



Background

Firearms are a major source of injury morbidity and mortality in Los Angeles County. The Department of Health Services (DHS) Injury and Violence Prevention Program uses information from death certificates, hospitalizations, emergency department visits, and emergency medical services (EMS) responses to monitor firearm injuries in the county. This report summarizes pre-hospital EMS responses for firearm injuries in Los Angeles County in 2000.

Methods

All public and private EMS providers (approximately 18,000) are required to report information about their response to a request for assistance to the Los Angeles County EMS Agency. An EMS report is completed each time an EMS response is initiated even if no treatment was provided. The information collected includes: patient demographics such as age, gender, race/ethnicity, and residence address, and details about the injury such as the mechanism and severity of the injury, and the resulting medical and trauma complaints. In addition, EMS data include information about the location where the provider picked up the patient, the type of transport, transport provider, and the specific therapies provided in the field and during transport. Information from all reports is entered into a central database maintained by Los Angeles County EMS Agency.

Records for all EMS responses in Los Angeles County in 2000 were reviewed. The mechanism of the injury was used to identify patients with firearm injuries. As many as seven mechanisms of injury could be reported for each patient. A record was considered a firearm injury if any of the mechanisms of injury mentioned a gunshot wound. This report includes only pre-hospital EMS firearm injury responses; records for EMS transports between hospitals were excluded.

Results

There were 3,238 EMS responses for firearm injuries in Los Angeles County during 2000. These responses accounted for less than 1% of all EMS responses throughout the county. Overall, 89% of the patients were male, and the average age was 28 years (Table 1). Over 99% of the records were missing race/ethnicity and none of the records included patient's city of residence. The city in which the EMS response originated was reported for 81% of responses. Slightly more than half of the firearm injury responses (52%) originated in the city of Los Angeles. Of the remaining records, 176 (5%) were from Compton and 166 (5%) were from Long Beach.

The date of occurrence was reported for all responses. The number was lowest in February and highest in July (Figure 1). Almost one-third of the responses occurred during summer while one-fifth took place during winter. Throughout the year, there were more responses on Saturdays and Sundays than any weekday. Weekends accounted for 37% of all firearm injury EMS responses.

Among the 3,238 patients with firearm injuries, there were 3,200 reported trauma complaints. As many as four trauma complaints could be listed per person, but for 1,040 (32%) cases there were no recorded trauma complaints. The most common trauma complaints were penetrating wounds to the extremities (916), followed by penetrating wounds to the chest (430), head (386), abdomen (253), and back (215). The mechanism of injury included information about the intent of the injury for only 14% of the patients. Of these 453 injuries, 73% were classified as assaults, 22% as intentionally self-inflicted and 5% as unintentionally self-inflicted.

Of the 3,238 firearm injury EMS responses, 2,978 (92%) resulted in a patient being treated and/or transported. For 248 (8%) responses, the patient was dead when the EMS provider arrived and for 2 (<1%) responses no patient was found at the scene. Information was missing for the remaining 10 responses. Patients were transported to the hospital by ambulance (with or without a medic), helicopter, police vehicle, or private vehicle. The transport mode was reported for 98% of the responses (Table 2).

The hospital to which the patient was transported was reported for 83% of the responses. Of the four hospitals receiving the most EMS firearm injury transports, three are

Table 1. Age and gender of persons with firearm injuries treated by EMS, Los Angeles County, 2000

Age Group (Years)	Male	(%)	Female	(%)
0-9	43	(2%)	16	(4%)
10-14	46	(2%)	18	(5%)
15-19	658	(23%)	86	(23%)
20-24	672	(24%)	62	(17%)
25-29	422	(15%)	44	(12%)
30-34	309	(11%)	32	(9%)
35-44	365	(13%)	58	(16%)
45-54	142	(5%)	26	(7%)
55-64	61	(2%)	13	(4%)
65+	79	(3%)	10	(3%)
Unknown	42	(1%)	4	(1%)
Total*	2,839		369	

*Excludes 30 records for which gender was not reported.

Figure 1. EMS responses for firearm injuries, Los Angeles County, 2000

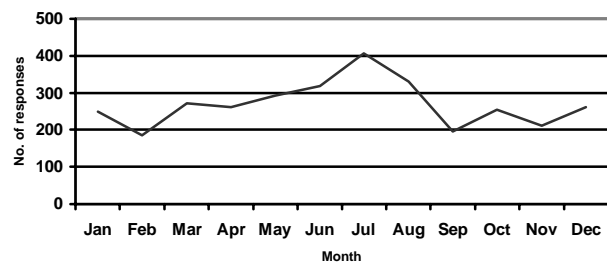


Table 2. Transport mode for firearm injuries, Los Angeles County, 2000

Transport Mode	Number
Ambulance with medic	2,260
Ambulance without medic	348
Helicopter	52
No Transport	448
Police	14
Private Vehicle	31
Total*	3,153

*Excludes 85 cases with other or missing values

DHS hospitals: Martin Luther King, Jr/Drew Medical Center (MLK), LAC+USC Medical Center, and Harbor/UCLA Medical Center. Overall, MLK received the most patients transported by EMS for firearm injuries. Seventy-five of 148 hospitals in the county received at least one patient with firearm injuries via EMS. Table 3 lists the ten hospitals that received the most firearm-related EMS patients during 2000.

Discussion

The demographic characteristics of persons receiving EMS for firearm injuries are similar to persons with firearm injuries reported from other data sources. In Los Angeles County during 1999 (2000 data are not yet available), 88% of firearm injury deaths and 91% of firearm injury hospitalizations were among males. During 2000, 89% of firearm injury EMS responses were among males. The average age of EMS patients (28 years) was similar to that of patients hospitalized for firearm injuries (26 years), while the average age of persons who died from firearm injuries was 35 years. The increase in age for firearm injury fatalities is partially due to the increase in completed suicides among older persons. Suicide attempts are more likely to result in death than assaults or unintentional injuries¹, so they affect mortality statistics to a greater extent.

While the demographic characteristics of patients with firearm injuries did not change from 1999 to 2000, there was a 34% increase in the total number of firearm transports. This increase could not be attributed to a single age or gender group; however, a greater percentage of transports were due to assaults. While final mortality data for 2000 are not yet available, reports indicate that there were also increases in firearm-related homicides and other firearm-related crimes, both in Los Angeles County and nationally.

The reporting of transport mode significantly increased from 53% in 1999 to 98% in 2000. Of the patients with known transport mode, the percentage transported via ambulance with medic increased from 61% to 72%. Conversely, there were decreases in the percentage of patients transported by ambulance without medic (14% to 11%) and of patients with no transport (20% to 14%). This suggests that in addition to the overall increase in firearm transports, a greater percentage of the injuries are severe enough to require transport with a medic.

Table 3. Hospitals that received the most firearm-related EMS transports, Los Angeles County, 2000

Facility	Number
MLK/Drew Med Center	686
LAC+USC Med Center	534
St Francis Med Center	211
Harbor/UCLA Med Center	182
Cedars Sinai Med Center	139
Holy Cross Hospital	79
Long Beach Memorial Med Ctr	79
St. Mary's Med Center	76
Daniel Freeman Memorial Hosp	54
UCLA Medical Center	49

¹ CDC. Firearm-associated deaths and hospitalizations--California, 1995-1996. MMWR. 1999;48:485-488.

The Injury and Violence Prevention Program will continue to review EMS data, along with death certificates and hospital discharges, to monitor changing trends in firearm injury in Los Angeles County.