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Emergency Department Visits For Firearm-Related Injuries In The United States, 2006–14

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ABSTRACT Firearm-related deaths are the third leading cause of injury-related deaths in the United States. Yet limited data exist on contemporary epidemiological trends and risk factors for firearm-related injuries. Using data from the Nationwide Emergency Department Sample, we report epidemiological trends and quantify the clinical and financial burden associated with emergency department (ED) visits for firearm-related injuries. We identified 150,930 patients—representing a weighted total of 704,916 patients nationally—who presented alive to the ED in the period 2006–14 with firearm-related injuries. Such injuries were approximately nine times more common among male than female patients and highest among males ages 20–24. Of the patients who presented alive to the ED, 37.2 percent were admitted to inpatient care, while 8.3 percent died during their ED visit or inpatient admission. The mean per person ED and inpatient charges were \$5,254 and \$95,887, respectively, resulting in an annual financial burden of approximately \$2.8 billion in ED and inpatient charges. Although future research is warranted to better understand firearm-related injuries, policy makers might consider implementing universal background checks for firearm purchases and limiting access to firearms for people with a history of violence or previous convictions to reduce the clinical and financial burden associated with these injuries.

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The rate of firearm-related deaths in the United States is higher than the rate in comparable high-income countries, with firearms accounting for approximately 36,252 US deaths in 2015 (the most recent data available).^{1,2} Seventeen percent of all injury-related deaths are caused by firearms, making them the third leading cause of injury-related deaths in the United States—trailing only poisoning and motor vehicle crashes.^{3,4} In 2015 alone, firearm-related homicides and suicides accounted for 12,979 and 22,018 deaths, respectively, with the clinical burden of nonfatal firearm-related injuries estimated to be approximately three

times that of fatal injuries.² It has been estimated that, collectively, fatal and nonfatal firearm-related injuries resulted in more than \$700 million in annual inpatient costs between 2006 and 2014,⁵ and an annual cost of \$174 billion related to lost work, health care costs, criminal justice claims, and decreased quality of life in 2010.⁶

Despite the significant mortality and financial burden associated with firearm-related injuries, limited data evaluate epidemiological trends or risk factors for firearm-related injuries. Most current data are limited to single-center studies performed at tertiary referral centers and Level I trauma centers, or report on state-specific clinical and financial outcomes among patients in-

jured in firearm-related violence.^{7–9} Furthermore, contemporary studies that evaluate both fatal and nonfatal firearm injuries are lacking. Rather, the majority of recent studies focus exclusively on mortality, instead of evaluating firearm-related injuries as a whole.^{10–12}

Contemporary, nationally representative epidemiological data describing the incidence, prevalence, and risk factors for firearm-related injury are needed to guide policy making to address this public health challenge.¹³ To help fill this need, we used a nationally representative sample of patients to evaluate the incidence of emergency department (ED) visits for firearm-related injuries among patients who presented to the ED after surviving a firearm-related injury. Patients who died before reaching the hospital or patients who did not present to the ED after such an injury were excluded. Our secondary aims were to identify risk factors associated with firearm-related injuries and to estimate the financial burden associated with the management of firearm-related injuries in the ED and hospital.

Study Data And Methods

DATA SOURCES AND PATIENT POPULATION This retrospective analysis was performed using data from the Nationwide Emergency Department Sample of the Healthcare Cost and Utilization Project. Patients presenting to the ED in the period 2006–14 for the management of a firearm-related injury were identified using *International Classification of Diseases*, Ninth Revision, Clinical Modification (ICD-9-CM), external cause of injury codes, or E-codes^{14,15} (for the ICD-9-CM E-codes used to identify patients, see online Appendix Exhibit A1).¹⁶

The sociodemographic information recorded for each patient included age, sex, insurance status, and median household income; up to fifteen ICD-9-CM diagnosis codes were also recorded. Median household income was determined using the patient's ZIP code, and patients were categorized into one of four quartiles, with patients in a given ZIP code with the lowest median household income in the first quartile and those with the highest income in the fourth quartile. Preexisting comorbidity was classified according to the Charlson Comorbidity Index,¹⁷ and patients were characterized into one of three groups according to their Charlson Comorbidity Index score: 0, 1, or 2 or more. Patients presenting with concomitant mental health disorders were identified using the Agency for Healthcare Research and Quality's (AHRQ's) Clinical Classifications Software codes 650–53 and 656–59¹⁸ (for the codes we used to identify mental health disorders, see Appendix Exhibit A2).¹⁶ The pres-

ence of substance abuse was determined using ICD-9-CM diagnosis codes (304** and 305**).

The International Classification of Diseases Program for Injury Categorization (ICDPIC) mapping algorithm was used to enrich patient records with injury-specific parameters.¹⁹ Injury severity was categorized according to the Abbreviated Injury Scale, which is a graded six-point scale based on probability of death, body region, and nature of injury (a score of 1 indicates minor injuries, and a score of 6 indicates unsurvivable injuries).²⁰ We then calculated the Injury Severity Score as the sum of the squares of the Abbreviated Injury Scale scores for the three most severe injuries.^{21–23} Using guidelines from the Centers for Disease Control and Prevention (CDC), we categorized the intent of each injury as unintentional, suicide, assault, legal, or undetermined, while the type of firearm used was classified as a handgun, shotgun, hunting rifle, military rifle, or unspecified or other.^{14,15} “Legal” injuries are injuries inflicted by police or other law enforcement agents (including active-duty members of the military) during the course of arresting or attempting to arrest lawbreakers, suppressing disturbances, maintaining order, and performing other legal actions.²⁴ Injuries caused by civil insurrections are excluded from this subgroup.²⁴

In addition to patient and injury characteristics, detailed hospital-level characteristics were also recorded in the Nationwide Emergency Department Sample. These included hospital region, teaching status, and trauma center designation. Hospitals classified as Level I or II trauma centers were categorized as trauma centers, while all other hospitals were categorized as non-trauma centers.²⁵

MORTALITY, DISCHARGE DISPOSITION, AND HOSPITAL CHARGES The primary outcomes of interest were discharge disposition from the ED, mortality rates in the ED or hospital, and total ED or hospital charges. We categorized patients who were discharged alive in the following discharge dispositions: routine discharge (if the patient was discharged to home without any additional care), discharge with additional care (if the patient was discharged to a short-term facility or another facility, such as a skilled nursing facility or intermediate care facility), or admitted to inpatient care (if the patient was admitted to the same facility for inpatient care). Mortality in the ED or hospital was defined as any death occurring during the ED visit or during the inpatient admission. Total charges for the ED visit or inpatient admission were also recorded for each patient. Using the Department of Labor's Consumer Price Index, total charges were adjusted for inflation and reported in 2017 dollars.²⁶

Because the Nationwide Emergency Depart-

Efforts to reduce firearm-related injuries have been limited as a result of the politicized environment surrounding gun violence.

ment Sample is a limited data set, meaning that all identifiable information has been removed, patients' consent was not required. This study was approved by the Johns Hopkins Institutional Review Board.

STATISTICAL ANALYSIS Categorical data were reported as whole numbers and percentages, while continuous data were reported as means with standard deviations (SDs). Categorical data were compared using Pearson's chi-square test, while continuous data were compared using Student's *t*-test. The Cochran-Armitage test of trends was used to compare trends over time.

Using the methodology outlined by AHRQ, discharge-level weights provided within the Nationwide Emergency Department Sample were applied to the study sample to calculate nationally representative, population-level estimates.²⁷ Specifically, population-level estimates were calculated in accordance with the stratified sampling methodology employed by AHRQ and explicitly accounted for patients presenting to all EDs based on geographical region, trauma center designation, urban versus rural location, hospital teaching status, and hospital ownership.²⁷ Age- and sex-specific population estimates were calculated using census data. Specifically, weighted estimates by patient age and sex were divided by the total number of people in each patient group and reported as estimates per 100,000 people. A *p* value of < 0.05 was used to determine significance.

All analyses were performed using Stata, version 14.0.

LIMITATIONS The current study had several limitations. First, as the study used data from the Nationwide Emergency Department Sample, it included only patients who presented to the ED and could not account for patients who either

died before reaching an ED or hospital (prehospital deaths) or did not present to an ED or hospital following a firearm-related injury. Thus, the study results underestimate the true burden of firearm-related injuries in the United States, the number of people who died from a firearm-related injury, and the financial burden associated with the management of these injuries. This is particularly important in the case of people who died at the location of injury and those who completed suicide but were never transported to an ED or hospital.

Second, given that we used administrative data, our results were subject to all potential limitations inherent in the use of such data. These include the potential for misclassification or miscoding of variables and the omission of important physiological and injury-specific variables.²⁸ To overcome this limitation, we used ICD-9-CM codes specified by the CDC and a previously validated mapping algorithm to generate injury-specific measures.^{1,2}

Third, as the Nationwide Emergency Department Sample does not report patient race, we could not evaluate the burden of firearm-related injuries relative to patients' race or report on trends in firearm-related injuries by patients' race, which has been identified as a potential risk factor for firearm-related injury.⁷

Fourth, as the sample does not provide ED-specific cost-to-charge ratios, we could not calculate the actual costs associated with firearm-related injuries and could report only the total ED charges—which might not always reflect the true financial burden associated with these injuries. It is important to note, however, that a significant proportion of our population was uninsured or categorized as self-pay, and such patients may incur hospital bills equal to the full hospital charge.

Finally, as the Nationwide Emergency Department Sample is a cross-sectional database, we could not follow each patient over time and were therefore unable to report on long-term outcomes, including recidivism, survival, or functional outcomes such as the quality of life—all of which may be correlated with the clinical and financial burden of disease. Furthermore, we could not calculate the financial burden associated with the long-term sequelae of firearm-related violence, including subsequent readmissions, rehabilitation, and the costs associated with lost work and productivity following a firearm-related injury.

Study Results

INCIDENCE OF FIREARM-RELATED INJURIES BY AGE AND SEX We identified 150,930 people

who presented alive to the ED with a firearm-related injury in the period 2006–14. This represented a weighted estimate of 704,916 patients, or an estimated 25.3 ED visits per 100,000 people (for the characteristics of the unweighted and weighted populations, see Appendix Exhibit A3).¹⁶

The incidence of ED visits for firearm-related injuries was observed to vary with patient age and was lowest among patients younger than age 10 (per 100,000 people, those ages 0–4 years had 1.4 ED visits, and those ages 5–9 had 1.3 visits), and highest among patients ages 15–29 (per 100,000 people, those ages 15–19 had 66.4 ED visits; ages 20–24, 85.7 visits; and ages 25–29, 59.2 visits) (for a graphical presentation of these numbers, see Appendix Exhibit A4).¹⁶ Although this pattern by patient age was observed among both male and female patients, the incidence of firearm-related injuries was approximately ninefold higher among male patients (45.8 ED visits per 100,000 people) than among females (5.5 visits). For males ages 20–24, 152.8 patients per 100,000 people presented to the ED

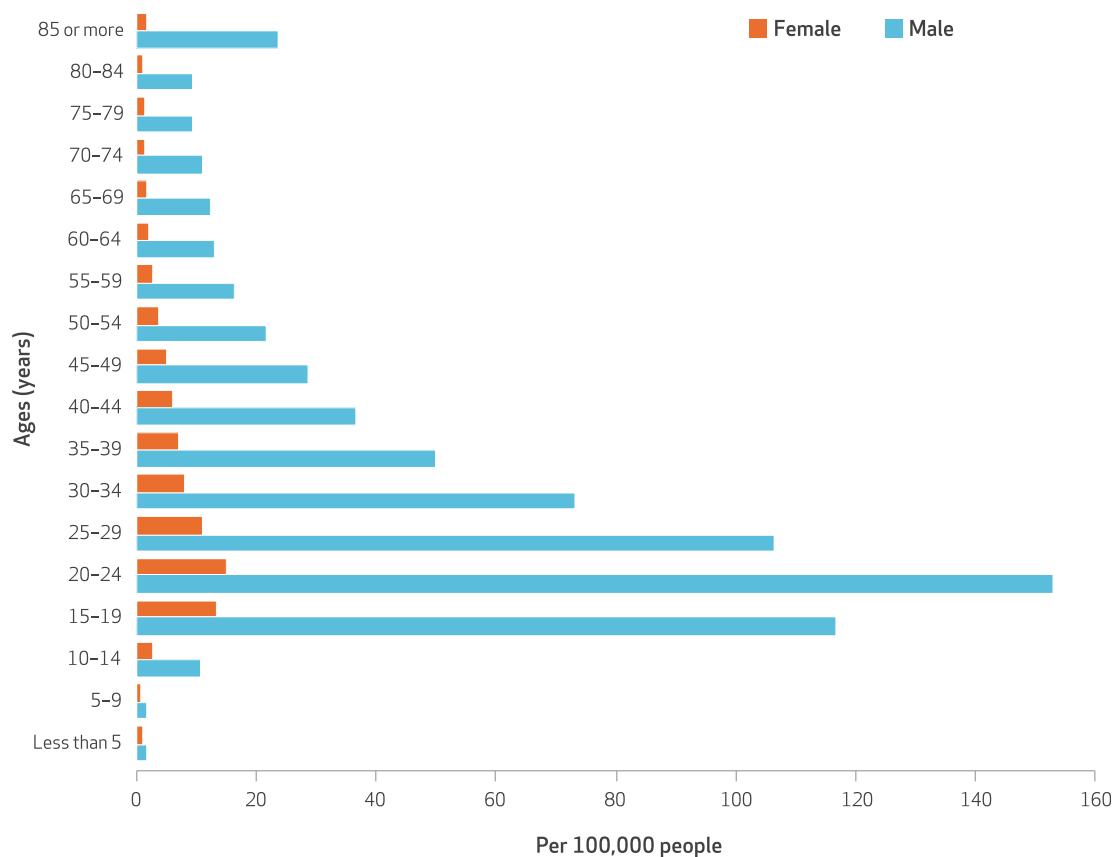
for a firearm-related injury during the study period (Exhibit 1).

INCIDENCE OVER TIME BY PATIENT, INJURY, AND HOSPITAL CHARACTERISTICS The incidence of ED admissions for firearm-related injuries decreased from 27.9 ED visits per 100,000 people in 2006 to 21.5 visits in 2013 (a decline of 22.9 percent; $p < 0.001$, using the Cochrane-Armitage test of trends) (for trends over time in ED visits per 100,000 people, see Appendix Exhibit A5).¹⁶ Interestingly, an increase in the incidence of firearm-related injuries was observed in the last year of the study, with 26.6 ED visits per 100,000 people in 2014 (an increase of 23.7 percent in one year; $p < 0.001$, using the Cochrane-Armitage test of trends).

Over the study period, male patients demonstrated a disproportionately higher incidence of ED visits for firearm-related injuries, compared with female patients. Of note, while the incidence of ED admissions for firearm-related injuries was observed to decrease among patients ages 18–29, the incidence increased among older patients during the study period (for character-

EXHIBIT 1

Incidence of emergency department visits for firearm-related injuries, by patient age and sex



SOURCE Authors' analysis of data for 2006–14 from the Nationwide Emergency Department Sample.

istics of patients by time interval, see Appendix Exhibit A6).¹⁶ Similarly, we saw increases over time in the proportions of patients presenting with a diagnosis of a mental health disorder (from 5.3 percent in 2006–08 to 7.5 percent in 2012–14, for an increase of 41.5 percent; $p < 0.001$) and patients with an unintentional firearm-related injury (from 33.7 percent to 37.4 percent, for an increase of 11.0 percent; $p = 0.050$).

PATIENT, INJURY, AND HOSPITAL CHARACTERISTICS BY INTENT OF INJURY AND FIREARM USED

The majority of patients who presented alive to the ED for a firearm-related injury were injured in an assault (348,691 patients, or 49.5 percent) or unintentionally (248,938 patients, or 35.3 percent). Attempted suicides and legal interventions accounted for 5.3 percent (37,653 patients) and 2.4 percent (17,167), respectively. Patients sustaining a firearm-related injury unintentionally or in an assault or legal intervention were more likely to be younger, compared with patients injured in a suicide attempt (Exhibit 2). Assault was the most common mechanism for a firearm-related injury among patients enrolled in Medicaid (91,531 patients, or 57.3 percent) and among those who were categorized as self-pay (148,421 patients, or 52.0 percent) or no charge (42,872 patients, or 57.3 percent). However, the proportion of patients injured in an attempted suicide was more than twofold higher among Medicare enrollees, compared with patients enrolled in other insurance plans: The proportion of patients injured in an attempted suicide was 20.0 percent for those with Medicare but only 8.3 percent for those with

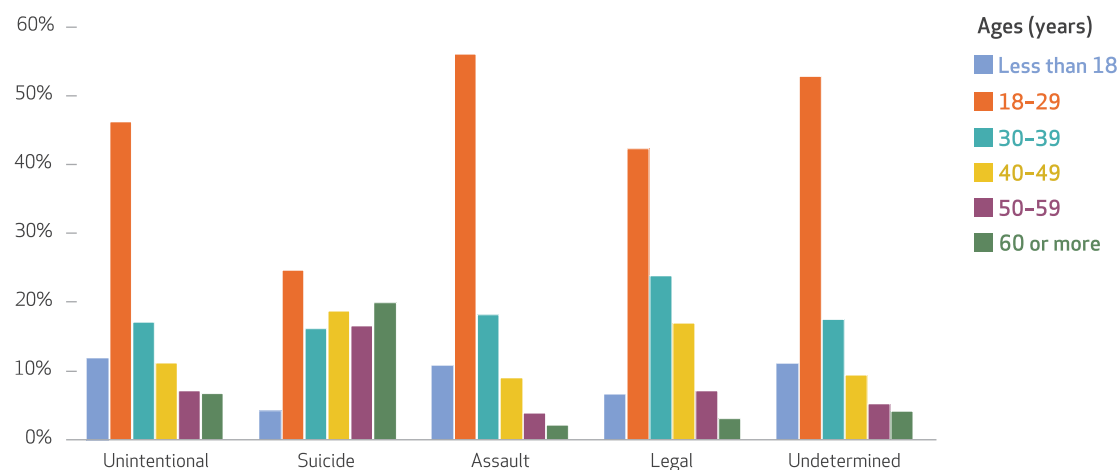
private insurance, 3.2 percent for those with Medicaid, 3.5 percent for those categorized as self-pay, and 3.9 percent for those categorized as other ($p < 0.001$) (for characteristics of patients, in addition to payer, by intent of injury, see Appendix Exhibit A7).¹⁶ Patients injured during a suicide attempt were also more likely to be in the highest income quartile, while the incidence of assault-related injuries was the highest among patients in the lowest income quartile (for characteristics of patients by median household income quartile determined by ZIP code, see Appendix Exhibit A8).¹⁶

Of note, the incidence of mental health disorders was highest among patients injured in an attempted suicide: 40.8 percent (or 15,364) patients (for characteristics of patients by the presence of mental health disorders, see Appendix Exhibit A9).¹⁶ Substance abuse disorders were also observed to be significantly higher among patients injured this way (16.8 percent, or 6,308 patients) and among patients injured in a legal intervention (18.5 percent, or 3,172 patients) (for characteristics of patients by the presence of substance abuse disorders, see Appendix Exhibit A10).¹⁶

Among patients who presented alive to the ED, handguns were the most commonly used identified firearm (27.0 percent, or 190,396 patients), followed by shotguns (5.9 percent, or 41,500 patients) and hunting rifles (2.0 percent, or 14,256 patients). The primary firearm used was unspecified or other for 64.9 percent (457,492 patients). Of note, the incidence of mental health disorders was higher among patients injured by a hunting (12.6 percent) or

EXHIBIT 2

Percentages of firearm-related injuries by intent of injury and patient age



SOURCE Authors' analysis of data for 2006–14 from the Nationwide Emergency Department Sample. **NOTES** "Legal" refers to injuries incurred during legal interventions (explained in the text). Additional data are presented in Appendix Exhibit A7 (see Note 16 in text).

military rifle (12.5 percent), compared with those injured by a handgun (9.2 percent) or shotgun (8.8 percent) (for characteristics of patients by firearm type, see Appendix Exhibit A11).¹⁶ In contrast, the incidence of substance abuse disorders was higher among patients injured by a handgun (11.2 percent) or a shotgun (10.5 percent), compared with those injured by a hunting rifle (7.3 percent) or military rifle (6.6 percent).

Overall, assault was the most common mechanism of a firearm-related injury for patients injured via a handgun (104,569 patients, or 54.9 percent) or a shotgun (19,552 patients, or 47.1 percent) (Exhibit 3 and Appendix Exhibit A11).¹⁶ In contrast, 71.2 percent (10,145) of the patients injured by a hunting rifle suffered unintentional injuries, while 15.4 percent (2,191) were injured in an attempted suicide. Of the patients injured by a military rifle, 56.9 percent (722 patients) were injured unintentionally.

PATIENT, INJURY, AND HOSPITAL CHARACTERISTICS ASSOCIATED WITH MORTALITY AND DISCHARGE DISPOSITION Among all patients presenting to the ED with a firearm-related injury, 48.0 percent (338,279 patients) were discharged home and 7.7 percent (54,541) were discharged to additional care facilities, while 37.2 percent (262,032) were admitted to inpatient care and 5.2 percent (36,873) died during their ED visit (for characteristics of patients by discharge disposition, see Appendix Exhibit A12).¹⁶ Mental health and substance abuse disorders were more common among patients who were admitted to

inpatient care. Patients admitted to inpatient care also presented with higher injury severity scores. After an inpatient admission, 72.6 percent (190,099) of patients underwent a routine discharge, and 17.8 percent (46,716) were discharged to additional care; in-hospital mortality was 8.0 percent (20,897).

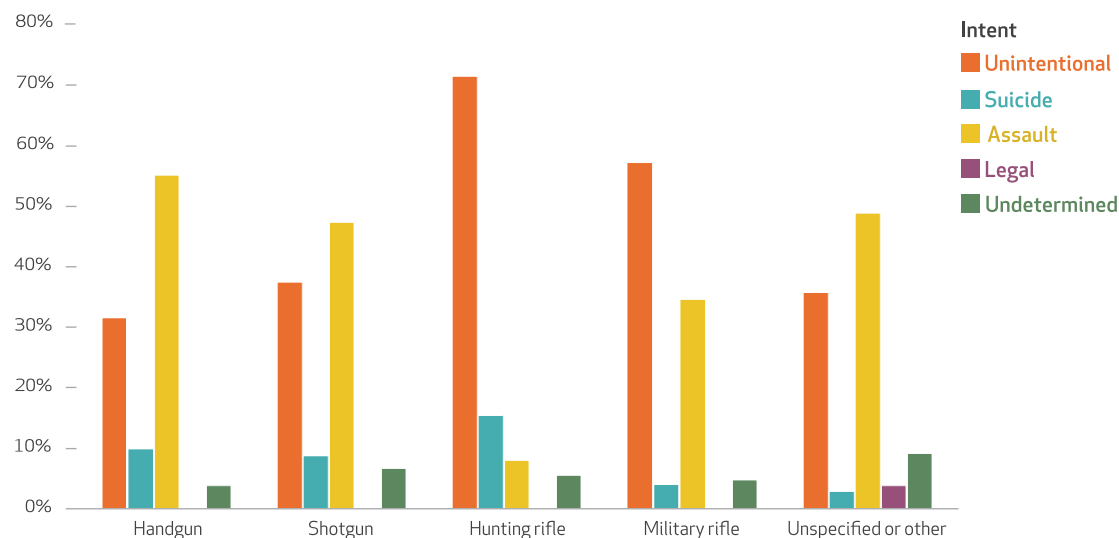
Overall 8.3 percent (57,752) of the patients died in the ED or during their inpatient admission (for characteristics of patients by ED or inpatient mortality, see Appendix Exhibit A13).¹⁶ Mortality increased as patient age did and was highest among those ages sixty and older—23.3 percent (7,926 patients) (Exhibit 4 and Appendix Exhibit A13).¹⁶ Compared to patients presenting with less severe injuries, those with more severe injuries had a higher mortality rate: 32.7 percent (24,705) of patients with an Injury Severity Score of 15 or more died in the ED or during an inpatient admission.

Although assaults accounted for 42.1 percent of all deaths (Appendix Exhibit A13),¹⁶ mortality was disproportionately higher among patients injured in an attempted suicide (7.0 percent for assault versus 38.5 percent for suicide) (Exhibit 4). Of note, deaths in the ED or hospital following an attempted suicide accounted for 24.9 percent of all deaths that occurred during an ED visit or inpatient admission for a firearm-related injury.

EMERGENCY DEPARTMENT AND INPATIENT CHARGES The mean per person charge for services rendered in the ED was \$5,254 (SD: \$9,256), while the mean per person charge for

EXHIBIT 3

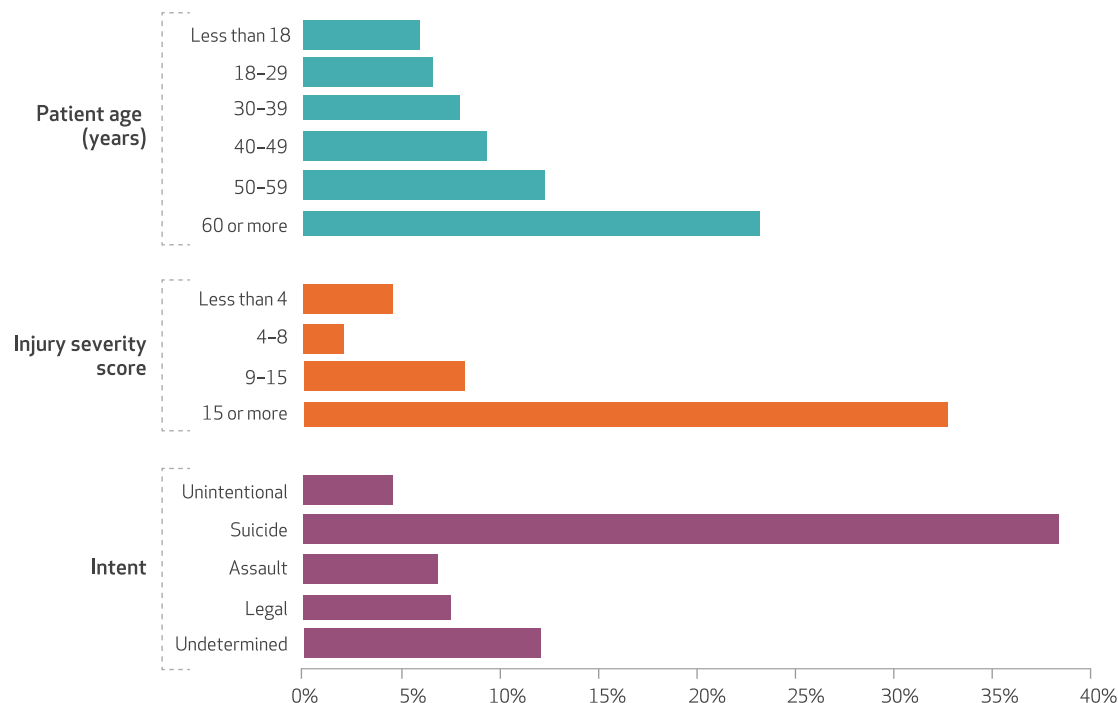
Percentages of firearm-related injuries by type of firearm used and intent of injury



SOURCE Authors' analysis of data for 2006–14 from the Nationwide Emergency Department Sample. **NOTES** "Legal" refers to injuries incurred during legal interventions (explained in the text). Additional data are presented in Appendix Exhibit A11 (see Note 16 in text).

EXHIBIT 4

Percentages of emergency department (ED) or inpatient mortality among patients who reached the ED alive after a firearm-related injury, by selected characteristics



SOURCE Authors' analysis of data for 2006–14 from the Nationwide Emergency Department Sample. **NOTES** The injury severity score is explained in the text. "Legal" refers to injuries incurred during legal interventions (explained in the text). Additional data are presented in Appendix Exhibit A13 (see Note 16 in text).

services rendered in the inpatient setting was \$95,887 (SD: \$156,596) (for average and total ED and inpatient charges, see Appendix Exhibit A14).¹⁶ This amounted to a total of \$2.9 billion in ED charges and a total of \$22.0 billion in inpatient charges during the study period. Patients who died during an ED visit demonstrated the highest mean ED charge (\$11,463; SD: \$15,365) and accounted for 11.7 percent of the total ED charges. In contrast, the highest mean inpatient charge (\$179,565; SD: \$244,622) was observed among patients discharged to additional care, who accounted for 33.4 percent of all inpatient charges.

Discussion

The results of the current study are consistent with previous estimates of firearm-related injuries in the United States. For example, according to data collected by the CDC, an estimated 970,622 individuals suffered a firearm-related injury in the period 2006–14.^{2,29} Furthermore, according to these estimates, the burden of non-fatal firearm-related injuries was 2.4 times that of fatal injuries. While more recent research has focused on fatal firearm-related injuries, con-

temporary estimates evaluating firearm injuries as a whole are lacking. The current study is important because it adds to existing research that examined the epidemiology of firearm-related injuries and provides contemporary estimates for these injuries. In our nationally representative study, the overall incidence of ED visits for firearm-related injuries for the period 2006–14 was 25.3 per 100,000 people. Although the incidence of ED visits for firearm-related injuries decreased over time, there was a significant increase in 2014, the last year of the study period. Furthermore, the overall observed incidence was disproportionately higher in the United States than in other high-income countries, including Germany, Japan, and the United Kingdom.^{3,4}

Although numerous previous studies have identified and proposed effective interventions to limit firearm-related violence, efforts to reduce firearm-related injuries have been limited as a result of the politicized environment surrounding gun violence and a lack of will to consistently implement proposed policies.^{30,31} Furthermore, while policy makers have proposed improved access to mental health facilities as a way to curtail gun violence, data from the current study and others suggest that although

these efforts would likely reduce the number of deaths associated with mental health disorders—particularly those due to a suicide attempt—they would have a limited impact on the overall burden of firearm-related injuries, given the small share of patients with such injuries who have a mental health disorder.^{32,33} For example, only 6.5 percent of patients in the current study were diagnosed with a mental health disorder. It is important to note, however, that while attempted suicides accounted for only 5.3 percent of firearm-related injuries in the current study, the mortality for this subgroup of patients was 38.5 percent, and the subgroup accounted for 24.9 percent of the patients who died during their ED visit or inpatient admission.

More effective methods of reducing firearm-related injuries may involve limiting access to firearms for people with a history of violence, drug addicts, former convicts, children, and fugitives via the implementation of universal background checks for all firearm purchases regardless of location (for example, online or at a gun show). The concept of universal background checks has garnered significant approval from both people who own guns and those who do not, and a recent report suggests that 74 percent of members of the National Rifle Association are in favor of them.^{13,34} Furthermore, encouraging gun owners to be registered with local agencies and limiting the unchecked sale or resale of firearms would promote additional responsibility and accountability, thereby reducing firearm-related violence.³⁵ Multiple studies have demonstrated that background checks—particularly among people with mental illness, fugitives, and those with a history of misdemeanors—have reduced rates of suicide and homicide.^{36,37} Future policies must promote more effective ways of limiting firearm access, particularly among people with a history of mental health disorders or criminal records.

In the current analysis, the financial burden associated with firearm-related injuries was estimated to be \$24.9 billion in ED and inpatient charges during the study period, amounting to approximately \$2.8 billion per year. Charges were observed to vary by several patient and injury characteristics, with higher ED charges for uninsured and severely injured patients. Similarly, inpatient charges were highest among the middle-aged, Medicare enrollees, patients presenting with preexisting comorbidity (specifically, mental health disorders), and severely injured patients.

These findings have several policy implications, given the disproportionate share of firearm-related injuries among those patient populations. For example, because uninsured

Despite the high clinical and financial burden associated with firearm-related injuries, resources allocated to preventing them remain low.

or self-pay patients lack negotiating power and thus leverage with payers, either they bear the entire financial burden of their injuries in the form of out-of-pocket spending, or these costs remain unrecovered—thereby adding to the uncompensated care provided by hospitals, physicians, and health care systems.³⁸ Additionally, it is important to note that given the incremental costs associated with postdischarge physical therapy, trauma counseling, in-home care, and lost income, our results likely underestimate the true financial burden associated with these injuries.³⁹ Using data from the CDC's Web-Based Injury Statistics Query and Reporting System (WISQARS),⁴⁰ we estimated that the annual financial burden of firearm-related injuries amounted to \$45.6 billion, combining medical costs (\$1.1 billion) and work-loss related costs (\$44.5 billion) (see Appendix Exhibit A15).¹⁶

Although firearm-related injuries are a major public health concern with significant financial consequences, research in this area has been limited as a result of a lack of funding.⁴¹ For example, while gun violence is responsible for about as many deaths as sepsis is, funding for gun violence research is equivalent to 0.7 percent of the funding allocated for sepsis, and for every hundred articles published on sepsis, only about four are published on gun violence.⁴² Historically, federal funding for gun violence research has been limited because of the Dickey Amendment of 1996, a provision in that year's federal government omnibus spending bill stating that funds made available to the CDC for injury research cannot "be used to advocate or promote gun control." Despite recent efforts to repeal this amendment, research funds for the study of firearm-related injuries have yet to be appropriated by Congress.⁴³ Researchers, politicians, and gov-

ernment officials must work together to ensure that research funds are allocated to promote the understanding of the complex interplay between social, economic, and medical factors associated with firearm-related injuries.⁴⁴ Only through the adoption of an evidence-based public health approach can the resulting substantial medical and financial burden be reduced.^{44,45}

Conclusion

Using a nationally representative data set, we demonstrated that in the period 2006–14, 25.3 patients per 100,000 people presented to the ED

for a firearm-related injury. Among these patients, 37.2 percent (262,032) were admitted as inpatients, and 8.3 percent (57,752) died in the ED or during their inpatient admission. Firearm-related injuries for our study population resulted in an estimated financial burden of approximately \$25 billion in ED and hospital charges over the study period. Despite the high clinical and financial burden associated with firearm-related injuries, resources allocated to preventing them remain low. Future policies related to firearms should focus on better understanding and preventing these injuries. ■

Some of the contents of this article were presented at the Clinical Congress of the American College of Surgeons, San Diego, California, October 22–26, 2017.

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