

Mandatory cycle helmets for under 14 years of age – an evidence review and recommendation

Research has shown a strong link between physical activity and a reduced risk of obesity, coronary heart disease, stroke, type 2 diabetes, and some cancers.^{1,2} As well as being economical and environmentally friendly, cycling can help to obtain the levels of physical activity recommended to achieve these health benefits. Cycling is generally considered a low risk activity and cycle helmets are not currently mandatory by law in Jersey or the UK, but are promoted as part of good road safety, especially among children. They are mandatory by law in Australia, New Zealand, Finland, Malta, various US States and a number of other countries for children ranging from under 15 to 18 year olds.

The evidence supporting the benefits of helmet legislation from a public health perspective is both contentious and highly conflicting. While the efficacy of helmets themselves are debated due to their design to mainly mitigate injury in low speed, low impact collisions, it is the decrease in cycling participation after legislation noted by some studies that has been of most concern^{3,4,5}. These studies show that where helmet legislation is introduced, cycling participation sharply decreases, with steeper reductions generally seen among teenagers. The overall cost in terms of years of life lost due to this decrease in physical inactivity has been estimated by many experts to outweigh the benefits of preventing potential acute injury⁶. As far as high level evidence goes however, the most recent Cochrane review concluded that helmets were likely to confer substantial risk reductions in the event of head injury, and that there were no studies of a high enough empirical standard to either support or negate claims that helmet laws discourage cycling.⁷ It is worth noting that this analysis only considered those studies that were properly controlled for. It therefore selected against those studies that form the majority of available evidence, i.e. those conducted either using counting sites or by collecting self-reported survey data, for instance from national censuses. In light of conflicting evidence the British Medical Association changed their stance on the topic in 2004, declaring their support of the introduction of legislation.⁸

Since reported decreases in cycling following helmet legislation, some Australian-based evidence points towards a recovery in cycling participation in recent years, for instance in the larger Australian cities and for transport purposes. There was also a reported increase in number of bicycles imported into the country. These findings are again highly contested, in that it is not possible to assess actual use of bicycles imported, and that cycling rates in urban areas account for only a small proportion of population wide figures. Results from the 2013 Australian Cycling Participation survey, which is the official source of data informing the government's national cycling strategy⁹, indicate a small but statistically significant decrease in the level of cycling participation across Australia for this same time period. Although there was a change in survey design for this research between 2011 and 2012, the authors conclude that this was unlikely to explain the observed change in participation.

The question of whether to introduce mandatory helmet use for children must be considered under a different premise to adults, being that children are more likely to have accidents when cycling. Hospital admissions data from the UK and elsewhere show that over half of all bicycle injuries involve children, and that this is a leading cause of accidental death among this age-group.¹⁰ Accident and Emergency data from Jersey General Hospital suggest a similar trend locally. One recent study concluded that the trade off in terms of accidents incurred vs. benefits to health at a population level is different for children¹¹, due to a higher absolute risk of accident. More research is needed to fully understand whether this difference is such that it would tilt the cost-benefit scale from a public health perspective.

Despite this uncertainty, a promotion only approach to helmet use is still stipulated within the guidance from the National Institute for Health Care Excellence (NICE) for children. They state that

schools, school travel advisers, injury prevention coordinators, local authorities and the police should encourage children and young people to undertake cycle training and to wear cycle helmets.¹² Factors contributing to this approach reviewed in other NICE guidance¹³ include but are not limited to:

- a dislike of wearing cycling helmets shown to be a barrier to cycling uptake among children
- factors around image and 'coolness'
- the need to make an additional purchase when buying a bike, which can impact on lower-socioeconomic groups (who may be likely to inherit a bike second-hand but not necessarily a helmet)
- the need to include helmets as part of rent-a-bike schemes.

Regarding the question of whether to legislate for helmet use the WHO state; "While the debate continues, the issue of promoting helmet use among children is less controversial".¹⁴

Overall it is recommended that interventions that have unequivocally been shown to reduce the risks to cyclists, such as improved infrastructure, cycle paths, and promoting safety awareness among other road users are prioritised¹³. The evidence for this approach points to resulting increases in cycling rather than decreases¹⁵. Of JASS respondents who stated that there were factors that would encourage them to cycle more, the most common factor was having more cycle routes in Jersey¹⁶. It is also recommended that first and foremost cycling is promoted as a routine, non-sporty, low-risk behaviour that is highly beneficial to health and well-being.

To conclude, while cycle helmets help mitigate harm caused by low impact accidents and potentially some of the risk from higher impact traffic collisions, it is not certain whether the reductions in cycling that may result from helmet legislation outweigh this benefit in terms of years of life lost. Legislation for mandatory helmet use for children may be more favourable than for adults, due to a higher rate of accidents among this group and the fact that the evidence base is still contested. However, a promotion only approach is still strongly recommended for increasing helmet use in adults.

¹ Health Impact of Physical Inactivity. 2013. [online] Available at: <http://ww.org.uk/resource/view.aspx?RID=123459> [w.aphoAccessed: 01 June 2013].

² World Health Organisation. 2014. WHO | Physical activity. [online] Available at: http://www.who.int/topics/physical_activity/en/ [Accessed: 1 Apr 2014].

³ Smith NC, Milthorpe MW, 1993. An Observational Survey of Law Compliance and Helmet Wearing by Bicyclists in New South Wales - 1993 (4th survey). NSW Roads & Traffic Authority ISBN 0-7305-9110-7

⁴ Clarke, Colin 2012. Evaluation of New Zealand's bicycle helmet law. New Zealand Medical Journal 125 (1349).

⁵ Gillham C, Rissel C. World Transport Policy & Practice 2012(May);18(3):5-10

⁶ Gleave, J. 2012 Cycle Helmets: The impacts of compulsory cycle helmet legislation on cyclist fatalities and premature deaths in the UK. Paper produced for the Transport Planning Society.

⁷ Macpherson, A. and Spinks, A. 2010. Bicycle helmet legislation for the uptake of helmet use and prevention of head injuries. The Cochrane Review Collaboration.

⁸ British Medical Association: Legislation for the compulsory wearing of cycle helmets. November 2004; Board of Science and Education

⁹Munro, C. 2013. Results of the 2013 National Cycling Participation Survey, Australian Cycling Participation. [report] Austroads Ltd 2013.

¹⁰Centers for Disease Control and Prevention. 2013. Home & Recreational Safety. [online] Available at: <http://www.cdc.gov/HomeandRecreationalSafety/Bicycle/> [Accessed: 9 Apr 2014].

¹¹De Jong P. The health impact of mandatory bicycle helmet laws. *Risk Anal* 2012;32:782-90

¹²NICE, 2010. Strategies to prevent unintentional injuries among the under-15s. Available at: <http://www.nice.org.uk/guidance/ph29/resources/guidance-strategies-to-prevent-unintentional-injuries-among-the-under15s-pdf>

¹³NICE, 2012. Walking and cycling: local measures to promote walking and cycling as forms of travel or recreation. Available at: <http://www.nice.org.uk/guidance/ph41/resources/guidance-walking-and-cycling-local-measures-to-promote-walking-and-cycling-as-forms-of-travel-or-recreation-pdf>

¹⁴WHO, Youth and Road Safety. 2007. Available at: http://www.who.int/violence_injury_prevention/publications/road_traffic/youth_roadsafety/en/

¹⁵Pucher, J. and Dill, J., et al. (2009) Infrastructure, programs, and policies to increase bicycling: An international review. *Preventive Medicine*, 50 p.106–125

¹⁶Health Intelligence Unit. 2008. Jersey Annual Social Survey 2008. [report]