Estimating the effect of multiple combined interventions: the IILM

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The Integrated Intervention Logic Model (IILM) is a tool developed by the NZ Transport Agency (NZTA) in partnership with key road safety stakeholders to inform strategies aimed at improving safety across the network.

The tool uses crash data and evidence-based research and models to estimate reductions in deaths and serious injuries (DSIs) based on a specific dose of each intervention working in synergy. Its purpose is to understand the combined effect of road safety interventions taking a systems-based approach, rather than a more basic model that simply looks at the effectiveness of single interventions. It includes a baseline projection of deaths and serious injuries against which the impacts of the interventions can be estimated. Ten interventions have been modelled to date.

A key objective of the IILM is to give greater assurance that we are investing in the right safety interventions in the right combination and at the right levels. It is more important to look at interventions as a package, rather than individually, as many of the interventions work synergistically. Users select a suite of actions and activities and prescribe the degree of each, and the tool calculates the cost and potential road casualty savings from that combination of interventions. The dependency, union, dominance or independent nature of the interventions are used in determining the combined effect.

The IILM also accounts for changes in effectiveness of an intervention over time dependent on the dose and the projected baseline casualties.

Paul Graham, NZ Transport Agency



Paul Graham is the NZ Transport Agency’s Principal Scientist, with more than 30 years’ experience in road safety research working in the former Land Transport Safety Authority, the Ministry of Transport and the New Zealand Transport Agency.

His interests and activities include road safety strategy, measurement and evaluation of road safety outcomes, integration between police and hospitalisation data, and research into a wide range of road safety issues such as injury severity classification, driver impairment, or rural enforcement tactics. He works closely with the NZTA advertising team and with NZ Police to develop target audience profiles and to measure audience attitudes and behaviours, to inform and support the road safety advertising programme.

He has most recently been leading the NZTA’s development of a modelling tool to assess the effects of combinations of road safety interventions.