Road safety: the rural dimension

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My name is Joe Motha. I work for the Australian Transport Safety Bureau, which is part of the Commonwealth Department of Transport and Regional Services in Canberra.

Now, in the case of road crashes many fatigue related crashes tend to occur during two periods of the day and one of those periods happens to be between two o’clock in the afternoon and four o’clock in the afternoon and we are right in the middle of that. So, you can imagine what implications that has for how we cope in sessions like this. But we will do our best.

In putting this together, my intention was to try and give you a fairly broad scan of rural road safety issues, and then provide an opportunity for a bit of interchange, for a bit of exchange and discussion.

Probably I will talk for about 25 minutes and we will see where we are at and maybe we can open it up for a bit of questions and discussion.

But this being a health conference, a rural health conference, I thought I would start off with a story about rural health. There was an old gentleman, a country gentleman, elderly gentleman, who went to see his GP and told his GP that he was not feeling quite well. So his GP examined him and found that there was nothing wrong with him and gave him a clean bill of health. But the old gentleman was not very happy. He said, “Doctor, I know there is something wrong with me”. And the doctor, drawing on his long experience in such matters said, “Well, okay. I think I know what might be wrong with you.”

And the doctor said to him, “If you just go back home and improve your love life a little, I think all will be well”, and the gentleman said, “Well”, and thought for a moment, said, “That is interesting”. And he said, “Well, Doctor, which part of my love life do you want me to improve, the part that I think about, or the part that I talk about?”

In terms of conferences like this where you have a lot of thinking and a lot of talking, that is very good because you would expect that the thinking and the talking would result in some action out there in the real world in terms of real world outcomes, in terms of good policy and so forth.

What that gentleman did not, I suppose, have, in his mindset, was the action dimension. And we in the road safety fraternity have done our own thinking and talking, gone through our own processes and the outcome of those processes has been a strategic framework for road safety in Australia. It is the National Action Plan that goes up to 2010.
A part of that framework is a series of two-year action plans, and this one, which was released recently is the plan for 2003 and 2004, and I will be talking a little bit about that later.

First of all, to put road crashes into perspective, the road crash was the sixth leading cause of death in Australia in 2001, after cancer, heart disease, stroke, respiratory disease and other accidents. And if you look at all external causes of death, the contribution of road deaths to that was 22 per cent, that is accidents, other accidents, poisonings and violence.

A key feature of road deaths and serious injuries is prematurity—in countries like Australia we have gone a fair way beyond the biblical three score years and ten. Life expectancy is quite good. But tragically, a lot of the victims of road accidents, their lives are tragically cut short, or blighted and there are a lot of good life years lost there. In 1991, the Federal Office of Road Safety did a study and they found that although road crashes accounted for just a bit over two per cent of deaths, they accounted for about seven per cent of years of statistical life lost through all causes of death.

In fact, it was more than lung cancer and more than cerebrovascular disease and if you looked at the number of people under 65 years old, it was more life years lost than from all forms of heart disease. It is quite a public health burden.

If you try to cost this in dollar terms, it is very hard to cost things like pain, grief and suffering. You know that. It is very difficult to put dollar values on these things. But the Bureau of Transport Economics, where I used to work until last year, has actually costed transport accidents including road accidents and the latest estimate, very conservatively, is around fifteen billion dollars and a large proportion of that, well over half, is human costs—things like lost output, lost productivity both in the home and community and in the workplace, long-term care and rehabilitation and so forth.

An international study has shown that road crashes in the world will be the third largest public health issue by 2020 after heart disease and depression; pretty depressing.

Who is responsible for road safety? There are different responsibilities in the country and by levels of government. The Commonwealth is responsible for funding the National Highway System, which is largely rural, the Roads of National Importance—RONIs—the Roads to Recovery Program, the Black Spot programs. The Commonwealth looks after new vehicle standards and monitors vehicle recalls. It commissions research, statistics and also acts as a national co-ordinator.

The States and Territories also fund roads and road construction. They look after the road rules, traffic police, driver licensing, education, registration, research and stats and so forth.

And then there is the community that has a lot of responsibility for various projects, for example, the Driver Reviver Program. Just recently there was an announcement by New South Wales that there was going to be a community program to prevent child deaths in driveways for example. And then there are community programs to select the safest roads to schools. Those are examples of community programs.
But fundamentally, road safety is an issue of individual choice and responsibility. And the perceptions of risk are about 1700 road deaths each year and a large number of injuries of course, and the perception of risk is large for society but very small for the individual. Accidents never happen to me. They always happen to the other person, as you know.

And there is a quote there by Shaw, who with characteristic wit said, “What is dangerous driving? I have a tendency to believe that everyone’s driving is dangerous, except my own.” I have a teenage daughter who subscribes to this dictum as well. It is an issue about being realistic about risk perception and people tend to underestimate some risks more than others.

There is an American study that found that cars with the lowest death rates, like the Volvos, were driven by people with a purpose and cars with the highest death rates, like the sports cars, were driven by people with attitude. They therefore concluded that road safety was a function of attitude and behaviour—a very complex area which is the domain of psychologists.

I mentioned the National Strategy. The National Strategy has three sorts of planks. They are safer roads, safer vehicles and safer road user behaviour. Now, people will always make mistakes. Accidents—we do not call them accidents any more, we call them crashes—are usually often the result of lapses in human judgment and those will occur. So, you can train people to make less mistakes. You can educate them. You can have enforcement and so forth to ensure that they make less mistakes. But you can also try to make those mistakes less punishing or to have road environments that are more forgiving when those mistakes are made.

We have intelligent transport systems. There are a whole raft of these that augur very well for the future and will produce large gains. And there is education and enforcement.

The goal, the objective, of the National Strategy to 2010, is to reduce the population fatality rate from 9.3 to no more than 5.6 by 2010—that’s a 40 per cent reduction. Now, these sorts of objectives or goals can be arrived top-down through idealism or through a bottom-up process through realism. And the way this was done was through realism. It was a realistic way of doing it by actually looking—doing a bit of research, analysis, and coming to that 40 per cent. So, it is not a figure plucked out of the air.

In order to achieve that, there is a series, as I said, of two-year action plans, the latest being this one. Now, if you look at the trends in trauma over time, as a time series, you will see that we have made good progress up to about ’97 but since ’97 things have plateaued, and if we are to get to that target by 2010 we will have to get our number of fatalities down to about 1,180 by 2010, to achieve that reduction.

This chart gives you a feel for how risk tends to change and increase as you go into rural areas. There is a marked, or steady increase in risk both for males and females as you move out of capital cities.

In a 1988 study, it was found that 38.6 per cent of rural crashes and 21 per cent of urban crashes resulted in injuries, so about double the crash risk there for injury in the case of rural crashes. And another study on fatalities in 1979 found that the risk of
death was, as you can see, over ten times. Thirty days is the standard definition for a road crash death.

The majority of crashes in rural areas are single vehicle, very often run off the road, head on collisions and intersection collisions, and rollover is extremely common.

Now, who dies in rural road crashes? There tends to be a myth that is perpetuated, that people who die in rural crashes are the city slickers. That they are people from the cities. But the reality is that the people who die in rural crashes are rural people. For example, in Victoria, there were 152 out of 211 who were rural residents, so 72 per cent. And the fatality rate for Indigenous people is more than three times the non-Indigenous population. Now, this graph again highlights that, and that should be non-metropolitan road crashes in New South Wales, and you can see, again, a figure of 72 per cent of rural people die in those crashes.

Why is rural crash risk higher than urban crash risk in terms of casualties? For one thing, there is higher speeds: rural crashes are associated with higher speeds because the speed limits on rural roads are usually higher—people tend to drive fast and so forth. Speed is a critical issue. There is also less opportunity for substitute transport in rural areas, so that creates a greater exposure to risk. You have to use a vehicle. Buses and other forms of safer road transport are usually not available.

Lifestyle and habits: people can learn to drive on their properties and so forth, so you might develop the wrong sort of habits. Greater travel distances: greater risk therefore due to exposure. Alcohol consumption and drink driving: again, opportunities for recreation and leisure are not the same as in urban areas and often one of the key ways of spending leisure time would be to go have a few drinks with friends and so forth. So there is a drink driving issue there.

There is poorer road quality. There is a greater diversity in vehicle types, a greater mix of vehicle types. There are “utes” and vans and four-wheel drives and cars and motorcycles. And therefore you have a greater diversity in the fleet and therefore a greater possibility of serious injury in collisions between vehicles of unequal size and mass.

Effective enforcement is harder: you spread your resources more thinly—alcohol, speed and seat belts particularly. The seat belt wearing rates are lower as we shall see shortly. There are obviously delays in accessing medical services, ambulances and so forth. Fatigue and reduced alertness: monotony of driving on rural roads and so forth. Driving on unfamiliar roads. And there is the issue of stress—it is not very clear what the impact of stress might be.

But the fatal four remain: alcohol, speed, seat belts and fatigue. So let’s look at the fatal four in a little more detail, alcohol first.

You will see from that chart that the urban one—the one on the extreme left is lower than the others, so there is more alcohol involvement in the towns and the rural areas, in the smaller towns, the larger towns in the rural areas.

Alcohol is often an issue in combination with other things like speed and fatigue. In ‘98, 24 per cent of rural Victorian drivers had a blood alcohol concentration over the legal .05. And research shows that some rural enforcement activity can actually
perversely increase crashes. Quite sad this is, because what happens is when there is a heightened police presence in rural areas, in societies which are very cohesive, the “bush telegraph” operates, the message gets around, people get to know and so there is evasive action that is taken by people who have been drinking. They usually take the side roads and the other lesser known roads and that, together with poorer quality roads in combination with alcohol affected driving leads to, of course, crashes, more crashes—a very sad outcome. So, a perverse consequence there.

How can the effectiveness of enforcement be improved? Smaller mobile RBT units, rather than the big “booze buses” and so forth. Reduced blitzes. As I said, you know these do not often work because word gets around. There should be the principle of anytime, anywhere, unpredictability, surprise—the police or other enforcement presence influencing earlier decisions in the chain, for example, to have a driver who does not drink with you when you drink, or whatever. A number of other things could be taken into account in those decisions. And, of course, increasing the number of offenders detected will provide a “demonstration effect” and deter further offences.

There was a study conducted of 149 offenders in regional Queensland in ‘97. These people were interviewed face to face after their court appearance and a lot of useful information came out of those interviews. One of the key things was that most of them were most unlikely to change their drinking habits. It was their driving habits that were more likely to change—for example, taking taxis or having a non-drinking driver. Many of those people did not know how many drinks it would take to push them over the limit. There was a very low level of understanding of the effects of alcohol.

Many States are now laying the foundation for alcohol interlocks for repeated offences. Victoria, I think, has gone very far with this. An interlock is a device that does not let you start the car. It is connected to the ignition and you have got to blow into it, and it will assess your alcohol concentration, and if you are below the limit it will let you start the car. So, another example of an intelligent transport system.

Seat belt use—again, you can see far better rates of belt use in the major urban centres compared to other locations. Now, Australia pioneered seat belt use in the seventies and legislation. And we have got a very high seat belt use, particularly in the front seats. A bit lower in the back—probably in the high eighties in the back. But, tragically, over 300 fatalities per year are unbelted, and 19 per cent of injured people. So there is a need to improve belt use.

The WA data for 2000 showed that 27 per cent of fatalities were unbelted, eight per cent metropolitan and 38 per cent rural.

In the case of seat belts, there is some evidence that people who do not use their belts are more likely to engage in risky behaviour. They are less risk averse and more risk prone, and therefore, ironically, people who most need to use those belts do not do so.

Education, particularly informing people about the dangers that they pose to other occupants of the vehicle if they are not belted can be quite effective, and enforcement and incentives could also help. The specific messages that could be provided are the need for speed moderation, that an accident can happen any time and usually happens close to home.
People, when they get close to home, just slip the belt off, but that is where most of the risk is.

We at the ATSB did a study on seat belt reminder systems. You might have seen this in the media recently. What we did is we commissioned a study to look at more intrusive or more aggressive reminder systems. If you notice in your own car—you may not notice it actually, because it is very easy not to notice it—but when you turn the key, you will find that there is a light that comes on for about five seconds. That is the design rule at the moment. And it blinks for about five seconds and goes off and it is usually a symbol with a seat belt.

Now, that is very easy to miss because it is like a Christmas tree. As you know, the dash is like a Christmas tree—a whole lot of lights come on and this light is very easy to miss among a whole lot of other lights. And what this study did was to look at some fairly low cost, but more intrusive warning devices, notably an audible alarm that sounds at about 65 decibels and also has a blinking light, and then, increasingly more aggressive systems. And we found that those would be cost effective, and there is an item in here, for an Australian design rule to be introduced for one of those systems, as soon as possible, in Australian cars. And hopefully, what that sort of system will do is it will target people who either forget to wear their seat belts or just cannot be bothered. But there is also a minority of hard-core people who just will not wear their seat belts no matter what.

How can we increase belt usage? Signage, reminding people to buckle up, community-based campaigns. As I said before, community road safety can be quite effective, because it creates involvement of the community and gets engagement, and also lifts the awareness of the community, so it can be quite a powerful tool.

Reporting road safety issues in the local media, increased enforcement and the rural health professionals. I presume many of you are health professionals, or involved in health in various ways and this could be quite a powerful and cost effective way of getting that message across to people, because, for example, GPs and other health professionals talk to people about various health issues. Seat belts could be one of those things.

And I have got a lot of material there on that table that the ATSB produces. You are welcome to help yourself to that material. I have got probably about one of each, because I could not carry more than that, but if you want more of that material, I will be very happy to provide it to you if you contact me. So have a look at what is there and we can provide you with the brochures and other material. And your own State road safety bodies can do the same. So that can be quite effective as well—a very cost effective method.

Fatigue—again very marked in the “rural balance”, as you would have expected from the remarks I made earlier—is very difficult to identify as a cause and it is therefore underestimated. It is usually the residual. You sort of check what the main crash causation factors and crashes are multi-causal events usually, and then the residual is usually unexplained or an unidentifiable factor—that is fatigue.

But we at the ATSB did a study last year, where we used an operational definition of fatigue and we actually pre-defined what a fatigue crash would be. And it was things like involving a single vehicle, those critical times I mentioned earlier, midnight to 6
am, and 2 to 4 pm, where you have the post-lunch dip, head on crashes, no overtaking and on roads over 80 kilometres per hour speed limits. And we found that using that definition, a very precise definition of fatigue, about 17 per cent of the crash sample was fatigue-related. And New South Wales had the highest at 22 per cent, and the Northern Territory had the highest rate normalised by vehicle kilometres travelled, VKT.

The Newell Highway is notorious for fatigue crashes and there is a study that is done periodically involving three States, Victoria, New South Wales and Queensland, where drivers using the Newell Highway are interviewed and there is a lot of information about rest stops and various other things that is gathered, which is trying to throw more light on the fatigue issue in general, as well as try to improve, or bring down, the number of fatigue related crashes on that highway.

Other methods of tackling the problem, education, the Driver Reviver Programs that you see during Easter and Christmas particularly, audio tactile edge lining—this is the stuff you drive over and just wakes you up, both audibly and in a tactile sense—very effective, because it costs about $2.00 a metre I am told, so it is a very effective treatment to prevent run-off-the-road crashes, and other road-based measures, including things like shoulder sealing.

Speed, you see is pretty much across the board there. Speed is a common problem. No matter which area you look at, it is a very common problem. And this tells you a little more because it shows that in the hundred kilometres plus and over bracket, which is that lower bracket, it has remained fairly steady over time, whereas the 65 to 95 has increased a bit. And the urban situation has improved a bit, indicating probably that urban enforcement has worked a bit better, but in the case of the rural areas, it has not really worked very well.

Now, speed—I will spend a little time on this, because there are a lot of misconceptions, a lot of debate and a lot of controversy in the media and elsewhere about speed. When you see an object in front of you and you want to stop, your reaction time typically is about 1.5 seconds, and then you have got to apply your brakes. Now, when you apply your brakes the time it will take you to stop and the distance it will take you to stop, is proportional to the square of the actual speed. It is non-linear. Now, if you do not stop in time, and if you collide, if you have an impact, the laws or physics dictate that that impact is also proportional to the square of your impact speed, because the formula from basic physics for kinetic energy is half m v squared—half the mass multiplied by the velocity squared. So, both the incidence, the chance of a crash happening and the outcome of the crash—the severity of the crash—are both affected by speed. The faster you go, the greater your chance of having an accident and the greater is your chance of having a serious accident.

And you will see—in the next couple of slides, I will elaborate on that—speed is probably the cause of about 25 per cent of serious rural crashes in Australia. As I said, rural crashes are more severe because of high impact speeds, alcohol, and roads and higher speed limits as well, and Australia has fairly permissive rural speed limits compared to the US and Europe. Most of our rural roads are zoned at about a hundred. Most of the comparable roads in Europe and the US are about 80 to 90, so we are pretty permissive.
The research that we have commissioned—we have done two studies and both were done in South Australia. I will not talk about the urban study; I will talk about the rural one. These were done on roads of 80 and over, and the researchers found that the risk of a casualty crash increased more than exponentially—very steeply with increasing free travelling speed above the mean, above the average speed of traffic, and the travelling speed below mean traffic speed resulted in far lower crash risk.

They also found that crash risk was twice as great at 10 kilometres per hour above average and six times as great at 20 above average. What this means is that small changes in speed can result in fairly large or disproportionate outcomes, as I said before. You know, it is like chaos theory—you may be familiar with chaos theory, where a butterfly flapping its wings in one part of the world can cause a tornado in another part of the world. And it is a bit like that, small changes here can lead to fairly large outcomes down the track.

They also did a bit of modelling with the results and they found that a five-kilometre reduction in speed could lead to as much as a 31 per cent reduction in casualty crashes. That is quite large. And lowering the speed limit to 80 on undivided roads would result in a 32 per cent decrease in casualty crashes. So, you can see that we do trade mobility for safety. Conventional enforcement is not generally practical in rural areas—as I said, large networks and limited resources.

Now, it is 3.15 and I have got a fair bit more to go. I was wondering if I should pause at this point to give you a chance to react to some of the things I have said. If you want to do that—alternatively, if you want me to go on and finish, I can do that as well. What would you like me to do? Would you like to raise any questions or engage in a bit of discussion?

**Question**

... calculations ... because there is obviously a relationship ... you have got a seven-hour journey or a distance you can complete in seven hours at a certain speed, ... 80 kilometres an hour, that would take ten hours. Obviously, you will get problems with fatigue?

**Joe Motha**

Good question. In fact, there is an argument that if you raise the speed limits, it will reduce fatigue crashes because people will be more alert. They will drive faster and when they drive faster, of course, they get to their destination earlier, and they are in a heightened sense of awareness. Now, Italy—you might have noticed this in the media—they have raised their speed limits to 150 on their freeways for precisely this reason, and there is a blurb that says that psychologists have found that this is the case.

Our findings from scanning the literature are that this is not quite right; that the heightened sense of alertness that you might get travelling at higher speeds, for one thing, is transient. It will not last long. It will wear off and people will get used to that higher level of speed very quickly and therefore the increase in risk that will occur as a result of that increase in speed will far outweigh any travel time savings you might have. A disproportionate situation—to have a large increase in risk—just not worth it.
On a day-to-day basis I experience this and I invite you to try it. I find cars racing past me and in a few minutes time I catch up with them at the next traffic light or a couple of traffic lights further on. Overall, the time savings tend to be quite small.

I calculated this for the Canberra/Sydney trip a couple of months ago, and I cannot now remember the figures I got, and the assumptions I made, but the change in speed, and I think I allowed for a 10 kilometre per hour increase, and it turned out to be just about 12 to 15 minutes. I mean that is not a significant amount of time saved compared to the risks you would incur, or sustain, if you increased your speed.

**Question**

Yet on the same trend, has any work been done on say highways that are … 110, the careful driver driving along at 100, and other people take risks and pass them to do the 110. You see a lot of that on country roads. Have you got any suggestions on that, or how do you remedy it?

**Joe Motha**

All right. Now, there used to be a theory that this curve is actually U-shaped, that at fairly low speeds you have fairly high number of crashes, and at higher speeds—this is what I think you are getting at—you also have a high number of crashes, the reason being that speed variance, as well as speed are issues in crashes. The intuitive logic of that is that if you are passing vehicles more often, you are likely to have more opportunities for a crash.

We tested this theory in the study that I referred to earlier—the Adelaide study, and we found that there was no U-shaped curve. The curve was just a straight exponential curve going up. In other words, that the slower speed vehicles and the passing issue through the speed variance issue did not appear to be a dominant effect and the reason for that was that the American researchers who came up with this U-shaped curve failed to control for certain things, notably vehicles that were moving away into side roads, so they had not controlled for those sorts of changes.

So I do not think that impact would be large. The key issue is absolute speed.

**Question**

You mentioned the results of the study on speed limit enforcement in rural areas. Has anyone told the Police about this?

**Joe Motha**

All the research that I mentioned, and there is plenty more, I could probably stay here the whole day and give you a run-down of all the research, but all of that is in the public domain. You see, this document for example, is shepherded, if you like, by the National Road Safety Panel, and the Police are involved in that panel. The Police would be aware of the research that goes on. So, yes, I mean, this research is public domain stuff.
Question

A lot of car companies have got quite advanced safety systems in place already. There are a significant amount of safety systems that are planned for the next 10, 15, 20 years. Their planning in that sort of time frame are for marketing reasons I would think. Is there any similar… from a Government point of view to actually encourage car companies to bring in safety systems earlier that would have dramatic effects on … response … survival … etcetera, etcetera. There are a lot of things that they can be doing but due to purely marketing they do not …

Joe Motha

I think the market tends to operate fairly efficiently. I mean, we should not underestimate the power of the market. For example, I told you about the seat belt reminder system. Ford, for example, has what they call “the belt minder”. That is their trademark for the belt reminder system that does exactly what I described. It has an audible warning. I believe the new Falcons have it and some of the more expensive cars have an audible warning system. Now, there is a number of those sorts of safety things that—and if the market rewards those sorts of things, by paying a bit more for it, or whatever, those things will move through.

But, there is also another issue, and that is that Australia has got certain obligations internationally, as well, in terms of harmonisation of standards, and this is a complex issue and we have obligations in terms of various conventions and that. We have to ensure that there is a certain degree of consistency, if you like, with other countries, for reasons of exporting and importing vehicles. So there is a mechanism to ensure that there is harmony, but by and large, a lot of these intelligent transport systems and safety things that you are talking about, are moving through fleets and there are a lot of these things currently being tested, like intelligent speed adaptation. There is intelligent cruise control. Usually they come in at the top end of the market and then filter through, over time, to the lower priced models.

Question

Do you have a mono … to represent three … groups. … present time … 65 to 80 kilometres … percentages …

Joe Motha

You are saying that with the improvement in vehicle standards, you would have expected a decrease. Yes, but there are compensating things, because although safety has improved—everything is improving. I mean the road system, in terms of its safety, is maturing over time. That is why we are getting the lower rates normalised by population over time. I will show you another graph towards the end, where you can see the dramatic decline that has occurred since the seventies. We are doing much better than we used to do. But there is compensatory behaviour. People have better cars, so they may drive faster. Better roads can also tempt people to take those benefits in terms of performance rather than safety, so you have those compensating effects that are also taking place. You have alcohol problems. So it is a very complex mixture of things that are working together to produce those outcomes.
Question

... airbags. What is the story on airbags?

Joe Motha

The air bags are successful but they have to be used in conjunction with the seat belt. The seat belt is important. To get the maximum value of the airbag you have to be buckled. The seat belt is fundamental.

Question

To what extent is darkness a risk factor?

Joe Motha

Well, to the extent that it affects visibility, I suppose, would be the obvious answer. And also, there is the issue of animals, you know, that cross the road and get dazzled by head lamps. In fact, there are devices—there is a reflective device that reflects the light of the headlights back into the side of the road and sort of deters animals from crossing the roads. There are innovations like that. There are other factors also, like for example, if you are driving at night and there is less traffic, there is an exposure benefit there because if everybody else is asleep and you are on the road. You could have a fatigue problem, of course, a fatigue risk, so there are compensating things.

And, there is the visibility thing, so it depends on how visible the road environment is and how good the road is. For example, if your visibility is not good, the obvious risk is that you can run off the road. You can have a run-off-the-road crash, particularly if the shoulder is not sealed.

Question

Just with regard to something I have always been disappointed in, certainly the Victorian State Government’s approach to road safety, and in this current term, they have become quite draconian in their enforcement issues as regards to lots of various things. But one thing that has stood out over the years, and I do have a sort of a slight issue with this, is that fundamentally ... is that fundamentally ... is that the education levels of the 17 to 18 year old driver, is very, very inadequate from the point of view of whether they have been taught by Mum, Dad, whether they have been to driver training in the paddock, whether they are going to a driving school—some of which are not much better than Mums and Dads ...

Do you see a point where there is a cost return by the government investing in educating the driver in such a way that they do not let them pass their road licence test, they learn to control the car, because I see that as a fundamental issue that is lacking in road safety in Australia, particularly when there is a culture of enjoyment of motoring. In some respects that is encouraged by government without respect ... so can you see a time when the government steps in and takes the issue and says, “We will have ... State-based national program to teach people to drive without - - -
Joe Motha

All right. The first thing is that driver training and licensing, as I said before, is a State issue. It is a jurisdictional issue. It is not a Commonwealth issue. And therefore it is up to the States, to devise programs that will provide the best, or the optimum results from those driver-training things. I am aware of a number of private driver training schools, including in Victoria. There is the graduated licensing scheme. There are a number of initiatives. On a cautionary note though, there is some research that suggests that driver training can, like the example I gave of the enforcement in rural areas producing an increase in accidents the perverse consequence, there can be the effect of over-confidence with training. You know, when a person is trained, they could, if there is an over-confidence effect, actually take more risks. So, training has to be well targeted, well planned and well delivered in a scientifically sound way. So there are lots of issues with training. But training, as I say, is very much a State issue.

Question

I hear what you say, and I’ve heard that comment from State Government before. I have heard it from the insurance industry, that the more you up-skill the driver, the greater the potential to cause … the accident.

Joe Motha

Not necessarily …

Question

Is that not the same as saying that we had better not teach the 747 pilot how to fly really well? We will only teach him how to start the thing and get it off the runway. Then he hits the turbulence in the middle of a flight. We just hope he knows how to deal with it. Is that not an analogy?

Joe Motha

Not an exact one, because the sorts of training issues that a pilot would go through in a simulator would be quite different to driver training. The whole issue is how that training is designed and delivered, and drivers made to be aware of issues like over-confidence. It goes back to that issue of risk perception, you know. The issue of risk is yes, 1700 people die, but my risk as an individual, to me, looks very small.

I feel, when I am in control of my vehicle, that I have a great degree of control. I have not had accidents in the past. You see, it tends to build confidence in people. And therefore we feel we are sort of invincible, not vulnerable, and this can give a false sense of security, as well. So, training is very much, I think, something that has to be very soundly delivered, planned and so forth. There is a lot of science to it. And that is why there are a lot of professional driving schools and that now, that are doing advanced driver training, not just the basic stuff.
**Question**

Just on that driver advanced school, the driver advanced courses are bringing a young person up to the awareness of what their car can actually do … a driver and simulate, or not even simulate. They actually get the drivers to go through the process of what a car can do and what it cannot do. But at the same time, it builds up confidence….

[End of tape]

**Question**

In one way the driver advanced courses … in another way, it gives the driver a false sense of security.

**Joe Motha**

Yes. I think if it is properly designed it should not do that. It should forestall that possibility is what I am saying. It is all part of that training. I mean, that itself can be part of the training—that you are made aware of those sorts of things. You are made aware of the possibility of over-confidence itself, is a valuable part of that training, I would think. And it is building that sort of thing into the training that is necessary.

**Question**

Is there any evidence that licence renewal testing would make any difference?

**Joe Motha**

Licence testing? Sorry?

**Question**

Competency testing, I guess, rather than just rolling over your licence every ten years, or whatever it is, and actually having your skills tested, as to whether you are competent to drive.

**Joe Motha**

I think that has been done for certain categories of driver, mainly I believe elderly drivers. You have those sorts of repeated testing. Well, again, it is an issue, as I say, I cannot comment on, because it is all tied up with how jurisdictions want to deliver or administer the issues of training and licensing. It is not something that I, as a Commonwealth officer, can give you a clear answer on.

Any other questions? I am not sure how we are doing for time. It is 3.29. Would you like me to wind up? I have probably what is of most use to health professionals towards the end. I can take five minutes more and try to breeze through this. Is that all right?
Chair

Yes, please.

Joe Motha

Okay. You can just vote with your feet if you really do not want to sit through it.

Right. The response time, by emergency services is a critical issue, and the US studies show that rural victims are seven times more likely to die if the response time is more than half an hour. Now, the golden hour—and I think it was an American who coined this phrase—is that in particular the first ten minutes is vital because victims can get into a situation of irreversible shock which can kill, and so that initial paramedical presence and help is really vital. And of course, urban people are more fortunate in that regard because those facilities are more easily available.

The Australian studies show, as you can see from those figures, if you are in a rural area, your chances of dying before medical attention arrives, is much higher than if you were in an urban area. Now, here again, what can we do? As you were saying earlier, ITS can come to our help again.

There is what is called automatic crash notification, or basically Mayday systems, which can automatically trigger a message to a call centre in the event of a crash, and these can be connected to the airbag—if the person is seriously injured, it can be just automatic. Or the system can involve a button that has to be pressed. And the call goes through, and then it connects to the mobile network and if the person is able to speak, they can speak and identify where they are and what has happened. In some cases data can be transmitted. For example, the pre-impact speed of the vehicle can give medical professionals a lot of vital information that will help them when they get to the scene.

Now, it of course depends on the mobile phone network coverage but these systems over time will become more common in the vehicle fleet. Time for ambulance arrival, again a fairly stark contrast there, as you can see the 19 per cent in the “rural balance”, and the time of death by region of crash. Again, a very significant difference between the major urban areas and the rest of the country.

Instantaneous death, as you can see in the two right hand bars, because of the high impact speeds in rural area crashes, mainly, and a greater probability of death prior to ambulance assistance arriving.

Now, road design and environment can also have a major impact on safety. The major road upgrades, they improve both safety and mobility, and cut travel time. They are high cost options and so roads with high traffic volume tend to get favoured, if you use benefit/cost analysis.

Remedial safety treatments improve safety rather than mobility. They are low cost treatments but they have good returns and if they are well targeted they can have very good outcomes. For example, things like shoulder sealing, delineation, hazard reduction, black spot and mass action treatments. Mass action is, for example, if you seal shoulders, and you have a large area, you just apply the same treatment to the wider area and you get a larger benefit.
Black spots is another key area in road safety and the Federal Government has got a program of funding that has been going since about the early 90s and the jurisdictions have their own programs. Now, in the Federal program, 50 per cent—50 cents from every dollar goes to rural areas for rural projects and the BTE evaluated the first three years of the six year program and they found that the benefit/cost ratio—in other words the social benefit or the community benefit from each dollar of cost invested in these projects was 14. That is an extremely high return; a very good social return.

The urban projects had a BCR of 18, whereas regional projects had a BCR of 11. Now, you can see there the lower performance of the regional projects, and that is partly because there are fewer of those crashes to prevent, although when they do occur they are usually more serious. And another factor from the next point, you will notice that the regional projects are also on average more expensive. They are larger projects. They are big roundabouts and large areas of shoulder sealing so they tend to be more expensive. And again, this would, you would expect, reduce the benefit/cost ratio—higher costs. The key treatments were roundabouts and shoulder sealing. About half the expenditure that was spent in those years were for those projects.

So, in terms of rural road safety, the broad issues are the same across the board, but the programs and the actions need to be finetuned, adjusted, targeted to local conditions, and the key to—and I think you will see this come through from a number of presentations in this Conference—that the key to these interventions is involvement, engagement, participation of communities in these various programs and ownership.

And these communities need to be actively involved. They need to have ownership, and also, to enable programs to be properly targeted in terms of values, social norms and so forth, culture. A good example of this is an Aboriginal road safety video that has been produced. It is called Corrugations to Highways. It is really an excellent video because it has been produced with the involvement of Indigenous people entirely, using Indigenous situations, actual situations. It is quite a good resource, and it has got a workbook and training material.

Now, this is a quote from Marshall McLuhan, “We look at the present through a rear view mirror. We march backwards into the future”. What does that mean? Let’s look at the past through a rear view mirror; standing where we are now you can see that we have come a long way over time in terms of performance. We had about 30 deaths, fatalities per 100,000 people in about 1970. That has steadily declined to about 8.8 at the moment. But we have still got a fair way to go. The target is 5.4 by 2010.

In terms of other countries, in terms of comparing ourselves with the OECD, we are not doing too badly. As you can see, we are tracking pretty well—the white line has got below the OECD median, about 1990 and is tracking downwards, but we have still a fair way to go before we catch up with some of the better OECD countries like Finland, the UK, Norway.

And finally, where to from here? That plateau that I mentioned—since 1997—we have been about static. We have not made a lot of significant progress. Our progress over time in terms of reducing fatalities and serious injury has been encouraging. But particularly, on the rural side of things, a lot more work needs to be done.
And what are we doing? There are six major action areas in the 2003 2004 action plan. And one of them relates to rural and Indigenous road safety issues. And a number of the other things cut across that including speed and alcohol.

Also, there is a group called AusRoads, which is an association of all the road safety agencies in Australia and New Zealand and one of the seven priority issues in their research program—which I manage as part of my work—is also this area of rural road safety.

So finally, just to close, that picture there—I want to go back to what I said towards the beginning of the presentation. I talked about individual responsibility. I think, at the end of the day, road safety is very much an issue of collective and individual responsibility. We, as individuals and we collectively—what can we do?

And the image I have there is of a waterfall and I remember some years ago I had the opportunity of visiting Niagara, and I stood there and watched with awe the tremendous surge of water and the power of the waterfall, and the same is true of almost any waterfall, it just occurred to me as I gazed upon that waterfall, and the huge amount of foam in the pool down below, that was being generated—this incredible power. That power came from individual drops of water—just individual molecules of H2O—working together synergistically, harmoniously together to produce that power and that force.

And relating this back to road safety, ask the question, “What can you and I do, as individuals, to bring down our road toll?” And I will just leave you with that question.

Now, as I said, there is material there that you can help yourselves to. I will leave a couple of business cards. I will be more than happy to provide you with materials. We have got brochures on fatigue and all sorts of other things. And if you want this stuff just let me know and I will be happy to send it to you.

Thanks a lot.