

August 11, 2010

Widespread variations exist in bike helmet laws across Canada

For Alison Macpherson, it's a no-brainer: helmets help prevent head injuries among cyclists.

Why then, wonders the university researcher, do only some provinces have legislation making helmet use mandatory? And why do nearly half of Canadian cyclists admit to riding their bike without wearing a helmet?

A recent survey from Statistics Canada, for example, revealed that 46% of the 11.4 million Canadians who reported bicycling in the past year never wore a helmet.

And while 37% of cyclists said they always wore a bicycle helmet, the results varied wildly across the country. Nova Scotia, with the country's most extensive helmet laws, recorded the highest rate of helmet use, with 66% of cyclists donning a helmet.

Conversely, Manitoba — which has no provincial bicycle helmet legislation — saw only 22% of its cyclists wear a helmet, the lowest rate in the country. Saskatchewan, which also lacks legislation, recorded a similar rate: 23%.

Not surprisingly, the provinces with some form of bicycle helmet legislation generally reported higher rates of helmet use. But do they also see fewer cycling-related head injuries?

It appears so, says Macpherson, an associate professor of kinesiology and health sciences at York University in Toronto, Ont.

"The best available evidence suggests that where there's a helmet law, there are fewer head injuries," she says. "The current state of scientific knowledge suggests that having a bicycle helmet law reduces head injuries."

In fact, that was the conclusion of a study conducted by Macpherson and colleagues which compared the rates of head injuries suffered by children in provinces with and without mandatory helmet legislation (*Pediatrics* 2006;110[5]:e60).

Between 1994–98, the rate of bicycle-related head injuries declined in all provinces, the study found. But the head injury rate declined far more significantly (by 45%) in provinces that adopted helmet laws. In provinces and territories without helmet legislation, the rate dropped by 27%.

"The strong protective association between helmet legislation and head injuries supports the adoption of helmet legislation as an effective tool in the prevention of childhood bicycle-related head injuries," concluded the authors.

Macpherson notes that must still be proven among adult cyclists. But among children, she says, the evidence is plain: a child in a province with a mandatory helmet law is less likely to suffer a bicycle-related head injury. "The best available evidence suggests that helmet laws reduce head injuries in children."

Nevertheless, the approach to bicycle helmet legislation differs greatly across Canada. At one end of the spectrum lie Nova Scotia, Prince Edward Island, New Brunswick and British Columbia, where all cyclists are required to wear a helmet.

Alberta and Ontario also have helmet laws in place, but in both cases the legislation only applies to those under 18.

Saskatchewan, Manitoba, Quebec and Newfoundland and Labrador do not have legislation governing bicycle helmet use. Similarly, none of the three territories have overarching legislation.

That patchwork approach irks Dr. Charles Tator, who in 1992 founded ThinkFirst, a national nonprofit organization dedicated to the prevention of brain and spinal cord injuries. Since then, it has pushed to strengthen helmet laws across the country. Tator says the goal is to have every province follow the lead of Nova Scotia, which made helmets mandatory for all cyclists — regardless of age — as well as for those using rollerblades, scooters and skateboards.

“There is no question that a bicycle helmet does protect the brain,” says Tator, a neurosurgeon at Toronto Western Hospital and professor of neurosurgery at the University of Toronto. “And in terms of causes of death, brain injury is number one with bicycle mishaps. When a bicycle injury kills, it’s not because of the heart, it’s not because of broken bones — it’s because of the brain injury.”

For Tator, the protection provided by helmets is key to curbing rising health care costs. According to ThinkFirst, each severe brain injury costs the health care system more than \$400 000 at the time of injury. And that cost is duplicated each year after the injury, due to the intensive follow-up treatment and care involved with brain injuries.

“Instead of putting on a \$20 helmet, you can end up costing society millions of dollars,” Tator says. — Quentin Casey, Halifax, N.S.

DOI:10.1503/cmaj.109-3319