Los Angeles County Injury Hospitalization Report 2008

MANAGING EDITOR
Patti L. Culross, MD, MPH

EDITOR
Isabelle Sternfeld, MSPH

CONTRIBUTIONS
Laura M. Sanger, MA
Nicolle Perras, MPH
James M. DeCarli, MPH, MPA, CHES
Susan Huynh
Alan Zhao
Jose Cabrera

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For copies of this report contact:
Injury & Violence Prevention Program
Los Angeles County Department of Public Health
3530 Wilshire Blvd, Suite 800
Los Angeles, CA 90010
(231) 351-7888

SUGGESTED CITATION
Firearm injuries were the 9\textsuperscript{th} leading cause of injury-related hospitalizations in Los Angeles County from 2000-2006

- An average of 2,088 hospitalizations from firearm injuries was reported during each of these years.
- There were 1.8 firearm injury hospitalizations for each fatal firearm injury from 2000-2005
- The average charge for a firearm hospitalization increased from 2000 ($43,116) to 2006 ($76,590).

**Age**
- The average age of a person hospitalized with a firearm injury was 26.0 years.
- People injured in suicide attempts were the oldest (39.8 years) and those with assault injuries were the youngest (25.5 years)
- More than half of all patients hospitalized with a firearm injury were 15-24 years old.
- Hospitalization rates peaked among 18-19 year olds.

**Gender**
- Males accounted for 92% of all firearm hospitalizations, including 92% of assaults, 91% of undetermined intent, 90% of unintentional & legal intervention, and 83% of suicide attempt injuries.

**Race/Ethnicity**
- The hospitalization rate for Blacks was 3.7 times the rate for Latinos and more than 10 times the rate for Whites or Asian/Others.

**Geography**
- The South (SPA 6) had highest firearm injury hospitalization rate.
- The West (SPA 5) had the lowest firearm injury hospitalization rate.
- The South (SPA 6) accounted for 38% of all firearm injury hospitalizations, but only 10% of the county’s population.

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**Injuries from BB guns, air guns, and paintball guns are classified as “other specified injuries” rather than firearm injuries.**

**Firearm Injury Types 2000-2006:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handgun</td>
<td>4,427</td>
</tr>
<tr>
<td>Shotgun</td>
<td>1,101</td>
</tr>
<tr>
<td>Rifle</td>
<td>33</td>
</tr>
<tr>
<td>Military Weapon</td>
<td>29</td>
</tr>
<tr>
<td>Other/Unspecified</td>
<td>9,029</td>
</tr>
</tbody>
</table>

**Firearm Injury Intent 2000-2006:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unintentional</td>
<td>1,380</td>
</tr>
<tr>
<td>Assault</td>
<td>12,542</td>
</tr>
<tr>
<td>Suicide Attempt</td>
<td>167</td>
</tr>
<tr>
<td>Legal Intervention</td>
<td>156</td>
</tr>
<tr>
<td>Undetermined</td>
<td>374</td>
</tr>
</tbody>
</table>

Among firearm injuries with known weapon type, 79% were caused by handguns and 20% by shotguns.
**9th Leading Cause: Firearm Injuries**

Firearm injuries include all injuries from handguns, shotguns, rifles, and military weapons, such as machine guns. Injuries from air guns (e.g., BB guns, pellet guns, air pistols, and air rifles) are not included in the firearm injury category. Prior to October 1, 2002 injuries from paintball guns were grouped into the unspecified firearm category. Since then, they have been categorized as “other classified” injuries (see Appendix I).

Between 2000 and 2006, firearm injuries were the ninth leading cause of injury hospitalizations in Los Angeles County, with an average of more than 2,000 reported each year. Statewide, there were 24,833 hospitalizations due to firearm injuries reported between 2000 and 2005 (statewide are not yet available for 2006). During this period, 51.1% of all firearm injury hospitalizations in California were to Los Angeles County residents.

**Trends**

Overall there were 14,619 firearm-related hospitalizations in Los Angeles County between 2000 and 2006. The annual firearm injury hospitalization rate peaked in 2002 and was lowest in 1999 (Figure 1).

**Intent**

The majority (86%) of firearm injury hospitalizations were due to assaults. Most of the rest of the hospitalizations (9%) were due to unintentional injuries. Suicide attempts and legal intervention (each accounting for 1% of firearm injuries) and injuries of undetermined intent (3%) were less commonly reported.

**Cause of Injury**

The type of gun involved in the injury was not reported for the vast majority of firearm injury hospitalizations; across all intents, 62% of firearm injuries were classified as other or unspecified firearm (Table 1). Among injuries for which the type of gun was reported, 79% of hospitalizations were caused by handguns and 20% were caused by shotguns. Very few injuries were caused by rifles or military weapons.

**Age**

There was a dramatic peak in the number of firearm injury hospitalizations among older teenagers and people in their early twenties (Figure 2). In fact, firearms were the 3rd leading cause of injury hospitalization among 15-19 year olds and the 2nd leading cause among 20-24 year olds (See Appendix VI). More than 50% of all patients hospitalized...
with firearm injuries were between the ages of 15 and 24. Rates of hospitalization were highest among 18-19 year olds (Figure 3). The hospitalization rates were clearly driven by assaults; rates for assault hospitalizations were generally an order of magnitude greater than rates for unintentional firearm hospitalizations (Table 2).

The average age of a person hospitalized for a firearm injury was 26.0 years. There was significant variation in the average age of people hospitalized for injuries of different intent. On average, people hospitalized for firearm assaults were 25.5 years old. People with unintentional (27.3 years) and undetermined intent (27.5 years) were similar in age, while people with legal intervention (34.1 years) and suicide attempt (39.8 years) injuries were somewhat older. When looking at the average age of patients based on the type of weapon involved in the injury, people injured with rifles (33.3 years) and military weapons (29.4 years) tended to be the oldest. However, these two categories of patients were very small. People injured with handguns (26.1 years), shotguns (25.2 years) and other/unspecified weapons (25.9 years) were similar in age.
Gender
Overall, males accounted for 92% of all firearm injuries. The age adjusted hospitalization rate for males (36.2 visits per 100,000 population) was more than 10 times that of females (3.3 per 100,000). There was minor variation in the gender distribution of firearm injuries by the intent of the injury. Males accounted for 92% of assault injuries, 91% of undetermined intent injuries, and 90% of unintentional and legal intervention injuries, but just 83% of suicide attempts. There was even less variation in gender when looking at the type of gun involved in the injury; males accounted for 92% of hospitalizations for handguns, shotguns, and all other firearm injury hospitalizations. Female (28.0 years) patients were, on average, slightly older than male (25.8) patients. This is likely because females made up a larger proportion of suicide attempts, and victims of suicide attempts had a higher average age at the time of admission.

Race/Ethnicity
Racial/ethnic group was unknown for 2.9% of all firearm injury hospitalizations; all statistics presented in this section only include those records for which race/ethnicity was reported. Latinos and Blacks were significantly overrepresented among hospitalizations for firearm injuries relative to their proportion in the entire county population, while Whites and Asians/Others were underrepresented (Figure 4). Age-adjusted hospitalization rates were lowest by far among Asians/Others (4.4 per 100,000) and Whites (5.3 per 100,000). The rate among Latinos (20.2 per 100,000) was 3.8 times that of Whites and 4.6 times that of Asians/Others. The hospitalization rate among Blacks (74.6 per 100,000) was 3.7 times that of Latinos, 14.1 times that of Whites and 16.8 times that of Asians/Others.

There was considerable variation in racial/ethnic distribution by intent. In Table 3, Asians/Others are combined with Whites because there were very few Asians/Others in some of the intent categories. Whites and Asians/Others accounted for only 9% of all assault firearm injuries, but for 41% of the injuries from suicide attempts. Blacks, on the other hand, accounted for only 13% of firearm related suicide attempts, but for 37% of...
all firearm assault injury hospitalizations. The proportion of Latinos was more consistent, ranging from 44% of undetermined intent firearm injuries to 55% of firearm assaults. There was little variation in race/ethnicity by the type of gun involved in the injury.

**Geography**
The total number of firearm injury hospitalizations was lowest for residents of the West and highest for the South SPA residents. The hospitalization rate for firearm injuries varied from 7.6 per 100,000 in the West SPA to 70.7 in the South SPA (Table 4). In fact, the firearm injury hospitalization rate in the South SPA was more than 3 times that of the Metro, the SPA with the next highest rate.

The South SPA had the highest age-adjusted rates of firearm injury hospitalizations caused by unintentional injury (4.68 per 100,000), assaults (63.4 per 100,000), legal intervention (0.5 per 100,000), and of undetermined intent (1.8 per 100,000). The highest rate of firearm-related suicide attempts (0.6 per 100,000) was found in the Antelope Valley. The San Gabriel SPA had the lowest rates of unintentional (0.9 per 100,000), suicide attempt (0.2 per 100,000), and undetermined intent (0.2 per 100,000) injuries, while the West SPA had the lowest rates of assault (6.0 per 100,000) and legal intervention (0.1 per 100,000) injuries.

Males substantially outnumbered females among firearm injury patients from each SPA. Countywide, the hospitalization rate among males was 10.8 times that of females. The Antelope Valley had the smallest variation by gender, the rate for males was just 8.3 times higher than that for females. The largest difference was found in the West SPA, where the rate for males was 15.1 times that of females. The West SPA also had the lowest hospitalization rates of any SPA for both males (14.4 per 100,000) and females.
Hospitalization rates by race/ethnicity and SPA are shown in Table 5. Hospitalization rates among Whites ranged from 2.5 per 100,000 in the West SPA to 44.3 per 100,000 in the South SPA. For Blacks, rates ranged from 21.0 per 100,000 in the San Fernando SPA to 141.8 per 100,000 in the South SPA. Among Latinos, rates ranged from 10.4 per 100,000 in the San Gabriel SPA to 39.5 per 100,000 in the South SPA. For Asians/Others, rates ranged from 2.4 per 100,000 in the San Gabriel SPA to 27.8 in the South SPA. Blacks had the highest hospitalization rate in each SPA. Latinos had the second highest rate in every SPA except the South SPA, where Whites had the second highest rate. Asians/Others had the lowest hospitalization rate in five of the eight SPAs: the San Fernando, San Gabriel, Metro, South, and East SPAs. Whites had the lowest rate in the remaining three SPAs: the Antelope Valley, West, and South Bay.

**Medical Charges**

The average medical charges incurred for each firearm injury hospitalization increased dramatically during the seven years covered by this report (Figure 5). The biggest increase came during 2002, when the average charge jumped 30% from the previous year. The average charge for each hospitalization during this time period was $64,040. Only injuries from fire/burns or suffocation cost more per visit to treat than firearm injuries.

Charges were higher for males ($64,326 per visit) than females ($59,923 per visit). Medical charges were lower for Latinos ($61,777) and Blacks (64,342) than for Asians/Others ($70,810) and Whites ($71,571). There was more variation in average charges by age group than by sex or race/ethnicity. The average charge per visit generally increased with age (Figure 6). The average charge for 65+ year old patients was more than double that of patients under the age of 10.

There were striking differences in average medical charges for injuries of different intents. Unintentional injuries ($44,884 per visit) and injuries of undetermined intent ($43,210 per visit) were relatively cheap to treat when compared to assault injuries.
($65,883 per visit), legal intervention injuries ($88,106 per visit), and especially injuries caused by suicide attempts ($108,096 per visit). When stratified by type of gun involved in the injury, hospitalizations due to rifle wounds were the least expensive to treat ($43,235 per visit) and injuries from military weapons ($84,550) were the most expensive. Average charges were similar for handguns ($62,719), shotguns ($64,078) and other/unspecified weapons ($64,693).

**Comparison to Mortality Data**

Between 2000 and 2005, which are the most recent 6 years of available mortality data, there were 76% more hospitalizations than fatalities from firearm injuries. There were some striking differences in the demographics of fatal and non-fatal hospitalized firearm injuries. Almost all fatalities were either suicides or homicides, while almost all hospitalizations were caused by assaults or unintentional injuries. Over one quarter of the fatalities were caused by suicides, while just 1% of the hospitalizations were suicide attempts, indicating that firearm-related suicide attempts are likely to be successful. There were also striking differences in the racial/ethnic distribution of fatal and hospitalized firearm injuries. Whites accounted for just 7% of injury hospitalizations, but nearly one quarter of fatalities. This is due to the larger percentage of suicides among fatalities; Whites made up a greater proportion of firearm suicides than they did of firearm injuries of other intents. Victims of fatal firearm injuries were, on average, older than victims of hospitalized injuries. This is linked to the increased proportion of suicides among fatalities; victims of suicides tend to be older than victims of other intents of injuries.

<table>
<thead>
<tr>
<th>Table 6: Demographics of Fatal Firearm Injuries and Non-Fatal Firearm Injury Hospitalizations, Los Angeles County 2000-2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Intention (%)</td>
</tr>
<tr>
<td>Unintentional</td>
</tr>
<tr>
<td>Suicide/Suicide Attempt</td>
</tr>
<tr>
<td>Homicide/Assault</td>
</tr>
<tr>
<td>Legal Intervention</td>
</tr>
<tr>
<td>Undetermined</td>
</tr>
<tr>
<td>Race/Ethnicity (%)</td>
</tr>
<tr>
<td>Black</td>
</tr>
<tr>
<td>Latino</td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Asian/Other</td>
</tr>
<tr>
<td>Unknown</td>
</tr>
<tr>
<td>Gender (%)</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Average Age (Years)</td>
</tr>
</tbody>
</table>
Firearm Injuries Discussion
Firearm injuries are a major cause of hospitalization in Los Angeles County. The majority of the injuries resulted from assaults, however, suicide attempts and unintentional injuries also constituted a portion of the injuries. Because firearm injuries typically involved adolescents and young adults, strategies for decreasing the rates of injuries should target these populations. These strategies can include policy changes regarding handgun access, gun design changes and safe storage, and suicide prevention. However, recognizing where youths obtain firearms is a first step in reducing the rates of firearm injuries among adolescents.

Youth Access to Firearms
In Los Angeles County, 79% of firearm hospitalizations for which the type of gun was known were caused by handguns, and firearms were the leading cause of injury hospitalization among 15-19 year old males (Appendix VI). California prohibits minors (persons under 18 years old) from possessing handguns and prohibits selling handguns to anyone under 21 years old. However, minors can easily obtain handguns through illegal means. Typically, adolescents obtain handguns from family or friends either directly, or through so-called straw purchases, where a person of legal age purchases a gun for someone who cannot legally buy a gun. Minors can also obtain firearms through household theft or on the street from private sellers or illegal dealers.

The 2002 Behavioral Risk Factor Surveillance System (BRFSS) found that 33% of adults in the U.S. had firearms in their homes. Of adults who had children under 18 years of age, 5.5% reported having loaded firearms in their homes and 2.5% reported having loaded and unlocked firearms in their homes. A recent California survey found that 19.6% of adolescents reported living in a home with a firearm and 3.0% reported having their own guns (usually rifles or shotguns). Clearly youth have ready access to firearms, even those that they are not legally allowed to buy or possess. Increased restrictions on youth firearm access can decrease the rate of firearm injuries and deaths among youth in Los Angeles County.

Firearms Policies
Regulating legal gun markets can help to better control illegal gun markets. Tightening federal and state laws regarding gun sales and requiring all gun owners to obtain licenses for firearm possession with annual renewal and to register their firearms annually could reduce the number of guns available to youth. Other firearms policies such as identification and background checks for all gun purchasers, mandating dealers to keep records of all transactions so law enforcement officers can trace guns used in crimes, and requiring gun sales to take place through licensed dealers, all help to keep track of guns in communities and help identify responsible parties when guns slip into the illegal market.

California’s gun laws are some of the strongest in the U.S. and include:
- Background checks on all potential gun buyers.
- Safety tests which handguns must pass before they can be sold in the State.
- Keeping record of handgun purchasers.

Injury & Violence Prevention Program
www.publichealth.lacounty.gov/ivpp
• Restricting sales to one gun per person per month.\textsuperscript{10}
• A 10-day waiting period before receiving guns.\textsuperscript{11}
• Requiring all sales, including private sales, be completed through licensed firearms dealers.\textsuperscript{12}

In addition, California has banned assault weapons and 50 caliber rifles\textsuperscript{13} as well as the sale of large capacity ammunition magazines.\textsuperscript{14} More information on current and pending firearm laws in California can be found on the Department of Justice website at \url{http://ag.ca.gov/firearms}.

**Gun Design and Storage**
In addition to regulating firearms sales, incorporating safety devices on firearms and advocating safe storage may reduce firearm injuries. Personalized or childproof guns that can be operated only by the intended user are still in the development stage. In the future, such firearms may only function through the use of special technology like fingerprint recognition.\textsuperscript{15} Currently, there are no California laws requiring personalized handguns.

Safe storage such as gun locks, lock boxes, or gun safes may also reduce unintentional shootings, gun suicides, thefts, and homicides.\textsuperscript{16} One study found a 73\% reduction in the risk of youth suicide and unintentional death when guns were locked away.\textsuperscript{17} Presently, California firearms law requires that a trigger lock or other safety device approved by the Department of Justice be included with each gun sold or produced in California.\textsuperscript{18} However, the future of this law is uncertain after the recent U.S. Supreme Court decision stating that trigger lock mandates violate the Second Amendment and are therefore unconstitutional.\textsuperscript{19}

**Suicide Prevention**
In 2005, about half (51.5\%) of all suicide deaths in the U.S. were firearm-related. Of those deaths, males aged 75-84 had the highest rate of suicide.\textsuperscript{20} Safety measures such as trigger locks, lock boxes, and personalized firearm designs may help prevent suicides, however, these safety measures will not prevent suicides among the owners of firearms.\textsuperscript{21} In addition, safe storage may help prevent suicide among those with low to medium intention but has been shown not to be effective for those with high suicidal intent.\textsuperscript{22} Therefore, it is still important also to look for warning signs of suicide such as

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**Safe Storage for Firearms at Home**

- Keep the gun unloaded.
- Use a trigger lock or other safety device to prevent access from unauthorized users.
- Store the gun and ammunition separately.
- Do not keep guns where depressed individuals and children can have access to them.
- Ask neighbors, relatives, and those who have contact with your family members if they have guns in their homes and how the guns are stored to prevent unauthorized access.

**Source:** \url{www.doctorsagainsthandguninjury.org}
changes in mood, diet, or sleeping patterns, and suicidal ideation, to help reduce the rate of firearm suicides.


