

## Background

Gun injuries to the upper extremity cause significant disability and decreased work productivity. Improved understanding of risk factors and how these injuries occur could prevent future injuries.

## Aims

1. Identify risk factors for gun injuries to the upper extremity.
2. Understand patient disability and medical resource utilization related to gun injuries.

## Methods

Prospective cohort study enrolling patients with gun injuries to the upper extremity from a single academic center in Kentucky. Data collected includes a survey investigating risk factors and mechanism of injury, Disability of Arm, Shoulder, and Hand (DASH) questionnaire, and visual analog pain scale. Patient charts were reviewed for injury characteristics and outcomes.

The patient, injury and outcome variables were reported as means (95% confidence interval (CI),  $p \leq 0.05$ ) and compared to the adult KY population.

## Results

The majority of injuries occurred while storing or transporting (43.5%), or cleaning (17.4%) a gun (Figure 1). Fifty-seven percent required surgical intervention, 34.8% had an inpatient hospital stay, and 30.4% required an amputation. Only half of employed patients returned to work (average  $2.7 \pm 4.7$  weeks) post-injury.

Activity Resulting in Gun Injury

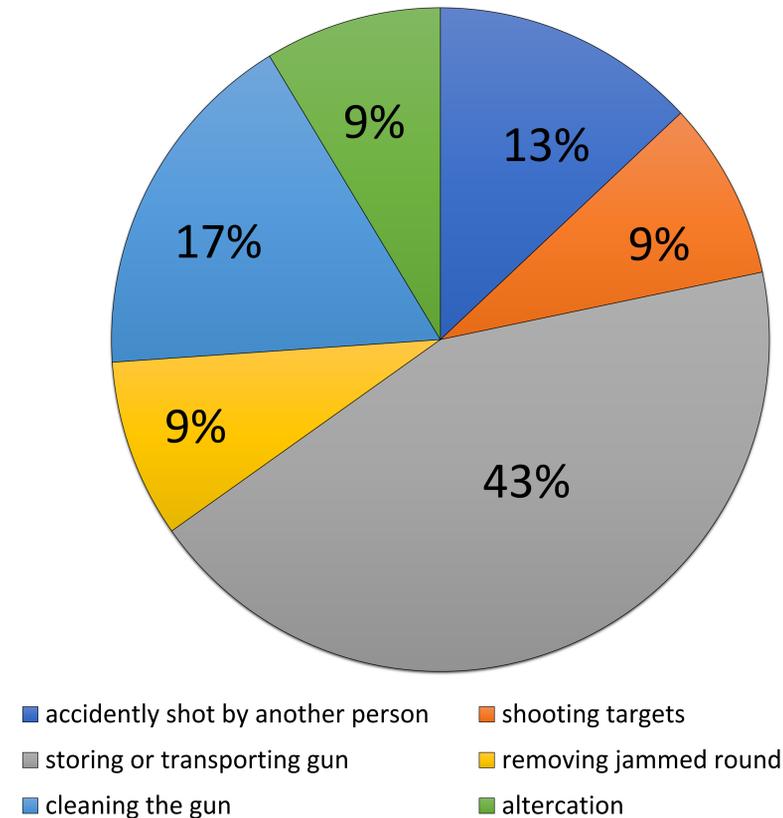


Figure 1. Activities resulting in gun injury to the upper extremity

Twenty-three respondents were included. The mean age was 40 years and the majority of injuries occurred in white (87.0%) males (95.7%). Forty-eight percent of patients resided in rural communities, 39.1% were unemployed, and 60.9% had Medicaid insurance. Male gender, unemployed work status, Medicaid insurance, and rural residence were all independent risk factors for gun injury to the upper extremity (Table 1).

The majority of injuries were self-inflicted (73.9%) to the non-dominant hand (69.6%) with a handgun (90.5%). Seventy-eight percent of patients reported formal gun training and 65.2% owned the injury-yielding gun.

	Gun Injury Population n=23	95% CI	Kentucky Population (%)
Male*	22 (95.7%)	81-100	49.3%
White	20 (86.9%)	73-100	87.5%
Medicaid*	14 (60.9%)	41-79	21.7%
Unemployed*	9 (39.1%)	21-59	6.0%
Rural*	11 (47.8%)	29-68	25.5%
Handgun*	21 (90.1%)	73-98	42.0%

Table 1. Risk factors for gun injury to the upper extremity \* $p \leq 0.05$

## Conclusions

Modifiable risk factors for gun injury to the upper extremity include rural residency, unemployed work status, and Medicaid insurance. The majority of injuries are self-inflicted and accidental. Gun safety training and longer period of gun ownership are not effective in preventing injuries.

## Acknowledgments

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## References

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