

# Incidence and Cost of Firearm Injuries in San Jose, CA

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The City of San José is considering legislation that would reduce the public cost of firearm injury. This report examines how many firearm injuries occur annually in the city and how much the city spends responding to them. It then analyzes the number of guns in the city and uses that information to calculate the city’s annual firearm injury spending per gun. A report appendix provides the costs of firearm injuries in San José from the perspectives of society and of Federal, state, county, and city governments combined.

### **Gunfire Annually Kills or Injures More Than 200 People in San José**

Annually, more than 200 people are killed or injured by gunfire in San José. Assaults and homicides are the most common. Almost 30% of those injured die. Suicide deaths by firearm also are frequent. Unintentional gunshot wounds tend to be less serious. Notably, those incidents virtually all involve a single bullet. Table 1 summarizes official statistics on the average annual number of firearm deaths and injuries in San José over the most recent 6 years of data. The table uses 6-year averages to protect confidentiality.

Table 1. Average Annual Number of People Killed or Injured by Gunfire in San José

	Deaths	Nonfatal Hospital Inpatient Admissions	Emergency Department Treated & Discharged Without Admission	Total
Assault/Homicide/Legal Intervention	28	32	29	89
Self-Inflicted/Suicide	28	3	*	31
Unintentional/Undetermined	2	25	59	86
Total	58	60	88	206

\* Included with unintentional/undetermined to meet minimum count requirements that protect confidentiality.

Source: Tabulations of 2013-2019 Vital Statistics Multiple Cause of Death data and 2013-2018 California Hospital Discharge and Emergency Department Discharge Data censuses.

Many people are assaulted or robbed at gunpoint but not injured. Annually between 2017 and 2019, San José police responded to an average of 869 firearm robberies and assaults without physical injury.

### **Annually, San José Spends at Least \$7,937,000 Responding to Shootings**

The primary costs that the City of San José incurs in responding to a shooting are for fire department and police response including police investigation and participation in the criminal justice process. Table 2 summarizes those costs. The San José Fire Department delivered emergency medical services to 48 shooting victims in 2018, 57 in 2019, and 82 in 2020, with an average annual cost of \$137,000. The fire department response volume for gunshot injuries in this calculation comes from the department’s call database that includes a variable indicating if calls responded to a shooting. The \$2,199 cost per call in 2020 is a performance measure reported in the 2021 department budget.

The annual police response costs totaled \$7,800,000 annually. Of that amount, 72% involved homicides. The police cost estimates come from US average police response costs by crime from Hunt et al.<sup>1</sup> as refined by Miller et al.<sup>2</sup> The Hunt simulation model builds police costs per crime from the average police spending per capita in California in 2010 (\$235.29 from Table A1). To adapt its estimates to San José, we therefore multiplied its mean costs by type of incident times the ratio of per capita costs in San José in 2020 versus the state in 2010. The San José per capita cost of \$434.49 was computed as the average police cost per sworn officer hour of \$144.34 according to the police budget office multiplied times 2080 hours per year times 1,151 sworn officers in 2020 times the ratio of 1.274 (sworn and nonsworn police labor payments) per sworn officer labor payment in the San José Police Department in 2016.<sup>3</sup> Hunt gave police costs for homicide, aggravated assault, motor vehicle crash, and a few other offenses. We did not vary police costs of an aggravated assault depending on whether the victim was injured, meaning our assault costs for cases with injury may be an underestimate. More likely than not, the police time required for a suicide or unintentional shooting death is comparable to the time required by an aggravated assault, whereas other nonfatal shootings involve modest costs comparable to a motor vehicle crash. Conservatively, we do not attribute any costs to robberies and assaults involving firearms but no injuries as these crimes might have happened even if the perpetrator lacked firearm access. The cost is even more conservative because it omits police costs of weapons violations and gun thefts. No data are available on the frequency of those crimes.

Table 2. Costs the City of San José Incurs Annually Responding to Firearm Injuries

	Unintentional/ Undetermined	Suicide Act	Homicide/ Assault	Total
Fire Department EMS	\$69,403	\$10,136	\$57,531	\$137,071
Police Fatal Injury Response	\$29,224	\$624,663	\$5,680,080	\$6,333,967
Police Nonfatal Injury Response	\$135,072	\$4,556	\$1,329,692	\$1,469,320
Total	\$233,699	\$639,355	\$7,067,303	\$7,940,358

### 50,000-55,000 Households in San José Own Guns

We estimate that between 50,000 and 55,000 households in San Jose own guns. This count was calculated using two approaches that have different limitations. Both approaches yielded counts for Santa Clara County in 2013-2015 (the most recent data available) that were used to calculate San José's share, then adjusted to account for firearms acquired in 2016-2020.

The first approach uses State of California background check data that show 363,725 guns were sold in Santa Clara County (SCC) between 2002 and 2015.<sup>4</sup> The County treats that count as the number of guns in SCC. The resulting count, however, has wide uncertainty because (a) people in SCC bought some of their guns before 2002, (b) some SCC residents purchased guns elsewhere and brought them to SCC, (c)

<sup>1</sup> Hunt PE, Saunders J, Kilmer B. Estimates of law enforcement costs by crime type for benefit-cost analyses. *Journal of Benefit-Cost Analysis*, 10(1), 95-123, 2019.

<sup>2</sup> Miller TR, Cohen M, Swedler D, Ali B, Hendrie D. Incidence and costs of personal and property crimes in the United States, 2017. *Journal of Benefit Cost Analysis*. 12(1), 24-54, 2021.

<sup>3</sup> Hyland S. Justice expenditure and employment extracts, 2016 – Preliminary. NCJ Number 254126, Bureau of Justice Statistics. 2019. <https://bjs.ojp.gov/sites/g/files/xyckuh236/files/media/document/jeee16p.zip>

<sup>4</sup> Santa Clara County Public Health. Guns in Santa Clara County. April 2018. The State requires that all gun sales in California go through its system.

some purchasers in SCC did not live in SCC and brought the guns they purchased elsewhere, (d) some SCC residents who purchased guns in SCC moved out of the County or stored their guns out of county, e.g., at a vacation home, (e) some people moved to SCC and brought guns with them, (f) some guns were sold in transactions outside SCC or were stolen and transported into or out of SCC, and (g) some guns were decommissioned (i.e., they became inoperative, were destroyed, or were otherwise removed from the stock of guns in San Jose). The count also excludes “ghost guns” that owners built themselves from parts they bought or printed on a 3-D printer.

The second approach uses 2013-14 Behavioral Risk Factor Surveillance System survey data that found 11% of households in Santa Clara County owned guns<sup>5</sup> (70,424 households when 11% is multiplied by the Census Bureau count of 640,215 households in SCC in 2015<sup>6</sup>). A national survey calculates that the average gun owner owns 4.8 guns, while Federal gun excise tax data adjusted for some guns being decommissioned arrived at an average of 5.16.<sup>7</sup> Multiplying the number of households with guns in SCC times the number of guns per household with guns yields a range of 338,034 to 363,545 guns in SCC in 2015.

These two approaches using different methods and data yield virtually identical counts when one uses the 5.16 average count of guns per household with guns. The similarity of results strengthens confidence in the accuracy of the calculated count.

The figures calculated above for Santa Clara County can be used to estimate the number of gun-owning households in San José . This calculation also can be approached in two ways. If we apply the 11% ownership rate to the 2014 household count of 325,114 for San José.<sup>8</sup> It yields a range of 164,856 to 177,298 guns in San José in 2014. Alternatively, we can build on published findings that the number of guns in a jurisdiction tracks the number of suicide deaths by firearm in the jurisdiction.<sup>9,10</sup> That alternative can be used with either the survey-based or sales-based SCC counts. It indicates that San José had 154,530 to 166,274 guns in 2015. Across the 5 calculated counts, the mean number of guns in San José in 2014-15 is 165,830, with a range from 154,530 to 177,298.

From 2015 to 2020, the number of guns in California rose by 55.3%. With that growth rate, people in San José owned 257,500 guns in 2020, with a range from 240,000 to 287,000. Dividing by the number of guns per household, 50,000 to 55,500 household owned guns.

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<sup>5</sup> Idem.

<sup>6</sup> <https://www.census.gov/quickfacts/fact/table/santaclaracountycalifornia,sanjosecitycalifornia/INC110219?> , accessed June 2021.

<sup>7</sup> Azrael D, Hepburn L, Hemenway D, Miller M. The stock and flow of US firearms: results from the 2015 National Firearms Survey. *RSF: The Russell Sage Foundation Journal of the Social Sciences*. 2017;3(5):38–57. The 5.16 average was computed by extending Table A1 in the article from 2013 to 2015, then multiplying the 4.8 average for 2015 from the survey by the 285-million-gun count from Table A1 divided by the 265 million survey count.

<sup>8</sup> <https://www.sanjoseca.gov/home/showpublisheddocument/23765/636689378693570000> , accessed August 2021. A 2015 count is not readily available.

<sup>9</sup> Miller M, Barber C, White RA, Azrael D. Firearms and suicide in the United States: is risk independent of underlying suicidal behavior? *Am J Epidemiol*. 15;178(6):946-955, 2013.

<sup>10</sup>

## **San José Incurs an Annual Average Costs of \$151 per Gun-owning Household Providing Services to Fatal and Nonfatal Firearm Injury Shooters and Victims**

Dividing the total annual costs by the number of gun-owning household reveals that San José spends an average of \$151 per gun-owning household providing injury-related services to firearm injury shooters and those they shoot. Given the range around the number of guns in the city, the cost per gun-owning household has an uncertainty range of \$143 to \$159. These figures incorporate a conservative estimate of total city expenditures on shooting response. The cost per gun averages \$31, with a range from \$28 to \$33.

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## **APPENDIX: COSTS OF FIREARM INJURIES IN SAN JOSÉ TO SOCIETY AND GOVERNMENT**

### **Annually Firearm Injuries in San José Cost \$442 Million**

We assessed the cost to society of gunfire in San José. Firearm deaths and injuries in San José annually impose losses valued at \$442 million (Table 3). That's \$432 per San José resident. Societal costs are comprehensive. The total includes costs paid by victims and their families, perpetrators, employers, insurers, and taxpayers. The value of pain, suffering, and lost quality of life accounts for the largest share of societal costs, with work losses of victims and perpetrators also large. Direct out-of-pocket costs total \$35 million annually. These costs encompass medical and mental health care, police and emergency services, victim services, criminal justice, and employer spending because workers are absent temporarily or need to be replaced due to death or permanent disability.

Table 3. Annual Cost of Firearm Injury by Cost Category in San José, CA, 2013-2019

Cost Category	Annual Cost	% of Total
Direct	\$35,068,500	8%
Lost Work	\$78,275,000	18%
Quality of Life	\$328,355,500	74%
Total	\$441,699,000	100%

Source: Computations by Ted Miller, Pacific Institute for Research and Evaluation, 2021.

The societal costs here are tied to specific shootings. They exclude prevention costs and the impact on residents and businesses when gunfire harms neighborhoods.

Homicide and assault cause most (57%) of the firearm costs, followed by suicide acts (37%) and unintentional shootings (6%), per Table 4. The cost per shooting is highest for suicides, since so many of those incidents are fatal.

Table 4. Annual Incidence and Societal Cost of Firearm Injury by Intent in San José, CA, 2013-2019

	People Shot	Cost/Person Shot	Total Cost	Cost to Federal, State & Local Government
Homicide/Assault/ Legal Intervention	89	\$2,851,000	\$253,828,000	\$34,180,000
Suicide	31	\$5,238,000	\$164,122,000	\$4,298,000
Unintentional/Undetermined	86	\$290,000	\$24,749,000	\$1,260,000
Total	206	\$2,151,000	\$441,699,000	\$39,738,000

Source: Computations by Ted Miller, Pacific Institute for Research and Evaluation, 2021.

Governments across all levels pay almost \$40 million annually due to firearm injuries in San José (Table 4). The taxpayer bill includes contributions to the costs of acute and long-term health care; public services including emergency response, victim assistance, incident investigation, and perpetrator adjudication and sanctioning; as well as tax revenue lost when someone is killed or unable to work.

The societal cost assessment used a peer-reviewed framework for costing gun violence that PIRE developed more than 20 years ago and periodically updates.<sup>11</sup> This framework consists of an economic analysis of direct out-of-pocket costs across the continuum of public services and employer responses associated with injury and death, as well as indirect cost data following an event. Direct costs include police, emergency response, hospital-related expenses, healthcare claims, family mental health services, court, criminal justice, and employer costs. Indirect costs include victim loss of wages and the estimated value of lost quality of life. For most of these cost elements, we use injury cost models and methods that we developed and have widely published to price injuries from all causes. That model is documented in considerable detail.<sup>12</sup> Other costs were adapted from our well-known crime cost model.<sup>13</sup> The indirect costs of fatalities were computed for each victim in San José, taking account of the victim’s age and sex, then summed.

As explained above, we incorporated police and fire department EMS costs that are specific to San José. For other cost categories, the current estimates use national average costs per firearm incident by intent and severity adjusted to San José prices. We are working with Santa Clara County public health staff to

<sup>11</sup> Miller TR, Cohen MA. Costs of gunshot and cut/stab wounds in the United States, with some Canadian comparisons. *Accident Analysis and Prevention*. 29(3):329-341, 1997. Follman M, Lurie J, Lee J, West J. The True Cost of Gun Violence in America: The data the NRA doesn’t want you to see. Mother Jones. 2015.

<sup>12</sup> Zonfrillo MR, Spicer RS, Lawrence BA, Miller TR. Incidence and costs of injuries to children and adults in the United States. *Injury Epidemiology*. 5(1), article 37, 2018. Miller TR, Pindus NM, Douglass JB, Rossman SB. Databook on nonfatal injury: Incidence, costs, and consequences. Washington, DC: The Urban Institute Press, 1993. Lawrence BA, Miller TR. Medical and work loss cost estimation methods for the WISQARS cost of injury module. Calverton, MD: PIRE, 2014.

[https://www.researchgate.net/publication/265162679\\_Medical\\_and\\_Work\\_Loss\\_Cost\\_Estimation\\_Methods\\_for\\_the\\_WISQARS\\_Cost\\_of\\_Injury\\_Module](https://www.researchgate.net/publication/265162679_Medical_and_Work_Loss_Cost_Estimation_Methods_for_the_WISQARS_Cost_of_Injury_Module) .

<sup>13</sup> Miller TR, Cohen MA, Wiersema B. Victim costs and consequences—A new look. Washington, DC: National Institute of Justice, 1996. Miller TR, Cohen M, Swedler D, Ali B, Hendrie D. Incidence and costs of personal and property crimes in the United States, 2017. *Journal of Benefit Cost Analysis*. 12(1), 24-54, 2021.

update the medical costs by applying our models to local hospital data, as well as to replace selected other direct costs with local data.

### **About PIRE and Dr. Miller**

The Pacific Institute for Research and Evaluation (PIRE) is an independent, nonprofit organization merging scientific knowledge and proven practice to create solutions that improve the health, safety, and well-being of individuals, communities, and nations around the world. PIRE's mission is to promote, undertake, and evaluate activities, studies, and programs that improve individual and public health, welfare, and safety.

Founded in 1974, PIRE has a longstanding reputation for research integrity. Its work is funded with a balance of National Institutes of Health (NIH) grants, other federal grants and contracts, and foundation awards. PIRE has held a NIH/National Institute on Alcohol Abuse and Alcoholism Center Grant -- Berkeley's Prevention Research Center -- since 1980.

Ted R Miller, PhD, is a widely cited health economist who has more than 30 years of experience studying the costs of injury and violence. He has published more than 350 books and journal articles on the costs of societal ills and savings from prevention. Dr. Miller received the Excellence in Science and Distinguished Career Awards from the Injury Control and Emergency Health Services Section of the American Public Health Association and the Vision Award from the State and Territorial Injury Prevention Director's Association. He is a Principal Research Scientist at PIRE and an Adjunct Professor at the Curtin University School of Public Health.