

Editorial

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If we consider that worldwide over 1.2 million people are killed every year on roads, we have to regard road safety as a topic of absolute importance. This has been recognised by the United Nations in the Decade of Action for Road Safety 2011–2020 and the accompanying ‘Global Plan’. Mid-way through the decade of action, progress, however, has been slow and the global decline in crashes appears to be flattening off. The international focus has continued, by way of the *2030 Agenda for Sustainable Development* that was launched in 2015 (UN, 2015). There are specific road safety targets within two of the Sustainable Development Goals. Goal 3, health, target 3-6: by 2020, halve the number of global deaths and injuries from road traffic accidents (this echoes the Decade of Action for Road Safety target); and goal 11, cities, target 11-2: by 2030, provide access to safe, affordable, accessible and sustainable transport systems (UN, 2017).

Clearly most of us will not be in a position to effect the major changes in institutional structure, legal framework, ministerial responsibilities and agenda setting necessary to impact on global or even national road-related death rates, but every piece of evidence, however detailed, is another building block in raising awareness of the problem and the need to find solutions.

In this broad context, road safety can still be said to consist of the three Es – engineering, education, enforcement – and while it has become an enormously diverse topic, we have to remember the bigger picture. It is this diversity, and the need to find solutions across professional boundaries, that makes road safety such an absorbing topic. It is an enterprise where a wide range of different specialisms share expertise in order to focus on a joint effort to reduce the death and destruction inherent in our road transport system. Thus, either as road users or road safety experts, we all have a stake in road safety and, unsurprisingly, will find something of interest contained in the papers of this themed October edition of *Transport*.

Six of the papers relate to road safety and one on safety relating to teenage trespass on railways. They demonstrate, in particular, the way that mathematical modelling and statistical analysis, in various forms, can be used to demonstrate effectiveness. This is on the basis that no education programme,

enforcement procedure or engineering modification should be scaled up without being proven to be effective. The majority of papers use modelling in one way or another, so the best introduction is ‘Road traffic accident prediction modelling: a literature review’ (Yannis *et al.*, 2017), which gives us a critical review of existing literature on accident prediction models (APMs) and crash modification factors (CMFs). The review was accompanied by a survey of road administrations on how software is used and resulted in an online inventory of APM and CMF software.

The literature review shows how important it is to understand the context and source of data when imported into models and applied in a different context. The next three papers all have a specific context and investigate in detail engineering standards. They are ‘Redesign of the cross-section of bicycle lanes considering electric bicycles’ (Li *et al.*, 2017), ‘Determining a suitable position for U-turns near signal-controlled road junctions’ (Mazaheri and Rahimi, 2017) and ‘Safety factors of exit slip roads on China’s urban motorways’ (Zhang *et al.*, 2017). The results, in terms of dimensions and recommendations, may be limited to the particular design standards and traffic configurations of each country, but a lot can be learnt from these detailed methodological approaches.

‘Teenage trespass on the railways – a systems approach’ (Waterson *et al.*, 2017) will be of interest to those involved in educational aspects of road safety, as it addresses the effectiveness of messaging in changing behaviour. Using a focus-group approach and videos to provoke discussion, the paper teases out the factors most likely to get across important messages to the target group. No surprise, therefore, to find that safety messages need to be tailored to the characteristics of the audience and their background; but equally important, effectiveness depends on a ‘joined-up approach’ involving a range of community-led initiatives.

The final two papers may be of equal interest to statisticians and road safety specialists. ‘Quantile analysis of factors influencing the time taken to clear road traffic incidents’ (Zou *et al.*, 2017) reminds us that survival rates are governed by the time and quality of accident-response services. This study,

which takes a data set from a freeway near Seattle, USA, finds that a quantile analysis is a useful tool to isolate key factors that explain time taken to clear accidents. 'A fuzzy decision-support system in road safety planning' (Behnood *et al.*, 2017) similarly involves innovation in statistical methods to develop a decision-support system, using information from previously implemented measures in order to predict outcomes valuable to the road safety plan-making process.

Thus, as pointed out above, there is something for everyone in this selection of papers. I would like to thank the authors for their contributions and wish everyone happy reading in the days ahead.

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