Driving: the other half of the equation

I read with interest the commentary by Lee and others on the important subject of texting while driving.[1] This excellent injury prevention piece addresses the role family physicians might play in educating individual patients and provides good talking points to address common perceptions. The piece joins a growing popular media interest on the subject: a few weeks after the paper's publication, a 35-minute documentary on texting while driving was released by acclaimed film director Werner Herzog in conjunction with the United States' largest cell phone providers.[2]

These efforts fall under the education part of the oft-quoted 3–*E* framework for injury prevention.[3,4] Growing out of road safety, this framework has traditionally been described for interventions related to *education*, *enforcement*, and *engineering*, with additional *E*s added in more contemporary frameworks. Herzog's video and the commentary by Lee et al qualify as education, ie, raising awareness of the harmful behaviour among users and calling on them to make behavioural changes.

With this in mind, literature has shown that of the 3 *E*s, education by itself is the weakest incentive to change behaviour. A paper by Graham and Martin published in the *American Journal of Preventive Medicine* famously stated, "Faced with the most compelling evidence, delivered by the most acceptable and motivating of means, human truculence often persists, yielding various unfortunate results."[5]

The suggestions at the end of the commentary address the *E* of enforcement (and the new *E* of *economics*), being enforced by laws, fines, and policies to reduce the behaviour. Efforts against other risky driving behaviour, such as speeding and drunk driving, have had similar successes with effective enforcement. Breathalyzer road stops, speeding fines, and licence suspensions are examples of successful enforcement interventions that have reduced risky driving behaviour.[6,7]

Meanwhile, the final *E*, engineering, has had great success in injury prevention. Air bags reduce injury related to high-speed collisions,[8] and ignition-interlock programs dramatically reduce the possibility of repeated drunk-driving offences.[9] Specific to cell phones, one idea is to block cellular signals around the driver's seat while a vehicle is in motion.[10] The Haddon matrix for injury prevention describes injuries in 3 phases and 3 contexts—the user, the vehicle, and the environment.[11] Engineering is extremely effective because it removes the user from the equation in order to prevent the injury.[12]

Taking this one step further, where alternatives exist, is the idea of social engineering. What if we could eliminate the vehicle, the environment, and the user, all in one fell swoop? Essentially, why aren't we talking more about alternatives to driving? Greater active transport (walking, cycling, and particularly public transit) is an incredibly effective way to eliminate the driving side of the distracted driving equation.

Drinking, texting, or sleeping while riding transit incurs injury or death at far lower magnitudes than that behaviour while driving would, and is more amenable to engineering solutions.[13] Dangerous driving behaviour (speeding, running red lights, and road rage)[14] on the part of transit users simply does not occur. Walking, cycling, and transit use all have documented additional benefits on the environment, obesity and chronic disease, and mental health.[15]

How do we encourage active transport? While creating new or additional cycling, walking, and public transit infrastructure and capacity will take time, there are quick fixes that might immediately improve its availability and attractiveness as a driving alternative. For example, transit use could be encouraged through pull factors (promotion campaigns and increased government funding targeted to reducing fares, extending hours of operation, and expanding service frequency) and push factors (increased vehicle taxes, car-free zones, limiting parking) that could very quickly be implemented.

I am a dedicated transit user, but I fully recognize that there are Canadians who are dependent on cars owing to their occupations or community infrastructure. In these situations, education, enforcement, and vehicle engineering are the mainstay of injury prevention. However, for many other Canadians, engineering must increase the quality and quantity of active transport to make it a viable alternative to driving. Trying to reduce dangerous driving by targeting behaviour and not the act of driving ignores half the equation.

Some might question what role family physicians have in advocating expanded active transport and transit;

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one doesn't have to look much further than the College of Family Physicians of Canada's 4 principles of family medicine.[16]

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Competing interests
None declared

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Online health: the end of family medicine?

To answer Dr Ladouceur,[1] no, this is not the end of family medicine. Millions of Canadians do not have family doctors. If a person gets credible and valid information from a website linked to a responsible organization, and that person invites the doctor to participate in his or her (henceforth abbreviated *his*) health care, more power to him—it won't take much effort for us to help that person.

Dr Ladouceur talked about advanced cancer, amyotrophic lateral sclerosis, Parkinson disease, multiple sclerosis, myocardial infarction, osteoarthritis, Alzheimer disease, leukemia, and cystic fibrosis, and asked, "How can a physician who is not an expert in any of these diseases ... continue to be relevant?"[1] What I do is ask my friendly librarian to find articles about the topic (big randomized