



To: Place Directorate

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Subject: Essential Evidence on a page: No. 161 Traffic-law enforcement & its relationship with risk of death from crashes

Top line: Traffic-law enforcement effectively reduces the frequency of fatal motor-vehicle crashes in countries with high rates of motor-vehicle use. Inconsistent enforcement, therefore, may contribute to thousands of deaths each year worldwide.

Motor-vehicle crashes are a common cause of death, disability, and demand for emergency medical care. Globally, about 1.25 million people die each year from traffic crashes and about 25 million are permanently disabled. Unlike many common diseases, the victims are frequently young and need substantial related care for decades. Most crashes are unintended, unexpected, and could have been prevented by small differences in driver behaviour. Prevention is particularly important for protecting health, given that most drivers will be in at least one crash during their lifetime. Moreover, about half of all crash deaths occur at the scene, with no opportunity for life-saving treatment.

An individual's motor vehicle driver's crash risk depends on how that person drives and how other road users behave. For example, red light violations are a major cause of traffic crashes at signalized intersections. Rigorous testing of the effectiveness of traffic enforcement for preventing deaths might contribute to better decisions. Some prior research has suggested that strong evidence exists to support a severity effect, that is, an increase in the statutory severity of sentence maxima for traffic violations leads to a decrease in crash and injury rates—approximately an average 0.5 percent reduction in monthly crash and injury rates.¹ Researchers explored this issue with a large cohort of drivers in Canada by identifying drivers in fatal crashes between 1988 and 1999 in Ontario.² The authors were able to identify a safety benefit if periods with convictions were followed by fewer crashes than would be expected due to chance. Therefore, a benefit is implied if the absence of a conviction is associated with the onset of a crash. This included drivers who were not killed themselves, sometimes hospitalised, but returned to driving during the study period.

8975 licensed drivers were involved in fatal crashes during the 11-year study period. In addition, 4861 suspended drivers were involved in fatal crashes. Most of the crashes did not involve alcohol and were not at intersections. Before the crashes, the lifetime driving-conviction history of the entire group of licensed drivers accounted for 21,501 convictions, most commonly for speeding without penalty points (6682 convictions) or speeding with penalty points (6493 convictions). More than 10 million people were studied for longer than a decade. Conviction of drivers for traffic offences reduced the rate of fatal crashes. Each conviction led to a 35% decrease in the relative risk of death over the next month for drivers and other road users; conversely, each conviction not issued led to a corresponding increase in risk. The findings also imply that increasing the frequency of traffic enforcement might further reduce total deaths, and that emphasis of moderate penalties (around three points) is useful as a deterrent to traffic violations.

¹ Tavares, A., Mendes, S. Costa, C. 2008 *European Journal of Criminal Policy Research*, 14: 417. The Impact of Deterrence Policies on Reckless Driving: The Case of Portugal. doi:10.1007/s10610-008-9082-7

² Redelmeier, D., Tibshirani, R., Evans, L. 2003 Traffic-law enforcement and risk of death from motor-vehicle crashes: case-crossover study, *The Lancet*, 361: 2177-82.