

Moving America towards evidence-based approaches to traffic safety

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Overview

Deaths and injuries resulting from motor vehicles receive relatively little attention and few resources in the United States. For example, while the NIH boasts institutes that focus on kidney diseases, hearing disorders, and dental research, no institute is dedicated to the leading cause of death for Americans aged 1 to 45: injuries. Motor vehicle crashes contribute the lion's share of these fatalities (National Center for Injury Prevention and Control 2006). In recent years, the World Health Organization, the Centers for Disease Control and Prevention, and the AAA Foundation for Traffic Safety have all contributed to efforts aimed at raising the profile of traffic safety in the minds of policy makers and the lay public.

Still it is relatively rare that public voices are raised out of concern for traffic safety, and when they are, they usually call for increased punishment of "guilty" drivers or for awareness campaigns that are not based upon any scientific foundation. What has led to this state of affairs? Some suggestions can be found in bodies of scientific literature that may be unfamiliar to the traffic safety community. This article will summarize some of these findings and propose how they might be applied to advancing traffic safety promotion.

Introduction

What are the public's current views on the causes and solutions of the risks posed by motor vehicles?

For much of the recent past, injury prevention experts worried that the word "accident" was contributing to the field's societal neglect and underfunding (Girasek 1999). Employees of the National Highway Traffic Safety Administration (NHTSA) were even banned from using the word because their leadership had concluded that it reinforced public misconceptions: that accidents "just happened" and weren't amenable to prevention (NHTSA 1997). We now have data on this subject, however, from investigators in multiple countries (Duan 2004; Eichelberger et al. 1990; Hu et al. 1996; Girasek 1999, 2001; Hooper, Coggan, and Adams 2003; Vincenten et al. 2005). They report that most people believe injuries—even those described as "accidental"—to be largely preventable. It may even turn out that the public's perception that they can control accidents underpins, in part, society's *lack* of attention to motor vehicle crash deaths (Girasek 2006).

When 585 Swedish risk assessment experts were asked to list risks that were “neglected” in society, road traffic emerged very high on their list (Sjöberg et al. 2005). Conversely, when children and adolescents were polled about 80 possible fears, “driving in a car” was among six items the authors deleted from analysis because such a high proportion (90+%) of respondents reported “no fear” of them (Ollendick et al. 1989). This is ironic, because motor vehicle crashes are the leading cause of death for this age group.

In a study of adults living in South Carolina, 84% of respondents rated “cancer” as very serious, and 64% rated cardiovascular disease as “serious,” but only 39% rated “serious car accidents” as serious—despite the fact that these crash events were labeled “serious” by investigators (Glik et al. 1999). When health care providers and community leaders in Switzerland were asked to prioritize health problems in their canton, they ranked “injuries due to road accidents” tenth (Schopper et al. 2000). Psychometric investigators have speculated that, “there are only so many things people can worry about,” so they ignore the life-threatening events that have near-zero probabilities (Slovic, Fischhoff, and Lichtenstein 2001a).

While a plurality of U.S. adults know that “car accidents” are a leading cause of death, 27% believe that “research that funds new ways to prevent injuries, such as devices to improve car safety...” would not be an effective use of taxpayer dollars (Research!America 2005). In a study conducted two decades earlier, a majority of respondents felt that allocating additional government funds to injury control would yield “no benefit” (Jones-Lee et al. 1985). Their reasoning may stem from the second-most common cause of injury cited by respondents in Research!America’s survey: “carelessness and stupidity.”

When another group of researchers asked eighteen subjects to comment on home injury scenarios, the cause they offered most often was “careless/stupid/inattentive/clumsy” behavior on the part of the injury victim (Torrel and Bremberg 1995). Only a quarter of their explanations cited any environmental factors. When responsibility was brought up, study participants characterized the injured person as “having chosen to expose themselves to risks in conflict with superior wisdom.” The authors pointed out that such attitudes do not lend themselves to “systematic prevention efforts.” The perceived association between injury and stupidity has been observed in both lay and professional communications (Girasek 2000). Even scientific reports on injury control contain pejorative language. A quick Medline search combining “injury” and “careless,” for example, yielded more than 50 articles.

Roberts and Coggan (1994) lament this state of affairs in their analysis of how child pedestrian injuries have been historically framed. They point out that when responsibility for such occurrences are “located” with the child, preventive resources get directed towards educational programs aimed at changing children’s behavior. Structural contributors to the problem are “ignored,” and injury rates are unlikely to decline. Similarly, McCarthy (1996) has noted, “Much of the literature on child cycling accidents appear to blame the child as a victim, as though children’s activities of playing and traveling were somehow wrong and that children are at fault when an adult drives a car over them.”

Why is the current state of affairs problematic?

When a public health problem is perceived as something that victims bring upon themselves, it and they can suffer various forms of discrimination. The Global Lung Cancer Coalition (2003),

for example, has tried to call attention to the fact that “their” disease claims more lives than breast, prostate, or colon cancer combined. They are hampered in their efforts, however, by public perceptions that lung cancer is “self-inflicted by smoking.” This stigma impacts victims’ self-perceptions, their families, their access to care, social support, financial resources, lung cancer’s media coverage, and the funding that governments around the world allocate to fighting the disease (Chapple, Ziebland, and McPherson 2004).

Social psychologists have found that victims of preventable disease are rated less favorably than people suffering from diseases perceived to be unpreventable (Sloan and Gruman 1983). In an experiment designed specifically to explore the association between perceived controllability and stigma, Weiner and colleagues (1988) asked subjects to react to two people with paraplegia. Study participants were told either that the person’s injury was caused by “negligently” colliding with the rear of someone else’s car, or that he was injured when another driver collided with the rear of his car. Respondents were significantly more likely to attribute responsibility and blame under the first condition; but they were also more likely to express anger towards that person, decreased “liking,” decreased pity, and less willingness to provide him with assistance and charitable donations. Other investigators have reported that subjects are less inclined to pay for programs that prevent deaths which victims could have acted to avoid (Mendeloff and Kaplan 1989; Beggs 1984).

In a national random digit dial (RDD) telephone survey, US adults were asked what proportion of motor vehicle crash deaths they thought could be prevented. Their mean response was 62% (Girasek 2001). When asked “Which type of accidental death do you think the public might be more likely to blame on the person who was injured?” 60% of respondents cited those due to motor vehicle crashes (versus 11% each for poisoning and fires/burns, 7% drowning, 6% don’t know, and 5% falls). It seems logical that diminished sympathy for the victims of a health problem could translate into diminished support for reducing their numbers, diminished support for alleviating their suffering, and reduced identification for being “at risk.”

One reason that members of the public are most likely to “blame” motor vehicle crash injuries on victims may be that they exaggerate the contribution of alcohol to such deaths (Girasek, Gielen, and Smith 2002). While this misperception may not strike safety advocates as problematic, it could be if it increases driver perceptions that they are less likely than others to be involved in a car accident (see “Assess possible unintended consequences” below).

This view is also unlikely to translate into support for evidence-based drunk-driving interventions, since public levels of awareness of intervention effectiveness are low. US adults are evenly divided, for example, over whether increasing the legal drinking age to 21 has saved any lives. In reality, this legislation has been studied exhaustively and is well documented as having reduced both traffic crashes and fatalities (Wagenaar and Farrell 1988; US General Accounting Office 1987; NHTSA 2000). Similarly, four out of five survey participants did not believe that “increasing the price of alcohol beverages by raising taxes on them” would reduce drinking and accidental deaths (Girasek, Gielen, and Smith 2002). Again the public either doesn’t know or doesn’t believe that credible evidence supports this prevention strategy.

In the national RDD study referred to above, subjects were asked to name the most effective thing that the US could do to reduce the number of people who die in motor vehicle crashes. Most of their recommendations (39%) involved changing a law or regulation. The accident scenarios they provided suggested that they were attempting to reduce drunk/drugged driving

(25%) and speeding (20%). Only 8% of subjects raised vehicle design improvements, and many fewer mentioned road modifications (Girasek and Gielen 2003).

The public generally supports public-awareness campaigns (NHTSA 1999b), much to the chagrin of traffic safety experts who know that education is rarely effective when applied in isolation. In the realm of environmental protection, it has been shown that policy makers' views mirror the public's more so than "experts" (Sjöberg et al. 2005).

Most U.S. drivers are content with current levels of police enforcement (NHTSA 1999b), despite the fact that traffic safety has been described as "subordinate" among the police community's mandates (Lonero, Clinton, and Sleet 2006). This does not make epidemiologic sense, in that traffic crashes kill far more people than homicides or drug use. It may reflect the public's view of the police department's role in society, however, and their perception of what constitutes criminal behavior.

Factors contributing to current views

Fundamental attribution error

Social psychologists have observed a number of tendencies, often referred to as "biases," that systematically distort people's perceptions (Hewstone 1996). The Fundamental Attribution Error refers to observers' tendency to exaggerate dispositional, or personality-based, explanations for other people's behavior while underestimating the influence of environmental forces (Wikipedia 2006). Of interest is the fact that people are much more likely to consider contextual influences when they judge their own shortcomings. This bias would favor blaming motor vehicle crash victims for their predicaments. If we were involved in a crash, however, we would be more likely to attribute the cause to other drivers or road conditions.

Just world hypothesis

Social psychologists have also posited a "Just World Hypothesis." Proponents of this phenomenon, first attributed to Lerner and colleagues, point to evidence that we often interpret our observations in a manner that is consistent with the belief that "people get what they deserve and deserve what they get" (Sloan and Gruman 1983). Blaming misfortune on victims, or derogating them such that their punishment seems deserved, are two mechanisms people use to restore their "just world" view. This bias has been ascribed to observers' interpretations of injury-producing events (Torrell and Bremberg 1995).

It is easy to envision the psychological "cover" that is provided by images of at-risk populations who are inferior and incompetent. This may explain, in part, why the Darwin Awards (Northcutt 2000) was on the *New York Times* bestseller list for six months. Based upon the popular website, this book—which contains confirmed stories of fatal injury events—claims to "commemorate those individuals who ensure the long-term survival of our species by removing themselves from the gene pool in a sublimely idiotic fashion."

Optimistic bias

More than one hundred studies have now confirmed that people consistently overestimate their probability of experiencing positive life events and underestimate their likelihood of experiencing negative life events (Taylor and Brown 1994; Weinstein 1982). Numerous investigators have shown this bias to apply to perceptions of motor vehicle crash risk (e.g., DeJoy 1989; DeJoy 1992; Harré, Foster, and O'Neill 2005). This phenomenon may not be as pronounced in other countries, where people outside of automobiles are generally at higher risk than automobile occupants (Hayakawa et al. 2000).

Exaggerated views of driving prowess

Investigators who have tried to explore the basis for optimistic bias have found it to be closely linked to individual perceptions of personal control (Harris 1996; DeJoy 1989). Risks that are perceived as being under the individual's control are the most likely to evoke unrealistic optimism (Cleary 1987). So, for example, people judge their chances of being in a car accident to be below average when they imagine driving the vehicle in question, but not when are assigned the role of passenger (McKenna 1993). When given the opportunity to justify such judgements, subjects generally report that they possess superior skills for carrying out the hazardous task (Greening and Chandler 1997).

If such conclusions were well founded, they would not merit our concern. Unfortunately, they are not based upon reality. It has been shown repeatedly that the overwhelming majority of drivers consider their skills to be above average (Greening and Chandler 1997; DeJoy 1999a), which defies simple arithmetic. A correspondingly small proportion of automobile operators rate their driving skills as "below average." Even people who have been involved in auto accidents report superior driving skills (McKenna and Albery 2001). It has also been shown that people who overrate their driving skills think that traffic safety messages are aimed at others (Walton and McKeown 2001).

Gender-related variations in risk perceptions

Of interest is the fact that in at least one study, males underestimated their risk of being involved in car accident *even when they were passengers* in the vehicles in question (Greening and Chandler 1997). When driving skills are relevant to the scenario under discussion, males are also more likely than females to exhibit optimistic bias (DeJoy 1992). Generally, men judge hazardous products to be less dangerous than females do, they perceive less risk in using hazardous products without protective equipment, and they express more confidence in their ability to use such products than females do (DeJoy 1999a). Males rate dangerous driving behaviors as less likely to lead to accidents, and they are less likely than females to rate accidents as being "serious" (DeJoy 1992; Glik et al. 1999; McEvoy, Stevenson, and Woodward 2006).

This gender effect seems to start at an early age, since even 6 to 10 year-old boys rate drawings of risky playground activities as significantly less dangerous than their female peers (Morrongiello and Rennie 1998). Fifty-seven percent of boys felt that they were less likely to be injured than their peers, versus 36% of girls. By age 10, however, 69% of the sample overall demonstrated optimistic bias with regard to injuries.

Contributions of political ideology

Western cultures, like the United States, tend to emphasize individualism over collectivism. This may lead our citizens to view both the cause and solution of social problems, like traffic safety, in terms of individuals (e.g., buy a big car to protect your family rather than organize community members to relocate trees away from the roadside).

Citizens who self-identify as political conservatives may be particularly quick to frame issues in terms of personal responsibility. For example, studies have shown that political conservatives are more likely than “liberals” to endorse the following viewpoint:

If people want to enjoy the benefits of society, then they should behave responsibly; if not, they should accept the natural consequences of their actions (Skitka and Tetlock 1993).

This may translate into less concern for at-risk drivers, and less support for programs that are perceived as protecting them. Conservatives have been shown to be less willing to help people whom they believe to be responsible for their own plight, “even in life and death settings” (Skitka and Tetlock 1993). Under conditions of scarcity, liberal patterns of allocation are more likely to approximate those of conservatives.

Delineating where personal responsibility for safety ends, and government responsibility begins, has been acknowledged as challenging (Weinstein 1987). It is a value-laden decision that is driven, in part, by political ideology. Sylvia Noble Tesh (1988) has pointed out that when a problem, like injuries, is considered using individuals as the basic unit of analysis; politically conservative predispositions are favored; as are remedies that rely on health education (versus structural change).

The appeal of education-only approaches

The belief that traffic deaths can be reduced through simple public-awareness campaigns has been described as “widespread,” “incorrect,” and a great hindrance to road safety campaigns (Lonerio, Clinton, and Sleet 2006).

David Stone (1989) had gone as far as claiming that prevention programs receive official support in inverse relation to their probable effectiveness. Here is his explanation for this state of affairs:

Socioenvironmental change is costly, radical and unpredictable, and therefore to be avoided, while health education is cheap, generally uncontroversial and safe: if it works, the politicians take credit, and if it does not, the target population takes the blame for not responding.

While Dr. Stone’s analysis may strike some as cynical, in the traffic safety arena his claim that education is politically safe and non-controversial rings true. It appeals to the American values of personal freedom and individual responsibility. Vogel (1991) has noted that government exercise of paternalism is particularly likely to be judged “illegitimate” in the United States.

Traffic crashes lack outrage-evoking characteristics

In contrast to traffic safety experts who wonder why the lay public does not get more exercised about the death toll on our roads, executives from the chemical and energy industries feel wrongfully maligned when community activists raise concerns about injuries they view as hypothetical or statistically insignificant. In the 1980s, researchers began to identify characteristics of potential threats that were associated with high levels of public ire. Peter Sandman (1987) calls these qualities “outrage factors—everything that is relevant about a risk except how likely it is to be harmful.”

Many investigators have contributed to the body of literature that describes these components. I will summarize the major ones here because they suggest why motor vehicle crashes don't typically generate high levels of community concern.

Risks that are assumed *voluntarily* are associated with less outrage. Risks that are associated with *familiar* products or surroundings are less alarming than novel, exotic threats. Hazards which produce “*dreaded*” outcomes produce more outrage. [We know that death from cancer is more dreaded than dying in a car crash because people will pay three times more to prevent the former than the latter (Jones-Lee, Hammerton, and Philips 1985).] *Fatalities that cluster*, in time or space (e.g., plane crashes), get much more attention than one-off deaths. Threats that are *observable* (versus invisible), and have immediate effects (e.g., unlike radiation), are less concerning (Slovic, Fischhoff, and Lichtenstein 2001b). Life-threatening hazards that are *under the control of the individual-at-risk* generate less outrage than those we rely on the government or corporate sector to shield us from.

We have already discussed the degree to which drivers think they control their crash involvement. If we could convince them that their traffic risk is a function of the roads they must travel or the vehicles available to them for purchase, as well as the legal jurisdictions they inhabit, they might be much more likely to demand government action. Working against motor vehicles' perceived risks are their *high level of perceived benefits*. Slovic and colleagues (2001b) have identified benefits as another quality that is inversely related with levels of public concern.

Scientists don't communicate well with the lay public

As illustrated above, the public is often unaware of scientific advances in the safety arena. This is not surprising because academics typically have little incentive and few skills for communicating with the media. Journalists may also find it challenging to explain complex policy studies in the short time they have the public's attention. Stories on legislative evaluations lack the popular appeal of “medical breakthroughs.” Importantly, scientists may also feel that their job is done once they have communicated with their professional peers. Whose job is it to tell the public which safety interventions “work?” And whose job is it to “sell” successful interventions so that their benefits reach a wider population? This paper cannot answer these “Who” queries, since they rest on questions of political will and perceived responsibilities. We humbly propose an answer to the “How” question, however, in the section that follows.

A research agenda for moving America towards more evidence-based approaches

Set a master agenda of proven prevention methods

The first step that should be taken in redirecting traffic safety research efforts around the psychosocial factors discussed in this paper is for leaders in the field to prioritize interventions based upon their proven potential for saving lives. This process could be preceded by a ranking of contributors to the highway death toll, but it must move beyond labeling “drunk driving” or “restraint use” or “speeding” as the problem. Rigorous reviews of the state-of-the-art, such as those conducted by the Cochrane Injuries Group (<http://www.cochrane-injuries.lshtm.ac.uk/whatdoes.htm>), must be consulted so that the science of the prevention strategies that are selected for promotion is beyond dispute. While the team that makes the final determination should restrict their review to evidence-based interventions, they should be expansive in identifying interventions. For example, a study of variations in trauma care found that mortality following severe head injury was reduced by 50+% when patients received care in centers with aggressive medical management (Bulger et al. 2002). Such (i.e., tertiary prevention) strategies should be considered, along with sociopolitical changes and engineering innovations.

Once three to five priority goals have been identified, the beliefs and attitudes discussed in the “Factors contributing to current views” Section of this paper could be measured in relation to them. This process would generate a list of independent variables that are associated with opposition to the desired safety change. This step is important because the findings outlined in this article—while admittedly thought-provoking—were frequently drawn from small samples of undergraduate students who participated in experiments with unknown relevance to the real world of traffic safety advocacy. We should study the views of policy makers, as well as their constituents. Science has been described as “just one of the many ingredients” that drives lawmaking (Shaw and Ogollo 2006). We must learn how to measure and manipulate the other ingredients in play. Such work must be collaborative and cross disciplinary (e.g., public health experts engaged with political scientists).

Evaluate efforts to change problematic attitudes, beliefs, and biases

Reframing the problem

Once we determine which attitudes/beliefs/biases are associated with opposition to the evidence-based method we are promoting, we could compare means of modifying them. McKenna and Myers (1997) have shown, for example, that when subjects are told that their driving ability will be judged objectively, they tend to tone down their self-reports of superior ability. Opportunities for applying this lesson under real world conditions, however, are not obvious. Rather than trying to convince people that their estimations of driving prowess are exaggerated, some success has been achieved by illustrating the limited “protection” that accrues to “good drivers”

(Chandler et al. 1999). We could try to heighten their awareness of all the times that they, or their loved ones, are on the road without the perceived protection of their superior driving skills (e.g., when they are in cabs, car pools, airport shuttles). These experiments should definitely explore risk perceptions that are based upon *environmental* characteristics. Residents might be informed, for example, that the stretch of road on their child's bus route carries an increased risk of death versus that in the neighboring locale (which has been modernized). Similar comparisons, based upon policy advantages, could also be publicized.

In trying to move the public towards evidence-based solutions, we might study the effect of reminding citizens that they share the road with people who represent the range of human experience: some are mentally challenged, some are teenagers, some are grieving, some are elderly, some are going through a divorce, some can't read, others are taking medications that make them drowsy, and many are running late. By self-report, drivers admit engaging in a distracting activity once every six minutes (McEvoy, Stevenson, and Woodward 2006). Our systems should be designed to accommodate this mix of vehicle operators, not some population of ideal automatons (Mohan 2000; Baker 2000).

Torrell and Bremberg (1995) have called for marketing injuries "not as expressions of deviant behavior—but rather as a consistent result of the highly complex reality" that occasionally overwhelms us. They call for "systematic efforts to widen the acceptance of variation in human behavior." This approach might temper the victim-blaming noted earlier. All attempts to modify beliefs, however, should be driven by previous work which demonstrates that those beliefs are problematic in relation to the evidence-based strategy being targeted for advancement.

In contrast to experiments aimed at changing audience beliefs, investigators could attempt to reframe the target intervention so that it is perceived as more compatible with the audience's existing views. Social judgment theory would support this tactic (Perloff 1993). It is often used by politicians, to convince heterogeneous constituencies that they share similar positions on issues. For example, to remove the discussion of traffic safety from the moral (i.e., blame assigning) arena, perhaps we can increase its identification with the health versus law enforcement domain. It has been hypothesized that minimizing the government's role in safety promotion reduces the likelihood that libertarian reactions will be triggered (Shaw and Ogollo 2006).

Since the public does not generally feel vulnerable when considering the risks of motor vehicle travel, it may serve our cause to design campaigns that are less centered around physical danger. At least one study, for example, has shown that respondent's perceptions of legal constraints explained 35% of variance in their driving risk behaviors, while accident concerns explained just 2% of their self-reported performance (McKenna and Horswill 2006). This is consistent with the dramatic increases seen in compliance with safety recommendations after legislation is passed, despite the fact that the risk inherent in driving or riding without a restraint or helmet have not changed. When compared with six other factors that could influence speeding for example, McKenna and Horswill found that accident concerns proved to be the weakest predictor of respondents' risk behaviors. The most common reason that people speed is that they are running behind schedule (NHTSA 1999a). Perhaps we need to promote alternatives for remedying that dilemma, rather than lecturing them on the necessity of reducing a health risk that they do not perceive. Similarly, if increasing public transit use had been set as an injury prevention goal, environmental protection gains (or cost savings) might be stressed over safety benefits.

These examples illustrate the value of querying our target audience prior to designing communications campaigns, so that initiatives can complement existing perceptions and emphasize benefits that are important to them.

Other considerations

Incorporate factors relevant to dissemination into study designs

Any research that is designed to address the concerns raised in this paper should be rigorous, but it should also be practical. In determining how to increase the public's acceptance of, or demand for, evidence-based traffic safety interventions, investigators should measure elements that would help non-academics replicate their efforts. For example, in developing communications, input should be gathered from gatekeepers and opinion leaders whose cooperation would be needed to disseminate the campaign widely. Reports should include a summary of what resources the program required. Program planners should monitor which avenues of outreach were most effective. All of this will increase the chances that promising results will reach beyond scientific circles, which is where they must go if they are to have an impact on road-related injuries.

Assess possible unintended consequences

Though most safety professionals are not physicians, they would still subscribe to the dictum: First do no harm. It is incumbent upon responsible safety professionals to assess whether our interventions have hurt the populations we had hoped to protect. Would shattering the illusions of superiority that are apparently held by most drivers cause people to drive more safely...or more nervously? Of course that would not be our intention, but self-serving biases have been associated with psychological benefits (Taylor and Brown 1994). This may be why they are difficult to modify (Greening and Chandler 1997).

A number of traffic safety innovations have introduced new hazards that were not originally anticipated (Lonerio, Clinton, and Sleet 2006). This can be true of social interventions, as well as technological ones. For example, if we increase the public's appreciation of passive protection measures, will we decrease their compliance with individual safety recommendations? The results of at least two studies suggest that media interventions can backfire because they cause viewers to perceive "others" as the at-risk population for accidents (Naisbett 1961; Harré, Foster, and O'Neill 2005). We must avoid creating stereotypical images of victims because people who perceive risk groups in this manner are more likely to exhibit optimistic bias (Weinstein 1980; DeJoy 1989).

Identify champions and guardians for new approaches

It is emblematic of the issues we have been discussing that there is no obvious interest group to take on these challenges. A permanent consortium should be created to champion evidence-based traffic safety initiatives. Many players who are committed to this field (i.e., employees of public agencies and non-profit organizations) are constrained in their abilities to influence policy debates. So those groups that *can* advance such agendas must redouble their efforts. A directory of pro-safety legislators might also be maintained to share across issues.

When safety laws are opposed or repealed, it is almost never because a majority of citizens did not support their passage. Most often, the legislation's opponents were simply organized and vocal. Traffic safety lacks a body of paid professionals to plan and sustain such efforts, sharing lessons learned as the battle is re-fought in a new state or nation. Too often, surviving family members struggle in isolation to correct the conditions that led to their loved one's death (Girasek 2005).

We need to be expansive and creative in identifying allies for this work. For example, traffic-calming measures might be supported by cycling enthusiasts as well as PTA members. Similarly, groups that bear the 89 million dollar cost of motor vehicle injuries each year should be approached about collaborating on a preventive agenda (Corso et al. 2006).

Learn from our failures and critics

Movement in the history of traffic safety has not always been forward. We should analyze instances of backsliding to understand how to sustain future safety strides. Take the case of motorcycle helmet laws, an intervention that is well-documented as reducing deaths, disability, and economic losses (Insurance Institute for Highway Safety 2006). In 1975, all but three states in the US had laws mandating helmets for all motorcyclists. Today, only twenty states can boast such legislation. It is sadly predictable, therefore, that the recent increases seen in the United States' rate of traffic fatalities have been attributed to a 50% increase in motorcycle-related injuries (Centers for Disease Control and Prevention 2006).

Readers of this article are now armed with many hypotheses that might explain this state of affairs. Are motorcycle riders not deemed worthy of protection because they are perceived as putting themselves at risk? In the states that have repealed universal laws, have communities decided to embrace political ideology over solid science? We can test these questions. Scientists could be studying the social factors that are at play around the erosion of motorcycle-helmet legislation, and the degree to which they are subject to modification.

There have been some thoughtful attempts to characterize the challenges that public health policy initiatives encounter (Carey and colleagues 1994; Vogel 1991). Speaking at Johns Hopkins Summer Institute for Injury Prevention (Wallack 1997), Dr. Lawrence Wallack advised safety advocates to be prepared to defend their policy's "effectiveness, affordability, practicality, legality and fairness." Such analyses should be consulted before we attempt to bring about policy change because they allow us to launch our campaigns with ready answers to our challengers. They suggest data that will have to be collected in an objective manner, to establish whether the unintentional outcomes that our opponents feared ever came to pass. The results of such evaluations would prove valuable to advocates in other states and other countries because experience shows that the same obstacles tend to be encountered across jurisdictions and safety issues.

Conclusions

As Americans take to their cars every day, they are generally free of safety concerns. A number of biases bolster their sense of invulnerability, not the least of which is their conviction that they possess superior driving skills. In order to raise levels of concern about the public health problem

that traffic injuries represent, we need to crack through their psychological armor. This may be possible by illustrating the times and ways in which they do not control their safety on the road.

We should also experiment with campaigns that portray motor vehicle injuries as the product of uncrash-worthy vehicles, outdated civil engineering or lax public policies. This should set the stage for increased acceptance of evidence-based prevention methods. It may also create a demand for more attention to traffic safety. A long-term approach to this work will be required, since we are taking on prevalent social norms and perceptions that are firmly entrenched in the public psyche.

Disclaimer

The opinions, findings, conclusions, and recommendations expressed in this paper represent the personal views of Dr. Girasek. They do not represent the views of any Federal agency.

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