Commentary

Driver Distraction: A Perennial but Preventable Public Health Threat to Adolescents

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A B S T R A C T

Although public health efforts have made some progress in reducing risk of adolescent motor vehicle crashes over the last three decades, new technologies and evolving behavior patterns have focused attention on the risk of distracted driving. For many of the same reasons that alcohol-impaired driving represents a distinct risk for adolescents, distracted driving has an elevated impact on this age group. Similarly, many of the strategies used to reduce alcohol-impaired driving among adolescents might be applied to driver distraction, including adults serving as role models with high standards of behavior. The unique challenge posed by the proliferation of new technological distractions may accelerate this risk behavior and may lend itself to innovative prevention efforts.

Driver distraction has re-emerged in the public consciousness as a serious threat to roadway safety; however, distraction of drivers’ attention away from the primary task of driving is a perennial concern and not a new or novel threat to roadway safety. Public concern regarding driver distraction has been promoted by rapid growth in handheld devices and their prevalent use by drivers of motor vehicles, not to mention media hype. Regardless of the proliferation of technologies that might distract drivers, as well as rapid growth in vehicle ownership, a steep rise in numbers of licensed drivers and total vehicle miles driven, and increasing safety threats related to medical marijuana and illicit drug use, rates of the most serious motor vehicle collisions (crashes) have steadily declined in the United States for the past half century [1,2]. Improvements in safety engineering of roads and vehicles and increases in the number, sophistication, and effectiveness of safety technologies built into modern cars, trucks, and roadway infrastructure account for much of the decline in serious crashes. However, increased acceptance of individual responsibility to be safe drivers and subsequent changes in behavior on the road has also played a major role in improving roadway safety and reducing serious crashes. One prominent example is reductions in driving under the influence of alcohol, which declined steadily from 1983 to 1997, and rates of fatal alcohol-involved crashes continue to decline [3–5]. People have become less willing to drink and drive due to the consistent application of broad-based nationwide campaigns disseminated to all age groups through a comprehensive array of outlets, legislated policies, and consistent high-visibility enforcement. The result has been clear shifts in social and cultural attitudes and values [6]. Today, people are much more aware of the importance of driving sober, and “having one for the road” is no longer socially acceptable.

While drivers of all ages and their passengers have benefited from attitudinal and behavioral shifts regarding driving after drinking, one could argue that adolescent drivers and their passengers have benefited most. As a population, adolescents have been licensed to drive for a shorter length of time than older age groups and as a result are more novice and less experienced [7,8]. In addition, they are at a stage of development when motivations for exploration, sensation seeking, and risk taking are at their highest, and as a result, so is their involvement in multiple health-risk behaviors [9]. Finally, although the
mechanisms and level of attributable risk are not yet well determined, the adolescent brain is developing rapidly and likely contributes to faulty, impulsive, and irrational decision-making [10,11]. As a result of all these and other mechanisms, adolescent drivers have the highest risk per capita of crashing of any age group [7,12].

Because of their elevated crash risk, adolescent drivers benefit more, relative to the older population of drivers, from policies, enforcement, and social and cultural norms and values against safety threats such as driving under the influence of alcohol. Alcohol-impaired driving by adolescents is a major safety concern; however, the increased risk associated with adolescent drivers is not due to their rates and levels of drinking and driving but a result of the uniqueness of adolescents. Adolescent drivers under age 19 are less likely than adults to drive after drinking alcohol; however, when they do drink and drive, their risk of crash involvement is greater compared with adults who drive after consuming alcohol [13,14]. Although adolescents drink less often than adults, they are more likely to consume alcohol in larger quantities over shorter periods, resulting in a higher blood alcohol concentration when they do drive after drinking. Another factor is likely attributable to differences in the way the adolescent body metabolizes and responds to alcohol, which results in more severe impairment at the same blood alcohol concentration compared with adults. The final reason for this difference in adolescents is their unavoidable status as inexperienced drivers and the accompanying underdevelopment of necessary skills for safe driving. The effects of alcohol exacerbate adolescents’ inexperience and lack of driving-critical skills. Distraction while driving increases the crash risk of adolescent drivers for many of these same reasons.

Driver distraction results from any secondary activity, physical or mental, that diverts a driver’s attention away from the primary task of safely operating the vehicle. It can take many forms, ranging from ruminating about challenges at school or with peers to manipulating a handheld device while driving. This “looking but not seeing” is due to cognitive distraction and to having one or both hands off the wheel and eyes off the road.

Adolescent driver impairment due to distraction, therefore, has much in common with drinking and driving, in that many of the same exacerbating factors are at play in both of these behaviors. In studies of simulated driving, as well as in naturalistic conditions, teens compared with adults divert their attention to secondary tasks for longer periods at a time, leaving the forward roadway and safety-critical driving tasks unattended [15,16]. Such extended periods of inattention are associated with a sizeable increase in crash risk [17,18]. Because of their developmental stage, social connection and appearance to peers have heightened importance. These factors, combined with the developmental increase in sensation seeking and risk taking, can lead adolescent drivers to take much greater risks due to distractions than adults. Finally, brain development may also play a role in adolescents’ poor decision-making regarding self-regulation of participation in distracting behavior while driving.

This supplement examines these issues, exploring developmental states and changes that are associated with adolescents’ distractibility and its relation to driving, examining patterns of distraction among newly licensed adolescents, exploring brain function, considering the potential role played by parental modeling of distracted behavior while driving, accounting for the role of technology and the influence of peer passengers, and investigating policy and intervention [19–26]. The issues involved are not simple, and the solutions to the problems are not entirely apparent; however, it is possible that many of the approaches used to curb driving under the influence of alcohol by adolescent drivers might also play a role in reducing distraction. Cultural attitudes and values and the public’s tolerance for distracted driving need to be targeted by informative and persuasive public health campaigns that make evident the need and create a public demand for individual behavior change. Policies should be enacted that are effective in discouraging driving while distracted. Laws could play a role in reducing distraction resulting from discretionary behaviors, but the laws would have to be supported by education and information campaigns to raise public awareness of their existence and enforcement. Current evidence regarding laws to limit cell phone use for talking or texting that are now in place in many jurisdictions suggests that these laws are either ineffective (see the article by Ehsani et al. [26] in this supplement) or are followed by increased crash involvement [27]. This may be due to the lack of effective enforcement, which must be highly visible to the public and adhere to basic principles of deterrence, resulting in swift, certain, and sufficiently severe consequences, so that individuals will be dissuaded from choosing to engage in distracting behaviors while driving. Also similar to alcohol policy, some changes to driver distraction laws might be needed to provide additional protection to minors. However, distracted driving increases crash risk for drivers of all ages; therefore, any qualifications of the law based on age of majority should not exonerate adults. Instead they must hold adults to high standards as role models for their children and provide a level playing field on which drivers of all ages are expected to avoid distraction. Technology, which is currently a well-recognized potential source of driver distraction, also needs to be designed to mitigate distraction and promote the attention and awareness of drivers. Efforts in this direction are being pursued by Senator Jay Rockefeller of West Virginia, who recently convened a summit in Washington to promote the development of technology that would discourage distracted driving [28].

In the near future, and perhaps for years to come, reducing driver distraction to increase roadway safety is going to be increasingly challenging. As automated functions increase in vehicles, drivers are likely to feel that their attention to the road is less necessary. They will be tempted to divert most of their attention to nondriving-related tasks, feeling they can rely on vehicle automation to keep them safe. However, the reality for a long time to come is likely to be that drivers of partially automated vehicles will need to remain highly attentive to the roadway and surrounding traffic, so that they can quickly and safely take back manual control of the vehicle. We are likely still far from a time when fully automated vehicles will be the norm on the road, and even further into the future is the day when vehicle automation will be so complete, reliable, and prevalent that human drivers are no longer needed. After all, has it really been that long since your computer last crashed or locked up?

Driver distraction as a threat to safety is not going away anytime soon. In the meantime, real progress needs to be made and effective steps need to be taken to reduce this ubiquitous public health threat. This supplement aims to contribute to that effort.

References


