



The Spinal Cord Injury Model Systems was created in 1970 as a prospective longitudinal multicenter study on demographics and the use of services by people with traumatic spinal cord injury (tSCI) in the United States.

This data sheet is a quick reference on demographic and condition status for 36,993 people with tSCI collected through 2023 by 32 federally funded SCI Model Systems and 4 Form II (follow up) centers and entered into the National SCI Database. This data sheet does not include the 15,789 people who did not fully qualify for follow-up but added to the SCI Database registry.

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Incidence

The 2023 population size in the United States was estimated to be about 335 million people. The most recent estimate of the annual incidence of traumatic spinal cord injury (tSCI) is approximately 54 cases per one million people in the United States, which equals about 18,000 new tSCI cases each year. New tSCI cases do not include those who die at the location of the incident that caused the tSCI.

- **Data Source:** Jain NB, Ayers GD, Peterson EN, et al. Traumatic spinal cord injury in the United States, 1993-2012. JAMA. 2015;313(22):2236-2243.

Prevalence

The estimated number of people with tSCI living in the United States is approximately 305,000 persons, with a range from 257,000 to 388,000 persons.

- **Data Source:** Lasfargues JE, Custis D, Morrone F, Carswell J, Nguyen T. A model for estimating spinal cord injury prevalence in the United States. Paraplegia. 1995;33(2):62-68.

Age at Injury

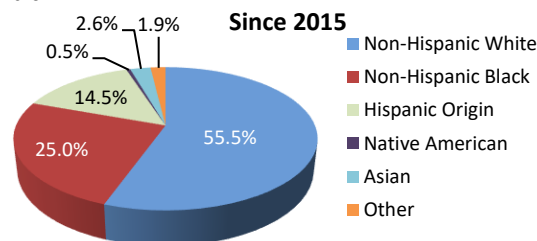
The average age at injury has increased from 29 years during the 1970s to 43 since 2015.

Sex

About 79% of new tSCI cases since 2015 are male.

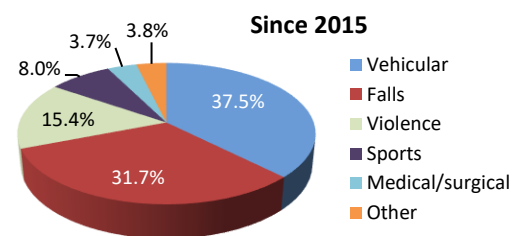
Race/Ethnicity

Recently, about 25% of injuries have occurred among non-Hispanic blacks, which is higher than the proportion of non-Hispanic blacks in the general population (13%).



Cause

Vehicle crashes are the most recent leading cause of injury, closely followed by falls. Acts of violence (primarily gunshot wounds) and sports/recreation activities are also relatively common causes.



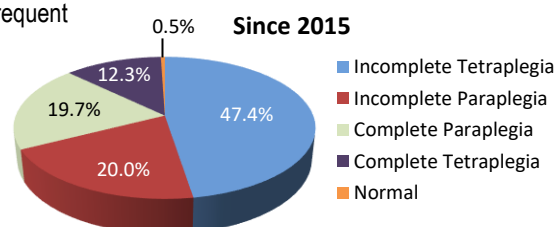
Lengths of Stay

The average lengths of stay in the hospital acute care unit have declined from 30 days in the 1970s to 19 days since 2015. The average rehabilitation lengths of stay have also declined from 110 days in the 1970s to 37 days since 2015.

- **Note:** As of 2024, this data sheet differs from previous years. It shows lengths of stay in averages. Past years were shown in median.

Neurological Level and Extent of Lesion

Recently, incomplete tetraplegia is the most frequent neurological category. The frequency of incomplete and complete paraplegia is virtually the same. Less than 1% of persons experienced complete neurological recovery by the time of hospital discharge.



Education

Since 2015, about a quarter of persons with tSCI have a college degree at the time of their injury, compared with 45% of people who survived 40 years of injury.

Education (%)	At Injury	Year 1	Year 10	Year 20	Year 30	Year 40
High School Only	52.1	52.6	49.5	46.7	41.7	35.5
College or Higher	23.5	25.8	28.6	27.8	34.3	44.7

Employment Status

Since 2015, 18% of persons with tSCI are employed at year 1 post-injury. The employment rate increases over time before peaking at 30 years post injury.

Status (%)	At Injury	Year 1	Year 10	Year 20	Year 30	Year 40
Employed	65.0	17.8	24.7	28.7	30.8	27.0
Student	6.8	5.8	2.6	0.7	0.3	0.1

Marital Status

Since 2015, the percentage of people who are married is relatively consistent up to year 30 post-injury, with single/never married status slowly decreasing and divorce status slowly increasing.

Status (%)	At Injury	Year 1	Year 10	Year 20	Year 30	Year 40
Single	44.9	43.5	38.3	36.4	34.1	24.1
Married	36.7	36.5	34.1	34.4	35.4	44.5
Divorced	8.6	10.3	18.4	19.9	22.5	22.0

Re-Hospitalization

Since 2015, about 30% of persons with tSCI are re-hospitalized at least once during any given year following injury. Among those re-hospitalized, the length stay averages about 18 days. Diseases of the genitourinary system are the leading cause of re-hospitalization, followed by disease of the skin. Respiratory, digestive, and musculoskeletal diseases are also common causes.

Historical Lifetime Costs

The average yearly expenses (health care costs and living expenses) and the estimated lifetime costs that are directly attributable to tSCI vary greatly based on education, neurological impairment, and pre-injury employment history. The below estimates do not include any indirect costs such as losses in wages, fringe benefits, and productivity (indirect costs averaged \$92,578 per year in 2023 dollars).

Severity of Injury	Average Yearly Expenses (in 2023 dollars)		Estimated Lifetime Costs by Age at Injury (discounted at 2%)	
	First Year	Each Subsequent Year	25 years old	50 years old
High Tetraplegia (C1–C4) AIS ABC	\$1,369,755	\$237,862	\$6,077,646	\$3,340,171
Low Tetraplegia (C5–C8) AIS ABC	\$989,768	\$145,918	\$4,440,708	\$2,731,432
Paraplegia AIS ABC	\$667,569	\$88,433	\$2,971,942	\$1,950,396
Motor Functional at Any Level AIS D	\$447,037	\$54,298	\$2,030,446	\$1,433,145

Data Source: Economic Impact of SCI published in the journal Topics in Spinal Cord Injury Rehabilitation, Volume 16, Number 4, in 2011. American Spinal Injury Association Impairment Scale (AIS) is used to grade the severity of a person's neurological impairment following tSCI.

Historical Life Expectancy

The average remaining years of life for persons with tSCI have not improved since the 1980s and remain significantly below life expectancies of persons without tSCI. Mortality rates are significantly higher during the first year after injury than during subsequent years, particularly for persons with the most severe neurological impairments. A customizable Life Expectancy Calculator tool is at uab.edu/NSCISC.

Age at Injury	No tSCI	Life Expectancy (years) for Post-Injury by Severity of Injury and Age at Injury									
		For Persons Surviving the First 24 Hours					For Persons Surviving at Least 1 Year Post-Injury				
		High Tetraplegia (C1–C4) AIS ABC	Low Tetraplegia (C5–C8) AIS ABC	Paraplegia AIS ABC	Motor Functional AIS D (Any Level)	Ventilator Dependent (Any Level)	High Tetraplegia (C1–C4) AIS ABC	Low Tetraplegia (C5–C8) AIS ABC	Paraplegia AIS ABC	Motor Functional AIS D (Any Level)	Ventilator Dependent (Any Level)
20	57.7	29.6	36.2	41.7	49.3	9.0	30.2	36.7	41.8	49.4	15.6
40	39.3	18.6	22.5	27.3	32.7	7.7	19.1	22.8	27.3	32.7	11.8
60	22.2	10.2	11.7	14.7	17.9	3.5	10.9	12.0	14.7	17.8	7.1

Historical Causes of Death

Persons enrolled in the National SCI Database have now been followed up to 50 years after injury. During that time, the causes of death that appear to have the greatest impact on reduced life expectancy for this population are pneumonia and septicemia. Mortality rates are declining for cancer, heart disease, stroke, arterial diseases, pulmonary embolus, urinary diseases, digestive diseases, and suicide. However, these gains are being offset by increasing mortality rates for endocrine, metabolic and nutritional diseases, accidents, nervous system diseases, musculoskeletal disorders, and mental disorders. There has been no change in the mortality rate for septicemia over the past 50 years, and there has only been a slight decrease in mortality due to respiratory diseases.

- **Data Source:** DeVivo, M. J., Chen, Y., & Wen, H. (2022). Cause of death trends among persons with spinal cord injury in the United States: 1960-2017. *Archives of physical medicine and rehabilitation*, 103(4), 634-641.

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Document Citation: National Spinal Cord Injury Statistical Center, Traumatic Spinal Cord Injury Facts and Figures at a Glance. Birmingham, AL: University of Alabama at Birmingham, 2024.