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SUBMISSION
Aspects of road safety in Australia

This submission derives from reflection on – and some degree of perplexity with – the current approach to road safety, particularly informed by experience in Victoria. I make this submission as a private citizen with an interest in both road safety and in the use of evidence to guide practice, and with 35 years' experience as a motorist.

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Declaration of Conflicts of Interest: *I have recorded 4 speeding infringements in 35 years of driving; no motor vehicle accidents.*

SUMMARY

1. The level of proof for some road safety measures cited as being effective reaches the level only of association, not causation.
2. The emphasis on speed limits is based on scientific work which has multiple potential shortcomings, and cannot be deployed for the uses it has been.
3. 'Wipe-off 5' in Victoria has been potentially of no benefit in reducing road fatalities, has distorted the conceptualization of the contribution of speed in the causation of accidents, and has been counter-productive in that it has made adversaries of average motorists.
4. There is insufficient distinction made between rural highways and freeways regarding risk and speed limits.
5. There is insufficient attention to the issue of fatigue as a cause of rural road deaths and injuries.
6. No success can realistically be achieved in banishing the 'culture of speed' in our community and marketplace.
7. Appropriate enforcement of existing laws apart from speed limits requires a greater police presence on our roads.
8. The police are not immune to the physical risks that apply to the general motoring public and a dis-service is done to the 'community compact' on road safety if they behave as if they are.

INTRODUCTION

Road safety has shown a general improvement over the decades in reduced fatalities from road accidents. An unarguable quantum improvement was achieved with the introduction of compulsory seat-belts after the horror years of the late 1960's; smaller gains have been made with airbags, electronic stability control, blood alcohol driving limitations, improved road infrastructure and improvements in overall design and safety of motor vehicles. The role of speed enforcement is more vexed, with contradictory data obscuring interpretation.

Fundamental to any assessment of the benefit of a measure – in road safety or in any other domain – is the ability to attribute causation for a measured effect. This is in no sense a new concept.

CAUSATION, CORRELATION, COINCIDENCE?

The interpretation of scientific results is more nuanced than just the usual: *post hoc, ergo propter hoc* – “after this, therefore because of this”. In years where there has been a reduction in road deaths after an increase in enforcement, cause-and-effect is claimed; but when the same measures in a subsequent year are associated with an *increase* in the number of road deaths, no relationship is claimed (Victorian authorities were notably quiet at the end of 2014); or yet more stringent enforcement is called for.

The fall in fatalities in 2002-2003 *associated with* (not necessarily causally related to) the exponential rise in speed camera placement in Victoria was largely attributed to a decrease in pedestrian and motorcycle accidents. The subsequent carefully crafted TV commercials demonstrating reduced pedestrian injury suppose, however, that speed is the only factor in reducing the girl's injury. How about: driver age, alertness, attention, make of vehicle, age of vehicle, brakes, tyres, visibility or rain?

Yes, “all other things being equal”, it is self-evident that a lower impact speed will lessen injury. It is not self-evident that a vehicle travelling at the demonstrated 65km/h will be unable to avoid causing injury. One wonders what the response time would have been if the motorist was actually obsessively looking down at the speedometer to ensure they were not exceeding the 60km/h speed limit, as is now virtually required in Victoria?

Authorities seem only to claim a cause-and-effect relationship when it supports their case. These are at best correlations (or coincidence at worst): proof of causation is far more difficult. This is particularly so given the multitude of confounding variables that act. Victoria's road toll has been sitting stubbornly around 285/year over the last half decade despite the increase in placement of speed cameras; a gratifying dip in 2013 was followed by an increase again (to 249 deaths; a 2.5% increase) in 2014. Causation of any one factor cannot be attributed. Almost all ‘first world’ countries have had reductions in road deaths in the last few

decades, and most do not have Victoria's enforcement programs. Improved infrastructure, car design and safety (e.g. widespread arrival of electronic stability control) are just as likely to contribute.

SPEED LIMITS IN VICTORIA

Speed limits are valuable. They regulate traffic flow and use the greater knowledge of engineers and road safety experts to guide motorists as to how fast they should drive on a designated road in safety. Only ignorant self-interest would contest the value of speed limits. But when one hears in an accident report that 'speed was a factor', one wonders – given other obvious root causative factors – whether this is in context merely a statement that the vehicle was moving.

The role of speed

A "one percent increase in speed at 100km/h may produce a 4 percent increase in killed and injured" (*The Age* 31-12-01) i.e. at a greater impact speed – *in the event of an accident* – a greater likelihood of injury will prevail. This is merely the physics of kinetic energy.

This does not tell us that such an increase in speed increases the risk of the accident occurring. In any case 'speeding' as understood by road accident investigators is not seen simply as exceeding the speed limit, but as travelling at a speed inappropriate to the prevailing conditions.

This nuance is critical for those motorists who (wrongly) view the speed limit as a 'recommended' speed rather than a 'maximum-allowable' speed (note that the French automatically understand that the limit is reduced by 10km/h in the rain). That said, only a small percentage of road deaths are related solely to exceeding the speed limit. In the United Kingdom, a Department of Transport report (1994), recorded that "excessive speed" was regarded as *not* being a contributory factor in two-thirds to three-quarters of all road accidents, but that inappropriate or inconsiderate road-use behaviour was.

As with any machine, the problem lies in *inappropriate* use of its capability, in this case vehicle speed: speed in urban areas, speed with alcohol, drugs or fatigue, speed in an unroadworthy vehicle or in the hands of an inexperienced driver. (The police themselves engage in high-speed chases, which they apparently do in the belief that an alert, awake officer, with a zero blood alcohol content, perhaps having had an advanced driver training course, in a modern, roadworthy car, with flashing lights and a siren, can engage in such an activity without an unacceptably increased risk to the community).

Victoria, in its approach to speed, has chosen to ignore these nuances. This attitude is exemplified in the adoption of the 'Wipe-off 5' strategy.

THE SCIENCE OF ‘WIPE-OFF 5’

When I saw my first ‘Wipe-off 5’ billboard, I thought: “that’s nonsense”. At that time, I determined to find the origin of the claim, and to critically study the research. My response has not changed, and a preliminary critique follows.

The Wipe-off 5 campaign derives from research done by the Road Accident Research Unit in Adelaide. Designated a ‘case-control’ study by the authors, the work involved two studies, one in urban areas (i.e. 60km/h limit) and one at greater than 80km/h limits, and sought to estimate a ‘relative risk’ of an accident from speeding alone.

The researchers admitted choosing to ignore the possibility that “...drivers who choose to travel faster than the speed limit (may) also exhibit other risk-taking behaviour...” and did not control for these factors (apart from alcohol) and many others, so that at the outset, this is not really a case-control study at all, because of the possibility of risk bias in the index cases.

The results nonetheless warrant examination even given this qualifier because of the conclusions that have been drawn. The study is claimed to show a doubling of accident risk for every 5km/h in excess of the speed limit (and is thus the basis for “Wipe-off 5”).

Table 1
Travelling Speed and the Risk of Involvement in a Casualty Crash
Relative to Travelling at 60 km/h in a 60 km/h Speed Limit Zone
Adelaide, South Australia

Speed*	No. of Cases	No. of Controls	Relative Risk	Lower Limit**	Upper Limit**
35	0	4	0	-	-
40	1	5	1.41	0.16	12.53
45	4	30	0.94	0.31	2.87
50	5	57	0.62	0.23	1.67
55	19	133	1.01	0.54	1.87
60	29	205	1		
65	36	127	2.00	1.17	3.43
70	20	34	4.16	2.12	8.17
75	9	6	10.60	3.52	31.98
80	9	2	31.81	6.55	154.56
85	8	1	56.55	6.82	468.77
88+	11	0	infinite	-	-
Total	151	604			

* Grouped absolute speeds of cases and controls (e.g. 40 represents speeds from 38-42 km/h)

** 95% confidence limits of the estimated relative risk

However, just as there has been discussion over 'tolerances' (i.e. limitation of measurement accuracy) in design and manufacture of speedometers (Australian Standards Association allows a plus or minus 10% tolerance over 40km/h), any credible scientific study also has a tolerance, or 'confidence limit', incorporated in its design.

The confidence limits for relative risk in these two Adelaide studies are given in Tables 1 and 2. These show, for example, that for travel at 65km/h in a 60km/h zone (Table 1), the 'measured' risk of an accident is 2.00 times greater, but the 'real' result (i.e. our 'confidence' in the accuracy of the measurement) lies anywhere between 1.17 - 3.43 times greater risk.

It is thus within the realms of accepted statistical possibility that travelling at 65km/h in a 60km/h zone may result in nearly the same (1.17x) risk as travelling at the limit, while travelling 5km/h less than the speed limit may result in nearly twice (1.87x) the risk of an accident (curiously, we do not fine these drivers).

Because of these tolerances, it is an elementary statistical blunder to conclude that a 5km/h increase in speed in a 60km/h zone doubles the accident risk: one must travel at 70km/h in a 60km/h zone to be certain that the risk (from this study) is doubled (2.12x). This is not to encourage speeding in urban areas, but to suggest that the penalties currently stringently enforced in the name of this study for violation of the narrow margin of 3km/h cannot be justified from the study's own statistics.

Furthermore, as the table footnotes show, a potential 4km/h difference in *actual* speed at any listed speed in the table is already built into the study design by grouping, for example, all cars travelling at between 38 and 42km/h as '40km/h', which further turns the risk estimates into approximations. Data are only as accurate as the least accurate measurement, and these data imply that a study car violating a 3km/h threshold could, because of this bracketing strategy, be fined for travelling a fraction more than 41km/h.

The data were re-evaluated (by John Lambert, manager of road safety for VicRoads until the mid-1990s) and the conclusions then reached (still with multiple methodological flaws) were that the unsafe speed was 5km/h greater than the *prevailing* speed at which the traffic was travelling: i.e either faster or slower than the traffic flow. This was the traditional view, based on American studies now nearly 30 years old. Lambert's graph showed a dramatic jump in risk for people travelling more than 15 km/h over the limit in a 60 zone.

Lambert asserted that in metropolitan areas, the greatest risk is at intersections, where people are turning or where they are speeding through red-light cameras, not on the stretches of road (where private contractors set up mobile speed cameras). "On wide, straight sections of road without any crossroads, it's very safe to do 70 km/h in a 60 zone, assuming it's not pouring with rain... The stats show there are few crashes there, it's just not an issue, but that's where they do

all their enforcement. What they are doing is booking people who are driving very safely."

Table 2
Differences Between Case Vehicle Travelling Speed and Average Control Speed
and the Risk of Involvement in a Casualty Crash
Relative to Travelling at the Average Control Speed
in Rural 80 km/h+ speed limit zones
South Australia

Speed Difference *	No. of Cases	No. of Controls	Relative Risk	Lower Limit**	Upper Limit**
-30	0	5	0.00	-	-
-20	1	29	0.63	0.08	4.83
-10	9	183	0.90	0.40	1.99
0	22	401	1		
10	23	174	2.41	1.31	4.44
20	10	34	5.36	2.35	12.24
30	8	3	48.61	12.05	196.05
40	3	1	54.68	5.46	547.34
50	4	0	infinite	-	-
60	1	0	infinite	-	-
70	1	0	infinite	-	-
80	1	0	infinite	-	-
Total	83	830			

* Grouped differences of case and control speeds from average control speed at given sites (e.g. 10 represents speed differences from 5.0-14.9 km/h; thus a car said to be travelling at 90km/h in an 80 km/h zone could actually be travelling 1.e.

** 95% confidence limits of the estimated relative risk

The results in Table 2 are used to support open road and freeway enforcement, but this risk varies with road type (e.g. country highway versus freeway): the results should not be applied generally. The two road types are very much distinct, as relative fatality rates on each confirm: freeways are much safer. Furthermore, the bracketing strategy again raises doubts about the validity of that data: is exceeding a 80km/h limit by 6.25% versus 18.75% really an equivalent risk ("10km/h" over: study speed is anywhere from 85 to 94.9 km/h respectively)?

The numbers at the extremes in Table 2 are small, but imply a many-fold increase in risk with travel at higher speeds. Yet countries such as Austria, Italy, France and Switzerland – having an appreciation of the difference between a freeway and a highway – all have 130km/h freeway limits and no difference in their fatality rates.

The fatality rate for 1998 in Australia when ‘Wipe-off 5’ was mooted was 1.5 per 10000 registered vehicles, 2.2/10000 in New Zealand. In Germany, where the *autobahns* – dual lane, divided freeways – are free of *any* speed constraint, the rate was only 1.6/10000, where the “wipe-off-5” doubling effect would predict rates that would decimate the German population. (The Germans’ singular flaw is their disinclination to slow sufficiently during their legendary fog-drifts, when multi-car freeway accidents occur).

In addition, in a similar fashion to Table 1 for city driving, it lies within the bounds of statistical possibility that *reducing* speed by 10km/h could lead to a doubling (1.99) of the risk. This underlines the absurdity of enforcing such tight tolerances in the name of this study. Ultimately, it is well nigh impossible to claim that driving 10 km/h above the speed limit on an empty freeway in good conditions constitutes driving with inappropriate speed.

IS A FREEWAY THE SAME AS A COUNTRY HIGHWAY?

About 75% of road fatalities are known to occur on some 15% of the roads, and many of these are in rural areas. Motorists not unreasonably ask whether a solution might be to improve the roads, or to install fixed, publicized surveillance at these black spots, instead of clandestine cameras on low risk roads.

It is a nonsense that the same speed limit of 100km/h can apply on a rural highway (2 lanes, unmade verges, tree-lined) as compared to a divided 4 or 6 lane freeway. Speed limits on those small country ‘highways’ should realistically be reduced mostly to 90km/h or less; freeway speeds of 100 or 110km/h are probably the most appropriate, but the threshold for enforcement on freeways can be less stringent – the European experience makes a complete mockery of the current policy, and does nothing so much as reinforce the unfortunate perception that the road safety campaign is about revenue rather than safety. The more tolerant approach to motorway speeds in Europe is paralleled by stiff penalties for failure to adhere to urban speed limits, a balance that we in Victoria perhaps have yet to achieve.

For Victoria, the Hume Freeway is a special case. This road is totemic in showcasing the gradual spread of high-quality road infrastructure – a broad, sweeping road that is rarely congested and is of a quality as good as anywhere in Europe – but is also an iconic Australian drive, the road-link between Melbourne and Sydney. For most travelers, this trip will always be undertaken in one (ten-hour) day. Authorities trumpet point-to-point cameras on this road: these are undoubtedly clever technology, but may have a role – by forcibly prolonging the journey and increasing fatigue – of actually increasing accidents.

The mesmerizing effect of the last couple of hours of that drive, particularly at night, would be overcome if the trip could be undertaken more rapidly. There can be no serious argument against a speed limit for cars on sections of this road of up to 130km/h, as in Europe. Europeans drive on such roads with no increase in fatalities; case-controlled data would surely show fatigue to be the biggest killer

on our inter-capital freeways. To contest this one must otherwise show – with data again un-confounded by others factors – that Australians are inferior drivers to Europeans.

APPLICATION OF WIPE-OFF 5 TO SPEED ENFORCEMENT

That the conclusions from the science underpinning this campaign are discredited is old news, but not, it seems, news that the Victorian motorist should be allowed to hear. The revised/corrected conclusions say that since the normal speed of traffic in a 60 zone is about 65, the doubling of risk that's normally accepted as the point where enforcement should cut in occurs at about 69 km/h, not to $60+5\%=63$ km/h that the study's original flawed conclusions were used to justify in Victoria. In SA and WA it has been a more sensible 68 km/h.

Why does Victoria continue to propagate the discredited conclusions? Surely it would be easiest to quietly let 'Wipe-off 5' die off, yet the case seems to be prosecuted with ever-increasing vehemence, culminating in some scientifically inane comments, such as that posted on Facebook by Victoria Police on August 2012: "Did you know if all drivers dropped just 1km/hr off their average speed, we could see about 15 lives saved every year". Absent from this claim is any acknowledgement of the known deficiencies in the design of 'Wipe-off 5', the concept of standard deviation, the limitations of measurement accuracy, let alone the distraction of looking at a speedometer so closely that such an accuracy could be achieved. It is wholly unjustifiable to extrapolate cohort mean results to individual outcomes, and the statement is deliberately imprecise on this distinction. Such silliness does no scientific or intellectual credit to its authors, and only diminishes the stature of road safety aims that should be supported by all.

There is no proof that 'Wipe-off-5' alone is responsible for reductions in fatality numbers; no suggestion that any such gains must necessarily continue *ad infinitum*; and no data to disprove the claim that the same results may have been achieved with stringent enforcement only for levels of infringement that might logically and physically actually be believed to make a difference.

The decision-making and logic of the road safety mandarins in government are (presumably deliberately) opaque, but evidently so much has been invested in the 'Wipe-off 5' edifice that there can be no retreat. The authorities have apparently reasoned - given their own belief that the campaign has been successful - that it is OK to be right for the wrong reason. And there is the added benefit of what is effectively 'voluntary taxation'.

Why does it matter?

WHAT IS WRONG WITH GETTING PEOPLE TO SLOW DOWN?

The problem is the distortions in thinking and in subsequent policy that follow from this false belief. If one accepts the central premise of wipe-off-5 – doubling

of fatality risk with every 5km/h increase in speed above the posted limit – as an inviolable and unchallengeable truth, then other facets of road safety – such as trading increased speed against reduced fatigue, or allowing a small acceleration to open up traffic flow – are necessarily excluded from consideration. Such blinkered thinking will tend to exclude novel solutions.

It also offends those who have a belief in using science and the evidence base, that a government agency would promulgate plausible-sounding nonsense derived from shabby science and unjustifiable conclusions: one expects better of government authorities.

‘Wipe-off-5’ is a study with multiple basic methodological flaws; circumspect conclusions would have been prudent. Instead, overstated claims unsupported by the data have been made. These have been cherry-picked to suit a particular road safety enthusiasm (i.e. “fine them until they slow down”, as it was put by one Monash University road safety academic).

The message in the “wipe-off-5” campaign contradicts logic, intuition and common experience: “all speed is bad; all drivers are bad; all roads are bad”. Motorists don’t believe the message, and, given the weaknesses of the data, are justified in their disbelief. This is then compounded when camera placement and speed enforcement bear no relation to the accident risk in the area of surveillance (i.e long stretches of straight roads for a steady line-of-sight for the camera; 5km/h tolerances on a deserted freeway).

The fact that the measures are implausible and lucrative unfortunately makes it easier to be cynical, and undermines a legitimate regard for the risks of *inappropriate* speed. The credibility gap that exists leads to the failure of acceptance and therefore lack of a community compact on ‘speed’ that might otherwise be developed, and serves only to make adversaries of drivers who should be allies.

ENGAGE RATHER THAN ALIENATE

One might ask why a significant number of motorists flash their high-beam lights at oncoming traffic to indicate a speed trap ahead. But one should equally ask why it is that this warning is never seen in relation to the location of ‘booze buses’: if it were simply a matter of ‘mateship’, and a ‘them-and-us’ mentality, then the distinction should not exist. The answer lies in the fact that the community has embraced the notion that drink-driving is dangerous. The TAC and the police have failed to take the community with them in the notion that “speed kills” – the sound-bite is a tad too trite and drivers feel the premise is suspect.

In the face of the thousands of *uneventful* kilometres logged by most motorists, naïve and impractical calls for sweeping reductions in speed limits and increased enforcement have little support. As recognised by then-Assistant Commissioner

Ray Shuey (*The Age*, 6-12-01), “no matter what strategies are deployed, unless they receive community support, they will fail”.

The limitations of individual drivers and the specific circumstances of fatal accidents – some of which may have involved the irresponsible use of speed – do not necessarily allow a generalization to the broader motoring public. Until there is an informed change in emphasis from the simplistic “speed kills” message to one of the “inappropriate use of speed kills”, the police will – in contrast to the attitude relating to alcohol and driving – continue to wonder why community support is less than whole-hearted.

The laws are currently cast to cater to the lowest common denominator. Authorities should perhaps stop insulting drivers’ intelligence, stop trying to convince them that they are all at equal risk of involvement in an accident, stop pretending that minor differences in speed make a major difference, and admit that they are bludgeoning all motorists with the same big stick because authorities currently have no way of identifying the truly unsafe driver except by catching him/her ‘in the act’.

Regrettably, this strategy remains the ‘*All-Bran*’ approach to road safety – “those that take it don’t need it, and those that need it don’t take it”.

IS EVERYONE AT THE SAME RISK FOR AN ACCIDENT?

In many areas of public policy, it has been the fashion to apply stringent restrictions on all participants in order to catch the errant few: think speeding in road safety or curfews and sales restrictions on late night alcohol consumption. The outliers are the dangerous ones, yet all are penalised for the ineptitude of the few.

Fatalities on country roads in Australia are overwhelmingly amongst young men (which regrettably is no surprise) and yet authorities try to convince motorists that they are all at equal risk. Good drivers are involved in accidents, but in many cases it’s because bad drivers involve them.

In Victoria the decision was made to come down hard on any motorist even slightly exceeding the speed limit. Minimalist error margins and speed cameras are, however, a blunt instrument in pursuing the aim of reduced road fatalities, in that only a small percentage of those fined are likely to be a risk to themselves or the community.

An accident is just that: an event that could not be predicted and that occurs despite the best efforts of all concerned; a great many more road injuries and fatalities are not accidents, but occur as a consequence of deliberate stupidity or defective road craft, and are entirely predictable.

Road safety authorities would have us believe that all motorists are equally at risk of having a fatal accident. True accidents will always occur: a zero road toll will never be possible, but this attitude otherwise ignores the contribution of inexperience or recklessness in many fatalities.

That many of those killed would have regarded themselves as not being at risk of having an accident does not make true the converse, which is that all those who believe they are at low risk of having an accident are reckless and at just such a risk.

Many motorists who regard themselves as capable drivers *are* capable (no; not better than average, an old canard), and rigid enforcement of speed limits - particularly on freeways and open roads - are a niggling insult to the maturity of their road-craft. Meanwhile the inexperienced, ignorant or foolish drivers who ought to be the specific targets of the road safety campaign continue to travel - evidently oblivious to all advice and sanction - sometimes at two and three times the speed limit and tragically destroy themselves and others.

Police figures confirm the suspicions of indignant drivers fined for inadvertently travelling a few kilometres an hour over the limit. Seventy-nine per cent of fines are issued to people travelling less than 10 km/h over the speed limit, no matter which zone they are in. Just 5 per cent go to the people travelling between 15 and 24 km/h beyond the limit; i.e. those who truly may be a menace.

VicRoads trumpets that *“drivers that exceed the speed limit by 25km/h and over account for less than 1% of all speeding drivers detected by the road safety camera system”* (italics added) as if this is somehow a good thing, and therefore vindicates the tough approach, without providing the companion data of the rates of accidents amongst these drivers and their subsequent fatalities, as compared to those for drivers fined for minor infringements.

An element of zealotry has crept into the Victorian state attitude to speeding, where punitive pursuit of controlling speed has become the end in itself rather than viewing being ‘tough on speed’ as a means to the end, that being to reduce road fatalities and injuries. Wipe-off 5 is apparently so entrenched it may be that nobody has asked the ‘audit’ question: ‘what if these thousands of fines for minor speed infractions are actually making no difference to the road toll?’

On Oct 6th 2014, Assistant Commissioner Robert Hill, in a piece in the Herald-Sun admitted:

“More than half of all motorists caught speeding by Victoria Police in 2013 were doing more than 15km/h over the speed limit” (these data are presumably distinct from those caught by speed cameras noted above).

Furthermore, “15km/h over the limit is a conservative measurement of the speeding on our roads, as we continue to see hoons being caught from 45km/h over the limit to in excess of 100km/h over”.

In other words, after more than 15 years of Wipe-off 5, the truly dangerous hoons who need to be taken off the road are speeding without apparent constraint.

It is variously described as optimism, futility or stupidity to continue using a failing technique and expecting a different outcome, but the commissioner’s words would seem to indicate that Wipe-off 5 has succeeded in slowing down and fining the safe drivers, and has failed in affecting the ones who are actually a danger.

The solution is surely not more of the same.

THE CULTURE OF SPEEDING

Logic dictates the need to catch the truly at-risk individuals.

There are 2 options: one is a very practical, task-orientated attitude, which uses an active, high-profile (and expensive) police presence monitoring individual drivers and cars, polices and improves known accident black-spots, and accepts that an idiot in any sort of car can be a menace.

The other approach is to change the ‘culture of speeding’. One imagines that the ongoing adherence to wipe off 5 in the face of its discredited science is an effort in this second direction. But that involves not only penalising all ‘speeding’, but in making it unfashionable and socially unacceptable.

The example of smoking is a public health campaign where blanket unacceptability succeeded in changing a community attitude. It is hard to achieve that with speeding when the very same government supports and subsidises, for example, Formula 1 racing; and government broadcasters such as the BBC and ABC show the speeding of skylarking clowns in programs such as *Top Gear*.

The social desirability of fast and powerful cars remains strong and, with the exception of certain limited demographic groups – such as inexperienced young men – there is little evidence to support the notion that ownership of these cars *per se* constitutes an increased risk, very much in contrast to the risks associated with smoking.

Those who demonize owners and producers of excessively powerful vehicles need to produce evidence that – after controlling for confounding variables such as age of driver and car, and duration of holding a driver’s licence - these vehicles are more often involved in accidents.

It is equally possible to exceed the speed limit in a car of four cylinders as in one of eight. Is a responsibly driven powerful car of any greater risk, particularly since

many such larger cars are also more expensive and incorporate more safety features than the smaller, cheaper 'buzz boxes'?

Similarly, while a greater number of fatalities are known to occur in urban areas, speed-limiters in that setting are of no utility: a 100km/h speed-limited car may still exceed a 60km/h speed limit. On the open road, speed-limiters would potentially convert a safe overtaking manoeuvre into a hazardous one.

That motorists – and particularly car enthusiasts – choose to spend their money on vehicles with capabilities vastly beyond what the road rules allow does not mean that they should, in a free-market society, be prevented from doing so, as long as the vehicle is used in accordance with those laws.

FRUSTRATION AS A CAUSE OF ROAD ACCIDENTS

One should not underestimate sources of frustration as contributors to road accidents. Whilst we might like that all drivers are calm and courteous at all times, this does not reflect the reality of modern life, where quite legal speeds are required to fit with the timetable of daily living.

Tail-gating is – and should be – illegal. The *quid pro quo* of that must, however, be an appropriate consideration for following motorists.

It is currently law that one must keep left unless overtaking if travelling > 80km/h. It must either be promulgated as a courtesy for this to be true at all speeds, or consideration should be given to mandating it at all speeds as was tried in WA.

A further legacy of Wipe-off 5 is that drivers are so terrified of violating the freeway speed limit that, with sometimes 3 cars strung abreast, no driver is prepared to apply the small – and actually inconsequential – squirt of speed that would again open up traffic flow.

There also seems to be a species of driver who sees it as their own role (rather than that of the authorities) to hold traffic to the posted speed limit, and who will doggedly and self-righteously hold a position in the right-hand at or below the speed limit in full knowledge of the frustrated drivers queued behind.

Older drivers who are capable but are more comfortable travelling below the speed limit feel harassed by tailgaters. Perhaps they may be offered plates similar to L or P plates to indicate their mature status: M or S (for senior), and they might then be treated with more consideration.

In response to drivers' complaints, efforts had initially been made to try to have speed limits better reflect the specific road condition. Because this sometimes resulted in multiple changes in the limit in a short distance, this effort was recently announced as being 'simplified'. This may be a retrograde step – no doubt a balance clearly has to be struck – especially since homogenization of

limits will almost certainly result in roads which could efficiently carry a higher limit being arbitrarily downgraded to a lower one for the sake of simplicity.

The concept that an ever-lower speed is always better leads to the *reduction ad absurdum* conclusion that everyone should stay parked in the driveway at home.

DO AS I SAY, NOT AS I DO

If speeding and mobile phone use while driving truly are the hazards they are portrayed to be (and the evidence against mobile phones as a distraction is compelling), then that risk applies equally to members of the police, who are neither superhuman nor above the law.

How can high speed chases ever be justified according to a road safety policy that says "speed kills"? It is almost as if a policy is being followed which says 'we will pursue you until you make a mistake and die', as is not infrequently the case. The greater pity is when this involves an innocent bystander, as so tragically recently occurred with an infant in Sydney.

Police vehicles without activated lights or sirens (or identifiable un-marked cars) regularly cruise past obedient traffic at well above posted speed limits: to excuse this as 'an operational matter' is a glaring hypocrisy.

Police frequently use mobile phones whilst driving – this again is apparently OK because it is 'an operational matter', as if the rules of psychophysics suddenly no longer apply!

The claim of 'operational matters' as some talisman to invalidate the application of rules to police sounds like nothing so much as the certain villain in the film *Lethal Weapon 2* claiming 'diplomatic immunity' to avoid all sanctions! It is impossible to gain community acceptance with such a "do-as-I-say-not-as-I-do" hypocrisy. The police either bear a superhero complex, or more likely don't actually believe in the basis of the laws they are required to enforce.

SOLUTIONS?

Rather than address the blanket 'culture of speeding', more targeted options are available and have been widely canvassed:

- *enforce speed limits, but at infraction levels where the speed may actually be a factor in causing an accident rather than hyper-stringent enforcement attempting to eradicate the culture of speed

- *more variable speed limit signs to reflect road, weather and traffic conditions

- *speed limits more tailored to the individual road, so that some suburban streets might be 35km/h while some rudimentary country highways should be 90km/h

- *certain freeways to allow increased speed in order to reduce journey fatigue; including possibility of up to 130km/h on sections of the Hume freeway
- *variable *increase* in speed limit on some freeways when traffic is light and weather good
- *enforcement of 'keep left unless overtaking'
- *fixed, highly publicized speed cameras at notorious accident locations
- *increased rigour in driver education/examination
- *exponential rather than linear increases in infringement fines for increasingly serious infractions
- *prolonged vehicle impounding for serious breaches
- *loss of vehicle (auction or crushing) for outrageous breaches (e.g. exceeding posted limit by say 100%; >120km/h in a 60km/h zone)
- *ongoing improvements in road infrastructure, particularly in sealing verges on rural roads
- *compulsory older vehicle roadworthy assessment, not just at time of sale
- *minimum safety standards on new cars sold
- *renewed police profile on the roads
- *discounts on Registration and Third party premiums for demerit-free driving years (these may have specific appeal to younger, money-poor drivers who are so overly-represented in the fatality figures); surcharges for repeat offenders (in addition to fines for the infraction)
- *research into disabling in offenders' cars the electronic distractions that are increasingly being supplied with new motor vehicles; e.g. Bluetooth for mobile phones, sat-nav., in-car video players.

CONCLUSION

Road safety is an appropriate interest of government, and all jurisdictions should be applauded for their efforts in reducing road deaths and injuries. It is, however, not unreasonable to seek an evidence-based re-calibration of this effort in certain areas.

The central tenet of Victoria's road safety program is 'speed kills', and it has been the perhaps the highest profile and most contentious component of the road safety effort. The emphasis on the 'Wipe-off 5' campaign is misplaced because the research on which it is predicated is flawed, but the subsequent edifice that has been developed around it precludes consideration of any options which might contradict this apparently inviolable truth, such as raising speed limits in certain environments – supported by overseas data – that may actually reduce fatalities, by for example reducing fatigue; and also discourages modulation of road-craft by individual motorists.

The trends in reductions of road deaths quoted as evidence for success of the road safety campaign are associations rather than proof of causation; can arguably be attributed as much to improved road infrastructure and car design as to hyper-stringent speed enforcement; and further, there is no evidence to counter the claim that the gains through speed enforcement might equally have been achieved by less stringent enforcement, at thresholds of speed for which likely risk can be supported by evidence. Reduction in 'speed' is not the end in itself: the aim is a reduction in injury or death.

No one can argue in favour of a right to speed, but in introducing draconian or nanny state measures (without valid evidence), one also destroys any prospect of much-needed community support – 'Wipe-off-5' in particular, is one of the greatest impediments to achieving that support – and attempts to eradicate the 'culture of speeding' will always be countered by others appeals in the market.

Speed limits are but one factor in a suite of measures, and more credit to and emphasis on factors such as improved infrastructure and automobile research and development is due, particularly so that motorists (and taxpayers) are happier to contribute to the costs of these.

Driving is a necessary activity: it should be safe, efficient and need not feel like venturing forth on each occasion to confront an adversary.

All figures have been taken from sources freely available in the public domain; text is a synthesis of material written and read over the period of this observation.