

# New national study examines pediatric mobility aid-related injuries

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Children and adolescents with an injury or disability may use mobility aids such as crutches, walkers and wheelchairs to help them move around more easily. However, use of these aids has been associated with risk for injury. A new study conducted by the Center for Injury Research and Policy of The Research Institute at Nationwide Children's Hospital found that more than 63,000 pediatric mobility aid-related injuries were treated in United States emergency departments from 1991-2008, and the annual number of cases increased 23 percent during the 19-year study period.

Results of the study, available as an early release online and appearing in the June print issue of *Pediatrics*, showed that most mobility aid-related injuries occur at home (60 percent). Two injury patterns were also revealed in the data. First, injury patterns varied by the type of mobility aid. Children who used crutches were more likely to sustain injuries to the arms and legs and to be diagnosed with a strain or a sprain. Children who used walkers or wheelchairs, on the other hand, had a higher likelihood of sustaining injuries to the head, were three times more likely to be diagnosed with a [traumatic brain injury](#) (TBI) and had a higher likelihood of being hospitalized for their injuries.

"The associations between injury characteristics and type of mobility aid may be a result of the limitations of the children who were using the various aids. Crutch users typically have fewer cognitive, stability and functional limitations than walker and wheelchair users," explained study author Lara McKenzie, PhD, principal investigator in the Center for

Injury Research and Policy at Nationwide Children's Hospital.

"Likewise, children who fall while using crutches may be able to catch themselves with their feet or hands more easily than those who fall while using walkers or wheelchairs, thereby preventing injuries to the head but leading to more upper extremity injuries."

Also revealed in the data were distinct age associated patterns of mobility aid-related injury. Younger children (10 years of age and younger), who made up 42 percent of all cases, were more likely to injure their heads and sustain TBIs. Children 11 to 19 years of age were more likely to injure their lower extremities and to sustain sprains or strains. The risk for transfer-related injuries, which are injuries that occur when children are moving from one activity to another such as getting in or out of the car or the bath tub, was also greater for older children. This is likely because older children may be more difficult for caregivers to lift or carry.

The study also examined injuries that resulted from the misuse of mobility aids, such as trying a friend's crutches or standing in a wheelchair. Misuse-related injuries occurred in 8 percent of all cases, and crutches were most commonly involved.

"Additional research is essential for identifying injury prevention strategies that are specific to the pediatric population and the particular mobility aids. Research on the underlying conditions and reasons for pediatric mobility aid use may expand the understanding of these injury patterns," said Dr. McKenzie, also a faculty member of The Ohio State University College of Medicine.

This is the first published study to describe the incidence, patterns and trends of pediatric mobility aid-related injuries to children and adolescents treated in U.S. emergency departments over the past two decades. Data for this study were collected from the National Electronic

Injury Surveillance System (NEISS), which is operated by the U.S. Consumer Product Safety Commission. The NEISS data set provides information on consumer product-related and sports and recreation-related injuries treated in hospital emergency departments across the country.

Provided by Nationwide Children's Hospital

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