

California Household Firearm Storage Practices, 2017-2019

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Deaths and injuries that result from firearms are a public health concern in California. In 2019, 2,954 Californians were killed due to a firearm injury. An additional 2,960 were hospitalized and 4,215 were treated at the emergency department with a non-fatal firearm injury. Most 2019 firearm injury deaths in California were suicides (54%) or homicides (42%). Most non-fatal firearm injuries treated at a hospital or emergency department were due to assault (47%) or were unintentional (44%).

Easy access to a loaded firearm may contribute to firearm injuries through unintentional or impulsive discharge. Safe storage practices, including keeping firearms stored unloaded and locked, are associated with reductions in the risk of firearm injuries, especially unintentional and suicide/self-harm injuries and especially among youth.¹

Understanding patterns of unsafe firearm storage among Californians can help inform efforts to encourage safer storage and prevent firearm injuries. These efforts are even more important following the 2020 surge in firearm sales. This report examines household firearm presence and unsafe storage practices in California using data from the 2017, 2018, and 2019 California Behavioral Risk Factor Surveillance System (BRFSS).

Key Findings

- 1 in 5 Californian adults kept a firearm at home.
- 1 in 10 Californian adults with a firearm at home stored it unsafely – loaded and unlocked.
- Unsafe firearm storage was more commonly reported among older adults, males, veterans, and those without children in their household.

Methods

The California BRFSS is a health survey conducted by the California State University, Sacramento (CSUS) and sponsored by the Centers for Disease Control and Prevention (CDC) and the California Department of Public Health (CDPH).² The California BRFSS interviews adults aged 18 and older using random digit dialing of California landline and cell phone numbers. Interviews are conducted in English and Spanish. The primary purpose of the BRFSS is to provide state-specific estimates of behaviors that relate to the leading causes of morbidity and mortality in the United States.³

The firearm safety section of the BRFSS survey begins with the interviewer informing the respondent that “the next three questions are about firearms. We are asking these in a health survey because of our interest in firearm-related injuries. Please include weapons such as pistols, shotguns, and rifles; but not BB guns, starter pistols, or guns that cannot fire. Include those kept in a garage, outdoor storage area, or motor vehicle.” Presence of firearms in the home was assessed by asking the respondent, “Are any firearms kept in or around your home?” Firearm storage patterns were derived from two questions: “Are any of these firearms now loaded?” and “Are any of these loaded firearms also unlocked? By ‘unlocked’ we mean you do not need a key or combination to get the gun or to fire it. We don’t count a safety as a lock.” Firearms in the home were measured as a “yes” response to the first question. Loaded and unlocked firearm storage was measured as a “yes” response to all three questions.

Statewide estimates of firearms in the home and storage practices were obtained by weighting data by the probability of selection into the survey and to represent the 2010 California adult population. These weights were also applied to chi square tests comparing estimates of firearms in the home by year, region, and personal characteristics. Unweighted data were used to estimate unsafe storage practices limited to firearm owners and compare them by year, region, and personal characteristics using chi square tests. Statistically significant differences were defined as p-values <0.05.

Methods (cont.)

Personal characteristic variables were all self-report survey responses and included gender, age, race/ethnicity, education, child(ren) in the household, and veteran status. Region was based on the county of the respondent's residence grouped into five regions used by the California Mental Health Services Authority for program planning: Superior (Butte, Colusa, Del Norte, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity Counties), Central (Alpine, Amador, Calaveras, El Dorado, Fresno, Inyo, Kings, Madera, Mariposa, Merced, Mono, Placer, Sacramento, San Joaquin, Stanislaus, Sutter, Tulare, Tuolumne, Yolo, and Yuba Counties), Bay Area (Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma Counties), Southern (Imperial, Kern, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Ventura Counties), and Los Angeles (Los Angeles County).

Results

During the three-year period from 2017 to 2019, 20.6% of Californian adults kept a firearm in their home (95% confidence interval: 18.7%, 22.5%), 4.7% kept a loaded firearm in their home (95% CI: 3.7%, 5.7%), and 1.7% kept a loaded and unlocked firearm in their home (95% CI: 1.1%, 2.2%) (Figure 1).

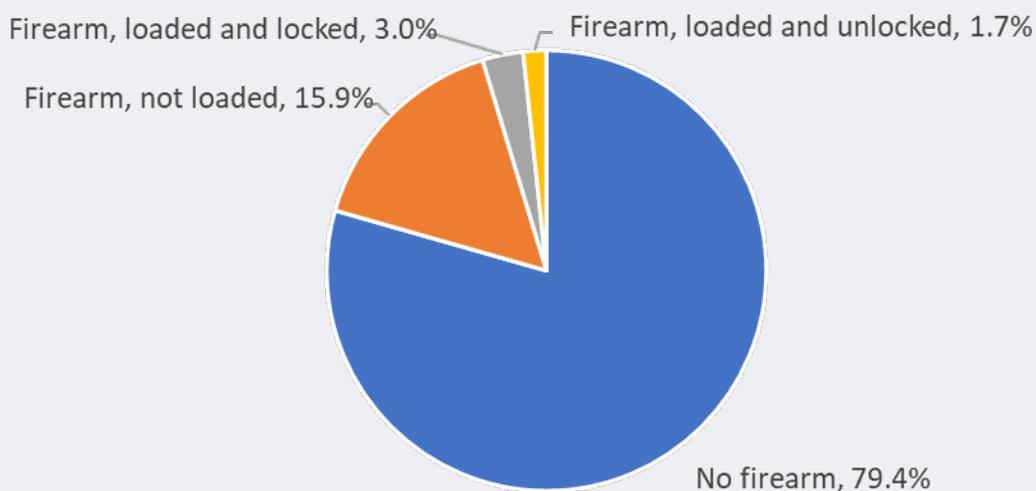


Figure 1: Proportion of Californian adults with firearms in the home by storage practices, 2017-2019.

Household Firearm Presence

Figure 2 (page 5) compares household firearm presence by year, region, and personal characteristics. The proportion of adults who kept a firearm in their home did not differ significantly by year or by gender. Firearms in homes were most frequently reported in the more rural Superior region of California and least frequently reported in the more urban Bay Area and Los Angeles regions. Firearms in homes were also more commonly reported among Californian adults who were older, White, college graduates, veterans, and without children in their household.

Unsafe Firearm Storage

Among Californian adults with a firearm in their home, 10.3% kept a firearm in the least safe manner: loaded and unlocked (95% CI: 8.9%, 11.8%). Figure 3 (page 6) compares unsafe firearm storage practices among adults with a household firearm by year, region, and personal characteristics. Unsafe firearm storage did not differ significantly by year, region, race/ethnicity, nor education. Unsafe firearm storage was more commonly reported among adults who were older, male, veterans, and without children in their household.

Discussion

One in five Californian adults reported a firearm in their home. One in ten Californian adults with a firearm in their home reported that a firearm was stored loaded and unlocked. These proportions were lower among adults with children in their household, a pattern that is in alignment with recommendations from the American Academy of Pediatrics that if families must own firearms, they should be stored locked, unloaded, and separate from locked ammunition.⁴ Another population of concern is older adults. This demographic is more likely to keep a firearm in the house, and keep a firearm loaded and unlocked. Elderly adults who own handguns have three times the risk of firearm suicides compared to non-firearm owners; when the firearm is kept loaded and unlocked, the risk increases to almost 10 times.⁵ Firearm suicides among the elderly have increased by 49% from 2010 to 2018 and in 2018 firearms accounted for 70% of elderly adult suicides.⁶ Rates of firearm suicides are also greater among males and veterans,⁷ two additional demographics more likely to keep a loaded and unlocked firearm in the home. These populations may benefit from evidence-based strategies for violence reduction found within the CDC's Suicide Prevention Technical Package.⁸

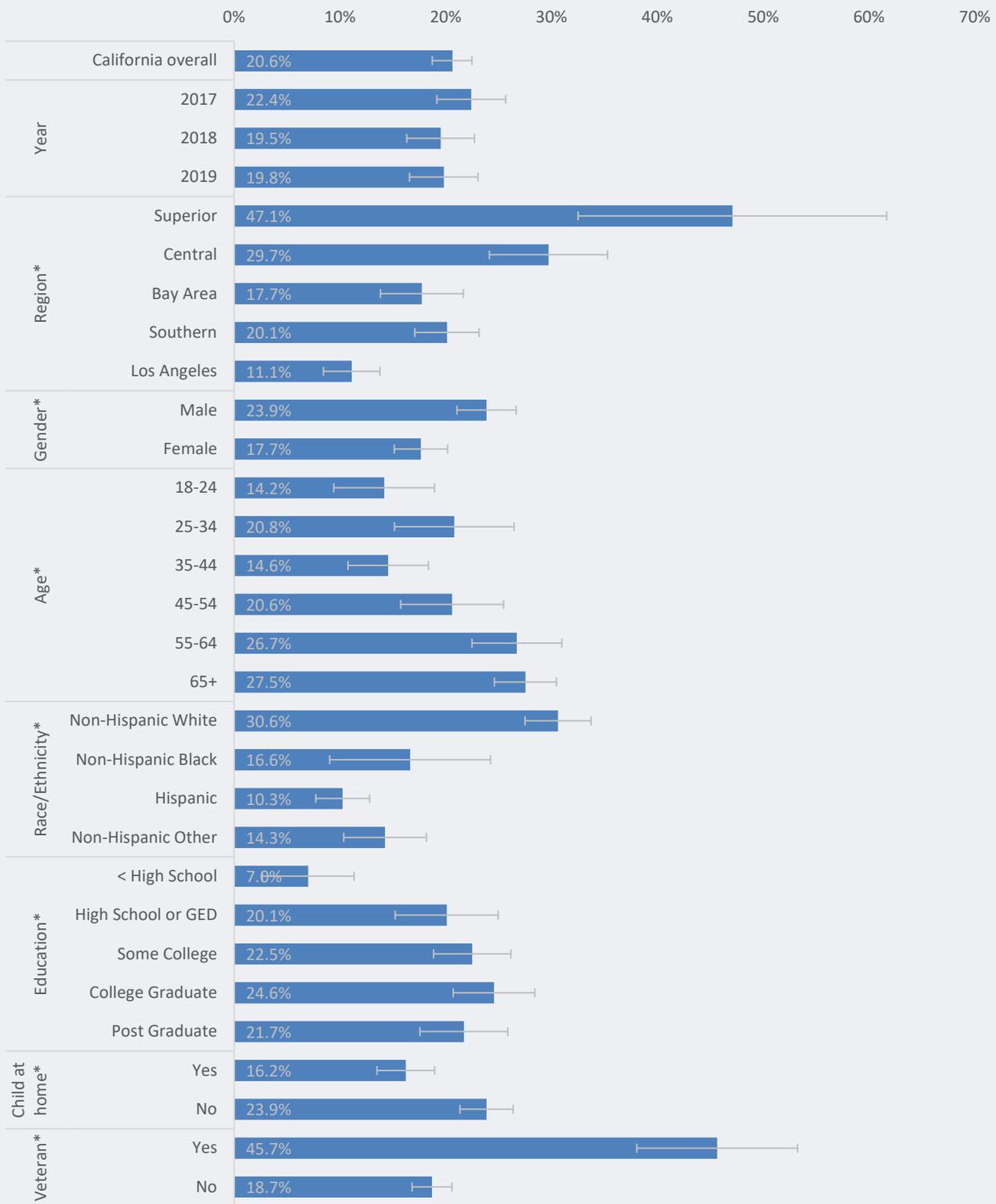


Figure 2: Proportion of California adults with a firearm in the home, 2017-2019, by year, region, and other personal characteristics. Statistically significant differences ($p < 0.05$) marked with an asterisk. Error bars represent 95% confidence intervals.



Figure 3: Percent of unsafe firearm storage (i.e., loaded and unlocked) among California adults with a firearm in the home, 2017-2019, by year, region, and other personal characteristics. Statistically significant differences ($p < 0.05$) marked with an asterisk. Error bars represent 95% confidence intervals.

Discussion (cont.)

Proportions of firearms in homes and unsafe storage practices did not change in California over the 3-years from 2017 to 2019. These proportions were also similar to findings from the 2002 BRFSS,⁹ suggesting that firearm prevalence and storage practices may have remained stable in California for the past two decades. Younger adults were less likely to report owning firearms, and when they did own a firearm, were less likely to report storing it loaded and unlocked. If these firearm practices hold through the life course, firearm injuries could trend downward as younger generations replace older ones. However, the COVID-19 pandemic and civil unrest that occurred in 2020 contributed to a surge in firearm purchases that could interrupt this potential.¹⁰ Continued surveillance using BRFSS firearm data will be necessary to track the public health risk of unsafe firearm storage and respond appropriately.

The California BRFSS firearm data used for this analysis is an important source of public health surveillance infrastructure. Because it relies on self-report, however, it may be subject to social desirability bias, which would result in an underestimate of unsafe firearm storage. California BRFSS firearm data are also limited because they do not contain information on the number or types of firearms in the home nor reasons for keeping firearms in the home. Research using data from the 2018 California Safety and Well Being Survey found that unsafe firearm storage practices among California firearm owners were often associated with owning multiple firearms and owning at least one firearm primarily for protection against people.¹¹ Safer firearm storage may be achieved by increasing Californians' sense of trust, safety, and security. This may be particularly important for preventing the new firearms purchased in 2020 from causing unnecessary injury and death.¹⁰ Strategies to increase trust, safety, and security can be found within the CDC's Technical Packages for Violence Prevention.¹²

Safe storage practices, including keeping firearms stored unloaded and locked, can help reduce the risk of firearm injuries. For more violence prevention resources, see:

CDPH Violence Prevention Initiative

www.cdph.ca.gov/Programs/CCDPHP/DCDIC/SACB/Pages/ViolencePreventionInitiative.aspx

CDC Technical Packages for Violence Reduction

www.cdc.gov/violenceprevention/communicationresources/pub/technical-packages.html

References

1. Grossman DC, Mueller BA, Riedy C, et al. Gun storage practices and risk of youth suicide and unintentional firearm injuries. *JAMA*. 2005;293(6):707-714.
2. California Behavior Risk Factor Surveillance System (BRFSS). California State University, Sacramento Public Health Survey Research Program website. Accessed June 2, 2021. www.csus.edu/center/public-health-survey-research/project-brfss.html.
3. Behavior Risk Factor Surveillance System. Centers for Disease Control and Prevention website. Updated August 31, 2020. Accessed June 2, 2021. www.cdc.gov/brfss.
4. American Academy of Pediatrics. Policy statement. Firearm-related injuries affecting the pediatric population. *Pediatrics*. 2012; 130(5):e1416–e1423.
5. Conwell Y, Duberstein PR, Connor K, Eberly S, Cox C, Caine ED. Access to firearms and risk for suicide in middle-aged and older adults. *Am J Geriatr Psychiatry*. 2002;10(4):407-416.
6. Price JH, Khubchandani J. Firearm suicides in the elderly: a narrative review and call for action. *J Community Health*. 2021;1-9.
7. Lemle RB. Veterans, Firearms, and Suicide: Safe Storage Prevention Policy and the PREVENTS Roadmap. *Fed Pract*. 2020;37(9):426-433.
8. Stone DM, Holland KM, Bartholow B, Crosby AE, Davis S, Wilkins N. *Preventing Suicide: A Technical Package of Policies, Programs, and Practices*. 2017. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. Accessed July 16, 2021. www.cdc.gov/violenceprevention/pdf/suicideTechnicalPackage.pdf.
9. Okoro CA, Nelson DE, Mercy JA, Balluz LS, Crosby AE, Mokdad AH. Prevalence of household firearms and firearm-storage practices in the 50 states and the District of Columbia: findings from the Behavioral Risk Factor Surveillance System, 2002. *Pediatrics*. 2005;116(3):e370-e376.
10. Kravitz-Wirtz N., Aubel A, Schleimer JP, Pallin R, Wintemute GJ. Public concern about violence, firearms, and the covid-19 pandemic in California. *JAMA Netw Open*. 2021;4(1):e2033484.
11. Schleimer JP, Kravitz-Wirtz N, Pallin R, Charbonneau AK, Buggs SA, Wintemute GJ. Firearm ownership in California: A latent class analysis. *Inj Prev*. 2020;26(5):456-462.
12. Technical Packages for Violence Prevention. Centers for Disease Control and Prevention website. Updated November 30, 2020. Accessed September 1, 2021. www.cdc.gov/violenceprevention/communicationresources/pub/technical-packages.html.