

The when, where, why of road accidents

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(PhysOrg.com) -- Who knows what 'aetiology' means? It's a branch of science dedicated to finding the causes of something. European researchers have been busy updating the aetiology of road accidents and studying which technologies can make our roads safer for everyone.

“When, where, how, why and to whom do road accidents and injuries occur?” These are the sorts of things researchers in the European TRACE project have been asking in their 30-month study of traffic accident causation in Europe.

To get a full aetiological picture of road accidents in Europe, TRACE had to draw on vast data from across Europe and the resourcefulness of its 22 partners in nine countries, including major carmakers like Renault and PSA, industry specialists and research centres.

According to the project, the idea was to learn as much as possible about the nature of risk factors, groups at risk, and specific “conflict driving and accident situations,” and to estimate the safety benefits of a selection of technology-based safety solutions. The various final results of the research should soon be finalised and published, but ICT Results is privy to some highlights.

Small input, big output

Even the smallest improvement of an active or passive safety feature results in better safety, according to the TRACE team who has evaluated safety packages in today’s vehicles - five-star Euro NCAP features, Emergency Brake Assist (EBA), Electronic Stability Control (ESC), or combinations.

“In general, the safety gains are even higher for higher injury severity levels,” says Yves Page who was TRACE’s coordinator while working at the Laboratory of Accidentology, Biomechanics and Studies of Human Behaviour at PSA Peugeot Citroën Renault.

The difference between a five-star rated car fitted with EBA and ESC and a four-star rated one without these features is striking, he suggests. So-called “injury accidents” would be reduced by 47%, he says, while severe to fatal accidents would be cut by as much as 70%.

Full and future picture

TRACE also scanned the future-scape and evaluated the expected benefits of a number of promising safety and embedded systems, such as tyre pressure monitoring, lane keeping support, cornering brake control, traffic sign recognition, intelligent speed adaptation, rear-light brake force display, ‘alcolock’ key, drowsy driver detection, blind-spot detection, and more.

The greatest additional benefits - a 6-10% improvement in terms of injuries - are expected from speed adaptation systems and systems related to collision/crash warnings and prevention, reports TRACE. The drowsy driver and alcohol detection lockout features were appreciable in their benefit, while systems like tyre deflation monitoring and advanced rear- and front-light solutions were less prominent.

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TRACE project: www.trace-project.org/

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