

Alabama Head and Spinal Cord Injury Report 2017



**2018 Alabama Head and Spinal Cord
Injury Registry (AHSCIR) Report**

Data Period:

January 1, 2017 – December 31, 2017

Alabama Department of Public Health

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Background

The Alabama Act 98-611 passed in May 1998 requires all hospitals in Alabama to submit data related to head and/or spinal cord injury cases to the Alabama Department of Public Health (ADPH). Subsequently, the Alabama Head and Spinal Cord Injury Registry (AHSCIR) was developed to collect data on patients who have sustained moderate to severe brain, spinal cord, or other debilitating injuries. Patients who suffer specific injuries as listed in Appendix A (ICD-10 Codes) must be reported to the AHSCIR. These patients are identified and linked with the Alabama Department of Rehabilitation Services (ADRS) which is charged with offering rehabilitation services to patients. This linkage helps to increase awareness of state supported rehabilitation services in hopes of improving rehabilitation services, disability management, and work force re-entry assistance.

The Alabama Trauma Registry (ATR) was established shortly after AHSCIR data collection began in 1999. The ATR is an expansion of the AHSCIR with data collection fields to include data related to all types of trauma. Data submission to the ATR is voluntary whereas AHSCIR data submission is required. Consideration must be given to the fact that, with voluntary reporting, the data may be incomplete. Trauma registry personnel in the Office of Emergency Medical Services (OEMS) of the ADPH collect statewide data by working with hospitals at all levels of trauma care (acute and ancillary). Ultimately, registry data analysis and injury pattern evaluations will permit researchers and policy makers to identify better ways of reducing injury mortality and morbidity in Alabama.

It is important to provide the public with mortality and morbidity statistics associated with all injuries in order to accurately illustrate the impact injuries have on individuals, families, and society. Additionally, the information assists with the design of prevention programs to mitigate the long term effects of injuries in Alabama. Trauma registry data are used by a variety of organizations. Emergency management agencies and emergency medical service providers use the registry information for community trauma prevention education.

Data Use and Comparability

All data contained in this report must be interpreted with careful judgment. It is important to note that the information presented in this report is based on data from the AHSCIR which was submitted on September 30, 2017. The data in this report is not comparable to state or federal data from other sources due to variations in collection and analytical techniques. Less severe head and spinal cord injuries are under-represented in this analysis by design. Consequently, some less severe injuries are not included in the AHSCIR case definition thereby permitting registrars to omit reporting them. Additionally, mortality may be under-estimated because of cases in which persons expired at the scene and bypassed hospitals. The statistical significance of the summary data for the Spinal Cord Injury (SCI) and combined Traumatic Brain Injury (TBI) and SCI cases is also limited by the small population size regarding some respective data subgroups. Cases admitted to a given hospital and then transferred to another hospital during the course of their treatment may be counted twice in this report.

Results

The AHSCIR received reports of 4,297 head and spinal cord injuries for year 2017 compared to 4,259 head and spinal cord injury cases that were admitted to Alabama hospitals during calendar year 2016. This was an increase of 38 new cases from calendar year 2016.

Head injuries (TBI) exclusively constituted 93 percent (n=3,982) of the reported cases and spinal cord injuries, exclusively (SCI) constituted 7 percent (n=255). There were 60 cases, 2 percent in the registry that had both head and spinal cord injuries together. This document will use the term traumatic brain injury (TBI) when referring to head injuries. Separate analyses are presented for each of the three categories.

Disclaimer:

Calculations for this report used Excel 2010.

Traumatic Brain Injury (TBI)

Definition

TBI usually results from a violent blow or jolt to the head or body. An object penetrating the skull, such as a bullet or shattered piece of skull, can also cause TBI. Mild TBI may cause temporary dysfunction of brain cells. More serious TBI can result in bruising, torn tissues, bleeding, and other physical damage to the brain that can result in long-term complications or death (Mayo Clinic, 2018, <https://www.mayoclinic.org/diseases-conditions/traumatic-brain-injury/symptoms-causes/syc-20378557>).

Figure 1(a)
Type of Injury

State of Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=4,297)

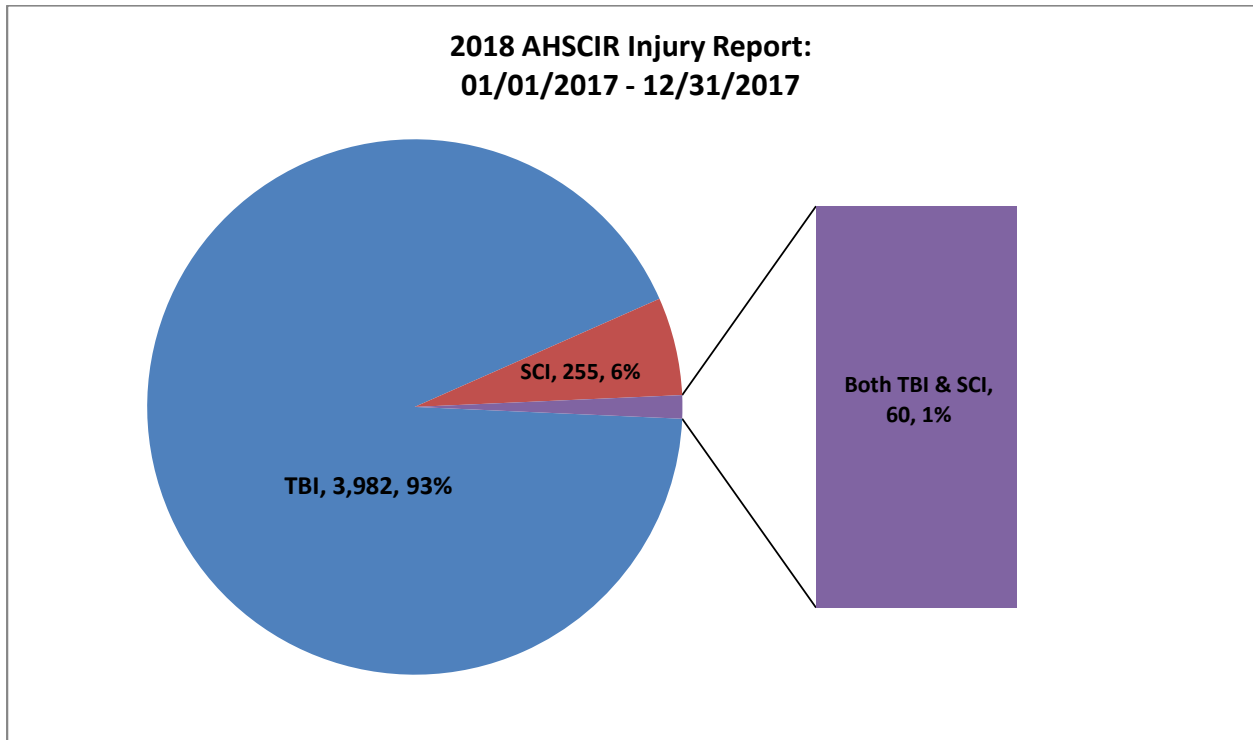


Figure 1(b)
Type of Injury

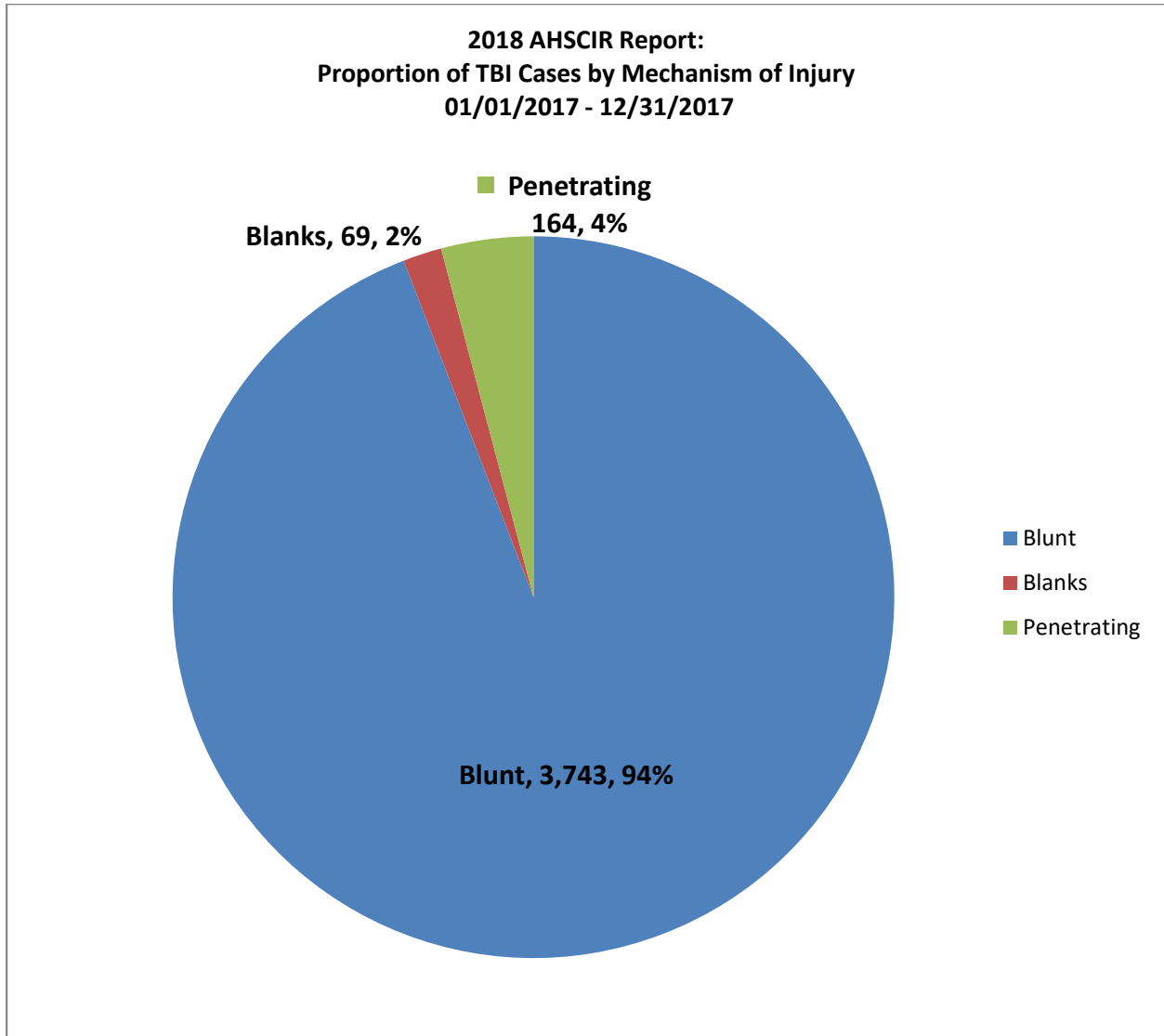
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=4,297)

2017 AHSCIR Injury Type	Number of Cases	Percentages of Cases
TBI	3,982	93%
SCI	255	6%
Both TBI & SCI	60	1%
Total	4,297	100%

Traumatic Brain Injury

Figure 2

Proportion of TBI Cases by Mechanism of Injury
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=3,982)



Ninety-four percent (n=3,743) of the TBI cases were injuries due to blunt trauma. Penetrating injuries accounted for 4 percent (n=164) of the TBI cases for 2017.

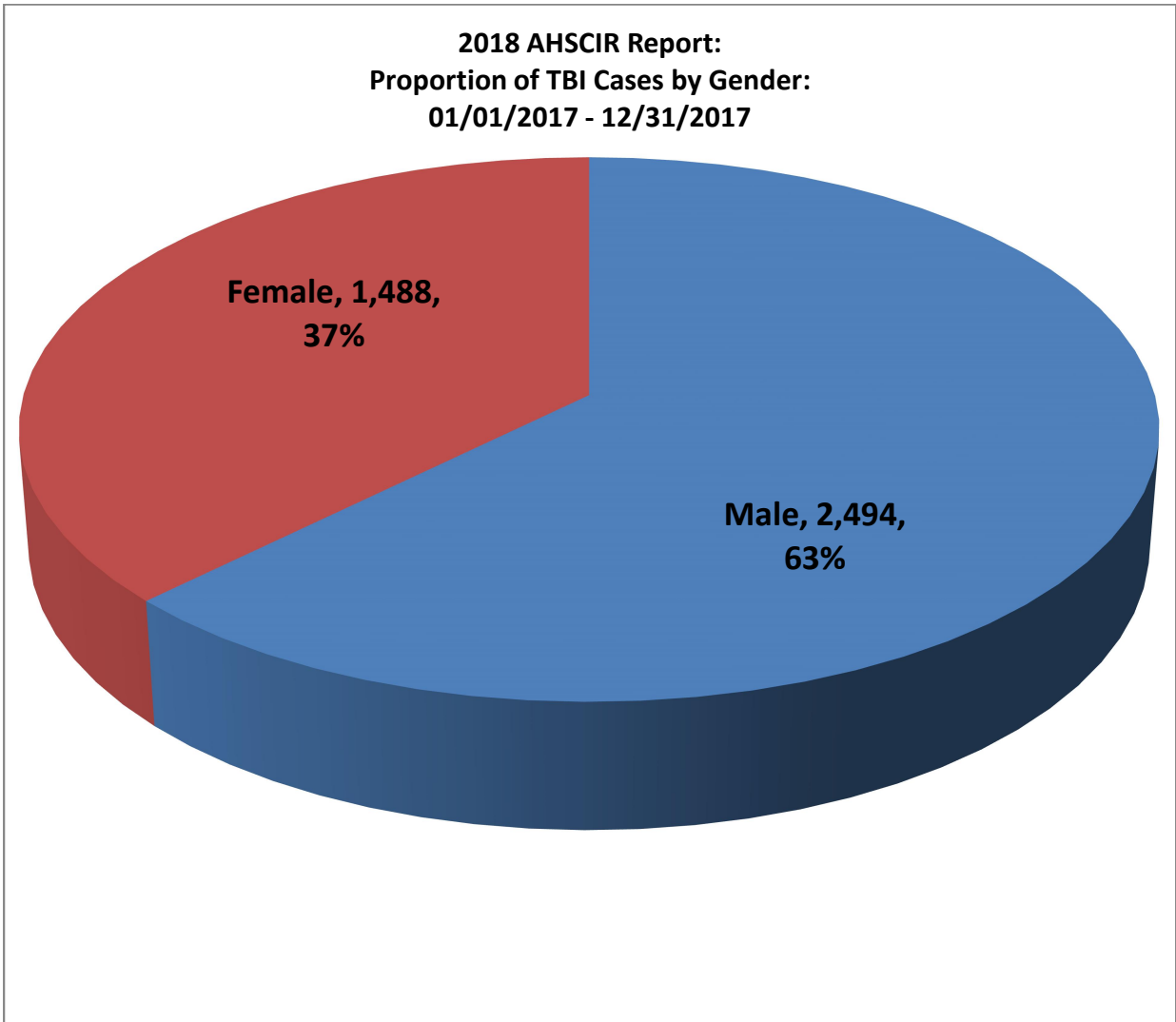
Traumatic Brain Injury Mechanism

Proportion of TBI Cases by Mechanism of Injury
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=3,982)

TBI Injury Mechanism	Number of Cases	Percentages of Cases
Blunt	3,743	94%
Blanks	69	2%
Burn	6	0%
Penetrating	164	4%
Total	3,982	100%

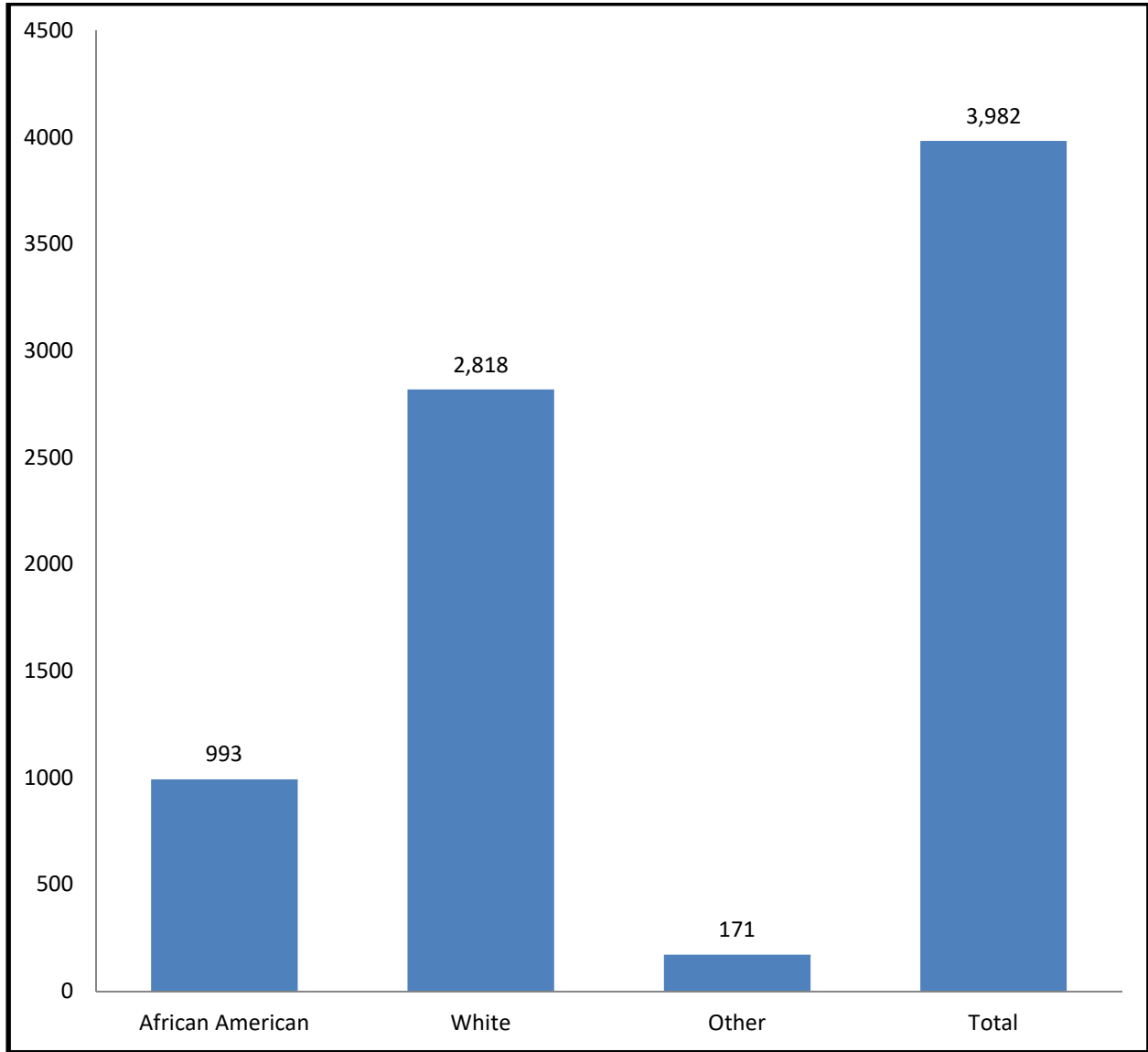
Key	Key
BLANKS	Not Applicable/Unknown

Figure 3
Proportion of TBI Cases by Gender
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=3,982)



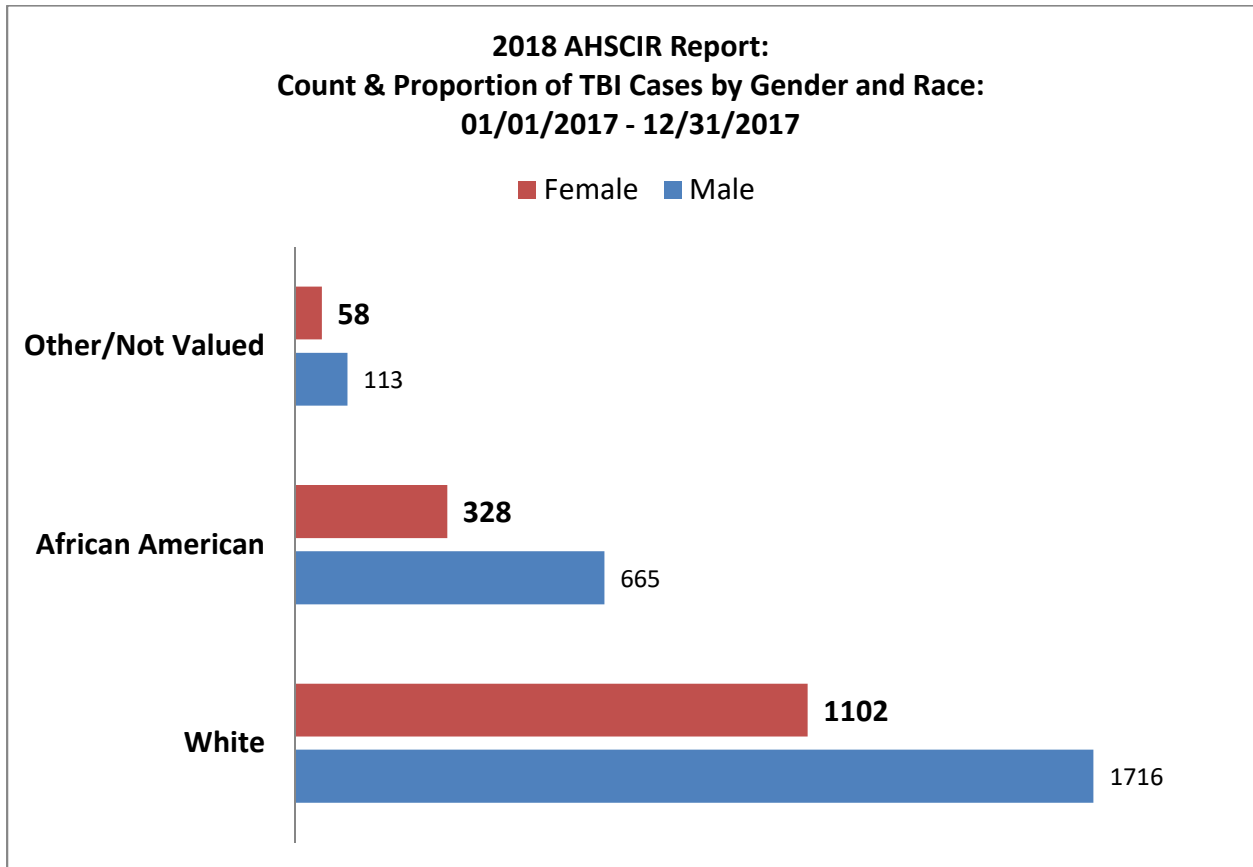
TBI Gender Distribution	Number of Cases	Percentage of Cases
Male	2,494	63%
Female	1,488	37%
Total	3,982	100%

Figure 4
Proportion of TBI Cases by Race
 Alabama Head and Spinal Cord Registry (AHSCIR)
 January 1, 2017– December 31, 2017
 (n=3,982)



TBI Race Distribution	Number of Cases	Percentage of Cases
Whites	2,818	71%
African Americans	993	25%
Other	171	4%
Total	3,982	100%

Figure 5
Number of TBI Cases by Gender & Race
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=3,982)



Race	Male	Female	Total	% Male	% Female
Whites	1716	1102	2818	69%	74%
African American	665	328	993	27%	22%
Other/Not Valued	113	58	171	4%	4%
Total	2494	1488	3982	100%	100%

Table 1
2017 TBI Cases by Age, Gender & Race
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=3,982)

Age	White Male	White Female	Black Male	Black Female	Other Female	Other Male	Total	% Total
<5	45	30	34	32	6	7	154	3.87%
5 to 14	70	39	35	21	4	2	171	4.29%
15 - 24	271	133	136	76	12	20	648	16.27%
25-34	221	92	113	45	1	19	491	12.33%
35-44	170	86	122	20	6	20	424	10.65%
45-54	211	98	94	28	4	20	455	11.43%
55-64	246	111	73	22	4	8	464	11.65%
65-74	216	154	24	39	11	9	453	11.38%
75-84	168	202	23	23	7	5	428	10.75%
>84	98	157	11	22	3	3	294	7.38%
Total	1716	1102	665	328	58	113	3982	100%
% Total	43.09%	27.67%	16.70%	8.24%	1.46%	2.84%	100%	

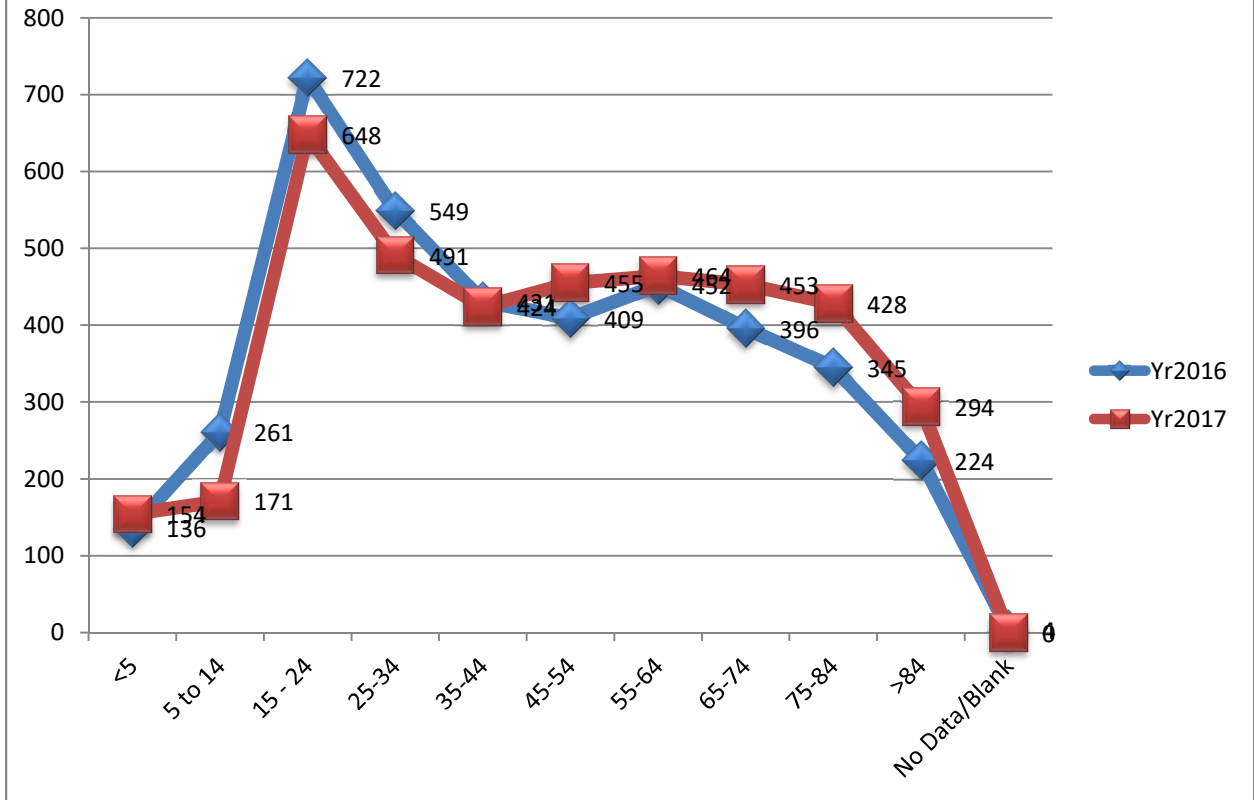
The 15-24 year old age group sustained the largest percentage of TBI cases both in 2017 and 2016 with 16.27 percent in 2017 (n=648) and 18.4 percent (n=722) in 2016.

2016 TBI Cases by Age, Gender & Race
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2016 – December 31, 2016
(n=3,929)

Age	White Male	White Female	Black Male	Black Female	Other Female	Other Male	Total	% Total
<5	36	41	28	23	3	5	136	3.5%
5 to 14	101	67	65	22	1	5	261	6.6%
15 - 24	307	159	148	78	7	23	722	18.4%
25-34	241	106	139	42	5	16	549	14.0%
35-44	198	102	93	25	4	9	431	11.0%
45-54	185	113	66	32	6	7	409	10.4%
55-64	212	116	83	35	2	4	452	11.5%
65-74	190	135	39	16	8	8	396	10.1%
75-84	137	171	24	7	4	2	345	8.8%
>84	78	129	2	11	2	2	224	5.7%
No	2	1	1	0	0	0	4	0.1%
Data/Blank								
Total	1687	1140	688	291	42	81	3929	100.0%
% Total	42.9%	29.0%	17.5%	7.4%	1.1%	2.1%	100%	

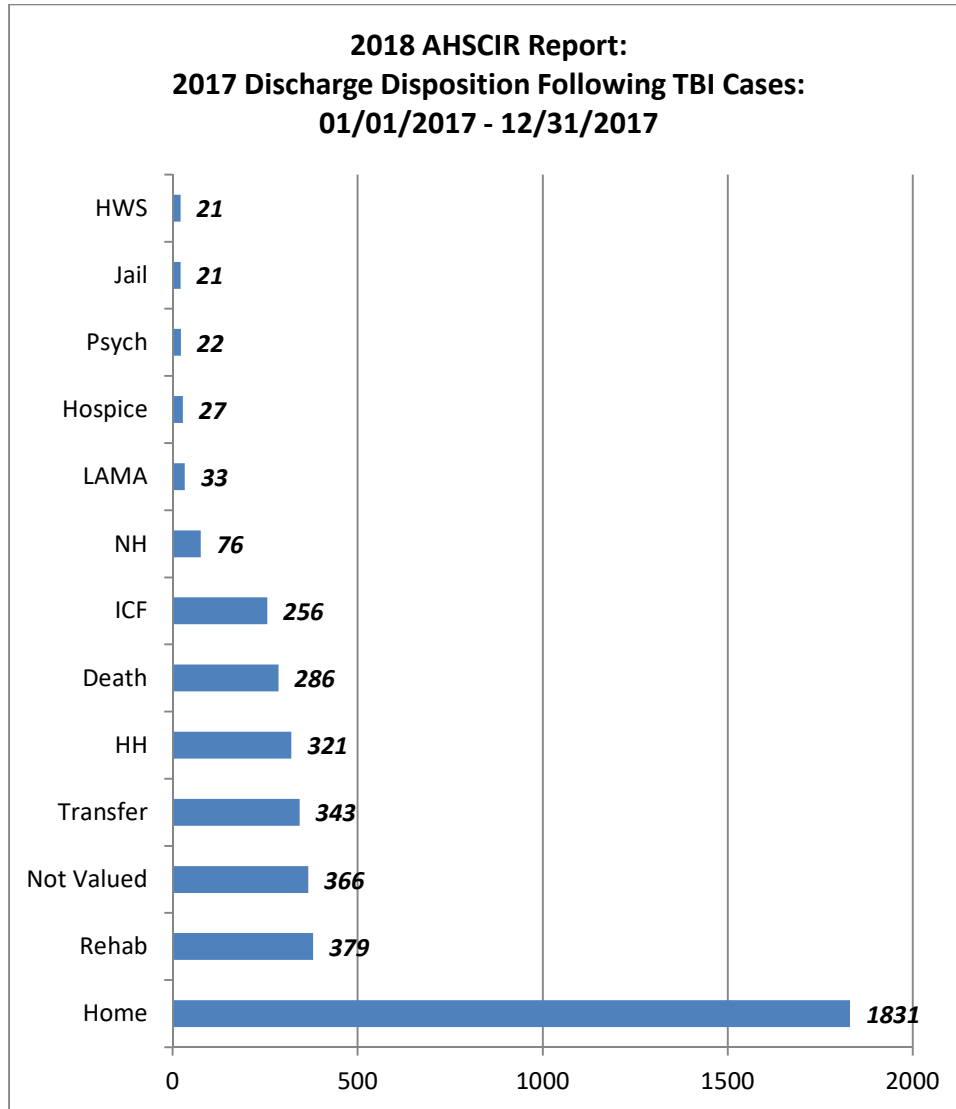
The 15-24 year old age group sustained the largest percentage of TBI cases both in 2017 and 2016 with 16.27 percent in 2017 (n=648) and 18.4 percent (n=722) in 2016.

**2018 AHSCIR Report:
2017 TBI Cases by Age, Gender and Race:
01/01/2017 - 12/31/2017**



From the data it can be observed that there were declines in TBI cases among the following age groups (15-21), (14-24), (25-34). However, substantial increases in TBI cases were reported in the elderly age/gender/race groups for (45-54), (55-64) and (74 and above).

Figure 6
Discharge Disposition Following TBI Cases
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=3,982)



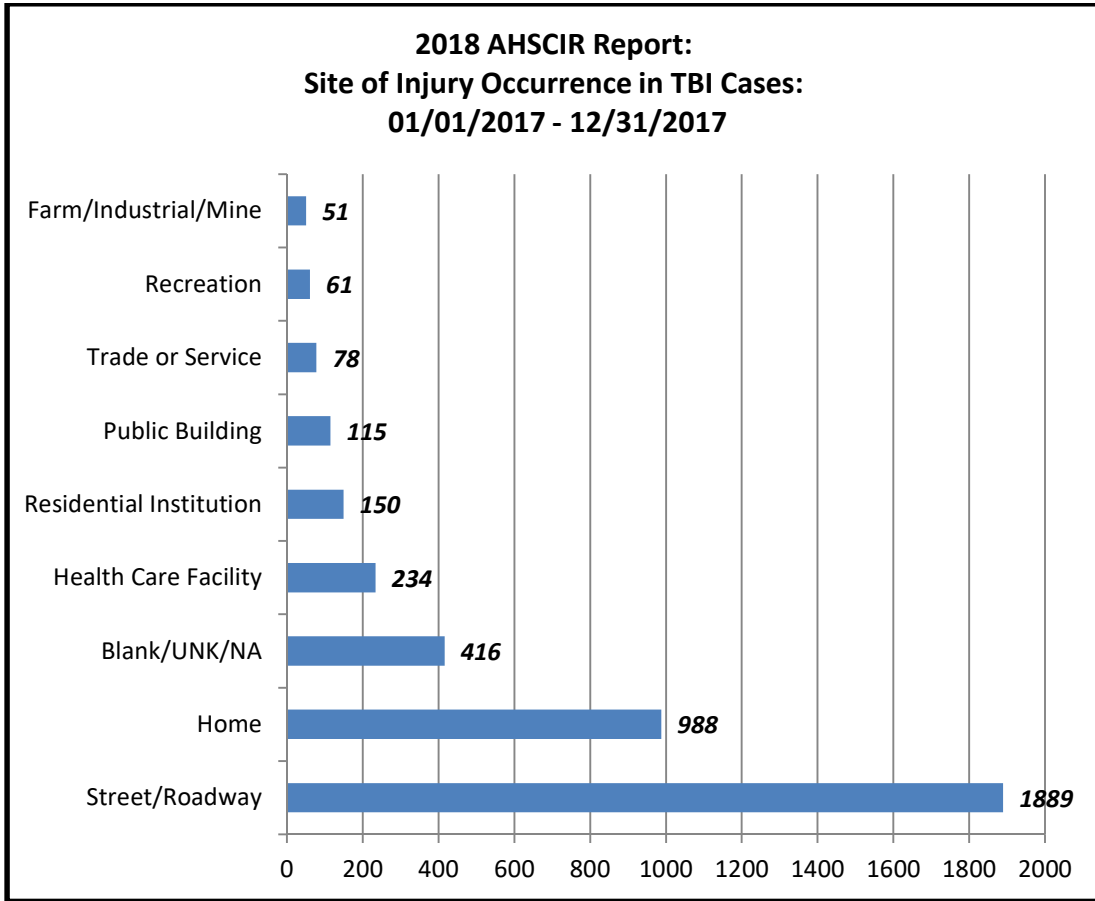
The greatest proportion of patients, 46 percent (n=1,831), were discharged home. From the data, it cannot be determined how many of these were referred to outpatient rehabilitation facilities as the data is not linked with hospital discharge reports at this time.

Discharge Disposition Following TBI Cases
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=3,982)

Disposition	Count	Proportion
HWS	21	1%
Jail	21	1%
Psych	22	1%
Hospice	27	1%
LAMA	33	1%
NH	76	2%
ICF	256	6%
Death	286	7%
HH	321	8%
Transfer	343	9%
Not Valued	366	9%
Rehab	379	10%
Home	1831	46%
Total	3,982	100%

Key	
Home	Home With No Home Service
HH	Home Health Agency
Hospice	Discharged/Transferred to Hospice Care
NH	Nursing Home
Rehab	Rehabilitation
Transfer	Transfer
ICF	Intermediate Care Facility
LAMA	Left Against Medical Advise
Not Valued	Not Valued, Unknown, Not Recorded
HWS	Home With Outpatient Services

Figure 7
Site of Injury Occurrence in TBI Cases
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=3,982)

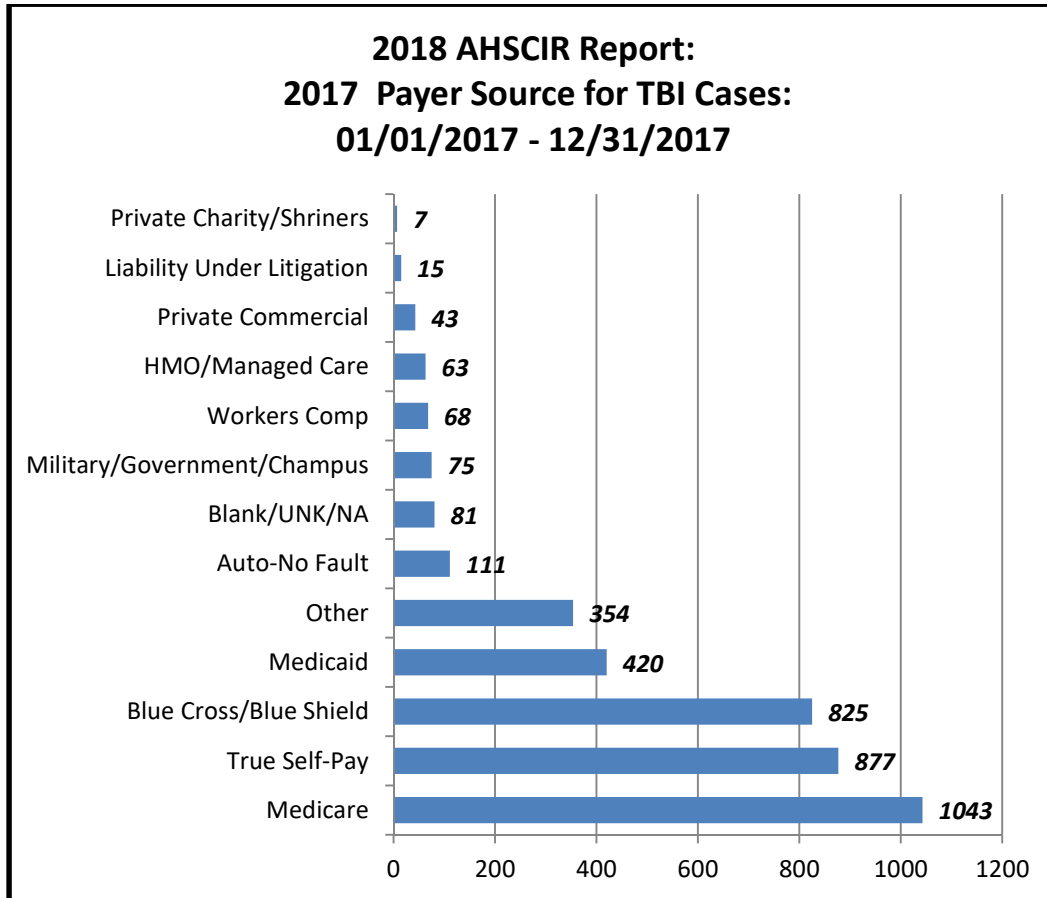


From the reports received, 47 percent (n=1,889) of TBI cases occurred on Streets and Roadways. Twenty-five percent (n=988) of TBI cases occurred in the Home. Six percent (n=234) occurred in Health Care Facilities, while 4 percent of cases (n=150) occurred in Residential Institutions. Areas designated as Trade and Service reported 2 percent (n=78) of cases. Ten percent (n=416) of data was unreported or unknown for TBI site of Injury Occurrence.

Site of Injury Occurrence in TBI Cases
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=3,982)

Type	Count	Percentage%
Farm/Industrial/Mine	51	1%
Recreation	61	2%
Trade or Service	78	2%
Public Building	115	3%
Residential Institution	150	4%
Health Care Facility	234	6%
Blank/Unknown/Not Applicable	416	10%
Home	988	25%
Street/Roadway	1889	47%
Total	3,982	100%

Figure 8
Payer Source for TBI Cases
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=3,982)



From the data, Medicare Payer Source was 26 percent (n=1043) and True Self-Pay was 22 percent (n=877) of claims respectively for TBI patients in Year 2017. Other payers are shown with their respective reimbursement and percentages. The source of payment data sent to the AHSCIR is subject to misclassification for various reasons, for example, the Self-Pay group may include liens in some cases or the primary payment sources may not be properly submitted where there are multiple sources of payment.

Payer Source for TBI Cases

Alabama Head and Spinal Cord Injury Registry (AHSCIR)

January 1, 2017 – December 31, 2017

(n=3,982)

Payer Source	Count	Percentage %
Private Charity/Shriners	7	0%
Liability Under Litigation	15	0%
Private Commercial	43	1%
HMO/Managed Care	63	2%
Workers Comp	68	2%
Military/Government/Champus	75	2%
Blank/UNK/NA	81	2%
Auto-No Fault	111	3%
Other	354	9%
Medicaid	420	11%
Blue Cross/Blue Shield	825	21%
True Self-Pay	877	22%
Medicare	1043	26%
Total	3,982	100%

KEY

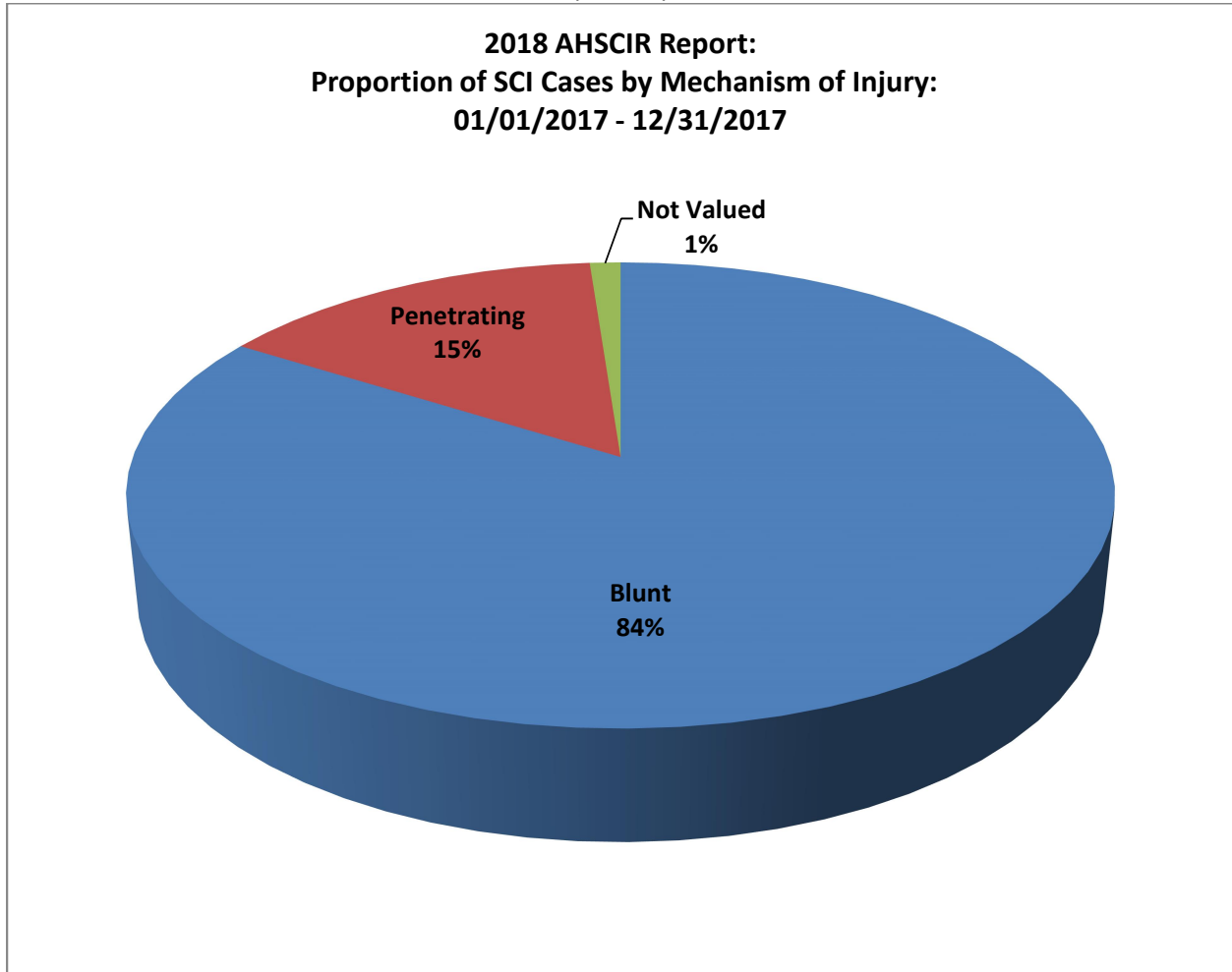
HMO	Health Maintenance Organizations
Blank/UNK/NA	Blanks/Unknown Insurance/Not Applicable
Other	Other Forms of Insurance Not Listed
Workers Comp.	Workers Compensation

Spinal Cord Injury (SCI)

Definition

The Mayo Clinic (2018) defines a spinal cord injury as damage to any part of the spinal cord or nerves at the end of the spinal canal. Spinal cord injuries in many instances often cause permanent changes in strength, sensation, and other body functions below the site of the injury. Spinal cord injuries result from damage to the vertebrae, ligaments, or disks of the spinal column or to the spinal cord itself.

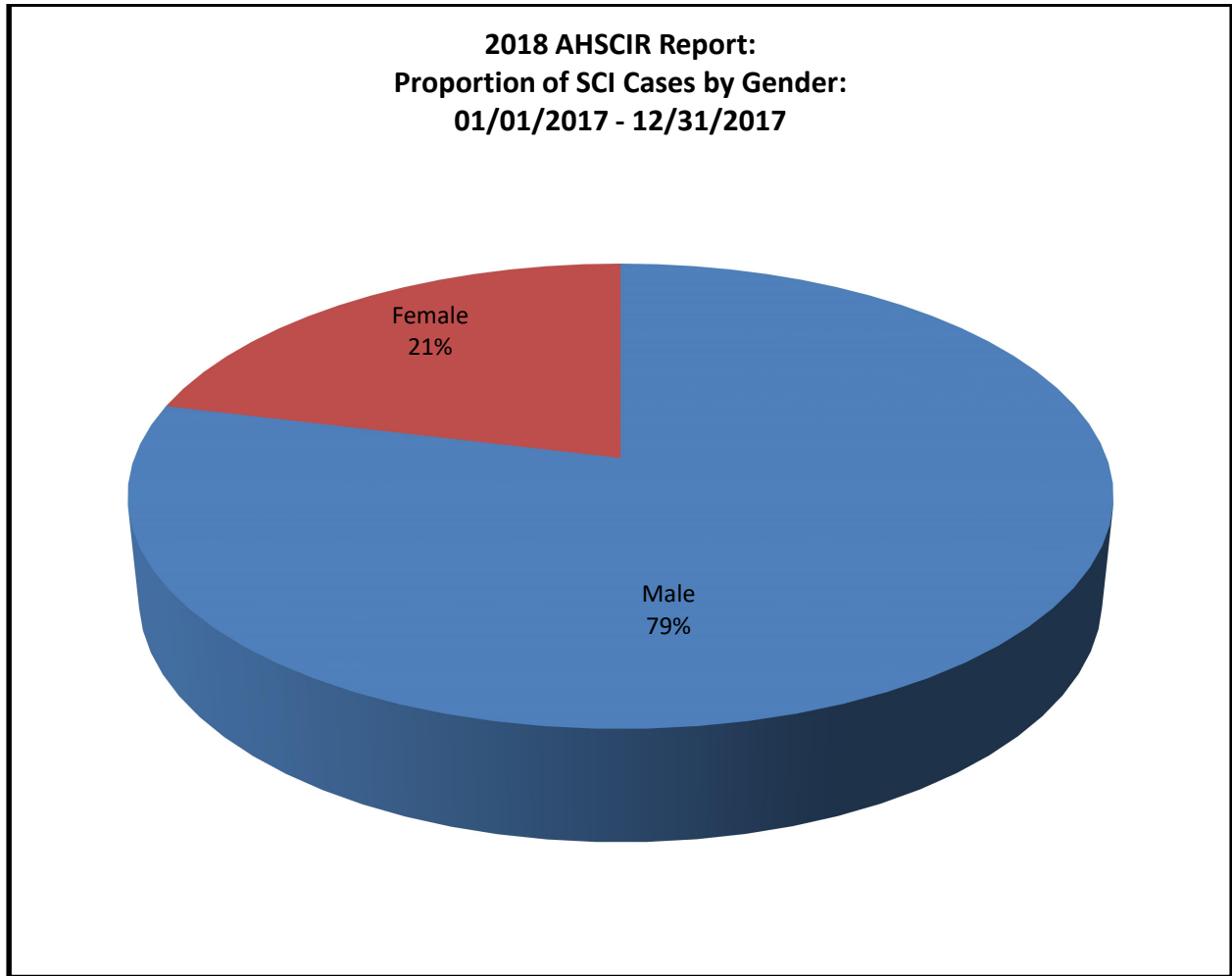
Figure 9
Proportion of SCI Cases by Mechanism of Injury
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=255)



Type	Count	%
Blunt	214	84%
Penetrating	38	15%
Not Valued	3	1%
Total	255	100%

Eighty-four percent (n=214) of the SCI cases were injuries due to blunt trauma. Penetrating injuries accounted for 15 percent (n=38) of the SCI cases for 2017. Not Valued accounted for one percent (n=3) of the reported cases for SCI.

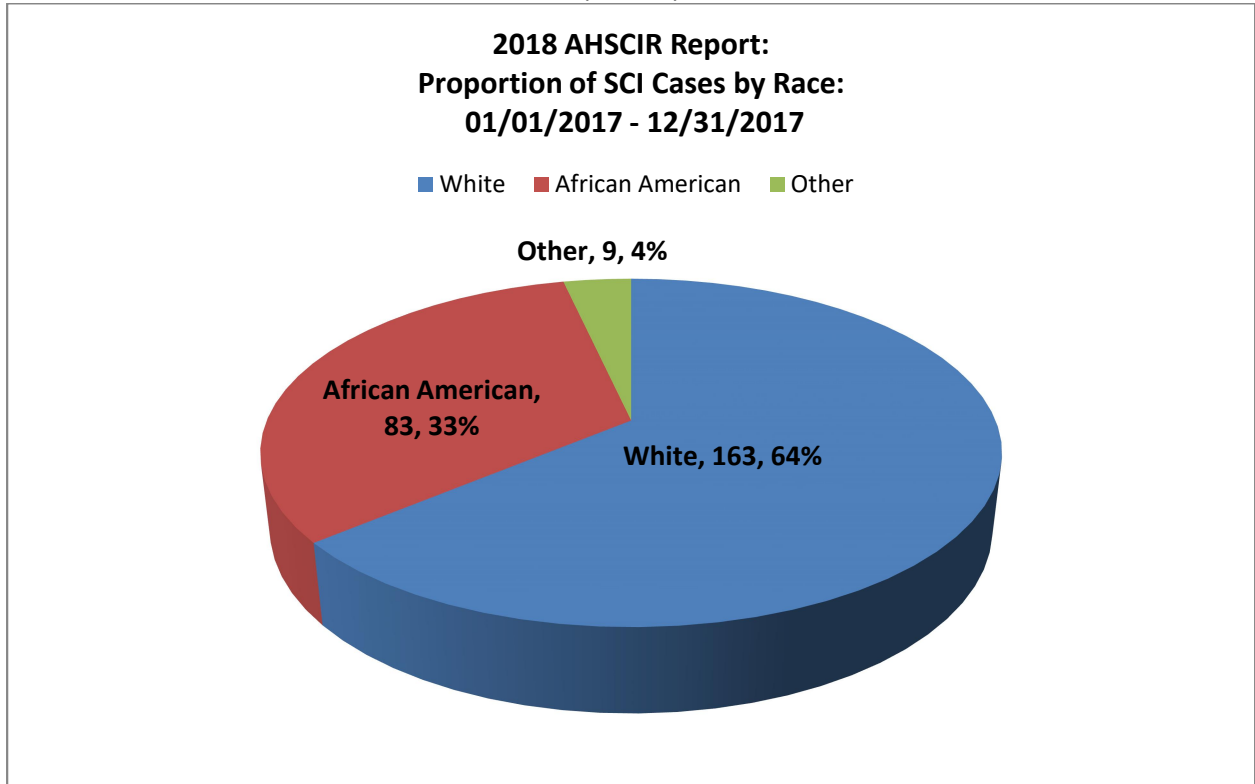
Figure 10
Proportion of SCI Cases by Gender
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=255)



SCI Gender	Number of Cases	Percentage %
Male	201	79%
Female	54	21%
Total	255	100%

Males made up 79 percent (n=201) of the SCI cases reported in the year 2017, while females constituted 21 percent (n=54) of the cases reported to the AHSCIR.

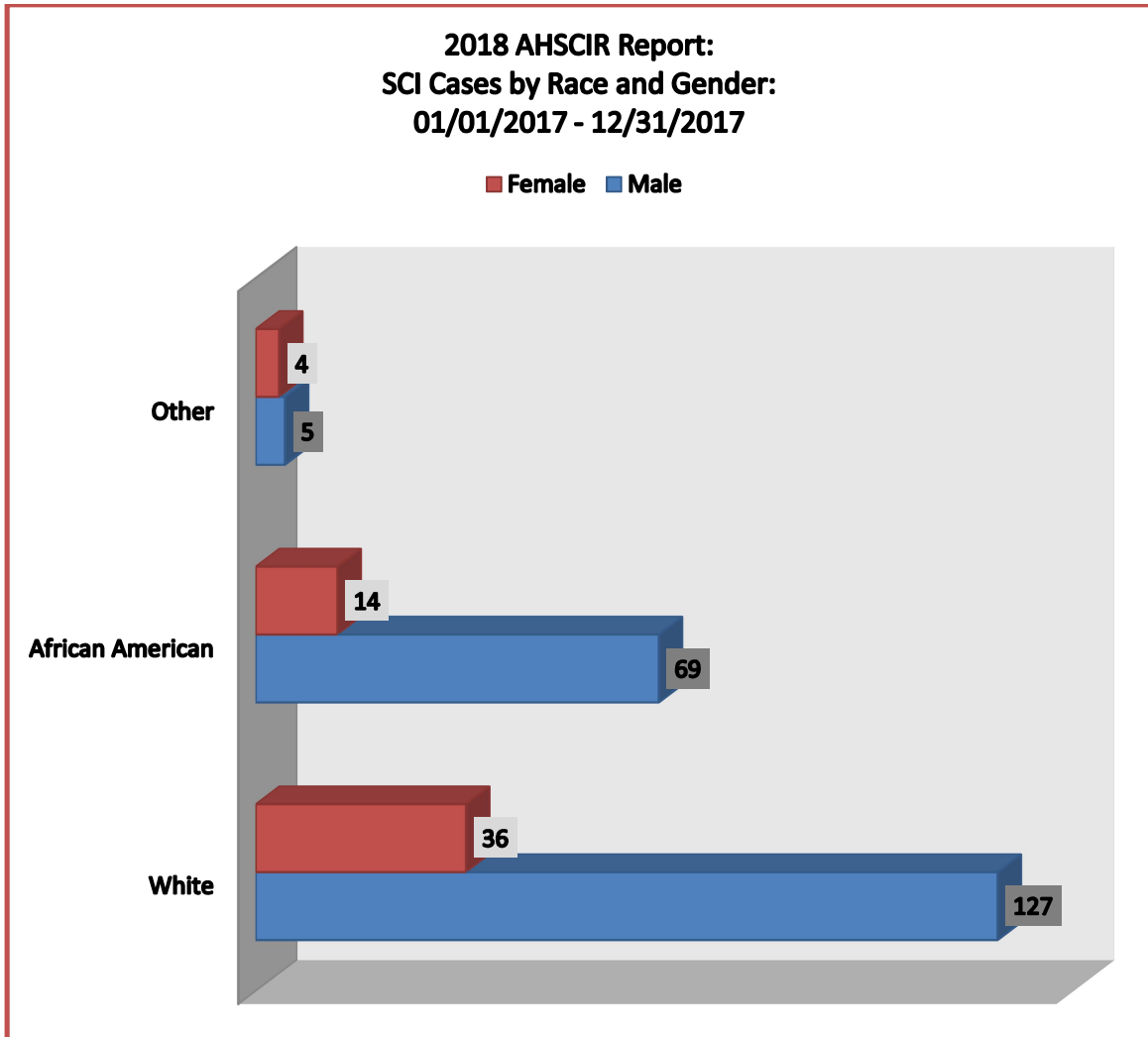
Figure 11
Proportion of SCI Cases by Race
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=255)



SCI- Race Distribution	Number of Cases	Proportion of Cases
White	163	64%
African American	83	33%
Other	9	4%
Total	255	100%

Whites constituted 64 percent (n=163) of the SCI cases, African-Americans constituted 33 percent (n=83), and Other represented 4 percent (n=9) in calendar year 2017.

Figure 12
Number of SCI Cases by Race and Gender
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=255)



Overall, 63 percent (n=127) of SCI cases were recorded in white males, 34 percent (n=69) in African American males, whereas 67 percent of SCI cases were reported for white females (n=36) with 26 percent (n=14) for African American females for calendar year 2017.

Number of SCI Cases by Race and Gender
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=255)

SCI-Gender & Race	Male	Female	Total	%Male	%Female
White	127	36	163	63%	67%
African American	69	14	83	34%	26%
Other	5	4	9	3%	7%
Total	201	54	255	100%	100%

Table 3
2017 SCI Cases by Age, Gender & Race
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=255)

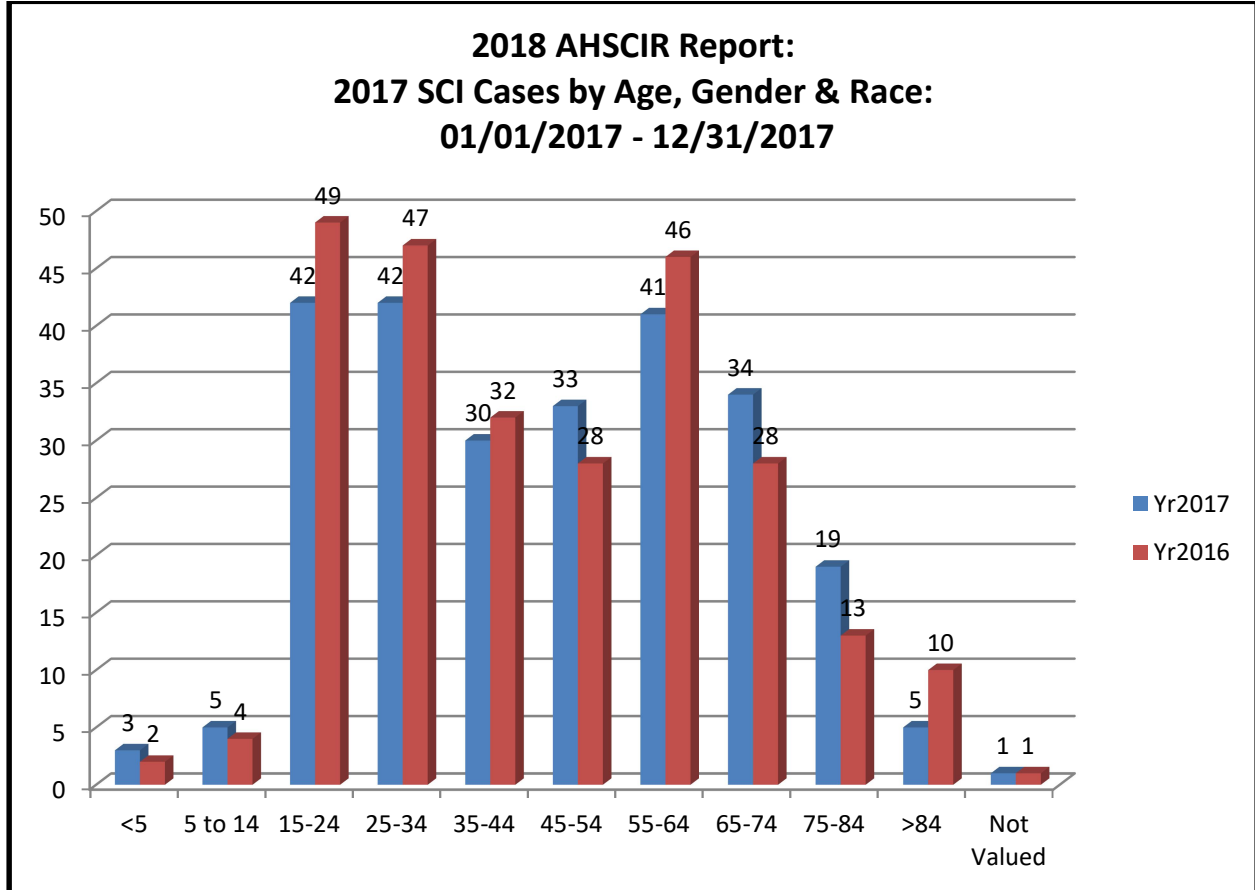
Age	White Males	White Females	Black Males	Black Females	Other Females	Other Males	Not Valued	Total	% Total
<5	1	0	0	1	0	1	0	3	1%
5 to 14	3	0	1	1	0	0	0	5	2%
15-24	17	7	14	2	1	1	0	42	16%
25-34	25	3	10	3	0	1	0	42	16%
35-44	11	5	11	2	1	0	0	30	12%
45-54	18	4	9	1	0	0	1	33	13%
55-64	25	5	10	0	0	0	1	41	16%
65-74	15	6	10	1	1	0	1	34	13%
75-84	9	4	4	2	0	0	0	19	7%
>84	3	2	0	0	0	0	0	5	2%
Not Valued	0	0	0	1	0	0	0	1	0%
Total	127	36	69	14	3	3	3	255	100%
% Total	49.80%	14.12%	27.06%	5.49%	1.18%	1.18%	1.18%	100%	

Table 4
2016 SCI Cases by Age, Gender & Race
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2016 – December 31, 2016
(n=260)

Age	White Males	White Females	Black Males	Black Females	Other Females	Other Males	No Data	Total	% Total
<5	1	1	0	0	0	0	0	2	0.8%
5 to 14	2	1	1	0	0	0	0	4	1.5%
15-24	18	11	13	6	1	0	0	49	18.8%
25-34	21	6	14	5	0	1	0	47	18.1%
35-44	12	2	15	1	0	2	0	32	12.3%
45-54	13	3	10	2	0	0	0	28	10.8%
55-64	23	11	9	2	0	1	0	46	17.7%
65-74	19	5	3	1	0	0	0	28	10.8%
75-84	6	4	2	1	0	0	0	13	5.0%
>84	3	6	0	0	1	0	0	10	3.8%
No Data	0	0	0	0	0	0	1	1	0.4%
Total	118	50	67	18	2	4	1	260	100%
% Total	45.4%	19.2%	25.8%	6.9%	0.8%	1.5%	0.4%	100%	

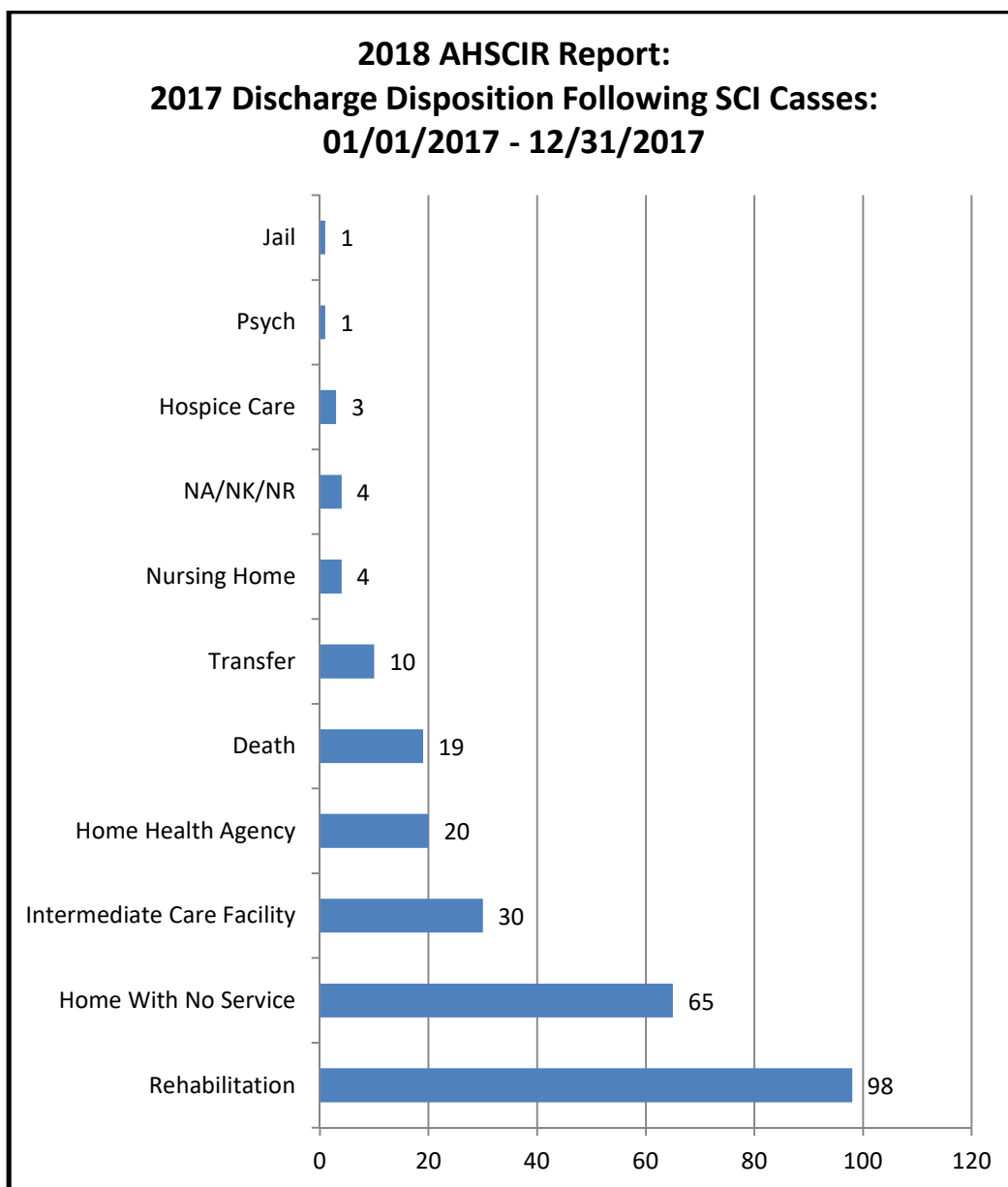
SCI cases declined in 2017 among the age groups (15-24), (25-34) and (55-64) at 16 percent (n=42), (n=42), (n=41) respectively compared to (n=49), (n=47), and (n=46) for year 2016.

2016 SCI Cases by Age, Gender & Race
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2016 – December 31, 2016
 (n=260)



SCI cases declined in 2017 among the age groups (15-24), (25-34), and (55-64) at 16 percent (n=42) (n=42), (n=41) respectively compared to (n=49), (n=47), and (n=46) for year 2016.

Figure 13
Discharge Disposition Following SCI Cases
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=255)



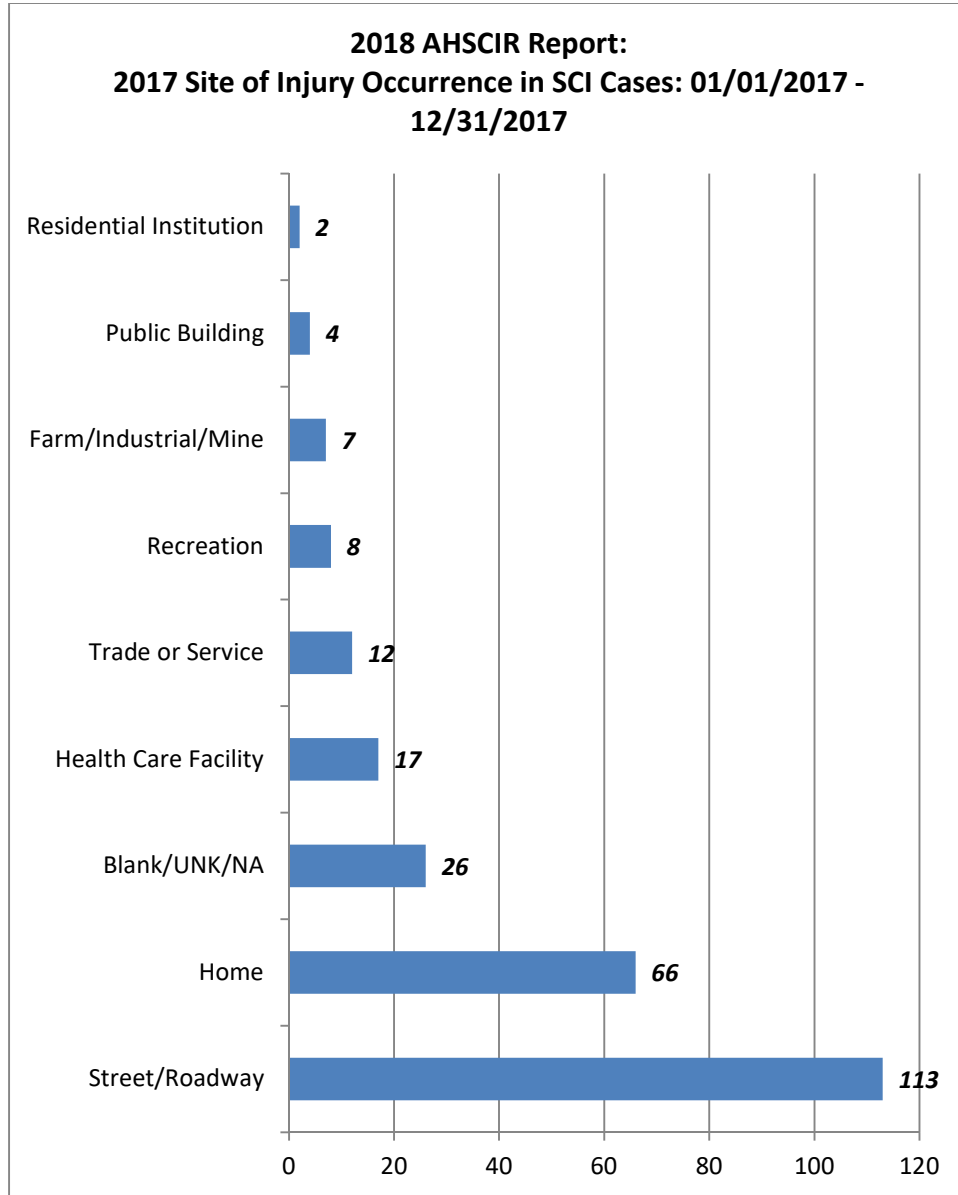
From the data, 38 percent (n=98) of SCI patients were sent to Rehabilitation facilities in Alabama for 2017. Thirty-five percent of SCI patients (n=65) were discharged Home With No Service. Figure 13 shows the respective discharge dispositions following SCI injuries in 2017.

Discharge Disposition Following SCI Cases
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=255)

Discharge Disposition Following SCI Cases	Count	%
Jail	1	0%
Psych	1	0%
Hospice Care	3	1%
Nursing Home	4	2%
NA/NK/NR	4	2%
Transfer	10	4%
Death	19	7%
Home Health Agency	20	8%
Intermediate Care Facility	30	12%
Home With No Service	65	25%
Rehabilitation	98	38%
Total	255	100%

KEY	
NA	Not Applicable
NK	Not Known
NR	Not Recorded

Figure 14
Site of Injury Occurrence in SCI Cases
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n =255)

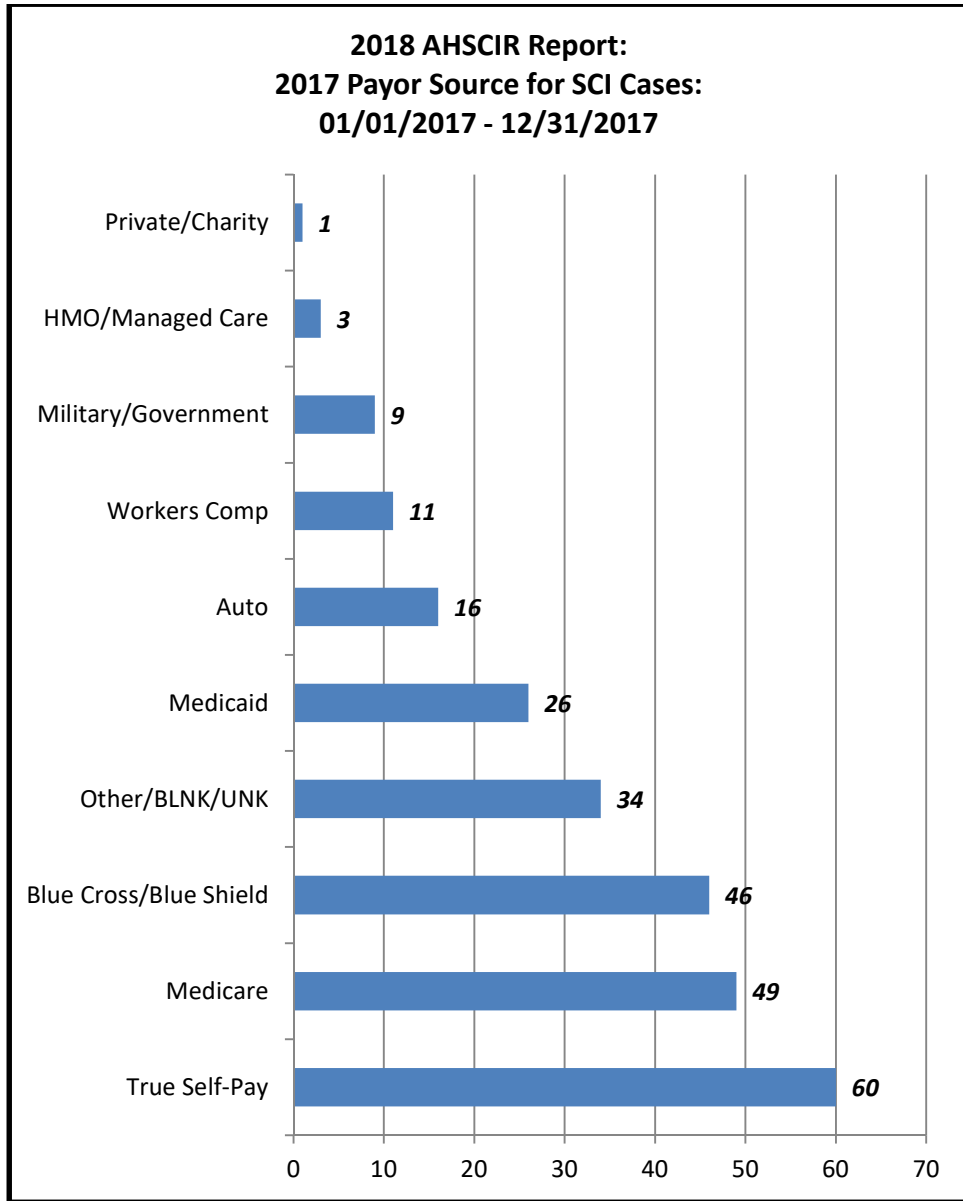


Site of Injury Occurrence in SCI Cases
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n =255)

Site of Injury Occurrence in SCI Cases		
Type	Count	%
Residential Institution	2	1%
Public Building	4	2%
Farm/Industrial/Mine	7	3%
Recreation	8	3%
Trade or Service	12	5%
Health Care Facility	17	7%
Blank/UNK/NA	26	10%
Home	66	26%
Street/Roadway	113	44%
Total	255	100%

For the calendar year 2017, Street/Roadways recorded the highest SCI injury related cases of (n=113) cases with a 44 percent occurrence. Significant SCI injuries also occurred in the Home, (n=66) cases, resulting in 26 percent of the injury cases for the period.

Figure 15
Payer Source for SCI Cases
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n =255)



Payer Source for SCI Cases
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n =255)

Payer	Count	Percentage %
Private/Charity	1	0%
HMO/Managed Care	3	1%
Military/Government	9	4%
Workers Comp	11	4%
Auto	16	6%
Medicaid	26	10%
Other/BLNK/UNK	34	13%
Blue Cross/Blue Shield	46	18%
Medicare	49	19%
True Self-Pay	60	24%
Total	255	100%

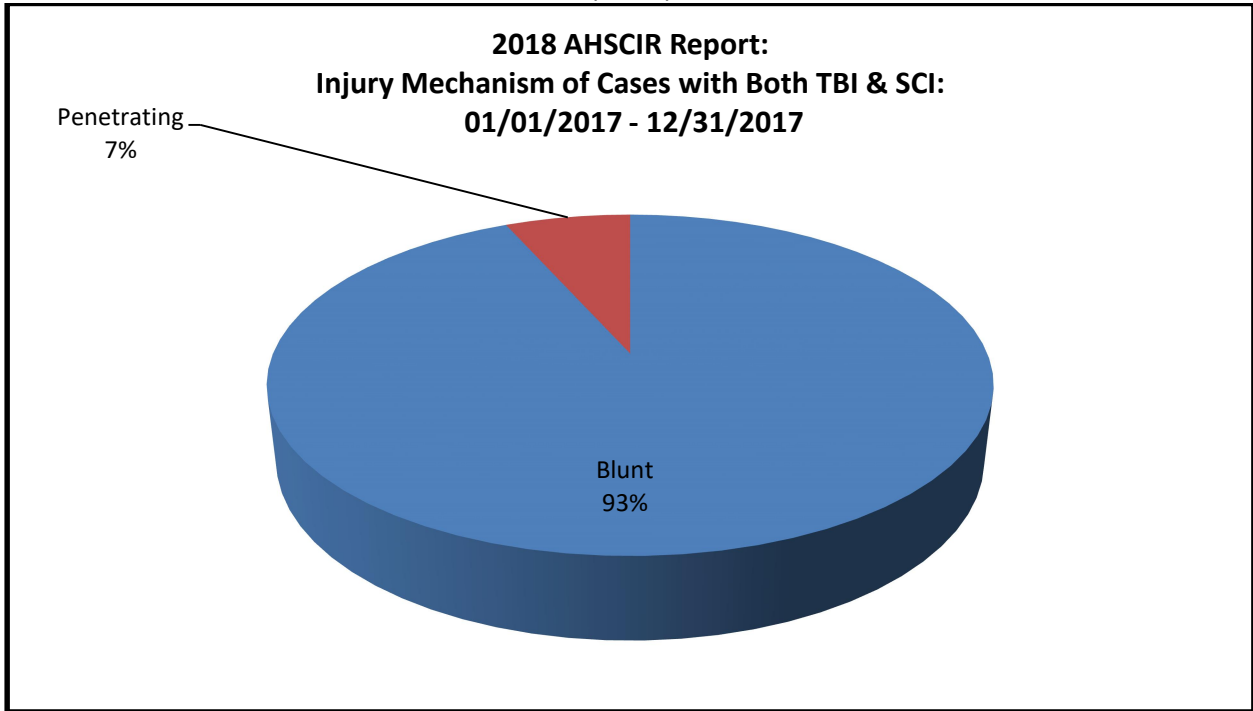
For those who presented to Alabama hospitals with SCI for the calendar year 2017, True Self-pay insurance was 24 percent (n=60), Blue Cross Blue Shield was 18 percent (n=46). Medicare paid 19 percent (n=49) and Medicaid paid 10 percent (n=26), respectively. Health Maintenance Organizations (HMO/Managed Care), paid 1 percent (n=3). Military and other government insurance plans paid 4 percent (n =9), and Worker’s Compensation was the primary payer in 4 percent (n =11). Payment source was indicated as Auto in 6 percent (n=16) of these cases. The source of payment data sent to the AHSCIR is subject to misclassifications. For example, Self-Pay group may include liens and in some cases primary payment source may not be properly submitted when there are multiple sources of payment.

Key

HMO/Managed Care	Health Maintenance Organization/Managed Care
Other/BLNK/UNK	Other/Blanks/Unknown
Workers Comp.	Workers Compensation

Cases with Both Head and Spinal Cord Injuries

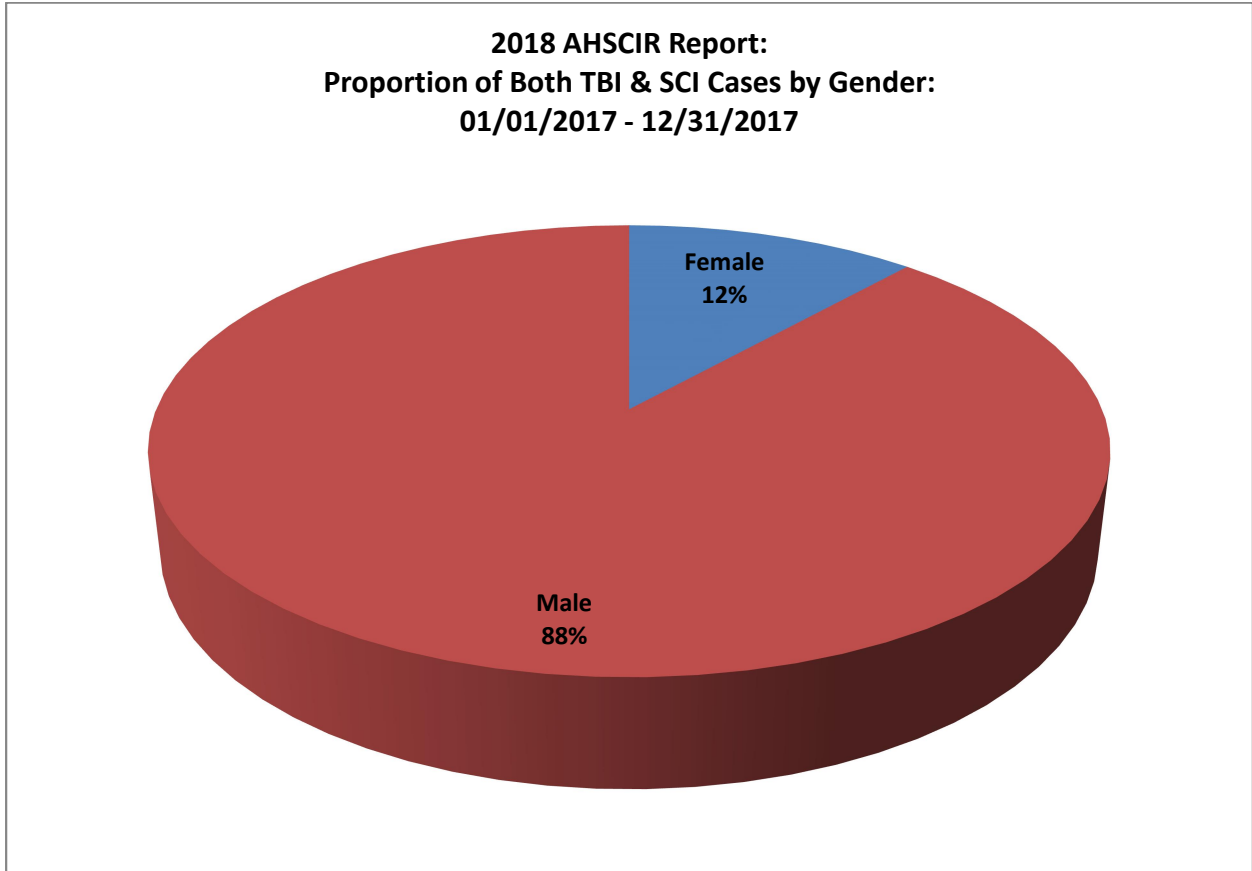
Figure 16
Proportion of Cases with Both Head and Spinal Cord Injuries by Mechanism of Injury
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=60)



Both TBI & SCI Injury Mechanism	Number of Cases	Percentage of Cases
Blunt	56	93%
Penetrating	4	7%
Total	60	100%

From the data reported to the AHSCIR for 2017, 93 percent (n=56) of both TBI & SCI cases were injuries due to blunt trauma. Penetrating injuries accounted for 7 percent (n=4) of both TBI & SCI cases for 2017.

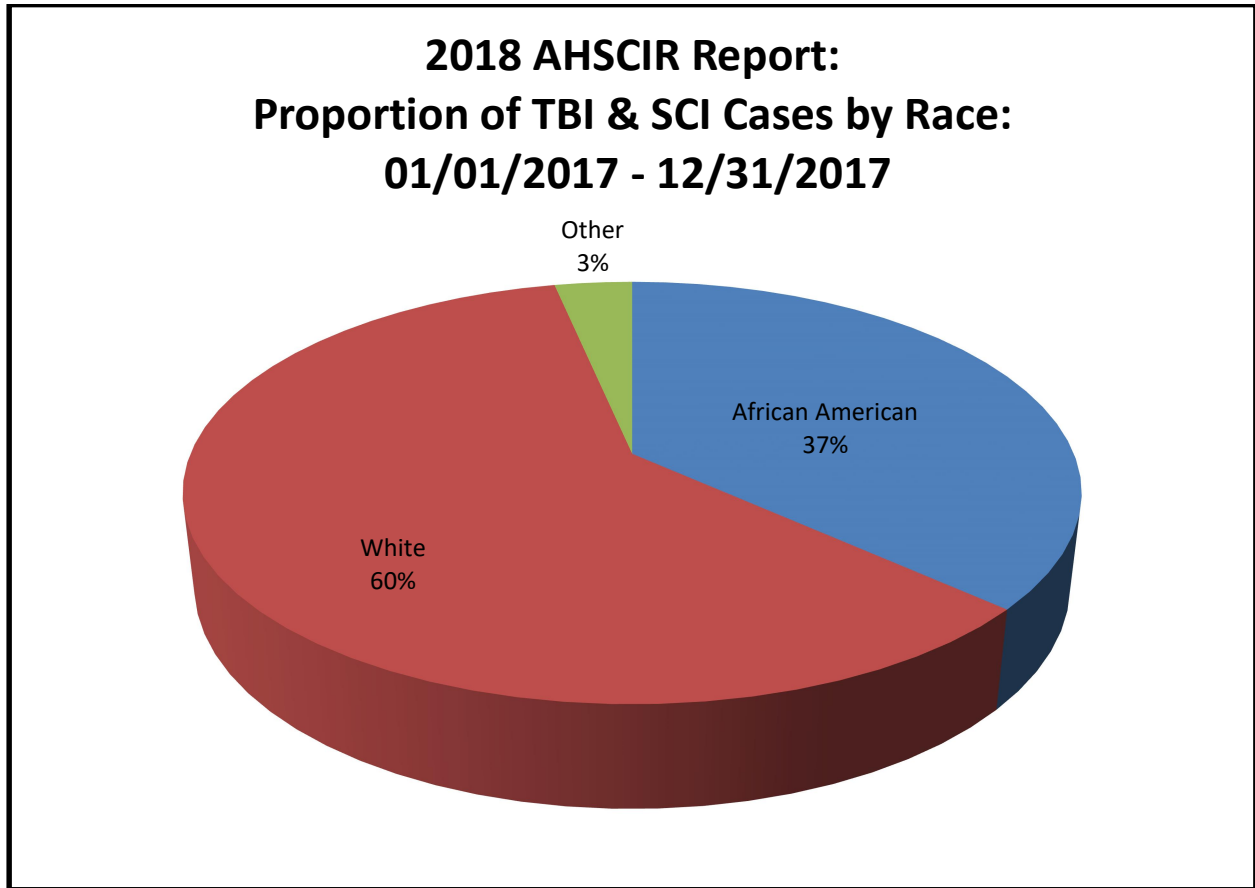
Figure 17
Proportion of Cases with Both TBI & SCI by Gender
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=60)



TBI & SCI Cases by Gender	Number of Cases	Percentage of Cases
Male	53	88%
Female	7	12%
Total	60	100%

For both TBI and SCI cases reported to the AHSCIR, 88 percent (n=53) were males and 12 percent (n=7) were females.

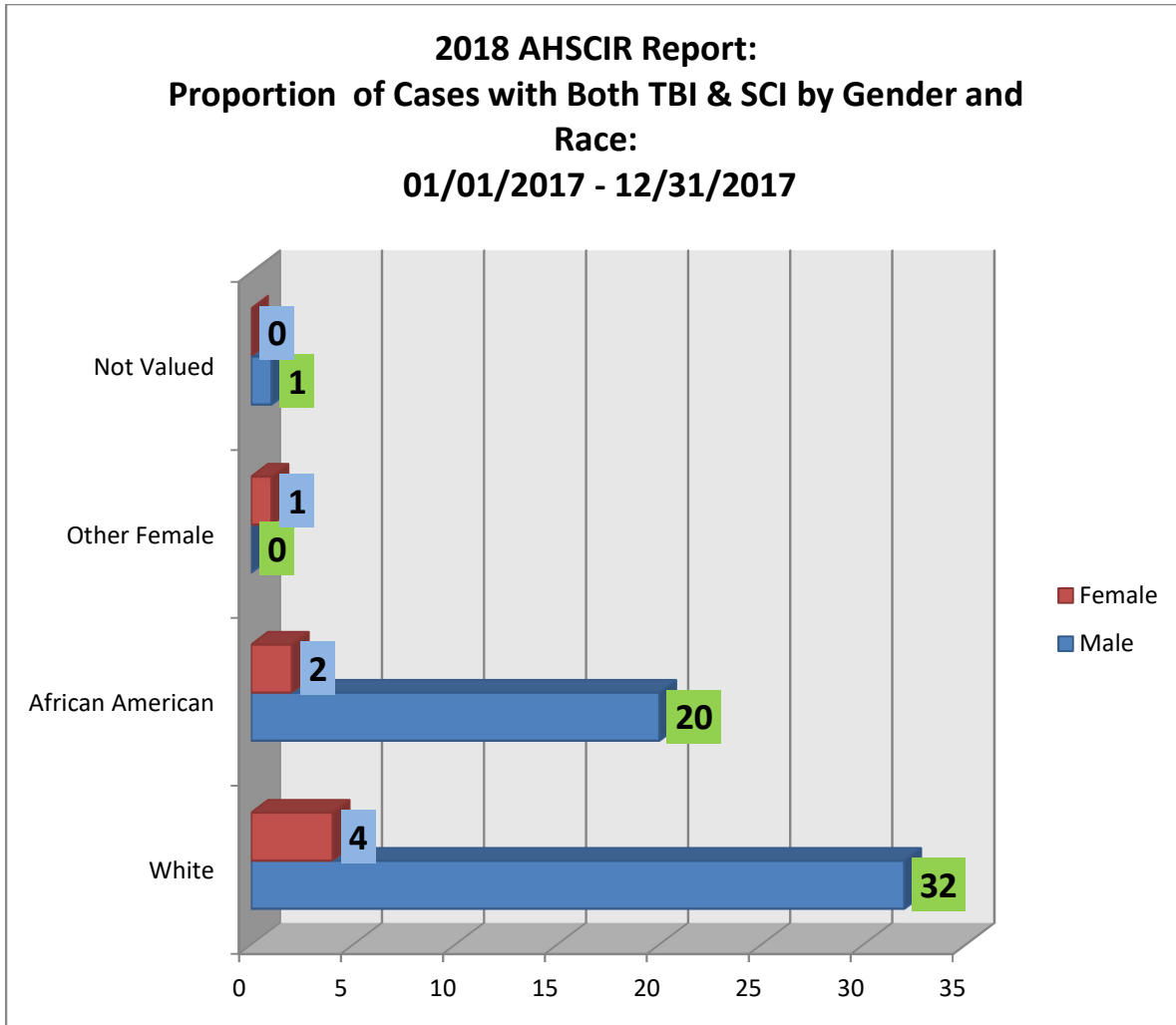
Figure 18
Proportion of Cases with Both TBI & SCI by Race
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=60)



Race	Count	Percentage %
African American	22	37%
White	36	60%
Other	2	3%
Total	60	100%

Whites constituted 60 percent (n=36) of both TBI & SCI cases, African Americans made up 37 percent (n=22) for 2017. “Other” constituted 3 percent (n=2).

Figure 19
Number of Cases with Both TBI and SCI by Gender and Race
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=60)



Gender & Race	White	African American	Other Female	Not Valued	Total
Male	32	20	0	1	53
Female	4	2	1	0	7
Total	36	22	1	1	60

Table 5
2017 Both TBI and SCI Cases by Age, Gender & Race
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=60)

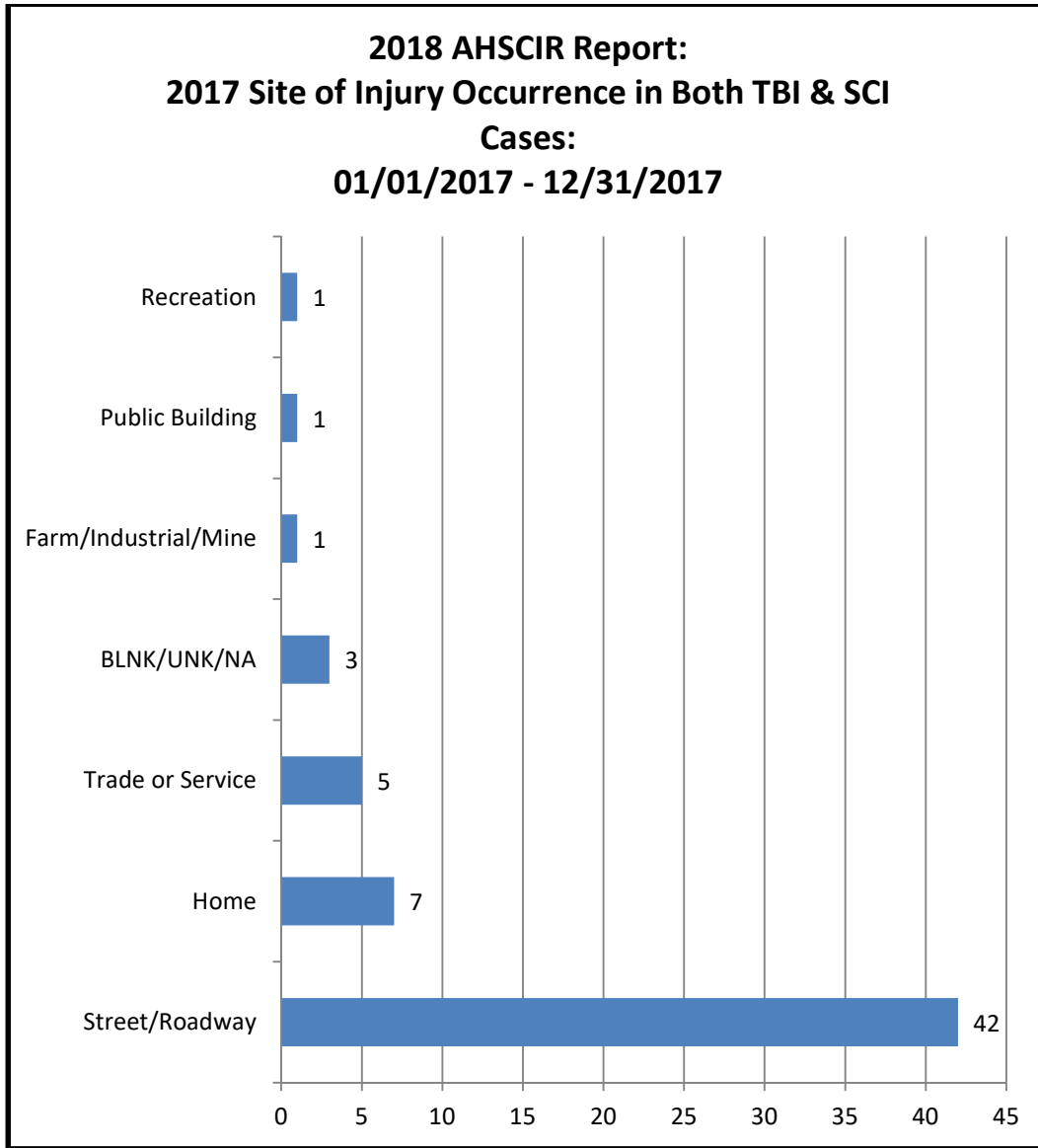
Age	White Male	White Female	Black Male	Black Female	Other Male	Other Female	Not Valued	Total	% Total
<5	0	0	0	1	0	0	1	2	3.33%
5to 14	1	0	0	0	0	0	0	1	1.67%
15-24	5	1	4	0	0	1	0	11	18.33%
25-34	10	0	0	0	0	0	0	10	16.67%
35-44	2	1	2	0	0	0	0	5	8.33%
45-54	5	0	5	0	0	0	0	10	16.67%
55-64	4	2	2	1	0	0	0	9	15.00%
65-74	3	0	5	0	0	0	0	8	13.33%
75-84	1	0	0	0	0	0	0	1	1.67%
>84	1	0	2	0	0	0	0	3	5.00%
Total	32	4	20	2	0	1	1	60	100%
% Total	53.33%	6.67%	33.33%	3.33%	0.00%	1.67%	1.67%	100%	

Table 5
2016 Both TBI and SCI Cases by Age, Gender & Race
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2016 – December 31, 2016
(n=70)

Age	White Male	White Female	Black Male	Black Female	Other Male	Other Female	Not Valued	Total	% Total
<5	0	1	0	0	0	0	0	1	1.4%
5to 14	1	1	0	0	0	0	0	2	2.9%
15-24	5	4	4	1	0	0	0	14	20.0%
25-34	6	1	4	1	0	0	0	12	17.1%
35-44	6	0	5	0	0	0	0	11	15.7%
45-54	4	0	2	0	0	0	0	6	8.6%
55-64	12	1	3	0	0	0	0	16	22.9%
65-74	4	1	0	0	0	0	0	5	7.1%
75-84	0	1	0	0	0	0	0	1	1.4%
>84	1	0	0	0	0	1	0	2	2.9%
Total	39	10	18	2	0	1	0	70	100%
% Total	55.7%	14.3%	25.7%	2.9%	0.0%	1.4%	0.0%	100%	

Based on the numbers reported for both TBI & SCI injuries, there was a 7 percent decrease for age group (35-44) from 15 percent (n=11) in 2016 to 8 percent (n=5) in 2017. This was a significant decrease. The age group (15-24) also reported percentage decreases from 20 percent in 2016 (n=14) to 18 percent (n=11) in 2017.

Figure 20
Site of Injury Occurrence in Both TBI & SCI Cases
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=60)

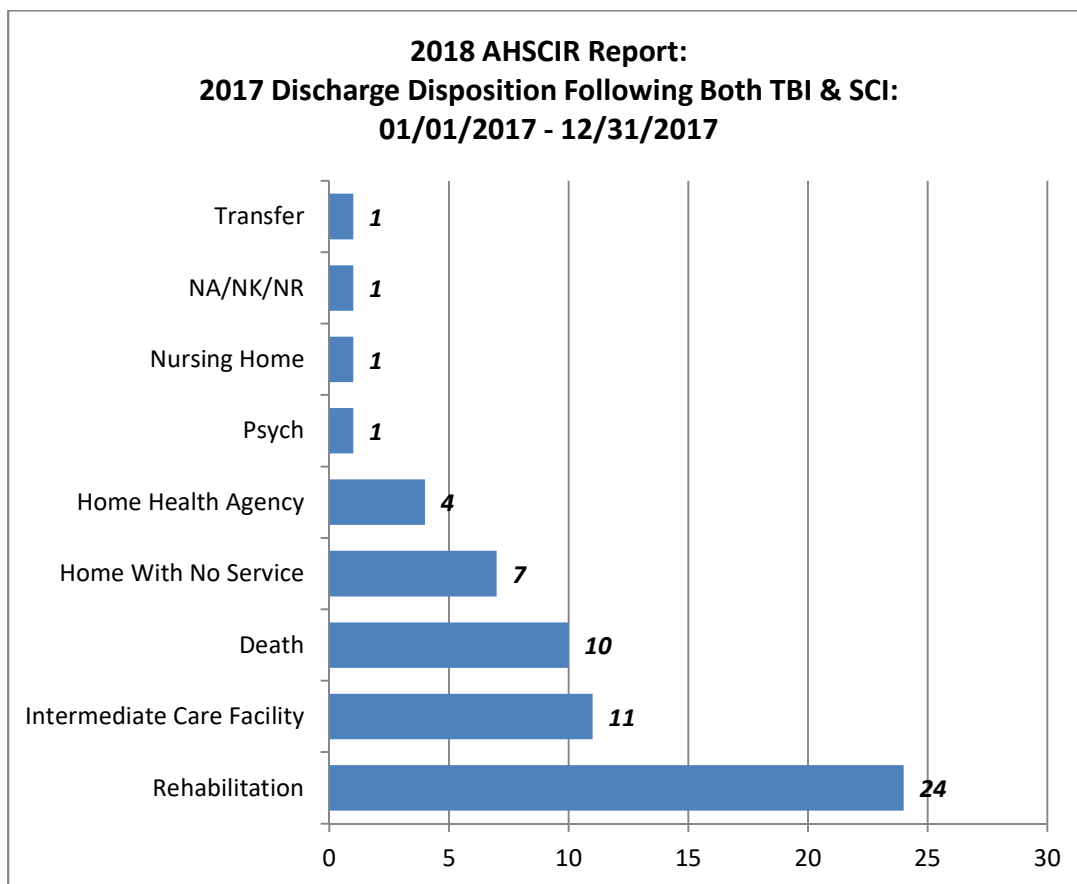


Seventy percent (n=42) of AHSCIR cases with both TBI & SCI occurred on Streets and Roadways. Twelve percent (n=7) occurred in the Home.

Site of Injury Occurrence in Both TBI & SCI Cases
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=60)

Injury Site	Count	Percentage %
Recreation	1	2%
Public Building	1	2%
Farm/Industrial/Mine	1	2%
BLNK/UNK/NA	3	5%
Trade or Service	5	8%
Home	7	12%
Street/Roadway	42	70%
Total	60	100%

Figure 21
Discharge Disposition Following Cases
With Both TBI and SCI
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=60)



Forty percent (n=24) patients were discharged to Rehabilitation Centers. Eighteen percent (n=11) were discharged to Intermediate Care Facilities. Seventeen percent (n=10) patients expired. Twelve percent (n=7) were discharged Home with No Service and 7 percent (n=4) were discharged with Home Service (Home Health Agency).

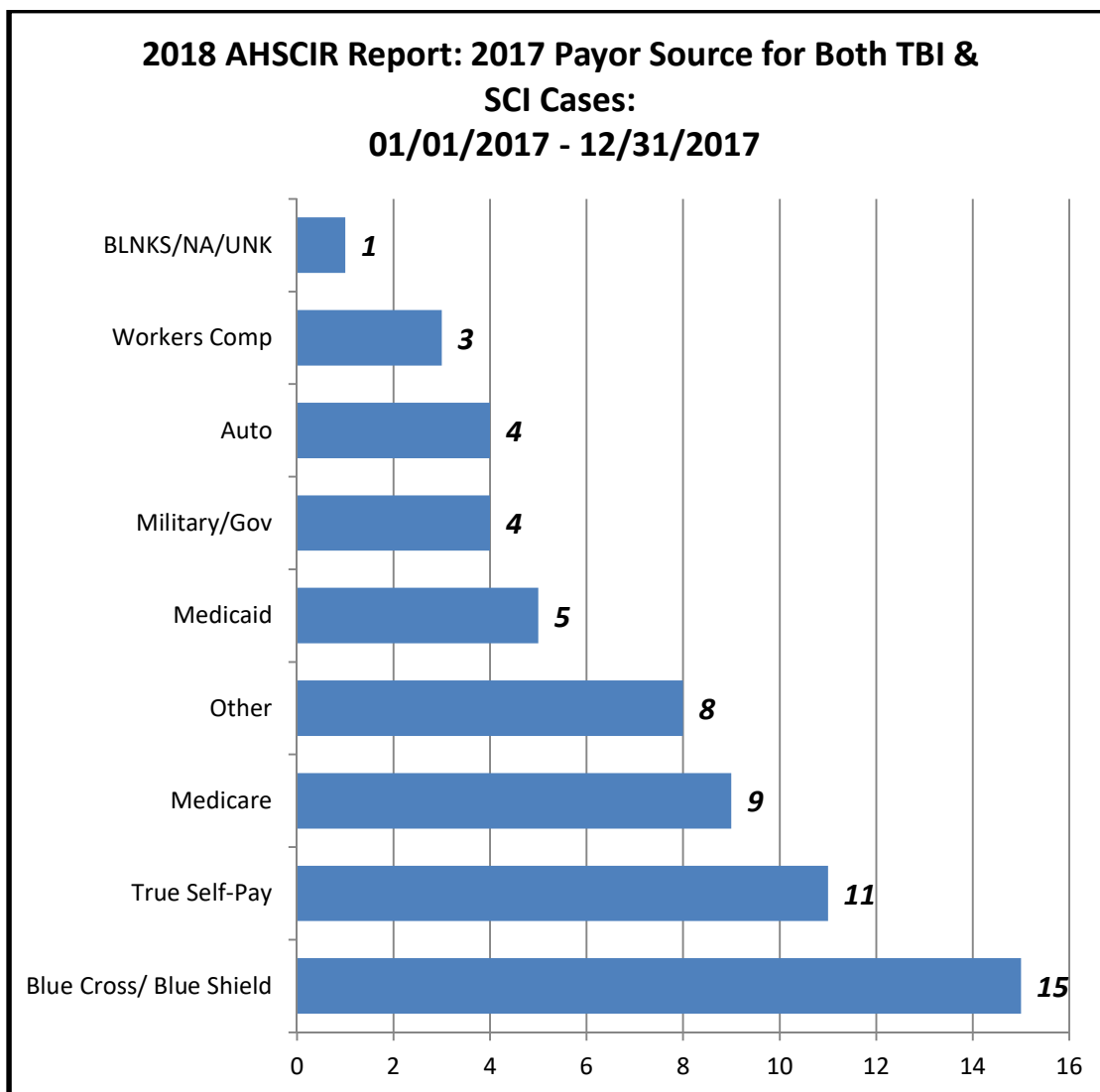
**Discharge Disposition Following Cases
With Both TBI and SCI**

Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=60)

Discharge Disposition	Count	Percentage %
Transfer	1	2%
NA/NK/NR	1	2%
Psych	1	2%
Nursing Home	1	2%
Home Health Agency	4	7%
Home With No Service	7	12%
Death	10	17%
Intermediate Care Facility	11	18%
Rehabilitation	24	40%
Total	60	100%

KEY:	
NA	Not Applicable
NK	Not Known
NR	Not Recorded

Figure 22
Payer Sources for Cases
With Both TBI and SCI
 Alabama Head and Spinal Cord Injury Registry (AHSCIR)
 January 1, 2017 – December 31, 2017
 (n=60)



Blue Cross/Blue Shield paid 25 percent (n=15) of all cases with both TBI and SCI reported to the AHSCIR for 2017. True Self Pay paid 18 percent (n=11), Medicare paid 15 percent (n=9), and Other reported 13 percent (n=8). The chart shows the breakdown of the various categories of payments.

**Payer Sources for Cases
With Both TBI and SCI**
Alabama Head and Spinal Cord Injury Registry (AHSCIR)
January 1, 2017 – December 31, 2017
(n=60)

Payer	Count	Percentage %
BLNKS/NA/UNK	1	2%
Workers Comp	3	5%
Military/Government	4	7%
Auto	4	7%
Medicaid	5	8%
Other	8	13%
Medicare	9	15%
True Self-Pay	11	18%
Blue Cross/ Blue Shield	15	25%
Total	60	100%

KEY:	
BLNKS	Blanks
NA	Not Applicable
UNK	Unknown

Prevention of Traumatic Brain Injury and Spinal Cord Injury

Common events causing traumatic brain injury include the following:

1. Falls. Falling out of bed, slipping in the bath, falling down steps, falling from ladders, and related falls are the most common cause of traumatic brain injury overall, particularly in older adults and young children.
2. Vehicle-related collisions. Collisions involving cars, motorcycles, or bicycles - and pedestrians involved in such accidents - are a common cause of traumatic brain injury.

The people most at risk of traumatic brain injury include:

1. Children, especially newborns to 4-year-olds.
2. Young adults, especially those between ages 15 and 24.
3. Adults age 75 and older.

Prevention

1. Obey manufacturer guidelines on the use of all safety equipment while operating any motorized equipment.
2. Children should always sit in the back seat of a car and be secured in child safety seats or booster seats that are appropriate for his or her size and weight.
3. Avoid alcohol and drug use.
4. The use of safety helmets while riding a bicycle, skateboard, motorcycle, snowmobile, or all-terrain vehicle is recommended.

Preventing falls

1. Install handrails in bathrooms.
2. Put a nonslip mat in the bathtub or shower.
3. Remove area rugs.
4. Install handrails on both sides of staircases.
5. Improve lighting in the home.
6. Keep stairs and floors clear of clutter.
7. Vision checks are recommended.

Preventing head injuries in children

1. Install safety gates at the top of a stairway.
2. Keep stairs clear of clutter.
3. Install window guards to prevent falls.
4. Use playgrounds that have shock-absorbing materials on the ground.
5. Make sure area rugs are secured.

6. Don't let children play on fire escapes or balconies.
7. Supervise and watch children at play. Do not let children play alone.

To reduce the risk of spinal cord injuries, the following are recommended:

1. Since car crashes are the most common cause of spinal cord injuries, seat belt use is strongly recommended. Furthermore, to protect from air bag injuries, children under age 12 should always ride in the back seat.
2. Take steps to prevent falls such as the use of a step stool with a grab bar to reach objects in high places. The use of handrails along stairways, non-slip bathroom tubs, and appropriate floor carpets are recommended.
3. Always use recommended safety gear protections when playing contact sports. Avoid driving while intoxicated, distracted driving such as texting while driving, or driving under the influence of drugs.

Overview

ADPH recognizes prevention efforts require strong coalition building with principal partners in disease prevention, injury prevention, and health promotion. Based on data reported to the AHSCIR, motor traffic accidents account for over 70 percent of all TBI/SCI cases, hence prevention efforts should focus on motor vehicle accident prevention education. Secondly, falls among the elderly population in Alabama compared to other age groups account for a higher proportion of TBI/SCI cases, hence prevention activities should target fall prevention in the elderly population (75 and above).

Over the upcoming year, ADPH will work with principal partners to identify additional stakeholders to develop strategies, resources, and educational opportunities to promote TBI and SCI injury prevention.

References

1. ICD-10-CM (2018). <https://www.cms.gov/medicare/Coding/ICD10/index.html>
2. Injury Prevention & Control: Traumatic Brain Injury & Concussion. (2018). Retrieved 10/22/2018 from http://www.cdc.gov/traumaticbraininjury/data/dist_death.html
3. Mayo Clinic. (2018). Diseases and Conditions. Retrieved 10/22/2018 from <http://www.mayoclinic.org/diseases-conditions/spinal-cord-injury/basics/definition/con-20023837>

Appendix A

Effective October 1, 2016, all data reported used ICD-10-CM codes as follows:

ICD-10 Spinal Cord Injuries (SCI)

Begin with	End with	Description
S12.000 - S12.9XX	A or B	Fracture of cervical vertebra and other parts of neck
S13.0XX	A	Traumatic rupture of cervical intervertebral disc
S14.0XX - S14.9XX	A	Injury of nerves and spinal cord at neck level
S17.0XX - S17.9XX	A	Crushing injury of neck
S24.0XX - S24.9XX	A	Injury of nerves and spinal cord at thorax level
S32.000 - S32.059	A or B	Fracture of lumbar spine and pelvis
S34.01X - S34.9XX	A	Injury lumbar/sacral spinal cord and nerves

ICD-10 Traumatic Brain Injuries (TBI)

Begin with	End with	Description
S01.00X - S01.05X	A	Open Wound
S01.80X - S01.95X	A	Open Wound
S02.3XX	A or B	Fracture of Skull and Facial Bones
S04.02X - S04.049	A	Injury to Optic Chiasm and Optic Tract
S06.0X0 - S06.9X	A	Intracranial Injury
S07.0XX - S07.9XX	A	Crushing Injury of Head
S08.89X	A	Avulsion and Traumatic Amputation of Part of Head
S09.8XXA - S09.90X	A	Other and NOS Injury of Head
T74.4XX	A	Shaken Infant Syndrome

<https://www.cms.gov/medicare/Coding/ICD10/index.html>