Automated driving key to reducing serious road trauma injuries, study shows

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Road trauma in Australia and New Zealand could be significantly reduced by the adoption of rapidly developing technologies that change the way drivers use vehicles, new research completed by the Monash University Accident Research Centre (MUARC) has found.

The "Safety Benefits of Cooperative ITS and Automated Driving" report, published and funded by Austroads, investigated the benefits of key Cooperative Intelligent Transport Systems (C-ITS) and automated driving applications.

Austroads Chief Executive, Nick Koukoulas said the "report draws on an in-depth examination of data to understand whether real-world serious injury crashes in Australia and New Zealand could have been prevented if technologies such as forward collision warning, curve speed warning, intersection movement assist, right turn assist, lane keeping assist and auto emergency braking were fitted in all light passenger vehicles."

The report also estimated the potential annual savings to serious injuries Australia and New Zealand-wide. Road trauma is one of the highest ranking public health issues in both countries. Each year, crashes result in almost 1,300 people killed and 35,500 hospitalised in Australia. In New Zealand, 319 people were killed and 12,270 injured in 2015.

"Australia's road transport agencies see connected and automated driving as a key component of achieving road safety trauma reductions," Mr Koukoulas said.

MUARC Senior Research Fellow Dr David Logan, a lead member of the study, noted significant benefits projected on the basis of the vehicle safety applications being introduced in all light passenger vehicles.

"The full adoption among the light passenger vehicle fleet of a selection of key automated driving and connected vehicle safety applications has the potential to prevent between 4,100 and 6,500 fatal and serious injury crashes in Australia and 310-485 fatal and serious injury crashes in New Zealand each year," he said.

C-ITS applications were found to have the potential to significantly reduce road crashes and injury consequences. The technology uses wireless communications to alert drivers, intervene in dangerous situations, reduce traffic congestion and increase system efficiency.

According to the report, the full adoption of C-ITS could reduce 35-50 percent of adjacent direction crashes at intersections by warning drivers when there is a high risk of colliding with another vehicle. Another substantial benefit of C-ITS was the ability to warn drivers of a potential collision with an oncoming vehicle. This application was projected to reduce opposing direction crashes by up to 40 percent.

Automated driving applications showed similarly beneficial projections in reducing road trauma, decreasing the studied crash types by up to 50 percent. These applications take over one or more aspects of vehicle control without driver intervention and can be found in many currently available vehicles.

The researchers believe it could take 25 years for the automated driving and C-ITS applications to fully penetrate the on-road fleet.

"Given the potential significant road trauma benefits, this report underlines the need to continue to invest in supporting physical and

digital infrastructure, policy and trials to further understand what our future needs will be," Mr Koukoulas said.

"Austroads' member agencies are currently involved in a range of trials to further explore these issues," he said.

More information: Safety Benefits of Cooperative ITS and Automated Driving in Australia and New Zealand. www.onlinepublications.austroa … .au/items/AP-R551-17

Provided by Monash University