

One in nine ER patients with injuries caused by violence will visit ER again within two years

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Approximately one in nine people sent to Florida emergency rooms (ERs) for injuries caused by acts of intentional violence – including shootings, stabbings, assaults, etc. – in 2010 ended up being violently injured again within two years. The findings come from the most comprehensive study to date on recurrent violent injury, its costs and risk factors. Risk factors for recurrent violent injury included homelessness, residence in low income neighborhoods, and other ER visits for psychiatric emergencies or alcohol abuse. The nearly 70,000 ER visits for initial and recurring injuries included in the study generated almost \$600 million in medical charges. The study is co-led by researchers at the Perelman School of Medicine at the University of Pennsylvania, and appears this month in the *American Journal of Emergency Medicine*.

"As physicians, when we take care of injured people in the emergency room, we have a critical opportunity to assess their health and safety, and to prevent future injuries," said lead author Elinore Kaufman, MD, a resident in General Surgery at NewYork-Presbyterian/Weill Cornell Medical Center in New York, who conducted the study while earning a Master of Science in Health Policy at the Perelman School of Medicine at the University of Pennsylvania. "While [violence prevention programs](#) in trauma centers have been shown to be effective, recurrent violent [injury](#) is still very common and very costly. We need to be doing more to make sure every patient has the resources they need to stay safe."

The Centers for Disease Control and Prevention estimate that interpersonal violence led to 16,671 deaths, 140,343 hospitalizations, and 1,615,995 ER visits in 2010, and generated an estimated \$8.5 billion in medical costs – a figure that exceeds the annual GDP of many countries.

Violent injury is therefore widely regarded as a public health issue, and some hospitals have started intervention programs to prevent recurrences among victims. But studies of violent injuries and their recurrence have generally been very limited in scope – often limited to one city or hospital center – and have not done much to identify risk factors that could enable better targeting of interventions.

In the new study, the team collaborated with colleagues at the University of Florida College of Medicine to examine ER-reported injuries from [interpersonal violence](#) for the entire state of Florida, including all initial visits during 2010 and any recurrent visits within two years. Of 53,908 people who visited Florida ERs for violent injuries – excluding intentional injuries – in 2010, 11 percent were returned with a new violent injury at least once within two years. A significant number of these patients – 1,192 (20 percent) – had two or more recurrences, and 336 had recurrent injuries that were classified as severe.

In total, their ER visits – both initial and recurrent – generated \$596 million in medical charges. Recurring injuries accounted for 11,110 ER visits, 1,244 of which led to hospital admissions.

Other findings of the study include:

- Patients using Medicaid or who were uninsured had recurrent injuries at about twice the rate of other patients.
- Homeless patients, who made up a vastly disproportionate percentage of initial injury victims (1.3 percent) compared to the

- percentage of homeless (
- African Americans also made up a disproportionately high percentage of initial injury victims, and were 10 percent more likely to have a recurrent injury compared to whites, and 40 percent more likely to have a severe recurrent injury.
 - Female victims were as likely as men to have recurring injuries, but were 70 percent less likely to have a recurrent severe injury.
 - Patients who visited ERs for mental illness, alcohol abuse, or unintentional injury at any time during the study period also had much higher rates of [violent injury](#) recurrence, compared to those who didn't make such visits.

The analysis also revealed that only about a third of all violently injured patients, and half with severe injuries, were sent to specialized trauma centers, the rest being treated community non-trauma center ERs. In addition, more than half of patients were treated at a different hospital than where they were treated for their prior injury. The authors say this finding also points to the need for the delivery of effective violence prevention resources across both trauma center and non-trauma center hospitals. Referring victims of violence treated at non-trauma centers to existing violence intervention programs based at local [trauma centers](#) may be one way to do this.

"These findings can serve as a baseline for interventions aimed at reducing recurrence," said senior author M. Kit Delgado, MD, MS, an assistant professor of Emergency Medicine and Biostatistics & Epidemiology at the Perelman School of Medicine at the University of Pennsylvania. Targeting interventions to those treated in non-trauma center ERs, where surprisingly most victims are treated, could greatly expand the public health impact. Such interventions, he suggests, could be targeted especially at patients considered to be at high risk for recurrence based on criteria revealed in the study. "Our findings also highlight the potential for housing stability, behavioral health and

substance abuse programs to break cycles of violence," Delgado said.

More information: Elinore Kaufman et al. Recurrent violent injury: magnitude, risk factors, and opportunities for intervention from a statewide analysis, *The American Journal of Emergency Medicine* (2016). [DOI: 10.1016/j.ajem.2016.06.051](https://doi.org/10.1016/j.ajem.2016.06.051)

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