

High toll of gunshot injuries in children

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(Medical Xpress)—A research team led by Oregon Health & Science University (OHSU) and the University of California, Davis, reveals that childhood gunshot injuries, while uncommon, are more severe, require more major surgery, have greater mortality and higher per-patient costs than any other mechanism for childhood injury—particularly among adolescent males. The study is published online in the journal *Pediatrics*.

"There has been little science and lots of misinformation cited on the topic of gunshot injuries in [children](#)," said Craig Newgard, principal investigator for the study and director of the Center for Policy and Research in Emergency Medicine at OHSU. "This study was intended to add some objective data to the conversation."

Previous studies on gunshot injuries in children have focused almost exclusively on mortality.

This study is one of few to include the much broader number of children affected by gunshot injuries and served by 911 emergency services, both in-hospital and out-of-hospital measures of injury severity, and children with gunshot injuries treated outside major trauma centers.

To conduct this research, Newgard and his OHSU colleagues, in addition to investigators from UC Davis and other centers in the western United States, reviewed data from nearly 50,000 injured children aged 19 and younger for whom 911 emergency medical services (EMS) were activated over a three-year period in five western regions: Portland, Ore.; Vancouver, Wash.; King County, Wash.; Sacramento, Calif.; Santa Clara

Calif.; and Denver, Colo.

The research team looked at the number of injuries, severity of injury, type of hospital interventions, patient deaths and costs-per-patient in children with gunshot injuries compared with children whose injuries resulted from other mechanisms, including stabbing, being hit by a motor vehicle, struck by blunt object, falls, motor vehicle crashes and others.

They found that compared with children who had other mechanisms of injury, children injured by gunshot had the highest proportion of serious injuries (23 percent), major surgery (32 percent), in-hospital deaths (8 percent) and per-patient costs (\$28,000 per patient).

"While children with gunshot wounds made up only 1 percent of the sample, they accounted for more than 20 percent of deaths following injury and a disproportionate share of hospital costs," said Nathan Kuppermann, professor and chair of emergency medicine at the UC Davis Medical Center and co-author of the study. "The collaboration among the 10 emergency departments in the Western Emergency Services Translational Research Network enabled us to amass a large enough sample size to assess the physical and financial impact of gunshot injuries in children so that more effective injury prevention efforts can be developed."

The investigators concluded that public health, injury prevention and health-policy solutions are needed to reduce gunshot injuries in children and their major health consequences. The researchers state that curbing these preventable events will require broad-based interdisciplinary efforts, including rigorous research partnerships with national organizations, and evidence-based legislation.

"Over the first decade of the 21st century, firearms ranked second only

to motor vehicles as a cause of death for children and teenagers—Americans ages 1–19—considered as a group," said Garen Wintemute, the study's senior author and director of the UC Davis Violence Prevention Research Program. "We hope the findings of this study will help point the way toward effective prevention measures."

This multi-region, population-based, retrospective study used the Western Emergency Services Translational Research Network.

Provided by UC Davis

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