* (95% CI)	NO.	RATE* (95% CI)	NO.	RATE* (95% CI)	NO.	RATE* (95% CI)
0-17	2016	5,485	7.4 (6.5 - 8.4)	6,085	8.3 (7.0 - 9.5)	1,350	1.8 (1.5 - 2.2)	3,120	4.2 (3.6 - 4.8)	§	§	1,515	2.1 (1.7 - 2.4)	1,895	2.6 (1.8 - 3.4)
	2017	5,015	6.8 (5.9 - 7.7)	5,680	7.7 (6.5 - 8.9)	1,005	1.4 (1.1 - 1.6)	2,880	3.9 (3.3 - 4.5)	§	§	1,545	2.1 (1.7 - 2.5)	1,405	1.9 (1.3 - 2.5)
0-4	2016	840	4.2 (3.3 - 5.2)	3,525	17.7 (14.7 - 20.7)	390	2.0 (1.5 - 2.5)	835	4.2 (3.3 - 5.1)	§	§	1,070	5.4 (4.1 - 6.6)	735	3.7 (2.3 - 5.0)
	2017	740	3.7 (2.9 - 4.5)	3,330	16.7 (13.7 - 19.8)	345	1.7 (1.2 - 2.3)	585	2.9 (2.3 - 3.6)	§	§	1,025	5.2 (3.8 - 6.5)	475	2.4 (1.5 - 3.3)
5-9	2016	910	4.5 (3.5 - 5.4)	985	4.8 (3.8 - 5.9)	275	1.3 (0.9 - 1.8)	405	2.0 (1.5 - 2.5)	§	§	30	0.1 (0.0 - 0.3)	340	1.7 (0.9 - 2.4)
	2017	945	4.7 (3.7 - 5.6)	985	4.9 (3.9 - 5.8)	215	1.1 (0.7 - 1.4)	440	2.2 (1.6 - 2.7)	§	§	50	0.2 (0.1 - 0.4)	230	1.1 (0.6 - 1.7)
10-14	2016	1,245	6.0 (5.0 - 7.1)	880	4.3 (3.4 - 5.2)	375	1.8 (1.3 - 2.3)	770	3.7 (2.9 - 4.6)	20	0.1 (0.0 - 0.2)	85	0.4 (0.2 - 0.6)	450	2.2 (1.4 - 3.0)
	2017	1,210	5.8 (4.8 - 6.9)	715	3.4 (2.7 - 4.2)	200	1.0 (0.7 - 1.3)&	895	4.3 (3.4 - 5.2)	35	0.2 (0.0 - 0.3)	110	0.5 (0.3 - 0.8)	295	1.4 (0.9 - 1.9)
15-24	2016	12,695	29.2 (26.4 - 32.0)	2,860	6.6 (5.9 - 7.3)	750	1.7 (1.4 - 2.0)	3,805	8.7 (7.8 - 9.7)	305	0.7 (0.5 - 0.9)	2,290	5.3 (4.6 - 5.9)	1,610	3.7 (2.8 - 4.6)
	2017	11,290	26.2 (23.7 - 28.6)	2,715	6.3 (5.6 - 7.0)	610	1.4 (1.2 - 1.7)	3,255	7.5 (6.7 - 8.3)	320	0.7 (0.5 - 0.9)	2,200	5.1 (4.4 - 5.8)	1,625	3.8 (2.9 - 4.6)
25-34	2016	10,965	24.5 (22.0 - 27.0)	3,315	7.4 (6.7 - 8.1)	470	1.1 (0.8 - 1.3)	3,175	7.1 (6.4 - 7.8)	315	0.7 (0.5 - 0.9)	3,800	8.5 (7.5 - 9.5)	1,670	3.7 (2.8 - 4.7)
	2017	10,220	22.6 (20.4 - 24.7)	3,170	7.0 (6.3 - 7.7)	490	1.1 (0.9 - 1.3)	2,790	6.2 (5.5 - 6.8)	330	0.7 (0.5 - 0.9)	3,295	7.3 (6.4 - 8.1)	1,660	3.7 (2.8 - 4.6)
35-44	2016	7,140	17.6 (15.9 - 19.4)	4,090	10.1 (9.2 - 11.0)	445	1.1 (0.9 - 1.3)	2,345	5.8 (5.1 - 6.5)	190	0.5 (0.3 - 0.6)	2,815	7.0 (6.1 - 7.8)	1,420	3.5 (2.8 - 4.2)
	2017	7,185	17.6 (15.8 - 19.4)	3,475	8.5 (7.7 - 9.4)	385	0.9 (0.7 - 1.2)	2,265	5.6 (4.9 - 6.2)	225	0.6 (0.4 - 0.7)	2,540	6.2 (5.5 - 7.0)	1,610	3.9 (3.2 - 4.7)
45-54	2016	7,775	18.2 (16.3 - 20.1)	7,650	17.9 (16.6 - 19.2)	560	1.3 (1.1 - 1.6)	2,865	6.7 (6.0 - 7.4)	245	0.6 (0.4 - 0.7)	2,695	6.3 (5.6 - 7.1)	1,965	4.6 (3.6 - 5.6)
	2017	7,525	17.8 (16.1 - 19.5)	6,910	16.3 (15.1 - 17.6)	545	1.3 (1.0 - 1.6)	2,750	6.5 (5.8 - 7.2)	260	0.6 (0.4 - 0.8)	2,665	6.3 (5.6 - 7.0)	1,985	4.7 (3.8 - 5.6)
55-64	2016	7,255	17.5 (15.8 - 19.2)	13,080	31.6 (29.5 - 33.6)	630	1.5 (1.2 - 1.8)	2,865	6.9 (6.2 - 7.7)	160	0.4 (0.2 - 0.5)	1,865	4.5 (3.9 - 5.1)	2,190	5.3 (4.3 - 6.3)
	2017	6,915	16.5 (15.0 - 18.1)	13,600	32.5 (30.5 - 34.4)	610	1.5 (1.2 - 1.7)	2,575	6.1 (5.5 - 6.8)	185	0.4 (0.3 - 0.6)	1,820	4.3 (3.8 - 4.9)	2,585	6.2 (5.1 - 7.2)
65-74	2016	4,615	16.1 (14.5 - 17.7)	19,225	67.2 (63.4 - 70.9)	855	3.0 (2.5 - 3.5)	1,945	6.8 (6.0 - 7.6)	55	0.2 (0.1 - 0.3)	675	2.4 (1.9 - 2.8)	2,620	9.2 (7.7 - 10.7)
	2017	4,965	16.8 (15.2 - 18.3)	19,670	66.4 (62.7 - 70.1)	745	2.5 (2.1 - 3.0)	1,720	5.8 (5.1 - 6.5)	60	0.2 (0.1 - 0.3)	630	2.1 (1.7 - 2.5)	2,640	8.9 (7.5 - 10.3)
75+	2016	3,340	16.2 (14.4 - 18.0)	52,750	255.9 (243.3 - 268.4)	1,430	6.9 (6.0 - 7.8)	1,565	7.6 (6.6 - 8.6)	45	0.2 (0.1 - 0.4)	265	1.3 (0.9 - 1.6)	5,215	25.3 (21.8 - 28.8)
	2017	3,730	17.6 (15.7 - 19.5)	55,200	260.9 (248.3 - 273.4)	1,190	5.6 (4.9 - 6.4)	1,475	7.0 (6.1 - 7.9)	45	0.2 (0.1 - 0.4)	255	1.2 (0.9 - 1.5)	5,980	28.3 (24.1 - 32.5)
Total††	2016	56,780	17.6 (16.1 - 19.1)	108,365	33.5 (32.0 - 35.1)	6,180	1.9 (1.8 - 2.1)	20,575	6.4 (5.9 - 6.8)	1,335	0.5 (0.4 - 0.5)	15,600	4.8 (4.4 - 5.3)	18,220	5.6 (4.8 - 6.5)
	2017	54,725	16.8 (15.5 - 18.2)	109,775	33.8 (32.2 - 35.3)	5,335	1.6 (1.5 - 1.8)&	18,750	5.8 (5.4 - 6.2)	1,460	0.5 (0.4 - 0.6)	14,590	4.5 (4.1 - 4.9)	19,085	5.9 (5.0 - 6.7)
Adjusted††	2016	56,780	17.3 (16.7 - 17.9)	108,360	29.8 (29.1 - 30.5)	6,180	1.8 (1.7 - 2.0)	20,575	6.2 (6.0 - 6.5)	1,335	0.5 (0.4 - 0.5)	15,590	4.9 (4.6 - 5.1)	18,215	5.3 (4.9 - 5.6)
	2017	54,725	16.6 (16.0 - 17.1)	109,770	29.4 (28.7 - 30.1)	5,335	1.6 (1.5 - 1.7)&	18,750	5.7 (5.4 - 5.9)&	1,460	0.5 (0.5 - 0.6)	14,590	4.5 (4.3 - 4.8)	19,085	5.4 (5.1 - 5.8)

TABLE 2 – Number and rate* of traumatic brain injury-related (TBI) deaths by age group and mechanism of injury – United States, 2016 and 2017

AGE GROUP (YRS)	YEAR	Motor vehicle traffic crashes		Unintentional falls [†]		Unintentionally struck by or against an object		Other or unspecified unintentional injury		Suicide [§]		Homicide		Other [¶]	
		NO.	RATE (95% CI) [€]	NO.	RATE (95% CI) [€]	NO.	RATE (95% CI) [€]	NO.	RATE (95% CI) [€]	NO.	RATE (95% CI) [€]	NO.	RATE (95% CI) [€]	NO.	RATE (95% CI) [€]
0-17	2016	981	1.3 (1.2 - 1.4)	46	0.1 (0.0 - 0.1)	36	0.0 (0.0 - 0.1)	324	0.4 (0.4 - 0.5)	§	§	638	0.9 (0.8 - 0.9)	57	0.1 (0.1 - 0.1)
	2017	940	1.3 (1.2 - 1.4)	54	0.1 (0.1 - 0.1)	36	0.0 (0.0 - 0.1)	308	0.4 (0.4 - 0.5)	§	§	665	0.9 (0.8 - 1.0)	92	0.1 (0.1 - 0.2)
0-4	2016	213	1.1 (0.9 - 1.2)	17	††	18	††	129	0.6 (0.5 - 0.8)	§	§	303	1.5 (1.3 - 1.7)	28	0.1 (0.1 - 0.2)
	2017	231	1.2 (1.0 - 1.3)	19	††	17	††	126	0.6 (0.5 - 0.7)	§	§	312	1.6 (1.4 - 1.7)	45	0.2 (0.2 - 0.3)
5-9	2016	179	0.9 (0.7 - 1.0)	††	††	13	††	51	0.2 (0.2 - 0.3)	§	§	56	0.3 (0.2 - 0.4)	††	††
	2017	134	0.7 (0.5 - 0.8)	††	††	††	††	46	0.2 (0.2 - 0.3)	§	§	69	0.3 (0.3 - 0.4)	††	††
10-14	2016	183	0.9 (0.8 - 1.0)	11	††	††	††	80	0.4 (0.3 - 0.5)	157	0.8 (0.6 - 0.9)	67	0.3 (0.3 - 0.4)	††	††
	2017	181	0.9 (0.7 - 1.0)	11	††	††	††	70	0.3 (0.3 - 0.4)	178	0.9 (0.7 - 1.0)	64	0.3 (0.2 - 0.4)	††	††
15-24	2016	2,449	5.6 (5.4 - 5.9)	96	0.2 (0.2 - 0.3)	20	0.0 (0.0 - 0.1)	312	0.7 (0.6 - 0.8)	2,542	5.8 (5.6 - 6.1)	1,405	3.2 (3.1 - 3.4)	95	0.2 (0.2 - 0.3)
	2017	2,266	5.2 (5.0 - 5.5)	109	0.3 (0.2 - 0.3)	18	††	292	0.7 (0.6 - 0.8)	2,846	6.6 (6.4 - 6.8) [§]	1,379	3.2 (3.0 - 3.4)	120	0.3 (0.2 - 0.3)
25-34	2016	2,260	5.1 (4.8 - 5.3)	191	0.4 (0.4 - 0.5)	40	0.1 (0.1 - 0.1)	335	0.7 (0.7 - 0.8)	3,125	7.0 (6.7 - 7.2)	1,401	3.1 (3.0 - 3.3)	143	0.3 (0.3 - 0.4)
	2017	2,091	4.6 (4.4 - 4.8) [§]	201	0.4 (0.4 - 0.5)	34	0.1 (0.1 - 0.1)	362	0.8 (0.7 - 0.9)	3,264	7.2 (7.0 - 7.5)	1,474	3.3 (3.1 - 3.4)	131	0.3 (0.2 - 0.3) [§]
35-44	2016	1,519	3.8 (3.6 - 3.9)	327	0.8 (0.7 - 0.9)	40	0.1 (0.1 - 0.1)	366	0.9 (0.8 - 1.0)	2,795	6.9 (6.6 - 7.2)	974	2.4 (2.3 - 2.6)	125	0.3 (0.3 - 0.4)
	2017	1,501	3.7 (3.5 - 3.9)	318	0.8 (0.7 - 0.9)	37	0.1 (0.1 - 0.1)	395	1.0 (0.9 - 1.1)	2,854	7.0 (6.7 - 7.3)	913	2.2 (2.1 - 2.4)	130	0.3 (0.3 - 0.4)
45-54	2016	1,562	3.7 (3.5 - 3.8)	798	1.9 (1.7 - 2.0)	49	0.1 (0.1 - 0.2)	539	1.3 (1.2 - 1.4)	3,281	7.7 (7.4 - 7.9)	697	1.6 (1.5 - 1.8)	146	0.3 (0.3 - 0.4)
	2017	1,483	3.5 (3.3 - 3.7)	819	1.9 (1.8 - 2.1)	47	0.1 (0.1 - 0.1)	539	1.3 (1.2 - 1.4)	3,424	8.1 (7.8 - 8.4)	735	1.7 (1.6 - 1.9)	148	0.4 (0.3 - 0.4)
55-64	2016	1,419	3.4 (3.2 - 3.6)	1,690	4.1 (3.9 - 4.3)	56	0.1 (0.1 - 0.2)	666	1.6 (1.5 - 1.7)	3,402	8.2 (7.9 - 8.5)	541	1.3 (1.2 - 1.4)	130	0.3 (0.3 - 0.4)
	2017	1,434	3.4 (3.2 - 3.6)	1,712	4.1 (3.9 - 4.3)	71	0.2 (0.1 - 0.2)	685	1.6 (1.5 - 1.8)	3,536	8.4 (8.2 - 8.7)	588	1.4 (1.3 - 1.5)	149	0.4 (0.3 - 0.4)
65-74	2016	928	3.2 (3.0 - 3.5)	2,602	9.1 (8.7 - 9.4)	48	0.2 (0.1 - 0.2)	563	2.0 (1.8 - 2.1)	2,468	8.6 (8.3 - 9.0)	234	0.8 (0.7 - 0.9)	68	0.2 (0.2 - 0.3)
	2017	892	3.0 (2.8 - 3.2)	2,758	9.3 (9.0 - 9.7)	54	0.2 (0.1 - 0.2)	581	2.0 (1.8 - 2.1)	2,582	8.7 (8.4 - 9.0)	267	0.9 (0.8 - 1.0)	67	0.2 (0.2 - 0.3)
75+	2016	829	4.0 (3.7 - 4.3)	10,959	53.2 (52.2 - 54.2)	49	0.2 (0.2 - 0.3)	1,105	5.4 (5.0 - 5.7)	2,367	11.5 (11.0 - 11.9)	187	0.9 (0.8 - 1.0)	65	0.3 (0.2 - 0.4)
	2017	885	4.2 (3.9 - 4.5)	11,452	54.1 (53.1 - 55.1)	53	0.3 (0.2 - 0.3)	1,078	5.1 (4.8 - 5.4)	2,541	12.0 (11.5 - 12.5)	179	0.8 (0.7 - 1.0)	96	0.5 (0.4 - 0.6) [§]
Total ^{††}	2016	11,541	3.6 (3.5 - 3.6)	16,696	5.2 (5.1 - 5.2)	336	0.1 (0.1 - 0.1)	4,146	1.3 (1.2 - 1.3)	20,139	7.1 (7.0 - 7.2)	5,866	1.8 (1.8 - 1.9)	816	0.3 (0.2 - 0.3)
	2017	11,098	3.4 (3.3 - 3.5) [§]	17,408	5.4 (5.3 - 5.4) [§]	346	0.1 (0.1 - 0.1)	4,175	1.3 (1.2 - 1.3)	21,225	7.4 (7.3 - 7.5) [§]	5,981	1.8 (1.8 - 1.9)	901	0.3 (0.3 - 0.3)
Adjusted ^{§§}	2016	11,541	3.5 (3.5 - 3.6)	16,694	4.4 (4.4 - 4.5)	336	0.1 (0.1 - 0.1)	4,146	1.2 (1.2 - 1.2)	20,137	6.9 (6.8 - 7.0)	5,865	1.8 (1.8 - 1.9)	815	0.2 (0.2 - 0.3)
	2017	11,098	3.4 (3.3 - 3.4) [§]	17,408	4.5 (4.5 - 4.6) [§]	346	0.1 (0.1 - 0.1)	4,174	1.2 (1.1 - 1.2)	21,225	7.2 (7.1 - 7.3) [§]	5,980	1.9 (1.8 - 1.9)	900	0.3 (0.3 - 0.3) [§]