

Study finds people over 65 with traumatic brain injuries hospitalized four times as often as younger people

July 6 2015, by Leslie Shepherd

A disproportionate number of people hospitalized in Canada with traumatic brain injuries are 65 years or older, a new study from St. Michael's Hospital has found.

While that age group represents only 14 per cent of the Canadian population, it accounted for 38 per cent of hospitalizations for TBI between 2006-07 and 2010-11, according to the study published in the *Journal of Trauma*. That's 3.8 times greater than for people under 65.

Furthermore, the rate of seniors being hospitalized with TBI increased 24 per cent from 2006-07 to 2010-11. In contrast, [hospitalization rates](#) declined 8 per cent among those under 65 and there was a significant decrease in those in the 15-24 age group. Together, these trends resulted in an increase in the median age of hospitalized TBI patients from 48 to 56 years.

The researchers looked at data from the Hospital Morbidity Database to examine nationwide trends in TBI hospitalizations and deaths. There were 116,614 TBI-related hospitalizations in Canada during the study period, resulting in 10,185 deaths.

"During this study period, hospitalization rates remained steady for children and [young adults](#), but increased significantly among adults ages 65 and older," said author Terence Fu, a medical student with the Injury

Prevention Research Office of St. Michael's Hospital.

"Elderly adults were most vulnerable to falls and experienced the greatest increase, 29 per cent, in fall-related hospitalization rates. Young adults were most at risk for [motor vehicle](#) collisions, but experienced the greatest decline in MVC-related admissions."

Falls and motor vehicle collisions were the most common causes of TBI, representing 51 per cent and 27 per cent of hospitalizations. However, TBI hospitalizations due to falls were on the rise - increasing 24 per cent over the study period - while hospitalizations due to motor vehicle collisions dropped 18 per cent. People over 65 were most vulnerable to fall-related TBIs, with 61 per cent of all falls occurring in that age group. Falls accounted for 82 per cent of hospitalizations among the elderly but only 32 per cent of hospitalizations among those under age 65.

The rise in fall-related TBI among the elderly likely relates to the rapid growth in this age group combined with the fact that people are living longer with more complex health issues and the likelihood of taking multiple medications. The oldest segment of the population is also most at risk of death following hospitalization for TBI, with a 1.4 to 2.0 fold higher risk of dying in-hospital compared to those ages 0-4.

Dr. Michael Cusimano, a neurosurgeon and the senior author on the work, said that the numbers also show that those who are admitted to hospital with TBI are sicker and more severely injured than they used to be so, hospitals and health care professionals should be prepared to manage more severe TBIs and older patients with more complex comorbidities. Declining rates of [motor vehicle collisions](#), especially for children and young adults (ages 5-24) may be attributable to increased awareness and successful [injury prevention](#) policies. Over the past 15 years most Canadian provinces have introduced some form of graduated

licensing programs, which includes requirements for adult supervision, lower demerit point thresholds and zero blood alcohol concentration limits for new and young drivers. Stricter federal impaired driving laws and improved enforcement over the study period could have further contributed to reduced motor vehicle collision rates. The increased use of child safety seats and recent introduction of federal child safety seat legislation could account for the decline in MVC rates among very young children.

Provided by St. Michael's Hospital

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