

**Epidemiology of Falls and Fall-Related Injuries  
Among Persons 65 Years and Older,  
Oklahoma, 2006**

August 2008

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## **Background**

In the United States, falls were the cause of 20,426 deaths (age-adjusted rate 6.6 per 100,000 population) in 2005. Falls were the fifth leading cause of unintentional injury death among persons 45-64 years of age, and the leading cause of injury death among persons 65 years and older. Falls were reported as the most common cause of injuries and hospital admissions for trauma in 2005, accounting for nearly 800,000 hospitalizations and an estimated 12 million non-hospitalized injury cases among persons 65 years and older.<sup>1</sup> Nearly 8,000 deaths and 56,000 hospitalizations were attributed to fall-related traumatic brain injuries in 2005. Median total hospital charges were \$19,191 for men and \$16,006 for women.<sup>2</sup>

Oklahoma residents have incurred increasingly higher rates of fall-related injuries. In 2003, 8,733 fall-related injuries were reported in the Oklahoma hospital discharge database. Females experienced two-thirds of fall injuries (rate 326.1 per 100,000 compared to 170.2 in males).<sup>3</sup> During 2005, 222 Oklahoma residents died from injuries due to falls (age-adjusted rate 5.9 per 100,000 population). The most common injuries resulting from falls were femoral neck fractures and head trauma. Falls were the leading cause (28%) of traumatic brain injury (TBI) in Oklahoma; 33% of persons who experienced a fall injury suffered a TBI.

This report describes the incidence and characteristics of hospitalized fall-related injuries in Oklahoma in 2006 and provides a comprehensive overview of fall injuries among persons 65 years and older including demographics, epidemiologic factors, mechanisms of injury, and hospital charges. Data were examined to determine differences in age, length of stay (LOS), discharge destination, charges, and payment sources by marital status as possible indicators of the risk of falls, injury severity, and intermediate outcomes. Types and bodily locations of injuries are presented in relation to number of cases, LOS, and total hospital charges. Data for persons who sustained head and femoral neck injuries were analyzed for presence of multiple injuries.

## **Methods**

Data for falls (E codes 880-886, 888) among Oklahoma residents were extracted from cases with injury as the primary ICD-9-CM discharge code from the Oklahoma hospital discharge database (HDD). Variables included demographics, ICD-9-CM codes, E codes, admission source, discharge destination, LOS, payment sources, and hospital charges. The dataset was limited to 15 basic variables and did not include details such as Glasgow coma scores for brain injury or outcome scores that may indicate potential long-term recovery and outcomes.

## **Fall-Related Injuries in Oklahoma, 2006**

In 2006, 13,318 fall-related injuries were reported in the Oklahoma HDD. The ages of persons injured ranged from 0-108 years (mean 70, median 77 years). Incidence rates increased by age group, rising exponentially after age 64 years. Persons 65 years and older experienced 72% of all falls. Rates rose dramatically with increasing age from 181.8 per 100,000 population for the 45-54 year age group to 841.7 for ages 65-74, and 5401.8 for 85 years and over (Table 1). Injuries among females began to surpass males after 54 years, increasing to a female to male ratio of 2.6:1 among persons 75-84 years and 3.7:1 of persons 85 years and older. Whites incurred 91% of fall-related injuries with a rate of 418.6 per 100,000 population followed by African Americans (136.9) and Native Americans (127.2). Fifty-four percent of injuries occurred among urban versus 46% among rural residents (rates 501.3 and 286.0 per 100,000 population respectively).

The average LOS across all ages was 5 days. Fifteen percent of persons stayed in the hospital one day, 53% stayed 2-5 days, and 23% 6-10 days. Forty-three percent of persons were discharged to home or home health, 18% to a skilled nursing facility, and 15% to acute rehabilitation. Other destinations included hospital Medicare approved swingbed/Medicaid facility, and facility/home hospices. Medicare (70%) and commercial insurance (15%) were primary payers of hospital care. Five percent of hospital charges were self pay or not paid. Total hospital charges were \$290,577,002.

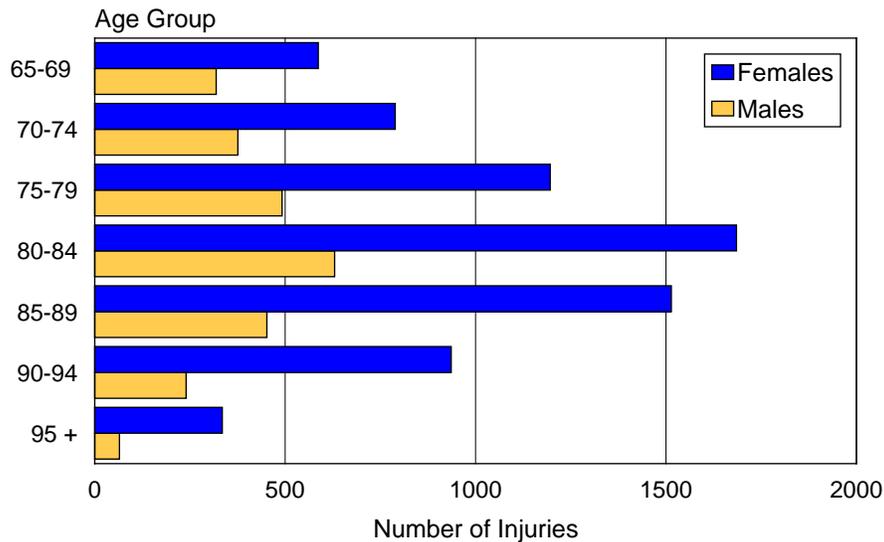
**Table 1. Characteristics of Persons Hospitalized for Fall-Related Injuries, Oklahoma, 2006 (N=13,318)**

Characteristic	Number (%)	Population	Rate per 100,000 Population
<b>Demographic</b>			
<b>Age Group</b>			
0-4	247 ( 2%)	254,718	97.0
5-14	273 ( 2%)	485,044	56.3
15-24	252 ( 2%)	523,391	48.1
25-34	281 ( 2%)	480,523	58.5
35-44	457 ( 3%)	472,388	96.7
45-54	914 ( 7%)	502,865	181.8
55-64	1278 (10%)	386,938	330.3
65-74	2071 (16%)	246,047	841.7
75-84	4003 (29%)	161,927	2472.1
85 +	3542 (27%)	65,571	5401.8
<b>Gender</b>			
Female	8772 (66%)	1,814,698	483.4
Male	4546 (34%)	1,764,514	257.6
<b>Race</b>			
White	12077 (91%)	2,885,212	418.6
African American	414 ( 3%)	302,317	136.9
American Indian	410 ( 3%)	322,361	127.2
Asian	54 (<1%)	69,324	77.9
Other/Unknown	363 ( 3%)	---	---
<b>Hospital</b>			
<b>Hospital length of stay</b>			
1 day	1941 (15%)	---	---
2-5 days	7120 (53%)	---	---
6-10 days	3116 (23%)	---	---
11-268 days	1141 ( 9%)	---	---
<b>Discharge destination</b>			
Home	4401 (32%)	---	---
Skilled nursing facility	2392 (18%)	---	---
Intermediate care	779 ( 6%)	---	---
Home health/IV provider	1505 (11%)	---	---
Inpatient rehabilitation	1933 (15%)	---	---
Died	361 ( 3%)	---	---
Other	1947 (15%)	---	---
<b>Payer Classification</b>			
Commercial	1951 (15%)	---	---
Medicare	9431 (70%)	---	---
Medicaid	739 ( 6%)	---	---
Uninsured/self pay	600 ( 5%)	---	---
Other	597 ( 4%)	---	---

## Overview of Fall-Related Injuries Among Persons 65 Years and Older in Oklahoma

A total of 9,616 Oklahomans 65 years and older were hospitalized for fall-related injuries in 2006. Incidence by age group over 64 years of age showed a near normal distribution peaking at 80 to 84 years (Figure 1). Hospital charges totaled \$211,776,022, 73% of all charges due to falls.

**Figure 1. Persons 65 Years and Older Hospitalized with Fall-Related Injuries by Age Group and Gender, Oklahoma, 2006**  
N=9,616



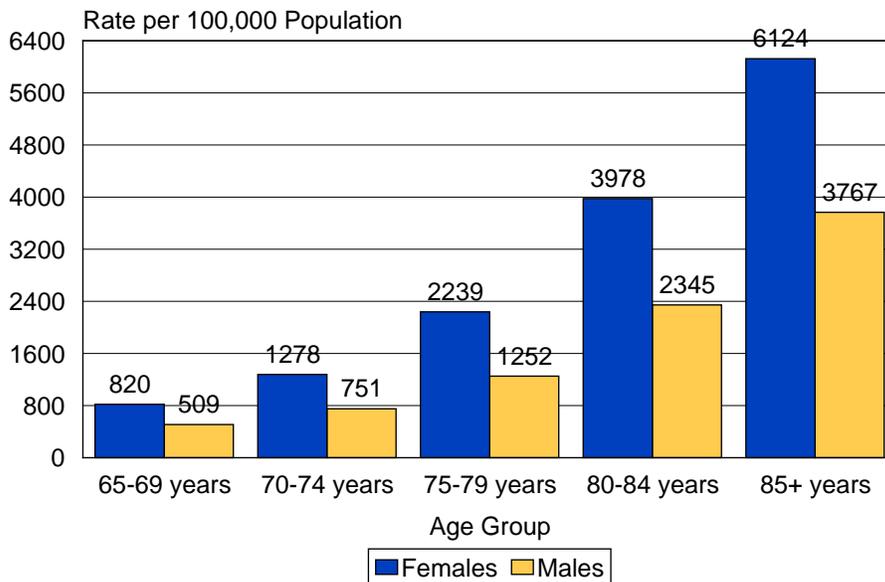
Source: OSDH Hospital Discharge Data

After age 74 years, the ratio of females to males increased from 2.1:1 to 3.2:1 at age 85-89 years. The number of injuries nearly doubled from the 65-74 to the 75-84 age group. The demographic characteristics (Table 2) showed increasing rates by age and a female to male ratio of 2.7:1. Whites had the highest injury rate (2365.7 per 100,000 population) followed by African Americans and American Indians (866.9 and 808.5, respectively). Forty-two percent of persons were widowed and 33% married at time of hospitalization; marital status was unknown for 13% of cases.

**Table 2. Demographic Characteristics of Persons 65 Years and Older Hospitalized for Fall-Related Injuries, Oklahoma, 2006 (N=9,616)**

Characteristic	Number (%)	Population	Rate per 100,000 Population
Demographic			
Age Group			
65-74	2071 (22%)	246,047	841.7
75-84	4003 (41%)	161,927	2472.1
85+	3542 (37%)	65,571	5401.8
Gender			
Female	7042 (73%)	274,580	2564.6
Male	2574 (27%)	198,965	1293.7
Race			
White	9029 (94%)	381,658	2365.7
American Indian	214 ( 2%)	26,470	808.5
African American	185 ( 2%)	21,341	866.9
Asian	28 (<1%)	3,891	719.6
Other/Unknown	160 ( 2%)	---	---
Marital Status			
Widowed	4044 (42%)	---	---
Married	3182 (33%)	---	---
Single	608 ( 7%)	---	---
Divorced	494 ( 5%)	---	---
Unknown	1288 (13%)	---	---

**Figure 2. Fall Injury Rates Among Persons 65 Years and Older by Age Group and Gender, Oklahoma, 2006 (N=9,616)**



Source: OSDH Hospital Discharge Data

Fall-related injury rates increased steadily for females and males ages 85 years and older (6124 and 3767 per 100,000 population, respectively) as shown in Figure 2. Seventy-two percent of persons were admitted through the emergency room and 22% by physician referral (Table 3). Eighty-one percent of admissions were emergent or urgent cases. The average LOS was 6 days (range 1-87 days) and the majority of persons (55%) stayed 2-5 days. Thirty-one percent of persons were discharged to home or home health, 23% to SNFs, and 16% to acute rehabilitation. Other destinations included nursing homes (7%) other long-term care, Medicare/Medicaid approved nursing facilities, and hospices. Three percent of persons died. Medicare was the predominant payer of hospital care (91%) followed by commercial insurance (7%). Veterans Affairs/military, workers compensation, and uninsured/self-pay each covered less than one percent of charges.

*Marital Status and Characteristics of Persons 65 Years and Older Hospitalized with Fall-Related Injuries.*

The characteristics of persons with reported marital status (8,328) were examined to determine if the groups differed by age, gender, how long they stayed in the hospital, total charges, hospital payment source, and their discharge destination (Table 4). In regards to age, injuries among the widowed group peaked at 85-89 years while the married and divorced/single groups experienced a slow increase peaking at 80-84 years. The married and single/divorced groups experienced higher percentages of fall injuries for ages 65-74 years than the widowed. The ratio of females to males was approximately 2.7:1 for all groups. The LOS range for the divorced/single group was half as long as the

**Table 3. Epidemiologic/Hospital Characteristics of Persons 65 Years and Older Hospitalized for Fall-Related Injuries, Oklahoma, 2006 (N=9,616)**

Characteristic	Number (%)
Hospital/Medical Source of Admission	
Emergency Department	6951 (72%)
Physician referral	2077 (22%)
Transfer from hospital	303 ( 3%)
Transfer from SNF/other	157 ( 2%)
Clinic/HMO referral	76 ( 1%)
Other	52 (<1%)
Type of Admission	
Emergency	6592 (68%)
Elective	1507 (16%)
Urgent	1235 (13%)
Unknown	282 ( 3%)
Length of Hospital Stay	
1 day	887 ( 9%)
2-5 days	5267 (55%)
6-10 days	2575 (26%)
11-87 days	887 ( 9%)
Discharge Destination	
Home	1829 (19%)
Other short-term IP	302 ( 3%)
Skilled nursing facility	2260 (23%)
Nursing home	675 ( 7%)
Home health/IV care	1186 (12%)
Inpatient Rehabilitation	1685 (16%)
Medicare swing bed	541 ( 8%)
Died	307 ( 3%)
Other destinations	831 ( 9%)
Payer Classification	
Commercial	650 ( 7%)
Medicare	8773 (91%)
Medicaid	28 ( 1%)

other groups. Married people were more likely to be discharged home (40%) compared to widowed (25%) and single or divorced (29%). The three groups were similar in discharge to acute rehabilitation. The widowed and divorced/single groups were more likely to be discharged to a long-term nursing facility than the married group. Although total hospital charges were higher for the widowed due to more cases (\$86,806,851), the mean and median charges were similar for the three groups. Concerning primary source of payment, the divorced/single group had lower Medicare payment than the other groups.

These differences may be attributed to various physical, economic, cultural, or environmental conditions in the population related to marital status. Studies have shown a relationship between marital status and heart conditions and other chronic diseases. Marital status may play a part in injury prevention and ongoing care. Factors protective of a fall range from having the home clear of obstacles, appropriate flooring, staircase railings, and keeping porches/sidewalks clear and in good condition, to using mobility aids as necessary, monitoring prescriptions with the physician, and formulating a plan for emergencies. A number of widowed and divorced/single persons may have more difficulty with these daily activities. The widowed group had a higher proportion of persons aged 80-94 years; many may be physically and economically limited in keeping the environment safe.

**Table 4. Characteristics of Persons Hospitalized with Fall-Related Injuries by Reported Marital Status, Oklahoma, 2006 (N=8,328)**

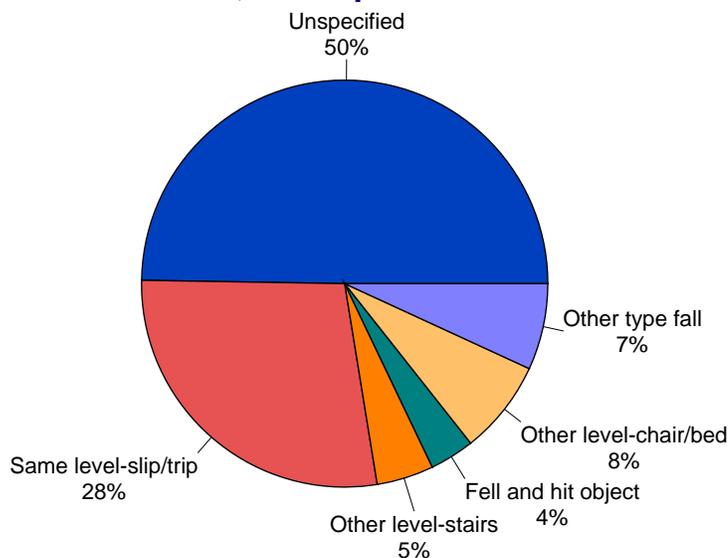
Marital Status	Age Group # (Percent)	Length of Stay	Discharge Destination (4 main types)	Hospital Charges	Primary Payment Source # (Percent)
Married N=3182	65-69: 445 (14%) 70-74: 524 (16%) 75-79: 687 (22%) 80-84: 784 (23%) 85-89: 498 (16%) 90-94: 211 ( 7%) 95 + : 33 ( 2%)	Range 1-52 days Mean 5.7 Median 4 Days	Home/Home health/IV 1274 (40%) SNF 609 (19%) Inpatient Rehabilitation 527 (17%) Long-term/ Institutional/ Nursing facility 310 (10%)	Total \$74,570,572 Range \$459-\$339,237 Mean \$23,435 Median \$16,758	Commercial 272 ( 9%) Medicare 2849 (90%) Medicaid 4 (<1%) Veterans 3 (<1%) Work Comp 17 (<1%) Uninsured/Self pay/other 37 (1%)
Widowed N=4044	65-69: 129 ( 3%) 70-74: 285 ( 7%) 75-79: 566 (14%) 80-84: 1011 (25%) 85-89: 1066 (27%) 90-94: 709 (18%) 95 + : 278 ( 6%)	Range 1-66 days Mean 5.6 Median 5 days	Home/Home health/IV 1016 (25%) SNF 1113 (28%) Inpatient Rehabilitation 707 (17%) Long-term/ Institutional/ Nursing facility 544 (13%)	Total \$86,806,851 Range \$316-\$671,228 Mean \$21,466 Median \$16,468	Commercial 259 (6%) Medicare 3723 (92%) Medicaid 4 (0.1%) Veterans 4 (0.1%) Work Comp 8 (1%) Uninsured/Self pay/other 46 (1%)
Divorced/ Single N=1102	65-69: 208 (19%) 70-74: 184 (17%) 75-79: 205 (19%) 80-84: 227 (21%) 85-89: 152 (14%) 90-94: 93 ( 8%) 95 + : 33 ( 3%)	Range 1-28 days Mean 5.4 Median 5 Days	Home/Home health/IV 321 (29%) SNF 277 (25%) Inpatient Rehabilitation 190 (17%) Long-term/ Institutional/ Nursing facility 146 (13%)	Total \$23,755,433 Range \$685-\$141,317 Mean \$21,557 Median \$17,139	Commercial 98 (9%) Medicare 964 (87%) Medicaid 10 (<1%) Veterans 7 (<1%) Work Comp 6 (<1%) Uninsured/Self pay/other 17 (2%)

### **Circumstances of Fall-Related Injuries**

The mechanisms or circumstances of injury were derived from designated E codes. In fifty percent of cases the circumstances of the fall were not specified in the medical record (Figure 3). Twenty-eight percent of persons fell due to slipping, tripping or stumbling on a same-level surface. Falls from one level to another (5%) included persons falling on stairs, steps, and a small number from ladders and buildings. Eight percent fell from another level such as chairs (1%), wheelchairs (2%) and beds (3%). Falling and hitting either a sharp or other object occurred in 4% of events. Males were noted to have

higher incidence than females for falling on stairs, steps and high places, or falling and hitting an object. More females were injured by slipping, tripping, or stumbling on a same-level surface. Of the 1058 cases (11%) with reported place of injury, 64% occurred in the home and 21% in residential institutions.

**Figure 3. Principal Mechanisms of Fall-Related Injuries Among Persons 65 Years and Older, Oklahoma, 2006  
N=8,681 Reported E Codes**



Source: OSDH Hospital Discharge Data

### Factors Related to Types of Injury by Body Region

The relationship of anatomical location of injury, length of hospital stay, and charges for specific fall-related injuries is shown in Tables 5 and 6. Femoral neck fractures (3196) had the highest incidence among fall injuries followed by skull/intracranial injuries (703), pelvic fractures (446), vertebral column fractures (423), and fractures of the humerus (354). Data shown relate to principal diagnoses for injuries. Excluded from these tables are principal diagnoses for long-term effects, poisoning by drugs, medicinal, and biological substances, and adverse effects. The presence of multiple injuries was assessed among cases with head and femoral neck injuries.

### Fall-Related Fracture Injuries

Factors related to fractures by body region are portrayed in Table 5. Overall, lower extremity fractures posed the greatest risk and were the most costly, amounting to charges of \$109,671,161 followed by neck and trunk fractures (\$16,560,402) and upper limb injuries (\$10,669,846). Femoral neck fracture accounted for the largest proportion of injuries and hospital charges. Average length of stay (14 days) and median hospital charges (\$87,746) were highest for persons hospitalized for fracture of the vertebral column with spinal cord injury.

**Table 5. Factors Related to Fall-Related Fracture Injuries Among Persons 65 Years and Older by Body Region, Oklahoma, 2006 (N=5,587)**

<b>Body Region</b>	<b>(ICD-9-CM codes)</b>	<b>Number</b>	<b>Average Length of Stay</b>	<b>Total Hospital Charges (Median)</b>
Head 76 (1% of all fracture cases)	Principal Diagnosis		(Range)	<b>\$1,681,871</b>
Fx Skull	(800.0-801.9)	32	7 days (1-31)	\$937,093 (\$18,041)
Fx Facial bones	(802.0-802.9)	33	2 days (1-12)	\$557,810 (\$ 8,798)
Other Skull Fx	(803.0-804.9)	11	3 days (1-10)	\$186,968 (\$ 9,353)
Fx Neck/Trunk 996 (18% of all fracture cases)				<b>\$16,560,402</b>
Fx vertebral column				
Without mention SCI	(805.0-805.9)	419	5 days (1-46)	\$ 9,744,718 (\$12,338)
With SCI	(806.0-806.9)	4	14 days (7-17)	\$ 422,040 (\$87,746)
Fx ribs, sternum, larynx, trachea	(807.0-807.6)	127	4 days (1-24)	\$ 1,510,387 (\$ 7,652)
Fx pelvis	(808-809)	446	5 days (1-87)	\$ 4,883,257 (\$ 7,960)
Fx Upper limb 551 (10% of all fracture cases)				<b>\$10,669,846</b>
Fx clavicle	(810.0-810.1)	12	3 days (1 - 8)	\$ 134,755 (\$ 9,539)
Fx scapula	(811.0-811.1)	6	3 days (1 - 6)	\$ 68,718 (\$11,431)
Fx humerus	(812.0-812.5)	354	3 days (1-59)	\$ 7,484,203 (\$13,805)
Fx radius, ulna	(813.0-813.9)	169	4 days (1-16)	\$ 2,875,887 (\$15,370)
Fx carpal, metacarpal	(814.0-817.1)	10	2 days (1 - 4)	\$ 106,283 (\$10,939)
Lower Extremity 3835 (69% of all fracture cases)				<b>\$109,671,161</b>
Fx Neck of femur	(820.0-820.9)	3196	6 days (1-45)	\$94,383,715 (\$25,310)
Fx Shaft of femur	(821.0-821.3)	252	6 days (1-21)	\$ 7,919,169 (\$28,057)
Fx Patella	(822.0-822.1)	61	4 days (1-16)	\$ 765,087 (\$ 9,197)
Fx Tibia/Fibula	(823.0-823.9)	110	6 days (1-40)	\$ 2,473,231 (\$16,441)
Fx Ankle	(824.0-824.7)	200	4 days (1-16)	\$ 3,940,219 (\$15,386)
Fx Tarsal/Metatarsal	(825.0-825.39)	16	4 days (1 - 8)	\$ 189,740 (\$ 9,314)
Dislocations all Joints/Sprains and Strains 129 (2% all cases)	(830-848)	129	4 days (1-15)	<b>\$ 1,534,049 (\$ 8,766)</b>

### **Fall-Related Injuries, Excluding Fractures**

Factors related to non-fracture injuries by body region are presented in Table 6. Total charges for non-fracture injuries were \$16,654,238. Head injuries accounted for 76% of all non-fracture injuries. Subarachnoid, subdural, and extradural hemorrhage accounted for the largest proportion (39%) of all non-fracture bodily injuries and the highest total charges (\$8,361,844). Persons with gastrointestinal/kidney, cervical spinal cord, and nerve root/nerves injuries had an average hospital stay of 7 days. Persons who suffered intra-abdominal and pelvic injuries such as liver, spleen and kidney, and injuries to nerves and spinal cord without fracture had the highest median hospital charges (\$24,724-\$27,591). Tissue (non-fracture – nervous, abdominal and superficial) injuries due to falls were more serious and life-threatening than fracture injuries overall.

Although the incidence and total charges were much lower than fall-related fractures, median hospital charges were similar for fracture and non-fracture cases. The potential for serious complications and long term physical and cognitive limitations among tissue-injury cases, however, is higher.

**Table 6. Factors Related to Fall-Related Injuries, Excluding Fractures, Among Persons 65 Years and Older by Body Region, Oklahoma, 2006 (N=823)**

<b>Body Region – Injuries</b>	<b>(ICD-9-CM Codes)</b>	<b>Number</b>	<b>Average Length of Stay (Range)</b>	<b>Total Hospital Charges (Median)</b>
<b>Head – Intracranial Injury excluding skull fracture</b> 627 (6% of all injuries)				<b>\$12,946,191</b>
Concussion	(850.0-850.9)	128	3 days (1-14)	\$ 1,187,771 (\$ 6,709)
Cerebral laceration and contusion	(851.0-851.9)	56	6 days (1-32)	\$ 1,471,267 (\$11,597)
Subarachnoid, subdural, extradural hemorrhage	(852.0-852.5)	323	6 days (1-32)	\$ 8,361,844 (\$15,592)
Other Intracranial injury	(853.0-854.1)	49	6 days (1-22)	\$ 1,309,837 (\$16,671)
Non-specific head injury (11% of 627 head injuries without fracture)	(959.01)	71	4 days (1-34)	\$ 615,472 (\$ 5,801)
<b>Injury to Thorax, Abdomen, Pelvis</b> 94 (1% of all injuries)				<b>\$ 2,068,699</b>
Pneumothorax/hemothorax	(860.0-860.5)	65	6 days (1-28)	\$ 1,463,689 (\$12,270)
Injury heart, lung	(861.0-861.3)	6	5 days (1-10)	\$ 69,802 (\$13,259)
Injury other intrathoracic organs	(862.0-862.9)	3	4 days (3- 6)	\$ 41,394 (\$15,363)
Injury gastrointestinal, liver, spleen, kidney	(863.0-866.1)	15	7 days (2-16)	\$ 412,881 (\$27,528)
Injury pelvic, other abdominal organs	(867.0-869.1)	5	6 days (1-19)	\$ 80,933 (\$ 9,510)
<b>Superficial Bodily Injuries</b> 80 (< 1% of all injuries)				<b>\$ 808,951</b>
Open wound/superficial injury any area of Body	(870.0-897.7)/ (910-919)	73 7	3 days (1-24) 3 days (1- 6)	\$ 758,847 (\$ 6,981) \$ 50,104 (\$ 6,402)
<b>Injury to Nerves and Spinal Cord</b> Injury to Spinal Cord without spinal bone injury 22 (< 1% of all injuries)				<b>\$ 830,397</b>
Cervical	(952.0-952.09)	10	7 days (2-14)	\$ 374,765 (\$27,369)
Dorsal	(952.1-952.19)	0	---	---
Lumbar/sacral/other	(952.2-952.9)	1	5 days	\$ 76,591 (\$27,591)
Injury Nerve roots, peripheral and other Nerves	(953.0-957.9)	11	7 days (1-14)	\$ 379,041(\$24,724)

### **Multiple Trauma Among Persons Who Sustained Femoral Neck or Head Injuries**

Data for the 3,196 persons with femoral neck fracture as the primary diagnostic code were examined. A total of 82 secondary injuries (2%) were reported including 11 head, 24 face/head lacerations, 32 radius and humeral fractures, and 15 lacerations and minor injuries. The number of additional injuries was fewer than the incidence of secondary injuries among persons with head trauma as a primary diagnosis. A total of 192 cases

(27%) of the 703 persons with head trauma suffered one or more secondary injuries. The most common injuries included: 27 persons who suffered two or more head/brain injuries; 82 who sustained open wounds to the face and head and 24 to other body areas; and 59 persons with fractures including 18 facial, 7 femoral neck/shaft, and 6 vertebral fractures.

### **Observations from the Data**

The overall statistics, types of injury, mechanisms, and places of injury provide some basis for prevention approaches that complement the ideas and programs currently addressing fall prevention among older adults. The high incidence of fractures occurring from the impact of falls demonstrates the importance of recognizing personal and environmental risks in everyday life for older age groups and utilizing basic safety measures. The outcome after a fall-related fracture injury requiring hospitalization usually involves weeks or months of pain, limited mobility, risk of complications, and disruption of work, home, and daily activities. The majority of persons 65 years and older were discharged for further care following hospitalization, indicating moderate to high levels of functional limitations and dependence.

The 9% of persons who suffered a non-fracture fall-related injury incurred tissue damage that may take months or years to heal. Since brain hemorrhage and intracranial injuries often result in cognitive and other functional limitations, a portion of these patients may have lifetime service needs. The presence of secondary injuries may indicate a more complex type fall, possibly with two or more bodily locations of impact. Patients with multiple injuries may have a longer and more complicated recuperation period.

This overview demonstrates that falls occurring among persons 65 years and older have serious consequences. The numerous risk factors associated with falls and fall-related injury including physical, physiologic, medical and behavioral factors of individuals and the environment are recognized by providers, and known by many of the “fallers” and the general population. Much of this knowledge can be the basis for new methods to control the increase in falls.

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