2014 ANNUAL TRAUMA REPORT

Department of Health and Human Services
Division of Public and Behavioral Health
Public Health Preparedness Program

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PURPOSE OF REPORT

The purpose of this report is to compile trauma data, submitted by hospitals, from across the state of Nevada and present the data in a usable form for local health authorities, healthcare service providers, and the public. The Annual Trauma Report is to be completed by the Nevada Division of Public and Behavioral Health (DPBH) by July 1st of each year in accordance with Nevada Administrative Code (NAC) 450B.768.

INTRODUCTION

The 2014 Annual Trauma Report is based upon data submitted to the Nevada Trauma Registry (NTR) by the 29 non-trauma center hospitals that operated in Nevada during the calendar year. Not all of these hospitals were compliant with NAC 450B.768 for each quarter. To be considered compliant, a hospital had to enter all trauma records into the NTR, or notify the State NTR Coordinator that no records needed to be submitted, by the quarterly due date. Based upon the 2014 end-of year Trauma Report Cards distributed to hospitals in March, 2015, approximately 41% of the non-trauma hospitals in Nevada were compliant for the entirety of 2014. Many other facilities were compliant for a portion of the year, but not for the entire year. Additionally, no data were collected from the four trauma centers within the state during this reporting period. With gaps in the available data for analyses, the reporting of trauma information within this report should be cautiously applied.

A number of challenges existed in collecting and analyzing the data for the 2014 Annual Trauma Report. As mentioned earlier, the data set available for analyses is incomplete due to a lack of compliance by several non-trauma center hospitals. Additionally, data from the four trauma centers in Nevada were unavailable to include within the analyses for this report. A variety of factors contributed to these challenges with the greatest ones being staffing and compatible software. However, in mid-2015 these significant challenges were collaboratively addressed between the state, the trauma centers, and the non-trauma hospitals.

A Nevada Trauma Registry (NTR) Manager was hired by the state in June 2015. Since that time, the NTR Manager has facilitated the upgrade of the Nevada Trauma Registry software which is able to receive trauma data directly from the four trauma centers within the state. Additionally, the trauma centers cooperatively agreed to upgrade their trauma software to the same version the state is utilizing to allow for easier communication between their facilities and the NTR. Furthermore, the NTR Manager has worked with each non-trauma hospital in the state to identify and train one to three staff members on the NTR and how to enter data into the NTR.

In addition to training on the upgraded software, the NTR Manager reinstated the utilization of quarterly facility report cards for each hospital. These report cards are utilized to educate NTR users from each hospital about their facility's compliance and to allow facility staff to evaluate their accuracy of data entry against the general accuracy reports of their peer facilities. In addition to reporting a specific facility's statistics regarding the accuracy of data entry into the NTR and the averages of other comparable facilities, the quarterly report cards provide tips, hints, and notes for each facility about how data entry can be improved. The quality and accuracy of data entered into the NTR has a direct impact on what can be analyzed for the Annual Trauma Report.

Finally, the NTR Manager has been exploring the potential of developing a Trauma Registry Advisory Committee with staff from the trauma centers, non-trauma hospitals, Emergency Medical Services (EMS) agencies, and local health authorities in the state. The purpose of this committee will be to provide feedback and advice to the NTR Manager regarding the challenges and successes of the software being used for the NTR, to provide input regarding the further development and evolution of the NTR, and to provide insight into information needs of communities regarding traumas to assist with establishing local initiatives and priorities. This advisory committee will be developed and in practice starting sometime in the 2016 calendar year.

Overall, through the use of regular communication, offering of trainings, reminders about quarterly trauma data due dates, and revitalization and development of relationships across the state, hospital data entry compliance has already increased in 2015. Additionally, the amount and quality of the data available for analyses within the NTR for subsequent annual reports will continue to improve thereby strengthening the detail and depth of future annual trauma reports.

NEVADA TRAUMA REGISTRY BACKGROUND

The definition of a trauma and the requirements for trauma reporting are outlined in both the Nevada Revised Statutes and Nevada Administrative Code. These statutes and codes are outlined below.

Nevada Revised Statute (NRS)

NRS 450B.105 "Trauma" defined. "Trauma" means any acute injury which, according to standardized criteria for triage in the field, involves a significant risk of death or the precipitation of complications or disabilities.

NRS 450B.238 Regulations requiring hospital to record and maintain information. The State Board of Health shall adopt regulations which require each hospital to record and maintain information concerning the treatment of trauma in the hospital. The Board shall consider the guidelines adopted by the American College of Surgeons which concern the information which must be recorded.

Nevada Administrative Code (NAC)

The NAC regarding the treatment of trauma in Nevada and the corresponding Trauma Registry reporting requirements, guidelines, and procedures can be found at **NAC 450B.760** through **NAC 450B.774**, inclusive.

In summary, the regulations state that the Division of Public and Behavioral Health shall develop a standardized system for the collection of information concerning the treatment of trauma and carry out a system for the management of that information. The system must provide for the recording of information concerning treatment received before and after admission to a hospital.

Each hospital shall submit to the Division quarterly reports which comply with the criteria prescribed by the Division and which contain at least the minimum data set required by the National Trauma Data Bank (NTDB) established by the American College of Surgeons and any other information required by the Division or the State Board of Health. The quarterly reports must be submitted on or before:

- June 1 for the period beginning on January 1 and ending on March 31.
- September 1 for the period beginning on April 1 and ending on June 30.
- December 1 for the period beginning on July 1 and ending on September 30.
- March 1 for the period beginning on October 1 and ending on December 31.

The Division shall prepare an annual report not later than July 1 for the preceding calendar year summarizing the data submitted by hospitals on patients with traumas.

METHODOLOGY

The Nevada Trauma Registry (NTR) is a depository of trauma incident data from across the state. All hospitals within Nevada are required to submit data quarterly to the NTR. To be classified as a trauma, a series of criteria identified by the American College of Surgeons must be met. For an incident to be classified as a trauma, the patient must have:

- At least one diagnostic code for injury (ICD-9) between 800.0-904.9, 925.0-929.9, or 940.0-959.9; and
- At least one of the following criteria:
    - Injury resulted in death;
    - Patient was transferred between hospitals using EMS or air ambulance; or
    - Patient was in the hospital for at least 24 hours due to injuries.

Each year the data within the NTR will be statistically analyzed to evaluate incident traumas in Nevada. This evaluation is presented in the annual Trauma Report, written by the state, in accordance with **NAC 450B.768**.

From January 1, 2014 through December 31, 2014, a total of 1,373 traumas were recorded in the NTR by the 29 non-trauma center hospitals in Nevada. Based on the data entered into the NTR, males (See Table 1) accounted for a slight majority of trauma patients and most trauma patients identified as Caucasian (See Table 2).

Table 1: Nevada Trauma Cases by Sex (2014)

Sex	Count	Percent
Male	696	50.7%
Female	632	46.0%
Not Reported	45	3.3%
Total	1,373	100.0%

Table 2: Nevada Trauma Cases by Race/Ethnicity (2014)

Race/Ethnicity	Count	Percent
Caucasian	849	61.8%
Black	69	5.2%
American Indian, Alaskan Native	13	0.9%
Asian, Pacific Islander, or Hawaiian	37	2.7%
Hispanic	148	10.8%
Other/Unknown	257	18.7%
Total	1,373	100.0%

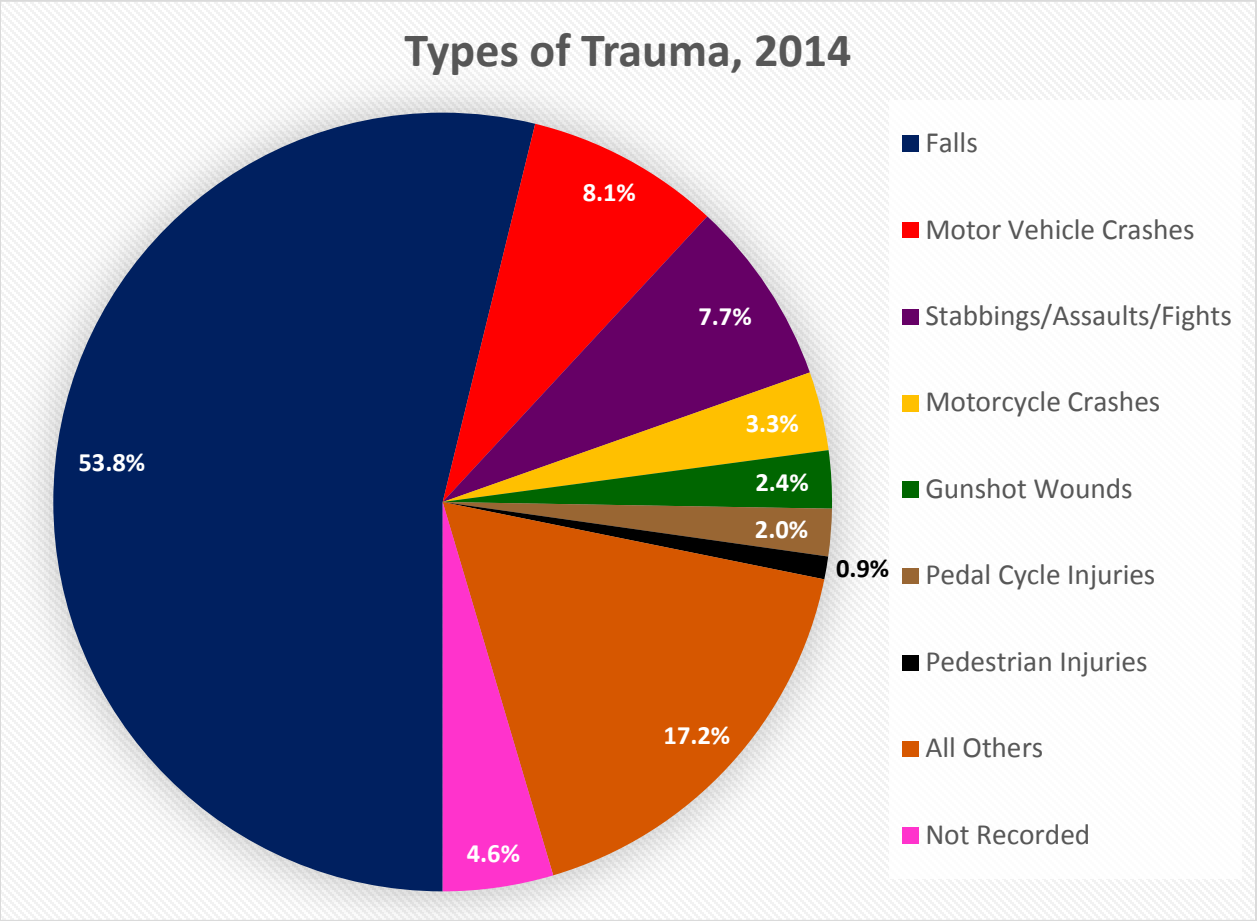
Of the more than 1,300 reported trauma incidents in Nevada in 2014, the majority were paid for through Medicare, followed by private insurance, self-pay, and Medicaid (See Table 3).

Table 3: Source of Payment for Trauma Incidents (2014)

Source of Payment	Count	Percent
Medicare	546	39.8%
Private Insurance	283	20.6%
Self-Pay	201	14.6%
Medicaid	138	10.0%
Worker's Compensation	49	3.6%
Other Government	20	1.5%
No Fault Automobile	18	1.3%
Other	28	2.0%
Not Recorded	90	6.6%
Total	1,373	100%

Various types of traumas were recorded within the NTR in 2014. The leading causes of traumatic injury in 2014 included falls (53.8%), other types of injuries (17.2%), motor vehicle crashes (8.1%), and stabbings/assaults/fights (7.7%) (See Chart 1).

Chart 1: Types of Trauma in 2014 as Recorded in the Nevada Trauma Registry (NTR)



Traumas within the state of Nevada spanned all age groups, with the greatest number being recorded among those age 65 years and older. This group of patients accounted for more than 43% of all the reported traumas within the Nevada Trauma Registry in 2014 (See Table 4).

Table 4: Nevada Trauma Cases by Age Group (2014)

Age Group	Count	Percent
<1	63	4.6%
1-5	47	3.4%
5-17	87	6.3%
18-24	86	6.3%
25-34	114	8.3%
35-44	103	7.5%
45-54	142	10.3%
55-64	135	9.8%
65-74	206	15.0%
75-84	191	13.9%
85+	198	14.4%
Unknown	1	0.1%
Total	1,373	100.0%

While every age group was impacted by traumatic injury in 2014, the types of traumas experienced by age groups varied. Falls were experienced with the greatest frequency in youth under 18 years of age and adults older than 45 years of age. For adults ages 18-34, stabbings/assaults/fights were the leading types of trauma injury. Overall, falls, motor vehicle accidents, and stabbings/assaults/fights contributed the greatest percentage of traumatic injuries among Nevadans in 2014 (See Table 5).

Table 5: Leading Types of Trauma by Age Group (2014)

Age Groups	Leading Types of Trauma		
	First	**Second**	**Third**
1-5 Yrs (n=47)	Falls – 48.9%	Burns – 10.6%	Animal Related – 10.6%
6-17 Yrs (n=87)	Falls – 31.0%	Motor Vehicle Crashes – 12.6%	Motorcycle Crashes – 6.9%
18-24 Yrs (n=86)	Stabbings/Assaults/Fights – 29.1%	Falls – 15.1%	Motor Vehicle Crashes – 12.8%
25-34 Yrs (n=114)	Stabbings/Assaults/Fights – 23.7%	Motor Vehicle Crashes – 18.4%	Motorcycle Crashes – 7.0%
35-44 Yrs (n=103)	Falls – 21.4%	Motor Vehicle Crashes – 16.5%	Stabbings/Assaults/Fights – 15.5%
45-54 Yrs (n=142)	Falls – 35.2%	Motor Vehicle Crashes – 13.4%	Stabbings/Assaults/Fights – 13.4%
55-64 Yrs (n=135)	Falls – 51.1%	Motor Vehicle Crashes – 11.1%	Stabbings/Assaults/Fights – 5.9%
65-74 Yrs (n=206)	Falls – 75.7%	Motor Vehicle Crashes – 4.4%	Animal Related – 3.4%
75-84 Yrs (n=206)	Falls – 87.4%	Motor Vehicle Crashes – 2.1%	Pedestrian Injuries – 1.0%
85+ Yrs (n=198)	Falls – 94.9%	Pedestrian Injuries – 1.0%	Motor Vehicle Crashes – 0.5%

* This table only reflects specific identified types of traumas and does not include the general category of *All Other Types of Trauma*.

Besides age, types of traumatic injuries in 2014 varied according to race/ethnicity and sex. The greatest percentage of traumatic injuries were experienced by Caucasians followed by individuals of other or unknown race/ethnic origin, and Hispanics. Overall, the types of traumas experienced by each race/ethnicity were mixed in 2014 (See Table 6).

Table 6: Total Traumas by Type of Trauma and Race/Ethnicity (2014)

Types of Trauma	Race/Ethnicity						
	White	Black	AI/AN[1]	API[2]	Hispanic	Other/ Unknown	Total
Falls	70.5%	2.6%	1.4%	3.2%	8.1%	14.2%	740
Stabbings/Assaults/Fights	34.0%	19.8%	1.9%	2.8%	19.8%	21.7%	106
Motor Vehicle Crashes	61.3%	2.7%	0.0%	1.8%	12.6%	21.6%	111
Motorcycle Crashes	66.7%	0.0%	0.0%	0.0%	4.4%	28.9%	45
Gunshot Wounds	30.3%	21.2%	0.0%	0.0%	36.4%	12.1%	33
Pedal Cycle Injuries	66.7%	3.7%	0.0%	7.4%	3.7%	18.5%	27
Pedestrian Injuries	92.3%	0.0%	0.0%	0.0%	7.7%	0.0%	13
All Other Traumas	61.6%	5.9%	0.4%	2.1%	14.8%	15.2%	237
Not Recorded	11.5%	6.6%	0.0%	1.6%	3.3%	77.0%	61
Total	61.8%	5.0%	0.9%	2.7%	10.8%	18.7%	1,373

[1] AI/AN: American Indian/Alaska Native
[2] API: Asian/Pacific Islander/Hawaiian

Based on sex, females experienced a greater proportion of traumatic injuries related to falls and males experienced a greater proportion of every other types of trauma recorded including stabbing/assaults/fights, motor vehicle crashes, motorcycle crashes, and gunshot wounds (See Table 7).

Table 7: Types of Traumas by Sex (2014)

Types of Trauma	Male		Female	
	n	%	n	%
Falls	271	36.6%	469	63.4%
Stabbings/Assaults/Fights	85	80.2%	21	19.8%
Motor Vehicle Crashes	76	68.5%	35	31.5%
Motorcycle Crashes	37	82.2%	8	17.8%
Gunshot Wounds	24	72.7%	9	27.3%
Pedal Cycle Injuries	21	77.8%	6	22.2%
Pedestrian Injuries	7	53.8%	6	46.2%
All Other Traumas	167	70.5%	70	29.5%
Not Recorded	8	50.0%	8	50.0%
Total	696	52.4%	632	47.6%

*There were some trauma cases (n=45) where the patient's sex was unknown.

Every county in Nevada, with at least one hospital, was impacted by trauma incidents in 2014 with Clark County non-trauma center hospitals initially treating more than half (57.2%) of the reported traumas followed by non-trauma center hospitals in Churchill County (11.5%) and Douglas County (9.0%) (See Table 8).

Table 8: Types of Traumas by County of Hospital (2014)

County of Hospital/ Facility	Type of Trauma									
	Falls	Stabbings/ Assaults/ Fights	Motor Vehicle Crashes	Motorcycle Crashes	Gunshot Wounds	Pedal Cycle Injuries	Pedestrian Injuries	All Other Traumas	Not Recorded	Total
Carson City	30	0	2	2	2	0	0	3	2	41
Churchill	89	6	27	4	5	2	1	24	0	158
Clark	417	87	26	11	23	20	9	152	41	786
Douglas	83	1	6	8	0	1	1	17	7	124
Humboldt	3	0	7	7	0	0	1	8	0	26
Lander	13	2	7	3	2	1	1	8	0	37
Lincoln	0	0	4	0	0	0	0	0	0	4
Mineral	0	0	1	0	0	0	0	0	0	1
Nye	16	3	14	5	0	2	0	12	3	55
Pershing	1	0	0	0	0	0	0	0	1	2
Washoe	75	4	1	4	1	1	0	3	6	95
White Pine	13	3	16	1	0	0	0	10	1	44
Total	740	106	111	45	33	27	13	237	61	1,373

*Only counties with facilities that reported traumas were included in this table. No facilities within Elko or Lyon county reported any traumas during the 2014 calendar year.

** Esmeralda, Eureka, and Storey counties do not have hospitals, therefore all traumas would be transported to facilities in neighboring counties or states.

For trauma patients who remained at their initial treatment hospital, the length of stay fluctuated depending on the type of trauma experienced. Most patients remained in the hospital for less than four days (See Table 9).

Table 9: Length of Hospital Stay by Type of Trauma (2014)

Type of Trauma	Length of Hospital Stay					
	1-2 Days	3-4 Days	5-6 Days	7+ Days	Unknown Days	Total
Falls	114	111	59	39	47	370
Stabbings/Assaults/Fights	22	1	0	3	6	32
Motor Vehicle Crashes	24	1	0	0	10	35
Motorcycle Crashes	11	0	0	0	4	15
Gunshot Wounds	0	0	1	0	2	3
Pedal Cycle Injuries	3	2	1	0	1	7
Pedestrian Injuries	3	2	1	1	0	7
All Other Traumas	35	5	4	1	8	53
Not Recorded	4	1	0	0	48	53
Total	216	123	66	44	126	575

The majority (n=798; 58.1%) of trauma patients were transferred from their initial treatment facility to another treatment facility. Reasons for these transfers include factors such as inadequate equipment or lack of provider/facility capability to address the type of trauma being presented. Of those patients transferred to other facilities, the most common type of traumas included falls, motor vehicle crashes, and stabbings/assaults/fights (See Table 10).

Table 10: Patients Transferred by Type of Trauma (2014)

Patients Transferred		
Type of Trauma	Count	Percent
Falls	370	46.4%
Stabbings/Assaults/Fights	74	9.3%
Motor Vehicle Crashes	76	9.5%
Motorcycle Crashes	30	3.8%
Gunshot Wounds	30	3.8%
Pedal Cycle Injuries	20	2.5%
Pedestrian Injuries	6	0.8%
All Other Traumas	184	23.1%
Not Recorded	8	1.0%
Total	798	100.0%

CITATIONS

Nevada State Legislature. Senate Bill No. 35. 1987 64th Regular Session. Available at: http://www.leg.state.nv.us/Statutes/64th/Stats198705.html#Stats198705page1042

Nevada State Legislature. Senate Bill No. 461. 1993 67th Regular Session. Available at: http://www.leg.state.nv.us/Statutes/67th/Stats199313.html#Stats199313page2836

ADDITIONAL INFORMATION

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