

# Nevada Compare Care



## Neck and Back Report

Center for Health Information Analysis

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## **At a Glance**

In 2009, there were 7,301 hospital discharges for back and neck conditions. The majority of patients were Caucasian (n=5,771). Native American/Alaskan patients comprised the fewest cases (n=31).

Average charges were \$66,474.44 for male, and \$68,232.17 for female patients. The average length of stay for female patients was almost identical to that of male patients (3.20 to 3.30)

The 36-49 age groups for both genders averaged the highest total charges. The age group with the highest average length of stay, for both genders, was in the 65+ age group



## The Neck & Back

An injury to our neck or back can have a deleterious impact on our daily lives. Routine tasks such as picking up a child or reaching for an object can cause debilitating pain. This report will describe the causes and effects of such injuries and point to resources for treatment and prevention.

The normal spine has 33 fused and non-fused bones called vertebrae (vert-ah-bray). The cervical vertebrae (C<sub>1</sub> - C<sub>7</sub>) make up the upper-portion of the spine, just below the base of the skull. The cervical vertebrae are followed by the thoracic vertebrae (T<sub>1</sub> - T<sub>12</sub>). These make up the longest portion of the spine. The lumbar, or lower vertebrae, include five non-fused bones (L<sub>1</sub> - L<sub>5</sub>). In between the lumbar vertebrae and the coccyx (tailbone) is

the sacrum, which is made up of five fused vertebrae. The four vertebrae in the coccyx are also fused together (ImagingSciences, 2008).

The 27 muscles in our neck and back help us to move our head, bend over to lift objects, and make other movements. Posture can affect the function and health of these muscles. Incorrect posture can lead to injury. Injuries are typically minor, such as a stiff neck or a muscle strain, but it is still wise to take steps to promote good muscle health. Stretching and strength routines can help maintain the health of neck and back muscles. The [Division of Occupational Health and Safety](#) is an informational resource for techniques to increase muscle flexibility and strength.

### Did you know?

Our spine does more than help us move, twist, and bend. It also surrounds and protects the spinal cord. This is a very important function because our spinal cord acts as a two-way communication line between our brain and other parts of our bodies (Hendrickson, 1999). For more information on the spinal column, click [here](#). To view an animated video of the anatomy of the spine, click [here](#).



### **Neck/Back Injuries & Abnormalities**

Because our neck and back provide such important functions as movement and protection of the spinal cord, it is crucial to learn how to avoid serious injuries. There are common-sense precautions we can take to prevent many injuries to our neck and back. Wearing our seatbelts whenever we get behind the wheel of a car can protect us from being ejected in an accident. Stretching exercises (see above) help keep our muscles strong and limber. Unfortunately, some people inherit neck and back problems due to genetic abnormalities or birth defects such as Idiopathic Scoliosis (abnormal curvature of the spine) (Pessler, 2008). Often, as a result of growing older, our susceptibility to neck and back injury increases (NIH, 2003). For the purposes of this report, hospital data for Nevada for 2009 do not include the reason why the patient was admitted for treatment of an injury or abnormality. We are, therefore, unable to give statistics such as how many injuries were due to a motor vehicle accident, or if the injury occurred at work, home, or was through the natural aging process.

In calendar year 2009, 7,301 patients were hospitalized for neck/back related conditions. As Table 1 shows, the discharges by the 13 DRG's displayed below can be viewed as five logical subgroups: combined anterior/posterior spinal fusion with and without complications (453-455), cervical spinal fusion with and without complications (471-473), back and neck procedures, except spinal fusion, with and without complications (490, 491), Osteomyelitis with and without complications (539-541), and medical back problems with and without complications (551,552).

Combined anterior (front) and posterior (back) spinal fusion is normally performed when the surgeon believes that spinal instability exists either from a fracture or a prior fusion that did not take (Ullrich, 2010). Cervical spinal fusion is a procedure where bones in the neck are fused together (Erstad, 2008). Back and neck procedures, except spinal fusion, can encompass many types of procedures. Osteomyelitis is defined as an infection of the bone which can be caused by bacteria or by fungi that has entered the bone tissue by migrating from other parts of the

body (muscle, skin, or through the blood). This condition is usually treated conservatively at first by administering antibiotics to eliminate bacteria. Sometimes, it is necessary to remove segments of the bone that are no longer viable. The surgeon will cut out that portion of dead bone tissue and replace it either by grafting

bone tissue from another part of the body or using donor bone tissue (MedlinePlus, 2009a). The last of the DRG subgroups is classified as medical back problems. Like back and neck procedures, this category can encompass many different types of conditions and treatments that make it difficult to narrowly define.

**Table 1. Admissions by DRG in 2009**

DRG	Definition of Diagnosis Related Group	Total by DRG
453	Combined anterior/posterior spinal fusion with major complication	82
454	Combined anterior/posterior spinal fusion with complications	389
455	Combined anterior/posterior spinal fusion without complications	656
471	Cervical spinal fusion with major complications	65
472	Cervical spinal fusion with complications	380
473	Cervical spinal fusion without complications	1672
490	Back & Neck procedure, except spinal fusion, with complication/major complication or disc device/neurostim	519
491	Back & Neck procedure, except spinal fusion, without complications	1561
539	Osteomyelitis with major complications	105
540	Osteomyelitis with complications	182
541	Osteomyelitis without complications	87
551	Medical back problems with major complications	144
552	Medical back problems without complications	1459
	<b>Total</b>	<b>7301</b>

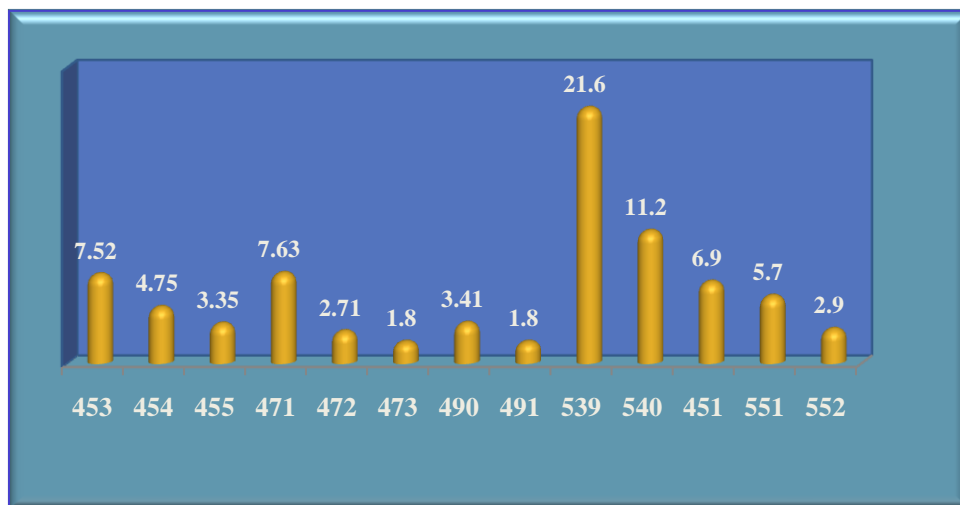


Figure 1.1 Average Length of Stay by DRG for 2009

Figure 1.1, above, separates the average number of days spent in a hospital by DRG categories. The average length of stay for 5 – NCC – Neck and Back Report

DRG’s 455, 473, 491, and 552 (all groups where no complications were present), was 2.5 days (9.85/4). As would be expected, the

average length of stay for those DRG's with major complications (453, 471, and 551) is longer. In fact, patients who fall under these categories, on average, remained in the hospital almost three times as long as those who experienced no complications (20.9/3=6.9 days). This average does not include DRG 539, Osteomyelitis with major complications, as it is considered an outlier that would skew the mean.

Table 2 focuses on the number of hospitalizations in 2009 for neck and back pain. Most of the territory in Nevada is made up of small, rural counties. The largest population centers reside in Clark County (located in Southern Nevada) with the second largest population center located in Northern Nevada (Washoe County). Four of the seventeen counties had the same number of instances where back and/or neck pain treatments required hospitalization.

**Table 2. Number of hospitalizations, by county, for 2009**

Carson City	Churchill	Clark	Douglas	Elko	Esmeralda
159	93	4342	162	86	4
Eureka	Humboldt	Lander	Lincoln	Lyon	Mineral
4	49	19	7	181	19
Nye	Pershing	Storey	Washoe	White Pine	Other
169	12	4	1056	17	4

It is always interesting to see how a specific ailment affects men and women in different age groups. In figure 1.2 below, the variance between the genders is small when compared within each age group. There is almost no difference in the number of hospitalizations between men and women in the 0-17 age group. In the 36-49 age group, we begin to see a trend of hospitalizations

where women outnumber the men. While we cannot be certain as to the reasons why this is the case, one could speculate that because women are more likely to be diagnosed with Osteoporosis (a common type of bone disease), it would follow that they would suffer fractures of the vertebrae at a higher rate than men (MedlinePlus, 2009b).

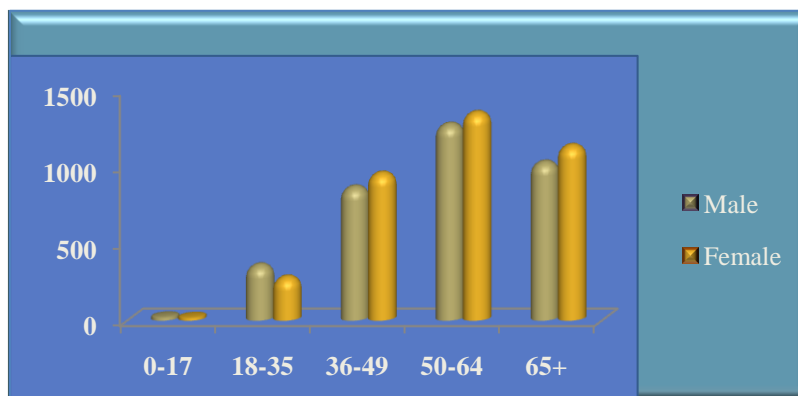
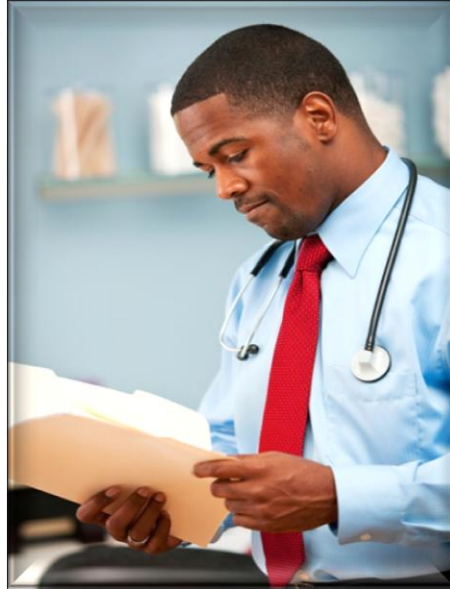


Figure 1.2 Number of hospitalizations by gender and age group for 2009

## Conclusion

No one is immune to neck and back problems. These conditions may require hospitalization and/or surgery, but there are precautions we can take to minimize the risks. Following proper procedures, when lifting heavy objects or wearing seat belts when we

drive, are a good start. Taking time to do stretching exercises also helps with flexibility and good posture. It is important to take neck and back pain seriously. If you believe that you have injured your neck or back, it is vital that you seek immediate medical attention.



**Table 3. Total number of discharges for neck and back problems for 2009 separated by hospital.**

Hospital Name	Number of Discharges
Boulder City Hospital	12
Carson Tahoe Regional Medical Center	246
Carson Valley Medical Center	5
Centennial Hills Hospital Medical Center	111
Churchill Community Hospital	6
Desert Springs Hospital	291
Desert View Regional Medical Center	20
Grover C. Dils Medical Center	1
HealthSouth Hospital at Tenaya	7
Horizon Specialty Hospital-Las Vegas	23
Humboldt General Hospital	2
Kindred Hospital Las Vegas-Desert Springs Campus	6
Kindred Hospital Las Vegas-Flamingo Campus	17
Kindred Hospital Las Vegas-Sahara Campus	20
Mesa View Regional Hospital	13
Mount Grant General Hospital	2
Mountain View Hospital	545
North Vista Hospital	34
Northeastern Nevada Regional Hospital	9
Northern Nevada Medical Center	71
Renown Regional Medical Center	1054
Renown South Meadows Medical Center	25
Saint Marys Regional Medical Center	594
Saint Rose Dominican Hospitals Rose de Lima Campus	32
Saint Rose Dominican Hospitals San Martin Campus	438
Saint Rose Dominican Hospitals Siena Campus	522
Sierra Surgery Hospital	124
South Lyon Medical Center	1
Southern Hills Hospital & Medical Center	278
Spring Valley Hospital Medical Center	392
Summerlin Hospital Medical Center	146
Sunrise Hospital & Medical Center	579
Tahoe Pacific Hospital	8
University Medical Center of Southern Nevada	768
Valley Hospital Medical Center	891
William Bee Ririe Hospital	8
<b>Total</b>	<b>7301</b>

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