Preventing traffic accidents by mobile phone users

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Broader measures are needed to reduce road trauma related to mobile phone use

The effect of mobile phone use on driving performance and safety has been a major focus of distraction research. Around 94% of Australians (19 million) own a mobile phone,[1] and the capabilities of these devices are rapidly expanding. They can be used to talk, read and send text messages, download and play video clips from the Internet, navigate to chosen destinations, and perform other functions.[2] When used while driving, they are capable of distracting drivers by taking drivers' eyes off the road (eg, when reading a text message), taking their attention off the road (eg, when talking), and physically interfering with vehicle control (eg, when reaching to answer the phone while steering).

There is converging evidence that the use of mobile phones while driving increases crash risk. A New Zealand study estimates that crashes involving mobile phones account for about 0.5% of all reported crashes there,[3] and a fourfold increase in crash risk has been reported in some epidemiological studies, for both hand-held and hands-free use.[4] This increase in risk is similar in magnitude to that associated with a blood alcohol concentration of 0.08%. Few epidemiological studies have reported data on the increased crash risk associated with driver exposure to other sources of distraction, although threefold increases in crash risk have been reported for young drivers who carry three or more passengers.[5] However, it is not clear if this increase can be attributed solely to distraction. Controlled psychological studies, conducted mainly in simulators, have shown distraction-related decrements in driving performance with use of mobile phones that appear to underlie these increases in crash risk: impaired lane-keeping ability; poorer speed and following distance control; longer reaction times; missed traffic signals; a reduced useful visual field of view; and other related decrements.[6]

In determining the increased risk to the public of mobile phone use while driving, it is necessary to know the prevalence of this practice. Taylor and colleagues observed 17 000 drivers at 12 metropolitan road sites in Melbourne in October 2002.[7] Overall, 1.85% of drivers (315) were observed using a hand-held phone. Older drivers had a significantly lower rate of use than middle-aged or young drivers. In this issue of the Journal (*page 630*), McEvoy and colleagues report a cross-sectional survey to explore the use and effects of mobile phones while driving for drivers in New South Wales and Western Australia.[8] Participants were 1347 licensed drivers aged 18–65 years. While driving, around 57% of drivers had ever used a mobile phone (39% of these had used a hand-held phone) and 12% had written and sent text messages. The authors estimate that, for all drivers aged 18–65 years in these two Australian states, about 1% will have ever had a crash while using a mobile phone and, in the preceding year, around 3% will have taken evasive action to avoid a crash because of their phone use. Collectively, the authors of these articles conclude that, despite legislation that bans the use of hand-held phones in Australia, mobile phone use is prevalent among drivers, particularly younger drivers, and that it can result in adverse consequences, including crashes.

There are certain driver and task characteristics that appear to moderate the effect of mobile phone use on driving performance and safety:[9] the amount of time the driver engages in phone-related activity; the complexity of phone design and the phone task itself; current driving demands; driver experience and skill; and driver willingness to engage in phone-related activity. Countermeasures to mitigate the effects of distraction should take these into account. The Australian Mobile Telecommunications Association provides the following specific advice to mobile phone users to minimise the potentially adverse effects of distraction: use a hands-free phone; plan trips and make calls when stationary; avoid making calls in heavy traffic or poor weather conditions; avoid complex or emotional conversations; use message services to answer calls; pull over safely when stopping to make calls; use phone features to reduce the effort involved; never take notes, look up phone numbers, or read or send text messages while driving; tell callers you are driving when on the phone; and use the phone to call for help in emergencies.[10] These recommendations appear to be sensible strategies if applied to hands-free phones, the use of which is presently legal. The use of hand-held mobile phones while driving is banned in Australia, although exemptions do exist for some drivers (eg, police).

At a broader level, there is scope for further countermeasure development, and policymakers have many strategies at their disposal.[2] These include:

- Data collection to better quantify mobile phone use as a contributing factor in crashes: enhanced police report forms to record mobile phone use as a potential source of distraction; regular mobile phone distraction exposure surveys; use of "black boxes" to record phone use in crashes;
- Education: publicity campaigns to raise awareness of risks, especially for hands-free phone use and text messaging; highlight factors that increase vulnerability to risks, especially driver inexperience; promote strategies for minimising distraction, especially the purchase of the most ergonomic hands-free phone types; and raise awareness of penalties for using hand-held phones;
- Training to address when, optimally, to expose learner drivers to hands-free mobile phone use; the least distracting methods of interacting with hands-free phones; self-awareness of the effects of phone distraction on driving; the training of passengers as co-pilots to manage phone use;
- Legislation and enforcement: prohibit learner and probationary drivers from using all mobile phones while driving; review exemptions and anomalies in existing legislation; improve effectiveness of police enforcement of current legislation; develop technologies to prevent phone use in vehicles moving at high speed; increase penalties;
- Phone design: improve ergonomic design of in-built and portable hands-free phones to reduce distraction — although it is possible that improved design and ease of use could promote increased phone use while driving, and as a consequence paradoxically undermine safety;

- Vehicle design: use intelligent on-board "workload manager" technologies to temporarily suppress calls and prevent access to phone functions and controls when distraction potential is estimated to be high;
- Fleet safety: as a duty of care, develop, implement and enforce company policies on mobile phone use while driving;
- Licensing: provide information on risks of mobile phone use while driving in licensing handbooks; test knowledge of these risks; design practical driving tests to identify, and prevent from being licensed, learner drivers who are incapable of compensating for the effects on driving of hands-free mobile phones; and
- Research: to further understand the theory, effects and mitigation of mobile phone distraction.

Many of these have been adopted as recommendations in the recently released report of the Parliament of Victoria Road Safety Committee Inquiry into Driver Distraction.[10]

The use of mobile phones while driving will continue to contribute unnecessarily to road trauma in this country unless countermeasures such as these are developed, implemented and properly evaluated.

Competing interests

None identified.

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