

Submission
No 56

INQUIRY INTO VULNERABLE ROAD USERS

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INQUIRY INTO VULNERABLE ROAD USERS

Submission

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TO:
Joint Standing Committee on Road Safety
Parliament House
Macquarie St, Sydney NSW 2000

Dear Sir/Madam,

This brief report has been compiled to help advise policy makers on how best to protect and cater for vulnerable road users, in particular to enhance health and safety for cyclists and all road users. I have written a number of reports on cycle helmets, including an assessment of the helmet laws in Australia published by Civil Liberties Australia¹ and I have contributed to peer reviewed reports over many years.

Parts

- 1) Overall safety considerations
- 2) New South Wales and cycle helmets
- 3) Specific comments regarding Sydney and cycle helmets
- 4) Legislation changes required

Part 1

Overall safety considerations

Cyclists fatality data from 1985/86 indicates for NSW approximately 70 fatalities per billion km cycled,² by comparison for the UK approximately 47 and for the Netherlands approximately 27 per billion km.³ Cycling fatalities in the Netherlands is currently approximately 11 per billion km cycled.⁴ The Netherlands probably achieve such low fatality rates due to a combination of factors, low driving speeds, low drink drive limits, good quality cycling facilities with clear views, moderate speeds for cycling due to mainly flat cycling conditions, cycle training and general good driving attitudes towards vulnerable road users, good arrangements for crossing roads and safety in numbers effects, approximately 27% of trips are by bicycle. In general terms, cycle helmets are not part of the Netherlands plan for keeping cycling popular

or for improving safety. Promotion of helmets would give the impression that cycling is unsafe; due to emphasising head injuries. Normal clothing is generally worn.

In Australia, in 2006/07, there were a total of 24,924,565 patient days in hospitals. Cyclist head injuries were 0.013% of the total or one in 7530 patient days.⁵ This shows the significance of head injuries to cyclists is not out of proportion to the number of people cycling and the time they spend cycling.

Part 2

New South Wales and cycle helmets

Concerns exist regarding cycle helmet legislation, for example.

A. Erke and Elvik (Norwegian researchers) 2007 stated: "There is evidence of increased accident risk per cycling-km for cyclists wearing a helmet. In Australia and New Zealand, the increase is estimated to be around 14 per cent."⁶

B. Cycling by secondary school children in Sydney reduced by 67% following legislation.

Table 1. Counts of child cyclists (N) and those wearing helmets (NH) in NSW before and in the first 2 years of the bicycle helmet law (from Walker, 1992; Smith & Milthorpe 1993).⁷

	1991(Pre law) N NH	1st law yr (1991) N NH	2nd law yr (1992) N NH
Child cyclists	6072 1910	3857 2929	3414 2479
<i>Change from 1991</i>		-2215 1019	-2658 569

The extra number wearing helmets was 569 compared with 2658 fewer cycling.

C. Robinson 1996 report, Table 2 shows data for children in NSW. The equivalent number of injuries for pre law level of number of cyclists increased from 1310 (384 head + 926 other injuries) in 1991 to 2083 (488 head + 1595 other injuries) in 1993. For NSW the helmet laws reduced children's safety.⁸ The increased injury rate were 59%, from 1310 to 2083.

- D. In practice, the main effect of the laws was to reduce cycling rather than improving safety.⁹**
- E. The UK's National Children's Bureau (NCB) provided a detailed review of cycling and helmets in 2005, stating that the case for helmets is far from sound and the benefits of helmets need further investigation before even a policy supporting promotion can be unequivocally supported.¹⁰**
- F. The British Medical Association reported that the health benefits of cycling exceed the injury risk by 20 to 1. Moderate cycling has many physical and mental benefits (BMA 1992) by reducing the risk of developing heart disease, diabetes, high blood pressure, colon cancer, depression and helping to control weight and increase fitness.¹¹**

Cardiovascular disease¹²:

- is heart, stroke and blood vessel disease
- kills one Australian nearly every 11 minutes
- affects more than 3.4 million Australian
- prevents 1.4 million people from living a full life because of disability caused by the disease
- affects one in five Australians, and affects two out of three families
- claimed the lives of almost 48,500 Australians (34% of all deaths) in 2008 - deaths that are largely preventable
- research has found "Unfit, lazy children are six times more likely to develop early signs of heart disease than those who are active and take exercise ... For the first time, experts have established that activity levels in children as young as seven can have a serious effect on their future health."

- G. A health benefit model developed at Macquarie University in Sydney and published in 2009 suggests Australia's national mandatory bicycle helmet laws incur a health cost to the country accounting to hundreds of millions of dollars every year.¹³**
- H. The health benefits of cycling results in about 18 premature deaths¹⁴ being avoided for each cyclist who dies, e.g. diseases of the heart and blood vessels 46626 deaths in 2007 for Australia, cyclists deaths 41. Even if helmets could provide a benefit, helmet laws still do massive damage.**
- I. Serious head injury is associated with head rotation and helmets increase the risk due to the larger size and extra impacts.¹⁵**

- J. In 2010 the NSW District Court has quashed a helmet conviction against a 50 year old woman who appealed her prosecution for failing to wear a helmet on the grounds of potentially harming herself through compliance with the law. The judge agreed with the evidence presented. According to the judge, the woman had *"an honestly held and not unreasonable belief as to the danger associated with the use of a helmet by cyclists ... It is clear that there is a significant argument taking place in certain scientific circles regarding the efficacy of helmets, in terms of their ability to protect. On one view, they appear to pose as much danger when worn as the danger of not wearing them. Unfortunately, that issue is an issue for Parliament in terms of whether they should rescind the mandatory requirement for helmets to be worn by cyclists."*¹⁶**
- K. A million cyclists may have been fined in Australia for not wearing a cycle helmet. (In Victoria, 19,229 fines were issued for not wearing a helmet in the first 12 months of the law, exorbitant fines of \$145 in Victoria.)**
- L. In accident compensation cases, the legal requirement to wear a helmet may tend to reduce compensation for a non-helmeted cyclist compared to helmeted ones or indeed motor vehicle occupants who sustain head injuries.**
- M. In 2010 Sydney University researchers reported; "Results indicate that there was already a fall in the ratio of head to arm injuries before the mandatory helmet legislation was introduced in 1991. After the introduction of bicycle helmet legislation, there was a continued but declining reduction in the ratio of head injuries relative to arm injuries for most age groups. It is likely that factors other than the mandatory helmet legislation reduced head injuries among cyclists."¹⁷**

Part 3

Specific comments regarding Sydney and cycle helmets

In particular regard to the submission No 26
(INQUIRY INTO VULNERABLE ROAD USERS
Royal Prince Alfred Hospital
Dr Michael Dinh)

This well-intentioned hospital based contribution suggests a benefit for cyclists from helmet wearing, however, the evidence base may be weaker than it first appears. A number of points should be considered.

1)

The injury severity score (ISS), ranged from 1 to 75 and for cyclists the median ISS was 4.0. The mean ISS score was 7.0 for those who did not wear a helmet (ISS 4.0 95%CI 3.5-4.5 vs. ISS 7.0 95%CI 3.6-10.3 $p < 0.01$). Research has found that in general where the impact speed is higher, head injury increase more than other bodily parts. The ISS of 7.0 for those not wearing helmets, (compared to a value of 4.0 for helmet wearers) indicates they incurred more severe impacts. This effect has been reported previously, Spaitte 1991, reported general injuries were higher for none wearers and head injury levels were also higher.¹⁸ Why they incurred more severe impacts is open to question. Helmet wearers may tend to use hi visibility vests or have lights at night and this could result in less severe injuries when accidents occur. Non-helmet wearers may on average be cycling slightly faster and when accidents occur have more serious injuries.

2)

The RPAH study shows cyclist's length of stay (LOS) in hospital was on average 2.1 days for helmeted cyclists and 2.4 days for non-wearers. Australian data for 2009 shows persons seriously injured due to road vehicle traffic crashes, pedestrians had the longest episodes of care, with a mean length of stay of 8.1 days in hospital. The mean length of stay in hospital was 5.4 days for motorcyclists, 5.2 days for car passengers, 4.8 days for car drivers and 2.9 days for pedal cyclists.¹⁹

3)

The breakdown of injury times shows 19% occurred between 00.00 and 7.59 am. This may indicate lights on bicycles were not always used or improvements to cycle lighting may be needed, quality built in lights on all new cycles may be worth considering legislation for (exceptions for racing bicycles). Tax exemption for lighting meeting new higher standard. Survey data (1990) reported about 80% of Sydney cyclists did not have lights at night.²⁰ Peugeot bicycles assembled in Melbourne 1980's, had a dynamo provided.

4)

The study set out to demonstrate the safety benefits of helmet use. It is not very scientific to do a study with a pre-determined conclusion. If non-wearers were more likely to disobey traffic light signals (waiting could increase risk of a fine) or have other differences, these would all need to be fully considered. With a more open agenda the study may have considered other aspects in more detail.

5)

The study mentions "there has been a 27% increase in cycling as a form of commute since 2001," however commuting is only one part of trips by cycle, education, shopping, medical/dentist, social, visiting, sport, and recreational. For the period from 2000-01 to 2006-07, there was an increase of 47% in age-standardised rates of serious injury for pedal cyclists across Australia.²¹ The study fails to relate to the wider range of information suggesting helmet laws have failed to prevent accidents and serious injuries.

Part 4

Legislation changes required

The Federal Government instigated the helmet laws and therefore should share responsibility for them. On balance the evidence shows the case for helmets is not conclusive because several peer-reviewed reports raise serious doubts whether helmet laws improve health and safety.

The available evidence shows helmets may not save lives, e.g. RTA NSW 1992 fatality data, 5 deaths wearing helmets, 1 death not wearing helmet.²² There is evidence of increased accident risk per cycling-km for cyclists wearing a helmet, documented at 14%.

The 2004 European Council of Ministers (ECMT) report²³ states:
"Though helmets are widely accepted as reducing the severity of head injuries, the issue of mandatory requirements for helmet use has been controversial for a long time. PROMiSING , a research project commissioned by the European Union and coordinated by the SWOV Institute for Road Safety Research (2001), suggests that from the point of view of restrictiveness, even the official promotion of helmets may have negative consequences for bicycle use, and that to prevent helmets having a negative effect on the use of bicycles, the best approach is to leave the promotion of helmet wear to manufacturers and shopkeepers.

Australia's first bike share scheme in Melbourne (pop 4 million) has been a flop with bicycles hired in the first year likely to be less than 100,000, compared to more than one million in the first year of a bike hire scheme in Dublin (pop 1.7 million). Cities around the world are promoting cycle hire without the requirement to wear a helmet but hygiene considerations means that helmets cannot be hired.

Making helmet use compulsory has been counter-productive in various ways. It gives the impression that cycling is a high-risk activity, which in general it is not. It has discouraged people from cycling, especially young people. This should have been avoided given concerns about increasing obesity, falling levels of physical fitness and the need for sustainable transport.

Improving cycling safety and health is best achieved by increasing the popularity of cycling; increasing the number of cycle routes; supporting cycle training especially for young people; increasing the awareness of motorists and lorry drivers to the needs of cyclists by incorporating cycle awareness in the driving test and by other measures.

Wearing helmets should not be mandatory but should be left to the discretion of individual cyclist or parent. Helmet wearing makes cycling less convenient and helmet laws have significant safety, health, legal, social and environmental disadvantages. Helmet laws should therefore be repealed.

Sydney Town Hall pro-cycling Lord Mayor, Clover Moore, now says she wants a review of the helmet laws.²⁴ A full review with submissions should help Australia to find the middle path of good road safety and promoting health and convenience of cycling.

¹ Assessment of Australia's Bicycle Helmet Laws, refer 'Mandatory' can have unanticipated consequences – Civil Liberties Australia web site, 25 Nov. 2008.

<http://www.cla.asn.au/Article/081125BikesHelmetPolicy.pdf>

² INSTAT. Day-to-day travel in Australia 1985-96. Federal Office of Road Safety, February 1988.

³ Jacobsen PL. Safety in numbers: more walkers and bicyclists, safer walking and bicycling. *Inj Prev* 2003; 9: 205-9. <http://ip.bmjournals.com/cgi/content/full/9/3/205>

⁴ Making Cycling Irresistible: Lessons from The Netherlands, Denmark and Germany

John Pucher, Ralph Buehler <http://www.policy.rutgers.edu/faculty/pucher/Irresistible.pdf>

⁵ Henley G, Harrison GE, Serious injury due to land transport accidents, Australia 2006–07

<http://www.aihw.gov.au/publications/inj/injcat-129-11033/injcat-129-11033.rtf>

⁶ Erke A, Elvik R, Making Vision Zero real: Preventing Pedestrian Accidents And Making Them Less Severe, Oslo June 2007. page 28

<http://www.toi.no/getfile.php/Publikasjoner/T%D8I%20rapporter/2007/889-2007/889-2007-nett.pdf>

⁷ Smith NC, Milthorpe FW; An observational Survey of Law Compliance and Helmet wearing by Bicyclists in New South Wales – Road and Traffic Authority 1993.

⁸ Robinson DL; Head injuries and bicycle helmet laws; *Accid Anal Prev*, 28, 4: p 463-475, 1996

<http://www.cycle-helmets.com/robinson-head-injuries.pdf>

⁹ Robinson DL, No clear evidence from countries that have enforced the wearing of helmets *BMJ* 2006; 332 : 722 doi: 10.1136/bmj.332.7543.722-a (Published 23 March 2006)

<http://www.bmj.com/content/332/7543/722.2.full>

¹⁰ Gill T, Cycling and Children and Young People, A review, National Children's Bureau, 2005.

http://www.cycle-helmets.com/cyclingreport_timgill.pdf

¹¹ British Medical Association; Cycling towards Health and Safety, Oxford University Press, 1992.

¹² Cardiovascular Disease Statistics , National Heart Foundation of Australia

http://www.heartfoundation.org.au/Heart_Information/Statistics/Pages/default.aspx

¹³ Bicycle helmet laws could do more harm than good, *New Scientist*. 27 April 2009

<http://www.newscientist.com/article/dn17032-bicycle-helmet-laws-could-do-more-harm-than-good.html>

¹⁴ Number 18 premature deaths, based on Health economic assessment tool (HEAT) for cycling, using a value of 30 deaths per billion km..

<http://www.euro.who.int/en/what-we-do/health-topics/environmental-health/Transport-and-health/activities/promotion-of-safe-walking-and-cycling-in-urban-areas/quantifying-the-positive-health-effects-of-cycling-and-walking/health-economic-assessment-tool-heat-for-cycling>

¹⁵ Curnow WJ, [Bicycle Helmets: A Scientific Evaluation](http://www.flipkart.com/transportation-accident-analysis-prevention/1604562889-itx3fy02zc#previewbook), Transportation Accident Analysis And Prevention, <http://www.flipkart.com/transportation-accident-analysis-prevention/1604562889-itx3fy02zc#previewbook> accessed 4 March 2010.

¹⁶ Heady freedom as judge agrees helmet laws are unnecessary , Matthew Moore, *Sydney Morning Herald*, August 28, 2010.

<http://www.smh.com.au/nsw/heady-freedom-as-judge-agrees-helmet-laws-are-unnecessary-20100827-13vz2.html>

¹⁷ Voukelatos A, Rissel C, The effects of bicycle helmet legislation on cycling-related injury: the ratio of head to arm injuries over time. Accepted for publication in the *Journal of the Australasian College of Road Safety*, August 2010

¹⁸ Spaitte DW, Murphy M, Criss EA, Valenzuela TD, Meislin HW. A prospective analysis of injury severity among helmeted and non helmeted bicyclists involved in collisions with motor vehicles *Journal of Trauma*, 1991;31(11):1510-6.

¹⁹ Henley G, Harrison GE, Serious injury due to land transport accidents, Australia 2006–07

<http://www.aihw.gov.au/publications/inj/injcat-129-11033/injcat-129-11033.rtf>

²⁰ Walker MB, Law compliance and helmet use amongst cyclists in New South Wales, RTA CR 6/90.

²¹ Henley G, Harrison GE, Serious injury due to land transport accidents, Australia 2006–07

<http://www.aihw.gov.au/publications/inj/injcat-129-11033/injcat-129-11033.rtf>

²² Data provided in 1993, RTA, NSW.

²³ European Council of Ministers (ECMT) report on "National policies to promote cycling" (2004).

²⁴ The bicycle helmet laws, ABC radio, Background Briefing, 19 Sept 2010.