

COMMENTARY:

IS IT TIME TO ADVOCATE FOR A VULNERABLE ROAD USER PROTECTION LAW IN NEW ZEALAND?

Professor Harold (Hank) Weiss, MPH, PhD ¹
Aimee L. Ward, MPH ¹

¹University of Otago, Department of Preventive and Social Medicine, Injury Prevention Unit.

Contact: Professor Hank Weiss
University of Otago
PO Box 913
Dunedin, NZ 9054
Fax: 64 (0)3 479-8337
hank.weiss@otago.ac.nz

Abstract

Vulnerable road users (VRUs) include pedestrians, workers, animal riders, stranded motorists, skateboarders, cyclists, and others. Proponents of VRU protection laws point out that legal redress often results in no or minor penalties to careless motorists (as opposed to the distinct case of alleged criminally negligent defendants) with little equivalency to the severity of harm to the injured victim or survivors. In theory, a VRU protection law, through enhanced penalties, would greatly increase motor vehicle driver motivation to exercise greater caution around VRUs than they would otherwise and lead to less road danger. A law might also inspire VRU confidence, encouraging more people to cycle and walk if they felt the law added security. From an effectiveness standpoint, however, there are no studies examining whether such laws actually have the desired population level effects. It would be naïve to think the mere passage of a VRU law would reduce injuries to VRUs caused by careless or unaware drivers. With little known about their effectiveness, any impact far from guaranteed, and the possibility of unintended consequences, the time, resources and effort to lobby, enact, publicise, enforce and prosecute under vulnerable road user laws might best be spent elsewhere.

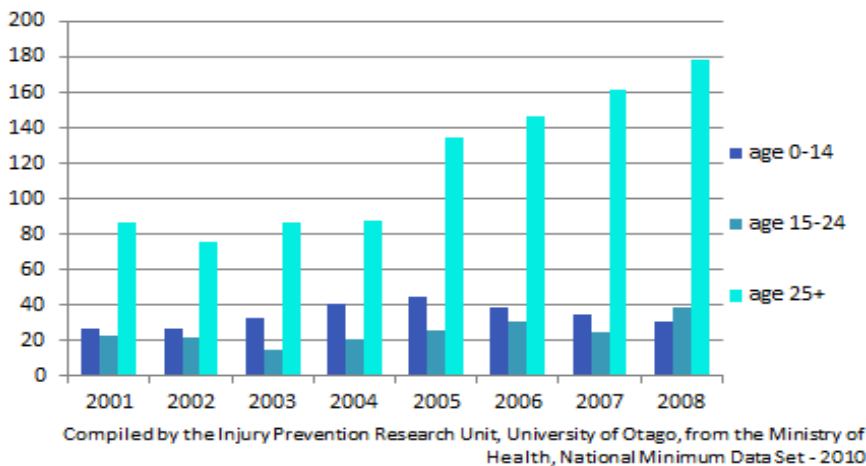
Background

According to the World Health Organization, a “vulnerable road user” (VRU) is any “non-motorist” road user in the role of a pedestrian, a highway worker, a person riding an animal, a stranded motorist, a skateboarder, roller skater, a scooter, or a cyclist, to name a few (Ameratunga, Hajar et al. 2006). The definition may be extended to other “motorists” such as operators or passengers of powered scooters, electric bikes, farm equipment, and motorcycles; thus commonly including any road user not encased in the relative protection of an automobile or truck (Mayou and Bryant 2003; Ameratunga, Hajar et al. 2006).

Discussions about VRU protection laws periodically emerge following a specific case or widely publicised group of cyclist or VRU deaths. Such a cluster occurred in New Zealand in 2010 and 2011. The Waikato Coroner, heading a National investigation, reported 34 bicycle fatalities

Figure 1. Trends in Serious Cyclist Injury, New Zealand, 2001-2008

Serious Non-fatal Bicycle-Traffic Injury Trends New Zealand, 2001 to 2008



involving motor vehicles since 2007. This has led to six regional hearings looking for common factors among these deaths (Radio New Zealand 2011). This group of fatalities was preceded by evidence of increased risk of serious injury among older cyclists. Figure 1 shows that since 2001, the number of serious non-fatal bicycle-traffic injury has increased greatly among those 25 years and over (Injury Prevention Research Unit 2010).

The purpose of this commentary is to discuss the background and ramifications of enhanced penalties and redress for VRUs in general and for New Zealand and cyclists in particular. Everyone is a VRU at one time or another. Most drivers walk at some point each day, if only from their parked car to their destination. There will come a time for almost everyone when they will no longer drive due to age or illness. Thus, the aims and possible implementation of VRU laws should be of interest to all citizens.

When Do VRU Laws Come Into Play?

Generally, VRU laws do not try to criminalise a new set of behaviours. Instead, when a victim is seriously injured or killed through “carelessness”, they increase the likelihood of enhanced penalties, costs, and other burdens upon the driver. By specifying a narrow set of circumstances where such laws apply, they attempt not to burden the legal system while still sending a deterrent message to drivers. They come into play when incidents to VRUs, leading to either serious injury or death, go unpunished or under-punished, especially if the victim was not at fault or shared any blame. This can occur when law enforcement and judicial officials are unable or unwilling whether or how much to penalise motorist actions that result in serious injury to vulnerable road users for “carelessness” that does not rise to the level of dangerous driving, criminal negligence, leaving the

scene or intent to harm. Sometimes the nature of the situation is clear, but other times, due to lack of authority or inadequate understanding about circumstances, actions, and perceptions, it is difficult to apply more serious sanctions or any at all. The situation of concern is distinct from when the driver of the non-vulnerable vehicle is engaged in dangerous driving or is criminally negligent; for example, due to drink or drugged driving, speeding, cell phone and texting use (where banned) or wilful intent. These latter types of events, if suspected, are usually treated separately or as criminal cases by the legal system and are not a primary focus of this discussion.

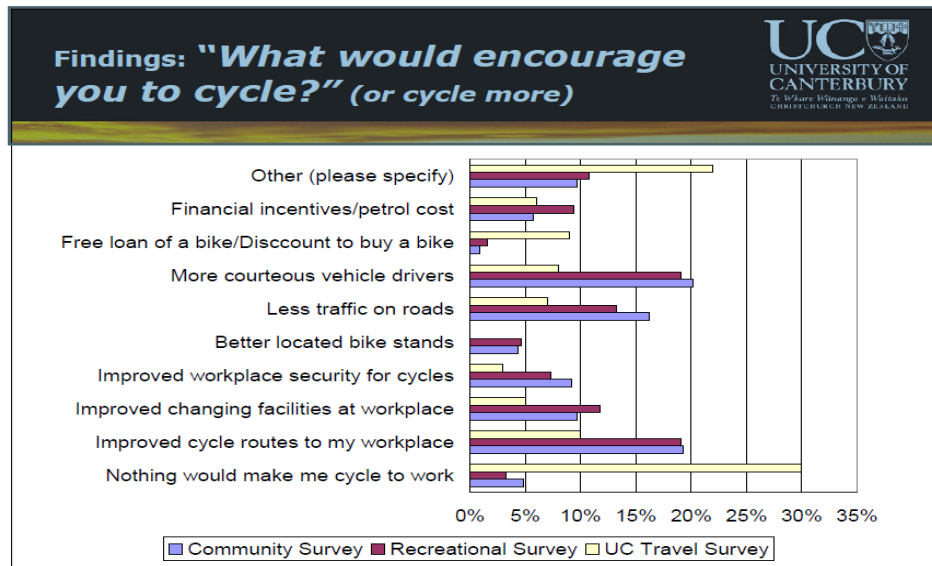
This paper focuses on those situations where driver actions or inactions are related to *careless* errors and unintended collisions that result in injury or death. These include, for example: a) Failure to "see" the VRU due to cognitive or perceptual limitations ("*I never saw him, Officer!*"); b) Misjudging the traffic environment and vulnerable user movements ("*I really didn't think he was moving so fast, Officer!*"); and c) Distracted driving from a large variety of common but not necessarily prohibited activities (e.g. passenger distractions, operating audio and GPS equipment, pets, insects, eating, smoking, adjusting climate controls, scanning dashboard instruments, moving windows and visors, etc., "*By the time I looked up, Officer, it was too late to stop!*"). While drivers involved in or responsible for a crash in these circumstances may be cited, penalties are not always dependent on the seriousness of the collision.

The lay and legal concept of "carelessness" in bicycle (and other) /motor vehicle crashes is complicated by reports that in as much or more than half of all car-bike crashes, the drivers claim they never saw the cyclist or saw them too late to avoid the crash. Similar results are reported from the motorcycle injury literature (Hurt, Ouellet et al. 1981). Cognitive research backs up these claims as a real phenomenon (Rasanen and Summala 1998; Chabris and Simons 2010). Is this "carelessness"? Or, does the concept of carelessness lead, in some circumstances, to penalizing limits to human perception in all its nuances and variations? A law cannot have much impact on deterrence if the people it is directed against are not aware they are doing or have done anything that they perceive to be wrong. Then there is the question of how law enforcement officials are able to determine if the driver really did not "see" the vulnerable user or is lying, forgetful or confused?

The problem of driver carelessness escalates viscerally when the legal outcome is little or no sanction to the motorist, leading to an unbalanced scale of moral redress to the injured victim or their family. This is one of the motivations behind VRU legislation. This contributes, some believe, to a "culture" of motor vehicle driver entitlement where arrogant dominance and intimidation becomes entrenched, rather than a culture of safety, common humanity, deference to the vulnerable, and respect. But there is a practical flipside that questions what provisions VRU laws should contain to protect motorists from frivolous and unfair treatment. Should there be a "proximate clause" that would absolve the driver of some responsibility if the VRU is at full or partial fault (cyclists running red lights, pedestrians darting out between cars, etc.)?

Calls for laws to protect vulnerable users are often made because advocates believe that in their presence, motorists will be more apt to exert caution and respect knowing there are additional penalties. It is hoped that this would help overcome a leading reason why people who would like to bike (or walk) choose not to, which is the fear of unsafe and discourteous vehicle drivers (see Figure 2) (University of Canterbury 2010). Fear of cycling – or any active transport mode where cars are dominant – constitutes for many a significant barrier to their use (Horton 2007). In theory, a VRU protection law makes the point that responsibility and respect should accompany the privilege of operating powerful, large, fast moving vehicles in a shared human scale environment and this could help make VRUs feel safer, thus encouraging more people to cycle and walk.

Figure 2. Results from Canterbury Travel Survey. Source: Canterbury Regional Land Transport Strategy 2011-2041, [Market Research Report](#) - 22 February 2010.



Vulnerable Road User Laws In Other Countries

Laws to protect VRUs are in place in several countries and local jurisdictions. Such a law might look like the 2008 Oregon state statute (USA), one of the first such laws that strengthened the penalties for careless injuring or killing of a VRU, without making it a crime (Oregon State Senate 2008). As one advocate explains the concept, it “incorporates the inherent vulnerability of humans who use the roads without being encased in a protective steel shell” (Thomas 2007). Other U.S. states have had VRU bills passed including Oregon, New York, Delaware and Washington State (see table 1) (Oregon State Senate 2008; Delaware State Senate 2010; New York State Senate 2010; Washington State Senate 2010).

The pace of VRU law introductions in the U.S. appears to be picking up with bills being introduced as of late 2011 in Connecticut, Massachusetts, Michigan, Nevada, and Rhode Island (Connecticut Senate 2011; Massachusetts State Senate 2011; Michigan Legislature 2011; Nevada State Senate 2011; Rhode Island State General Assembly 2011). Other states have introduced VRU bills in the last few years, but have not had them signed into law. These include Texas (vetoed in 2009), Illinois (died in the Senate in 2011) and New Mexico (died in Senate committee in 2011) (Illinois State General Assembly 2009; New Mexico State Legislature 2011; Texas State Legislature 2011).

Strict liability rules for compensation currently apply in the Netherlands and Germany (London Cycling Campaign 2009). Similarly, England is considering making car drivers' insurance companies legally liable for compensating pedestrian and cyclist victims of road crashes (Horton 2007). Strict liability says that anyone who uses a potentially dangerous vehicle should be liable to compensate for injuries arising from the use of that vehicle. A government publication, *Cycling in the Netherlands*, puts it this way: “The Dutch philosophy is: Cyclists are not dangerous; cars and car drivers are: so car drivers should take the responsibility for avoiding collisions with cyclists. This implies that car drivers are almost always liable when a collision with a bicycle occurs and should adapt their speed when bicycles share the roads with cyclists” (Mobycon, Fietsberaad et al. 2009). The responsibility is put on motor vehicle operators, sending the message the road is a shared space. But with far better cycling infrastructure than most of North America and New Zealand, lower speeds, and safety in numbers from a much higher number of cyclists on Dutch roads, it is unknown what impacts this policy has on the lower rates of Dutch cycle injuries. These are also laws that impact on liability. It is not clear how they apply to traffic fines, penalties and criminal proceedings. With no-fault insurance schemes in New Zealand and some U.S. states, it is problematic how such strict liability policies can be applied there.

Table 1. Enacted Vulnerable Road User (VRU) Laws in the United States Compared to New Zealand's Careless Driving Law

Component	Oregon	New York	Delaware	Washington State	New Zealand
Name/URL	HB 811.135	A07917D (S.5292)	SB 269	SB 5326	Not a VRU - Careless Driving, Land Transport Act
Effective Date	1/2008	8/2010	9/2010	7/2012	1998
Definition of Vulnerable User	<ul style="list-style-type: none"> • Pedestrian, a highway worker, a person riding an animal or a person operating any of the following on a public way, crosswalk or shoulder of the highway: • A farm tractor or implement of husbandry without an enclosed shell; • A skateboard; • Roller skates; • In-line skates; • A scooter; or • A bicycle. 	<ul style="list-style-type: none"> • Bicyclist • Pedestrian • Domestic animal. 	<ul style="list-style-type: none"> • A pedestrian, including those persons actually engaged in work upon a highway, or in work upon utility facilities along a highway, or engaged in emergency services within the right-of-way; or • A person riding an animal; or • A person operating any of the following on a public right-of-way, crosswalk, or shoulder of the highway: <ol style="list-style-type: none"> 1. A farm tractor or similar vehicle; 2. A skateboard; 3. Roller skates; 4. In-line skates; 5. A scooter; 6. A moped; 7. A bicycle; or 8. A motorcycle. 	<ul style="list-style-type: none"> • A pedestrian • A person riding an animal; • A person operating any of the following on a public way: <ul style="list-style-type: none"> • A farm tractor or implement of husbandry, without an enclosed shell; • A bicycle; • An electric-assisted bicycle; • An electric personal assistive mobility device; • A moped; • A motor-driven cycle; • A motorized foot scooter; or • A motorcycle. 	<ul style="list-style-type: none"> • Careless or dangerous driving may be charged if any person is injured or killed, so it is not necessary to specify user types in injury crashes.
Fine and punishment	Up to \$12,500	No more than \$500 or by imprisonment for not more than 15 days or both.	Up to \$550 and suspension of driving privileges if course and community service not fulfilled.	\$1,000 to \$5,000; and have his or her driving privileges suspended for 90 days.	Maximum 3 months imprisonment or a fine not exceeding \$4,500; and licence disqualification for 6 months or more.
Community service option	Yes	No	Yes	Yes	Yes
Penalty for not completing service	Yes	NA	Yes	Yes	Yes
Misdemeanour or Crime	Misdemeanour	Misdemeanour	Misdemeanour	Misdemeanour	NA
Comments	According to Doug Parrow , the chair of the Bicycle Transportation Alliance's legislative committee, the Oregon law has been reported to result in few fines being cited but one pedestrian case was reported in 2011 .	The law sets up a new traffic violation called careless driving for cases where a conviction on a charge of criminal negligence or recklessness is unlikely. It requires that every driver of a vehicle shall exercise due care to avoid colliding with the defined road users.	Amends the careless or inattentive driving law by enhancing the penalty for a careless or inattentive driver who contributes to the serious physical injury of a vulnerable user in a public right of way.	A new traffic infraction is created that fills the gap between a simple ticket and a crime. It establishes an enhanced infraction for those drivers whose behaviour maims or kills and reinforces the need to exercise due care when driving around vulnerable populations.	Careless driving causing injury – section 38 of the Land Transport Act 1998: “It is an offence to operate a vehicle on a road carelessly or without reasonable consideration for other persons using the road, and by that act or omission cause an injury to or the death of another person.”

Penalties

Choosing the right mix of penalties is important in gaining acceptance from both advocates and potential opposition. Too harsh an increased penalty and politicians, police, judges, media, and the driving public will struggle against its heavy handedness. Too light, and advocates will feel it doesn't accomplish anything. Questions that come up around balancing penalties include:

- Should the new law add penalties to existing infractions?
- Should the new law create a new class of infractions?
- If so, what type of penalties (increased fines, suspensions, court hearings, public service)?
- How high should the fines be?
- Should the law contain an option to attend a traffic safety course and or transport related community service in lieu of the monetary fines?
- How will such a law be enforced and treated by the courts?

Effectiveness of VRU Laws

Unfortunately, whether in New Zealand, Europe or North America, there are no published evaluations of the effectiveness of such laws, in reducing VRU injury risk. It would probably be very difficult to do so from a research methodology perspective unless many more states and countries passed such laws allowing properly controlled cross jurisdictional comparisons. In the absence of VRU law evaluations, it is worth exploring whether such a law would be expected to have much effect.

Like all such laws, acceptability and passage depends on it appealing to a broad constituency, designed not to offend too many people, and to be consistently enforceable. Drunken driving laws are acceptable and work to the extent that they do by fulfilling these criteria. They also dissuade many people from breaking the law before they do any harm, while removing (by arrest) some offenders from the road before harm is done to others. A large part of the dissuasion comes from drivers knowing they can get caught and punished for breaking the law, *even if they don't have a crash and harm anyone*. By definition, careless drivers impacted by VRU laws will usually be charged only after their actions or inactions lead to harm. Few drivers will exhibit or even be aware of actionable pre-crash event careless behaviours, until something actually happens. Thus, considerably lower rates of deterrence would be expected against the ill-defined after-the-fact behaviour that amounts to carelessness, compared to laws against drunk driving and speeding where fear of getting caught may in fact be the primary deterrent.

The added dissuasion of increased penalties beyond mere traffic fines also assumes that drivers are constantly aware of the law and will usually take additional actions. This is unlikely to play out in the real world due to limitations of driver perceptions, knowledge and focus on a new law, over and above the already existing moral, financial and legal incentives to avoid harming fellow road users. The only effect VRU laws are likely to have is in perceived justice where the punishment for being responsible for the event better fits the impact the event had on the victim. That is not prevention, however, it is retribution. Absent criminal conduct such as alcohol and drug use or evidence of medical problems, the kinds of people charged under VRU laws are not likely to serially reoffend and thus a focus on drivers that have been careless will have little impact on the long tail of drivers likely to be involved in future crashes related to carelessness.

Lastly, without evaluation, unintended consequences cannot be ruled out. One theoretical scenario has some VRUs feeling they are more protected by such a law resulting in letting their guard down and practicing less defensive movement (risk compensation). As discussed below, deterrence from increased penalties alone is thought to be quite low. Another unintended consequence might be

alienating and threatening so many drivers that support for other more effective initiatives lack public support or garner active opposition.

Recently, the New Zealand Ministry of Transport explored the cost/benefit of increasing the penalty for both categories of careless and dangerous offences (New Zealand Ministry of Transport 2010). They examined the possible impacts of raising the maximum imprisonment for careless driving from three months to three *years* for deaths, and two years for injury and a fine of up to \$10,000 (up from \$4,500) and license disqualification for 1 year or more (up from six months). They utilised an estimate of the range of the potential deterrent effect of these increased penalties from 1 to 5 per cent. How this five-fold range of effect was estimated was not described, casting doubts that it was empirically derived. Some complexities aside, the break-even point for balancing the social cost savings against the increased costs of prison beds and court costs for increasing the penalties was estimated to require a 3.8 per cent deterrent effect, a level they considered unlikely to be obtained.

How might a VRU law work in New Zealand?

Since there is no-fault financial liability in NZ through the Accident Compensation Corporation (ACC) scheme, injured VRUs already receive comprehensive personal injury coverage. Therefore, a financial liability policy like in the Netherlands serves little remunerative purpose (Woodhouse 1974; Flood 1999). But can a careless driver, who's actions, inattentiveness, or failure to see and avoid the VRU that lead to serious injury or death, go unpunished relative to the harm that resulted?

What protections are offered by current laws? New Zealand Transport Law already differentiates careless driving causing death or injury from: a) Aggravated careless driving and careless driving under the influence of drink or drugs, and b) Dangerous driving (dangerous driving refers specifically to dangerous/reckless driving, illegal street racing, drink/drug driving, and failing to stop after a crash involving injury or death) (New Zealand Ministry of Transport 2010). All are offenses under the Land Transport Act of 1998. Careless driving causing injury is defined by section 38 of the Land Transport Act 1998 which states: “*It is an offence to operate a vehicle on a road carelessly or without reasonable consideration for other persons using the road, and by that act or omission cause an injury to or the death of another person.*” A comparison of dangerous driving penalties to the United Kingdom, United States, Australia and Canada suggest that NZ penalties are more lenient in terms of maximum prison sentences for dangerous driving (New Zealand Ministry of Transport 2010). However, careless driving penalties are generally stricter than the U.S. VRU laws (see table 1).

The relative contribution of dangerous and careless drivers to casualty crashes of all types, not just those involving a VRU, was reported by the Ministry of Transport for 2009 (New Zealand Ministry of Transport 2010). Among 10,106 police-reported injury crashes where the driver of at least one vehicle was deemed ‘at fault’, 1,004 (9.9%) were convicted of careless driving; and 291 (2.9%) were convicted of dangerous or reckless driving. Road user type was not described in that report. A separate study reported that in 2009 there were 546 “at fault” drivers involved in a bicycle single motor-vehicle casualty collision (5.4% of all at fault crashes) (Evans, Weiss et al. 2011). A breakdown of the convictions for the bicycle-related incidents was not reported. This suggests that among at fault casualty crashes, only a small proportion of drivers are convicted for careless driving. Whether this is due to most of these injuries being minor and what proportion of serious injuries and deaths did not lead to careless driving conviction is not known.

These data suggest that convictions for vulnerable road user injury for careless driving already takes place in New Zealand, but the consistency of convictions in cases of serious injury and death is not known. This is a critical gap in current knowledge that needs to be filled before making any final

conclusions of the adequacy of current New Zealand laws to consistently, much less fairly, penalise careless drivers of vehicles at fault for injuring VRUs.

Conclusions

From a preventive (deterrent) perspective, it is difficult to see how VRU laws can accomplish much by themselves. Realistic expectations can help avoid future criticism and loss of credibility. If retribution is the goal, it appears adequate laws are already on the books in New Zealand to penalise careless drivers. It remains a question whether these laws are enforced consistently and regularly brought to bear on the most egregious cases of harm inflicted to VRUs by careless drivers. But it should be acknowledged that stricter enforcement, if undertaken, will probably come at a price of increased penalties for some road users in situations they may not have much real control over.

Perhaps we are in an era of a “catch 22”. Were most drivers in NZ to better share space with VRUs and were people to more consistently respect all road users, it would be easier to label the lower number of carelessness as deviate and more punishable. But since we are in a car dominant culture, how realistic is it that we try to enforce the notion that the road is a shared space when most of the evidence, training, laws and feedback to drivers is to the contrary? From this perspective, VRU laws will only have an effect when the dominant car culture really does share the road environment. Hoping that a law, by itself, will have any measureable effect on changing driver behaviours and Copenhagenize our transportation system is naive. Slowing traffic down, lowering traffic density, designing and building safer intersections, making cars come to a full stop instead of giving way at intersections, separating cars from VRUs, greatly increasing the numbers of calmed bicycle boulevards, designing actual shared spaces, and greatly increasing the number and visibility of VRUs; those are the efforts that will have a much more certain and larger impact on reducing dangers to VRUs than increased penalties or enforcement for careless driving.

Maybe it even requires the perspective, in almost a golden-rule kind of way, that in a car centric culture, drivers of vehicles more likely to hurt others are also victims themselves. While it is often pointed out that many people who drive cars are cyclists, it is also true that many people who ride bicycles are or become drivers. The overwhelming majority of drivers do not wish to be involved in harming vulnerable or other road users, and most suffer when they do.

Seen as one facet in reducing the culture of road danger for all users, VRU laws may provide an impetus for attitudinal change that sets the tone for operating our transport system with safety for all users among its most important characteristic. But it would not be the only such way to achieve that goal. Great care and wisdom needs to be taken when to rollout these types of punitive changes in our public spaces. The success of VRU laws are far from guaranteed and implemented too early in the evolution of a more balanced modal share approach, could come at a cost of time, effort and resources that might best be spent in other endeavours.

References

- Ameratunga, S., M. Hajar, et al. (2006). "Road-traffic injuries: confronting disparities to address a global-health problem." *Lancet* **367**(9521): 1533-1540.
- Chabris, C. and D. Simons (2010). "Would you spot the gorilla?" *New Scientist* **206**(2766): 32-33.
- Connecticut Senate (2011). An act concerning the penalty for causing harm to a vulnerable user of a public way.
- Delaware State Senate (2010). An act to amend title 21 of the Delaware code relating to careless or inattentive driving SB 269.
- Evans, J., H. Weiss, et al. (2011). Characteristics of at fault drivers and bicyclists involved in bicyclist motor vehicle collisions, New Zealand, 2002-2009. Dunedin, New Zealand, Injury Prevention Research Unit, University of Otago: 5.
- Flood, C. M. (1999). "New Zealand's no-fault accident compensation scheme: paradise or panacea?" *Health Law Review* **7**.
- Horton, D. (2007). Fear of cycling. *Cycling and Society*. P. C. Paul Rosen, and David Horton. Hampshire, England, Ashgate Publishing Limited: 133-152.
- Hurt, H., J. Ouellet, et al. (1981). Motorcycle accident cause factors and identification of countermeasures Volume I: Technical Report. U.S. Department of Transportation. Washington, D.C.
- Illinois State General Assembly (2009). Vehicle code - vulnerable users.
- Injury Prevention Research Unit (2010). Serious non-fatal bicycle traffic injury trends, New Zealand 2001-2008. F. 2, Ministry of Health National Minimum Data Set.
- London Cycling Campaign. (2009). "Law Change could offer greater protection to cyclists and pedestrians." Retrieved 15 Nov, 2011, from <http://lcc.org.uk/articles/law-change-could-offer-greater-protection-to-cyclists-and-pedestrians>.
- Massachusetts State Senate (2011). An act providing for the safety of vulnerable road users.
- Mayou, R. and B. Bryant (2003). "Consequences of road traffic accidents for different types of road user." *Injury-International Journal of the Care of the Injured* **34**(3): 197-202.
- Michigan Legislature (2011). Michigan vehicle code.
- Mobycon, Fietsberaad, et al. (2009). Cycling in the Netherlands. D.-G. f. P. Transport. Den Haag, Ministry of Transport, Public Works and Water Management.
- Nevada State Senate (2011). Enacts provisions relating to vulnerable highway users (BDR 43-844).

- New Mexico State Legislature (2011). Increase certain careless driving penalties.
- New York State Senate (2010). Relates to the requirement of exercising due care in the operation of a motor vehicle to avoid colliding with any bicyclist, pedestrian or domestic animal SB 5292.
- New Zealand Ministry of Transport (2010). Advice on why drink driving causing death does not automatically result in a manslaughter charge. Auckland, New Zealand: 1-8.
http://www.parliament.nz/NR/rdonlyres/F95482DC-CDEC-45B5-B277-CCDB1C4E6C24/192800/49SCTIR_ADV_00DBHOH_BILL10329_1_A158311_Adviceonwh.pdf
- Oregon State Senate (2008). Oregon Vulnerable User Law ORS 811.135.
- Radio New Zealand. (2011). "Coroner to investigate cyclists' deaths." Retrieved November 2011, from <http://www.radionz.co.nz/news/national/76039/coroner-to-investigate-cyclists%27-deaths>.
- Rasanen, M. and H. Summala (1998). "Attention and expectation problems in bicycle-car collisions: An in-depth study." *Accident Analysis and Prevention* **30**(5): 657-666.
- Rhode Island State General Assembly (2011). Relating to motor and other vehicles - vulnerable users of a public way.
- Texas State Legislature (2011). An act relating to the operations of a motor vehicle in the vicinity of a vulnerable road user SB 488.
- Thomas, R. (2007). "Bicycles and the Law: Vulnerable Roadway User, A Useful Legal Concept for Bicycle and Pedestrian Injuries." Retrieved 3 May, 2011, from <http://www.stc-law.com/vulnerable.html>.
- University of Canterbury (2010). Canterbury Regional Land Transport Strategy 2011-2041, Market Research Report. F. 1, University of Canterbury.
- Washington State Senate (2010). An act relating to traffic infractions where the conduct is a proximate cause of death, great bodily harm, or substantial bodily harm to another.
- Woodhouse, S. O. (1974). Commission's Report on 1 April 1974 Wellington, New Zealand.