Head first

Bicycle-helmet use and our children's safety

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Unintentional injuries are the leading cause of death among Canadians under 34 years of age and one of the leading causes of hospitalization.[1] In 1999 and 2000, bicycle injuries accounted for 4667 hospital admissions, with a mean stay of 4.1 days.[2] Head injuries generally constitute more than 25% of such admissions and account for 75% of deaths among injured cyclists.[3,4] Tragically, these injuries are largely preventable. In the United States, from 1994 to 2005, 92% of fatal bicycle accidents involved cyclists who were not wearing helmets.[5] A recent Cochrane Collaboration review concluded that bicycle helmets reduce the risk of head and brain injuries by up to 88%.[6]

Legislation and education

Efforts to increase the wearing of bicycle helmets have involved both legislative initiatives and educational campaigns. Currently, 5 provinces (British Columbia, Alberta, Ontario, New Brunswick, and Nova Scotia) have province-wide mandatory bicycle-helmet laws. These have all been consistently reported to increase helmet use and decrease bicycle-related head injuries.[7,8] Helmet use in Halifax, NS, was reported to increase from 36% 2 years before legislation to more than 80% 2 years after legislation.[7] Head injury rates in 4 of these provinces declined 45% over the 3-year period during which new legislation was enacted.[8] All of this strongly suggests that mandatory helmet legislation can be extremely effective. For various reasons, however, there is substantial opposition to legislation in the 5 remaining legislation-free provinces. Quebec is a notable example.[9] The principal argument of opponents—that legislation will reduce interest in cycling—remains unsubstantiated and, in light of the potential risks, unsupportable.

In stark contrast to the success of legislative efforts, educational campaigns have demonstrated very modest results in increasing helmet use and decreasing hospital admissions.[10] Despite the efforts of a number of private and government-funded educational campaigns, bicycle-helmet use remains discouragingly low in Quebec.[11] An observational survey of Quebec cyclists in 2002 reported helmet use in all age groups at 29% and at only 20% among those 10 to 15 years old.[12]

As part of a recent educational initiative on use of bicycle helmets carried out by the McGill University

Student Interest Group in Neurology, we conducted an informal survey of 424 sixth-grade students in the Montreal area. We found that almost 85% of respondents reported owning a bicycle, and more than three quarters of those with bicycles owned helmets. Only one third of respondents reported *ever* wearing a helmet while cycling, however, and less than one quarter reported *always* wearing a helmet.

Fairly high rates of owning a helmet and low rates of wearing a helmet might indicate that more emphasis should be placed on education on the protective benefits of proper helmet use. While many helmet campaigns facilitate access to helmets as a principal feature, perhaps this is less crucial than providing appropriate information and convincing cyclists of the importance of consistent helmet use.[9,13-15] This could be one reason educational campaigns have only had modest success.

Several studies have examined barriers to helmet use. They have consistently concluded that peer and parental use of helmets are the most crucial determinants of helmet use.[15-21] Finoff and colleagues reported that 7- to 10-year-old children cited discomfort as the most common reason for not wearing a helmet; the second most common reason was "don't need it."[15] In our informal survey of sixth-grade students, 35% of students similarly reported that they "don't need a helmet." There appears to be a common belief that an accident is unlikely while cycling, and the consequent

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perception is that there is no need to wear a helmet. At the very least, the perceived risk is not worth the discomfort. Education needs to be directed toward more explicitly conveying the risks associated with not using a helmet. This will be most effective if teaching methods also consider the role of peer and parental influence. It has even been suggested by children in focus groups that legislation is another important means of further encouraging greater helmet use.[21]

Family physicians as advocates

In all of this, family physicians have an important role. As medical professionals involved in the community, they can be authoritative and effective advocates for bicycle-helmet use among parents and children. As medical professionals with a respected voice, they can help make direct appeals to policy makers to encourage appropriate legislation in provinces, such as Quebec, that have not, up to this point, accepted the need for such legislation.

Only one third of respondents reported ever wearing a helmet while cycling

In short, although bicycle helmets have been shown to dramatically reduce the risk of head injuries, not everyone wears them. Mandatory bicycle-helmet legislation in 5 provinces has had a positive effect, and extending such legislation to the remaining provinces would almost certainly reduce injuries and fatalities. Reducing bicycle-related head injuries requires appropriately educating cyclists of all ages about the importance of wearing helmets. Family physicians can play an important role in this, both by educating their patients and by helping make policy makers more aware of their responsibility to protect our children.

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Competing interests
None declared

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