iterations, the algorithm identified OUD with >90% sensitivity and 67% specificity. The OUD ICD codes had 59% sensitivity and 93% specificity, underscoring the extent underestimation.

Conclusions This is the first study to measure the sensitivity and specificity of OUD ICD codes and develop an algorithm to address OUD underestimation. This work can be used in future research on OUD prevention and management.

Significance Strategies to address the opioid epidemic have primarily focused on prevention of overdose deaths. Underdiagnoses of OUD may contribute to frequent failure in connecting patients to treatment. From an injury pyramid perspective, preventing OUD development or escalation would reduce overdoses and improve quality of life for patients with OUD.

Youth violence

0109 DO ANTI-BULLYING LAWS WORK? A 26 YEAR ANALYSIS OF LAWS IN THE UNITED STATES

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10.1136/injuryprev-2021-SAVIR.82

Statement of purpose Although all 50 states have enacted anti-bullying legislation, research is limited on the effectiveness of these laws. The goal of this study is to evaluate whether these laws prevent bullying and other forms of youth violence.

Methods/Approach We linked 1991–2017 student-level reports of youth violence collected through the Youth Risk Behavior Surveillance System (YRBSS) with 1999–2017 data on codified anti-bullying policies and their amendments developed by the Public Health Law Research Center (Temple University). We employed survey-weighted logistic regression models that examined time-varying state policies to compare the annual rates at which bullying and physical fighting change over time in states with and without anti-bullying policies. The effects of specific policy components (e.g., definitions, scope, funding, training) were also individually assessed. We additionally examined one-, two-, and three- year lagged effects.

Results We observed a modestly more rapid reduction over time in the occurrences of physical fighting at school within states that enacted anti-bullying policies relative to those that did not (Ratio of Odds Ratios (ROR): 0.971, 95% CI: (0.965, 0.977)), which corresponded to a predicted 2600 fewer physical fights per million students. However, we did not observe comparable protective effects for bullying. Results for lagged effects were similar in magnitude. Effect sizes for individual policy components ranged from ROR = 0.952 to ROR = 1.035 among models corresponding to physical fighting, and ROR = 0.974 to ROR = 1.022 among those corresponding to bullying. Policies that enforced training for prevention programs had the strongest protective effect for physical fighting (ROR=0.952).

Conclusion Although anti-bullying policies overall have modest impacts on school violence, these effects are associated with reduced burden at a population-level. Policy makers may want to focus on individual components, such as requiring training for prevention programs, which may play a larger role in reducing violence outcomes.

Health equity

0110 EMOTIONAL/BEHAVIORAL DIFFICULTIES AND RACIAL AND ETHNIC DISCRIMINATION AMONG YOUTH AND FAMILIES: RESULTS FROM A PILOT STUDY

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10.1136/injuryprev-2021-SAVIR.83

Statement of purpose Racial discrimination presents a lifelong chronic stressor and has been found to impact mental health outcomes for individuals and their families. In a sample of families receiving before- and after-school services, we surveyed children and parents on their experiences with racial discrimination and correlated results to children's emotional and behavioral difficulties.

Methods/Approach Using a community-engagement approach, children and parent dyads were recruited from Twin Cities Boys and Girls Clubs. Parents and children completed questionnaires on their experiences with racial discrimination along with the Strengths and Difficulties Questionnaire for children. Linear regression adjusted for gender and race to compare racial discrimination scales to both parent- and self-reported emotional and behavioral difficulties for children.

Results 32 racially diverse child-parent dyads were enrolled into the study and returned the cross-sectional survey. Overall, 91% of parents and 80% of children reported some form of racial discrimination in their lifetime, such as receiving unfair treatment at work or school, experiencing threats or harm, or being insulted, devalued, or excluded because of their race or ethnicity. An increase in children's emotional/behavioral difficulties was observed with each additional experience of racial discrimination reported by children ($\beta=1.5$, 95% CI 0.4–2.5) as well as with each unit increase in the lifetime racial discrimination scale for parents ($\beta=5.0$, 95% CI 0.8 – 9.2).

Conclusions Racial discrimination, including the effects of lifetime racism experienced by their parents, can impact the emotional and behavioral health of children. Early intervention is critical to reducing the adverse effects of transgenerational racism and ethnic discrimination.

Significance This pilot study underscores the importance of preventing childhood trauma among racially and ethnically-diverse communities. Community-based injury research may benefit from considering both the experiences of children and parents in relation to children's injury or mental health outcomes.

Occupational safety

0111 AN ANALYSIS OF FORKLIFT RELATED FATALITIES IN THE UNITED STATES FROM 2001 TO 2017

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10.1136/injuryprev-2021-SAVIR.84

Statement of purpose The recent growth of online retailing has been reflected in similar growth in the transportation and warehousing industry. There is concern that online retailers are jeopardizing worker safety in order to speed up product delivery. The safety of workers around forklifts—ubiquitous in

transportation and warehousing—is of particular concern. Most research on forklift related injuries used data prior to 2000. Examining more current data is warranted.

Methods/Approach We examined trends in forklift related fatalities occurring in the U.S. from 2001–2017 using data from the Census of Fatal Occupational Injuries. To identify the patterns of these types of fatalities by industry and specific cause, we are examining fatality reports from OSHA's Integrated Management Information System.

Results In total, 1788 forklift related fatalities occurred from 2001–2017. Fatalities increased from 123 in 2001, to a peak of 150 in 2005, before gradually declining to a low of 74 in 2017. The industries accounting for the largest proportion of forklift related fatalities were manufacturing (22.5%), construction (16.3%), transportation and warehousing (13.2%), and wholesale trade (12.1%).

Conclusions Forklift related fatalities have decreased overall since 2005. However, dozens of unnecessary deaths still occur every year due to forklifts. Prevention efforts should be targeted at the four industries accounting for 64.1% of all forklift related fatalities.

Significance While the number of fatalities from forklifts has decreased in recent years, these fatalities still happen all too frequently considering that most could be prevented. Understanding more about how these incidents happen will allow us to develop new interventions, which are especially needed in the four industries that account for almost two thirds of all forklift related fatalities. Our findings will create a blueprint for progress towards safer workplace practices in these industries.

Firearms

0112 THE NUMBER AND TYPE OF PRIVATE FIREARMS IN THE UNITED STATES: RESULTS FROM THE 2019 NATIONAL FIREARMS SURVEY

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10.1136/injuryprev-2021-SAVIR.85

Statement of purpose The purpose of this work is to provide updated nationally representative estimates of the US gun stock including novel estimates of the number of guns by gun type and sub-type.

Methods/Approach Data for this study came from a web-based, nationally representative survey of 2,950 gun owners conducted in August of 2019. Respondents were asked specific questions about household firearms including the number and types of guns in the home, storage practices, and reasons for ownership. To ensure results representative of the US adult (aged ≥ 18 years) population in 2019 we used weights that combined pre-sample and study-specific poststratification weights to account for oversampling and survey non-response in all analyses and in reporting weighted percentages and 95% confidence intervals.

Results The gun stock is an estimated 270 million guns among approximately 53.8 million gun owners across the United States. 45% are handguns and about 56% are long guns, including an estimated 18.9 million semi-automatic military style rifles. Handguns are the majority of guns owned by

those with two or fewer guns while long guns are the increasing majority of guns owned by those with three or more guns. Most of the private gun stock is found at the homes of gun owners (84%), but an estimated 4.5 million handguns can be found in cars.

Conclusions In order to effectively account for exposure, interventions and advice to improve storage of private guns should account for the number and types of guns owned, and when storage devices are provided, should consider long guns as well as handguns especially in homes with multiple guns.

Significance These estimates reflect firearms exposure and inform firearm injury prevention aimed at reducing household exposure.

Transportation Safety

0113 COST OF HEAD INJURIES CAUSED BY MOTORCYCLE CRASH AMONG HELMET USERS AND NON-USERS IN A PUBLIC TERTIARY CARE HOSPITAL OF KARACHI, PAKISTAN

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10.1136/injuryprev-2021-SAVIR.86

Statement of purpose Motorcycle riders are one of the most vulnerable road users. Helmet use may reduce healthcare cost due protective effects against head injuries. In this study, we aimed to estimate the difference in the healthcare cost of head injuries among motorcycle riders who were wearing helmet and those who were not wearing helmet at the time of crash.

Methods/Approach Motorcycle crash victims that were brought to a public tertiary care emergency in Karachi between July to September 2019 were studied through descriptive cross-sectional design. A self-structured standard questionnaire form was used to collect data on demographics, injury pattern, helmeting practice, and length of hospital stay, out-of-pocket payments (OOP), healthcare service utilization at the facility and all direct and indirect medical costs incurred during hospitalization period.

Results 323 motorcyclists were involved in the accident, 112 patients had head injuries with mean age of 32 years old. The helmeted motorcyclists had a significantly lesser median total healthcare cost of PKR 10796 (\$69) [IQR 9851 -12581] as compared to higher cost of PKR 12113 (\$77) [10431 - 50545] by the non-helmeted counterpart during the hospital stay.

Conclusion The results of this study demonstrates that helmet use among motorcyclists can significantly reduce healthcare costs and healthcare resource utilizations during hospitalization in managing head injuries. Thus, it is important to implement strict helmeting practice to decrease cost burden on healthcare facilities and patient's caregivers.

Significance The cost-saving ability of helmet use is widely reported around the globe. However, many studies have reported hospital charges instead of cost which may not reflect the actual cost of managing injuries. Our study has used healthcare cost estimation to provide contextual evidence on cost-saving ability of helmet and can help in prioritizing mandatory helmet use for injury prevention and reduction in economic burden on healthcare system.