Safer Vehicles 2016
Summary

This PACTS conference held on 14th June at the QEII Centre in Westminster brought together experts and decision-makers from public and private sectors and representatives from local, national, European and global organisations. The aim was to review the role and contribution of vehicle safety -past and future -in preventing death and serious injury in road crashes. The main issues noted were:

Substantial progress has been made in reducing death and serious injury in Britain/UK and Europe

Britain is one of the leading performers in road safety. Delegates heard that over the last 15 years there has been a 45% reduction in road deaths on Britain's roads. Research indicates that the single greatest contribution to the prevention of road death and serious injury in Britain has been safer vehicles. Over the same period in EU countries, there has been a 54% reduction in the number of people killed on the roads and a 55% reduction in the number of car occupant deaths.

Road death and serious injury is a preventable humanitarian and societal cost, both nationally and globally

Current levels of death and serious injury are costly and unacceptable requiring further continuous improvement at local, national, EU and global levels. Provisional figures for 2015 indicate that some 1,780 people died on Britain's roads.[1] Across the EU last year some 26,500 people were killed and 135,000 were seriously injured (MAIS3+) in road crashes. Both here and in Britain, the long-term downward fatality trend has been highly positive for car users, but less so for deaths and serious injuries to pedestrians, cyclists and motorcyclists, who are often involved in collisions with other vehicles.

A targeted, systematic and data-led approach is a critical success factor for sustained road safety results

Several contributors highlighted the value of a Safe System approach, underpinned by ambitious long-term goals, quantitative outcome targets and an evidence-based strategy. Governmental orchestration of meaningful shared responsibility is important for continuing road safety focus and progress at local and national levels. While the UK Government has abandoned road safety target setting – an international success story – for England and for Britain as a whole, it was noted that the UK has signed up to the global Sustainable Development Goals' road safety target to halve deaths by 2020 which is consistent with the EU target. Road safety strategies in Scotland, Wales and Northern Ireland are underpinned by a long-term goal and quantitative targets, as is the Highways England strategy (set by DfT) and those of major cities such as London. In London, special attention is being paid to the safety of pedestrians, motorcyclists and cyclists who make up 80 per cent of total deaths and serious injuries. A focus on vehicle aspects of HGV and buses derives from HGV involvement in 25% of pedestrian fatalities and 38% of cyclist fatalities in London, despite contributing only 4% of the miles driven in London. Buses are four times more likely to be involved in a KSI collision with a pedestrian than would be expected for their share of traffic.

[1] The final figure was 1,732 (published 30 June 2016).

Vehicle safety is a key Safe System strategy

Safe System aims for a road traffic system which is eventually free from death and serious injury, works to better address common human error and vulnerabilities and involves shared responsibility by many sectors. Vehicle safety is a fundamental element of the Safe System approach, adopted in Britain and elsewhere. Vehicle safety measures address all road users and need to accommodate human capacities and be designed to prevent and mitigate serious and fatal crash outcomes, reduce injury severity in the event of a crash and facilitate faster access to the emergency medical system through enhanced post-crash response. This involves vehicle measures to assist drivers and riders to comply with speed limit, seat belt and excess alcohol laws, reduce distraction from other in-car devices and services or external factors, as well as providing vital crash protection for a range of crash scenarios and age and gender characteristics for road users both inside and outside of the vehicle. *Safe System* approaches aim to integrate vehicle safety measures with other system measures e.g. separated facilities in the road network, in-vehicle lane departure systems linked to road markings, crash-protective medians and roadsides and speed management to ensure tolerable kinetic energy in the event of a serious and fatal crash.

In-depth study of deaths and serious injuries in road crashes is vital

Continuing in-depth study and databases such as the continuing UK RAIDS activity is critical to inform vehicle safety policy needs, understand the linkages with other interventions and inform crash test and safety equipment development. More attention to this crucial area is needed. EU-wide in-depth study protocols have been developed. An EU-wide in-depth database was proposed.

There is large potential to save lives and prevent serious injury through further vehicle safety measures

Vehicle safety design has provided a huge amount of heavy lifting in the work to reduce casualties in Britain. Research shows that the risk of fatal injury in the event of a crash has been reduced by over two-thirds in the best performing cars tested by the European New Car Assessment Programme (Euro NCAP). Evidence was provided of a large future contribution of proven vehicle safety technologies for crash avoidance and crash protection. Despite the progress which has been made, Britain has a marginally larger share of older cars, a lower proportion of new cars with Euro NCAP 5 stars and a lower average Euro NCAP pedestrian protection score for new cars than in other leading countries. Further progress in in-car safety can be made. Increased attention needs to be given to vehicle safety strategy and measures which can improve vulnerable road user safety. Road death and serious injury prevention priorities, cost and public acceptability need to be key considerations in the selection of interventions.

A combination of legislation, consumer information, public procurement, industry initiative is needed

Delegates heard that the combination of regulation and harmonised standards, consumer information, public procurement and industry initiatives over the last 15 years has led to a substantial 55% reduction in car occupant deaths across the EU. Several contributors emphasised that international collaboration and EU harmonisation is essential for vehicle safety improvement. Furthermore, that the casualty reduction resulting from this in Britain could not have been achieved without this. The EU has played a major role having exclusive competence within the Single Market for vehicle safety standards (Article 114 of the Treaty). EU research and development funding and international collaboration in the 1980s and 1990s led to the development of world-leading vehicle crash testing standards and protocols. These were translated into legislation within the EU Whole Vehicle Type Approval scheme. Strong EU support for the influential Euro NCAP developed by the UK, Sweden and European consumer and road user organisations facilitated a highly positive response from the European car industry in providing new safety designs and equipment for car occupant protection. As noted by the Conference Chair, these legislative and consumer information initiatives were rooted in British leadership in research, advocacy and Parliamentary action. There

was a strong commitment by Government to standardise improved safety design and technologies; and secondly, there was an equal determination to achieve this through the EU. Country leadership can help drive the process. National action can also fast-track fitment of proven safety technologies through public procurement and safe fleet policies.

Current opportunities to influence future vehicle safety

The conference focused on EU legislative opportunities provided by the European Commission's current review of the General Safety Regulation and the Pedestrian Safety Regulation; the Euro NCAP 2020; public procurement and fleet safety initiatives at home and abroad and industry initiatives.

- *EU legislative development*: Future amendments to the General Safety Regulation 661/2009 and the Pedestrian Safety Regulation 78/2009 will be recommended to the European Parliament in 2016, based on the outcome of a cost-benefit assessment (based on provisional, indicative green light assessment of costs and benefits by TRL). The following measures are under assessment for possible recommendation, some of which will be bundled where there are shared technologies:
    - Pedestrian head impact on A-pillar/windscreen
    - Pedestrian/Cyclist Detection
    - Automated Emergency Braking for cars (incl. pedestrian)
    - Intelligent Speed Assistance
    - Lane Keeping Assist
    - Driver Distraction/Drowsiness Monitoring
    - Safety-Belt Reminder (all seats)
    - Alcohol Interlock Device Installation
    - HGV Direct Vision standards
    - Frontal Impact Crash Programme
    - Side Impact Crash Programme
    - Rear Impact Crash Programme
    - Alcohol Interlock Device Installation
    - Crash Event Data Recorder
    - Tyre Pressure Monitoring
    - Truck Front End Design Programme
    - Truck Rear Underrun Protection
    - Truck Lateral Protection
    - Bus Fire Safety Programme
    - Reversing Detection

There is a particular need for further development of pedestrian protection features on vehicles. The current protocols both of Euro NCAP and of the Pedestrian Safety Regulation do not provide adequate protection of pedestrians whose heads strike the vehicle A pillar and/or windscreen. Further benefits provided for pedestrians might also benefit cyclists.

In discussing safety priorities relating to the prevention and reduction of fatal and serious injury, it was noted that "Speed remains a very important risk factor. It has a greater effect on the number of accidents and injury severity than almost all other known risk factors." (Elvik, 2009.) A particularly promising intervention and already fitted to several car models on the road was overridable assisting intelligent speed adaptation which could reduce 30% of deaths and 25% of serious injuries if implemented as a legislative standard. It was noted that this is receiving increasing enthusiasm from drivers. Others noted to address important safety problems included seat belt reminders in all car seating positions and alcolocks on professional

vehicles and a standard alcolock interface allowing easy retrofit to all vehicles. Automatic emergency braking was also highlighted as a legislative priority by several contributors. In its current stage of development, it addresses a relatively small proportion of crashes and minor rather than serious and fatal injury for car occupants. Technologies identified as having the greatest benefit to reducing casualties in London based on trials and other information were Intelligent Speed Assistance, Pedestrian Autonomous Emergency Braking, Pedestrian secondary safety features and Alcolocks.

- *Euro NCAP 2020 Road Map*

  Launched in 1997, Euro NCAP involves 12 member organisations and 8 test laboratories across Europe. It publishes star ratings to promote excellence and innovation in vehicle safety. The overall safety rating (from 2009) for passenger cars and family vans combines crash protection, crash avoidance and driver assistance which enables continued improvement in all areas of vehicle safety. 'Five star' Euro NCAP ratings are established as an industry benchmark that is far higher than current regulatory requirements and a correlation between high car occupant and pedestrian ratings and substantially lowered risk of fatal injury have been established. Some 73% of vehicles sold in the EU in the first quarter 2016 received 5* ratings and 17% received 4* ratings. The latest technical updates prioritised key innovations in vehicle safety technology such as speed assistance, autonomous braking for cars, vulnerable road user detection and advanced rear seat occupant safety belts and child restraint provisions. The next rating revisions aim to ensure that the technologies facilitating automated driving will be safe, robust and reliable.

- *Public procurement*

  Countries such as Sweden and cities such as London have used public procurement to fast-track proven and available safety technologies either in advance of legislative lead-times or where legislative standardisation is not available. As part of its new Health and Safety Strategy Highways England plans to review and revise its hire car policy to ensure all hire vehicles meet a minimum 5* Euro NCAP rating. New procurement and fleet measures are also foreseen in the British Road Safety Statement (November2016).

- *Industry initiatives*

  The European motorcycle industry initiative has been targeting the increased fitment of automatic headlight-on technology as well as anti-lock braking systems which will be mandatory this year on all new motorcycles of 125cc and above. Support for eCall on motorcycles and the development of cooperative systems was expressed. For cars, it was suggested that EU industry could establish an EU agreement on AEB such as that made by the US. The US National Highway Safety Traffic Administration (NHTSA) and the Insurance Institute for Highway Safety (IIHS) have negotiated a voluntary commitment by twenty car companies (representing 99% of the US market) to make AEB standard by 2022.

Which delivery mechanism? - Delay costs lives!

It was noted that measures needed to be looked at individually to ascertain the best and quickest path towards widespread fitment and use. Also that clear signals in favour of standardization across the Single Market and by UN global harmonization will deliver economies of scale, reducing costs, whilst accelerating fitment rates that ultimately save lives. Legislative standardisation provides the only opportunity for universal take-up and is necessary when there is likely to be market failure.

Future automated road transport is a rapidly developing field with safety opportunities and challenges

A theme running through the day was the remarkable and rapid development of automated transport research programmes. The final conference presentation outlined the UK's research

programme and partnerships in this area and some of the opportunities and challenges to be addressed. Full automation would be well into the future and was the basis of an earlier expressed anxiety, given the opportunities to save lives now from a range of available and promising technologies. This area will dominate the vehicle safety research agenda.

Speakers contributions can be found on **http://www.pacts.org.uk/2016/03/pacts-announces-safer-vehicles-conference/**

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