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How can we change our approach to fatigue management so we reduce fatigue-related incidents and deliver Australia's road transport task efficiently and safely?

Remove reliance on human behaviour. It has been repeatedly shown that there are people in the transport industry who flout the laws, either through a lack of comprehension of the risk, a lack of care, or due to the circumstances they find themselves in.

A 2015 Safe Work Australia report found that 20% of transport employers break safety rules to meet deadlines, and 20% accept dangerous behaviour; whilst a 2016 Macquarie University report found that 42% of owner-drivers said the reason drivers do not report safety breaches is because they believe they will be sacked, and feel pressure to stay quiet or risk losing their jobs.

(Source: http://www.twunsw.org.au/operation-rolling-thunder-not-enough-end-road-deaths/)

We are at a time now where we can utilise intelligent machines – seeing machines, intelligent vehicle sensors, lane departure sensing, telematics, bio-metric monitoring as an input to the vehicle. Where parameters are exceeded the system will escalate through alarms to vehicle shutdown.

These inputs can also be transmitted through 5G networks to a central hub where real time analysis and alarming can take place where dangerous situations are identified.

What fatigue risks that are currently out of scope for the HVNL should be brought into scope? What is in scope that shouldn't be?

Trying to quantify all fatigue risks in a piece of legislation will be very difficult due to the infinite number of scenarios which contribute to fatigue.

As the legislation only addresses work-related causes of fatigue there is a weakness as non-work related factors are ignored.

Non-work related fatigue factors such as quality of rest, lifestyle choices, substance abuse, physical and mental condition, all contribute to the fitness of a driver at the commencement of their shift.

There needs to be an acknowledgement of these factors so the conversation and education can commence to minimise injury risk.

What are the key risk factors associated with long hours, night shifts and other work schedule factors? How do we account for the fact that not all work hours have the same risk without introducing excessive complexity?

The current legislation is based on the assumption that all people do not function well on night shift when compared to day shift. It does not flex to meet the traits of individuals.

Fatigue is best managed by identifying it, quantifying it, and then establishing mitigating controls. The first step is to assess a person's level of fatigue at shift commencement and then during their shift. This can be achieved utilising bio-metrics wearable devices combined with real-time analytics.

(Source: https://www.rtinsights.com/how-wearables-and-real-time-data-prevent-fatigue-related-accidents/)

How should a new HVNL address driver health and lifestyle factors? What kinds of controls could be effective?

Global research has identified that healthy workers are happy, productive, and safe workers.

Consideration needs to be given to the transport sector assessing, and monitoring on an ongoing basis, the physical and mental health of, in this case, drivers. A small transport levy, payable by transport companies and not the drivers, could be utilised to set up clinics or partnerships with clinics where these assessments could occur.

Drivers within required guidelines would have their licence endorsed, whilst those outside would be offered assistance in the first instance to achieve the guideline requirements. The downside would have to be an acceptance that drivers who cannot meet the guidelines would need to be exited from driving roles.

(Source: Effects of physical inactivity on stress, fatigue, health and risk of at-work road traffic accidents

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.467.9073&rep=rep1&type=pdf)

(Source: A healthy driver can cope, Finland and Alert at the wheel – Health on the road through good nutrition, Finland https://osha.europa.eu/en/tools-and-publications/reports/campaigning-transport_TEWE10005ENN)

How do we ensure the HVNL is agile enough to adopt best practice fatigue management as it emerges? How do we encourage continuous improvement? Can training help?

The HVNL needs to focus on the hazard and controls and not the consequences. Is the driver fatigued? If yes what do we do? These are the 2 focus questions.

The road transport industry has grown by 16% over the 13 years from 2003 to 2015 (Source: https://www.safeworkaustralia.gov.au/transport)

With the continuing growth of the road transport sector it may well be time to give consideration to creating a formal qualification for the different categories of driver; long haul, metro, country etc.

A formal qualification could consist of 50% driver training and the remaining 50% allocated to topics such as;

- Financial management
- Physical and mental health
- Fatigue Management
- Time management
- Negotiation
- Conflict management

Successful completion of refresher training could also be required for licence renewal purposes to ensure skills and knowledge are maintained and also to expose participants to improvements in technology and the industry since the last time they attended training.

(Source: Safe EU Driver – Handbook on initial qualifications and periodic training of professional drivers http://94.23.228.57/EUROTRA WEB/Documents/SAFEEUDRIVER.pdf)

How can we better accommodate emerging technologies? How can the new HVNL get the best value from technology and data? Do you think fatigue monitoring technology can supersede work and rest hour requirements?

To best utilise emerging technologies the industry needs to set an agreed framework on how it will be used. This needs to be a systemic approach which describes the types of inputs to be utilised, data collection, transmission, and analysis methodology; and then agreed methods of developing responses when digressions are discovered. The key will be to have a system where all the different equipment manufacturers will, through the adoption of the framework, provide data in the same way.

By developing this system the requirement for enforcement officers on the road will be minimised as the system will automatically identify and report, in real time, where the issues are. This will enable rapid response prior to an accident happening.

Fatigue monitoring will supersede current legislative instruments if the industry, either willingly or unwillingly, embraces technology.

How can the new HVNL meet the needs of all Australian states and territories? What should the new HVNL adopt from Western Australia and the Effective fatigue management: issues paper May 2019 10 Northern Territory, other transport modes and other industries' fatigue management approaches?

Consideration needs to be given to transition the HVNL to absorb them into the harmonised WHS laws. The current WHS legislation addresses work place fatigue due to all factors so there is duplication between the two pieces of legislation. Understandably there may be some resistance to this as where will the jobs go?

Are prescriptive rules desirable in a new HVNL? If so, how can we simplify rules in the HVNL to make them easier to understand so that they're easier to comply with?

No. Prescriptive legislation was phased out in most spheres in the 1970's and 80's as it was found to be ineffective. A return to this time would be a retrograde step.

Research has established a quantifiable continuum of fatigue measures

(Source:

https://www.icao.int/safety/fatiguemanagement/FRMSBangkok/4.%20Measuring%20Fatigue.pdf and https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5633636/)

We need to measure fatigue at the point just before the driver enters the truck. Where the fatigue level is above a minimum level they should not be permitted to commence work. A conversation is then required to identify the reasons and address them.

Next we need a system to directly monitor fatigue levels during the drive and take corrective actions when they reach set levels. (Shake the seat, sound buzzers, contact a call centre, contact nearest Police station etc)

All of this needs to be autonomous, ie without requiring human interpretation.

Would the compliance options described in section 4.5 be a more effective approach to regulating fatigue management? If so, what should be included in the new HVNL, its subordinate documents, or elsewhere, such as in work health and safety laws? How

would the appropriate fatigue management option be allocated to an operator – by self-selection or other means?

Transitioning HVNL into WHS legislation will result in one piece of legislation to address fatigue risk instead of the current two.

Introducing formalised training, and refresher training, for drivers which includes programs of fatigue management will assist operators develop risk minimisation mechanisms.

Should the new HVNL give operators the option of taking full responsibility for risk management? What would be the roles of the regulator and roadside enforcement in such a system?

The legislation should identify fatigue as a risk, provide resources on how to manage the risk, and quantify the penalties if the risk is not effectively managed.

The regulator and enforcement personnel should monitor operators, engage with and train them, and act where risk controls are not being implemented effectively.

How can we get the best overall value from a compliance and enforcement strategy for fatigue management? How are scarce resources best allocated, and what tools do regulators need? What provisions in the law do operators need?

By utilising artificial intelligence, the 5G network, and a uniform data standard as mentioned above a system can be established where every driver and every truck automatically uploads data into one system which will analyse the data and flag elevated risk situations, which can then be automatically reported to any number of recipients.

Once this system is in place and functioning those operators who deliberately flout the law will quickly rise to the surface and will be able to be addressed.

What this will also do is stabilise the industry at realistic service prices by identifying and eventually shutting down these rogue operators who drive market prices down through their unsafe practices.

What else would you like to tell us about effective fatigue management?

You cannot rely on human behaviour