

New Zealand bicycle helmet law – do the costs outweigh the benefits?

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Authors' abstract

Objectives: This paper examines the cost effectiveness of the compulsory bicycle helmet wearing law (HWL) introduced in New Zealand on 1 January 1994. The societal perspective of costs is used for the purchase of helmets and the value of injuries averted. This is augmented with healthcare costs averted from reduced head injuries.

Methods: Three age groups were examined: cyclists aged 5-12 years, 13-18 years, and >19 years. The number of head and non-head injuries averted were obtained from epidemiological studies. Estimates of the numbers of cyclists and the costs of helmets are used to derive the total spending on new bicycle helmets. Healthcare costs were obtained from national hospitalisation database, and the value of injuries averted was obtained directly from a willingness-to-pay survey undertaken by the Land Transport Safety Authority. Cost effectiveness ratios, benefit:cost ratios, and the value of net benefits were estimated.

Results: The net benefit (benefit:cost ratios) of the HWL for the 5-12, 13-18, and >19 year age groups was \$0.3m (2.6), -\$0.2m (0.8), and -\$1.5m (0.7) (in NZ \$, 2000 prices; NZ \$1.00 = US \$0.47 = UK £0.31 approx). These results were most sensitive to the cost and life of helmets, helmet wearing rates before the HWL, and the effectiveness of helmets in preventing head injuries.

Conclusions: The HWL was cost saving in the youngest age group but large costs from the law were imposed on adult (>19 years) cyclists.

Critique

1. The results claim a benefit for the age group 5-12. However, as the report admits, the results are very sensitive to helmet wearing rates before the law. This was 87% in the 5-12 age group, 56% in the 13-18 group and 39% for adults. Because the wearing rate was already so high for young children, relatively few helmets had to be purchased as a direct consequence of the law, resulting in lower user costs than for older users.

The study takes into account only the cost of helmets purchased when the law came into force, assuming previous purchases to have been 'voluntary'. However the 87% wearing rate was only achieved by a combination of pre-law publicity and persuading schools to introduce 'compulsory' wearing long before the law itself. By ignoring the cost of earlier helmet purchases, the study is misleading and substantially underestimates user costs.

On this basis alone, helmets are not cost-effective for 5-12 year old cyclists if fewer than two-thirds of the children would wear one with no external influence.

If only 5% of users would choose to wear a helmet voluntarily (typical of the Netherlands), benefit:cost ratios fall generally, to 0.30, 0.36 and 0.43 respectively for the 5-12, 13-18 and >19 year age groups.

2. The head injury reductions assumed for this report are those arising from *Head injuries to bicyclists and the New Zealand bicycle helmet law*. The critique for this key paper shows that its results are misleading, with no medium term net benefit in head injuries. If this is the case, the cost:benefit figures in this paper would be very much worse.
3. The costs assumed for quitting cycling are low in the extreme at \$49.95 (£15.48) per person. This includes just \$30 (£9.30) for reduced costs arising from reduced exercise and increased car use. By comparison it costs the economy £2 billion per year for obesity¹, which is just one of the negative health consequences when people no longer take regular exercise.

Even these very low costs are ignored by the report for people who quit cycling in the run-up to the law. In the view of the authors, fewer people cycling is seen as a positive outcome of the law.

References

- ¹ Department of Health, quoted by BBC News-on-line, 12th September 2002.