



Death and Injury from Automobile Collisions: An Overlooked Epidemic

Jason L. Forman, Aileen Y. Watchko & Maria Seguí-Gómez

To cite this article: Jason L. Forman, Aileen Y. Watchko & Maria Seguí-Gómez (2011) Death and Injury from Automobile Collisions: An Overlooked Epidemic, MEDICAL ANTHROPOLOGY, 30:3, 241-246, DOI: [10.1080/01459740.2011.560778](https://doi.org/10.1080/01459740.2011.560778)

To link to this article: <https://doi.org/10.1080/01459740.2011.560778>



Published online: 16 May 2011.



Submit your article to this journal [↗](#)



Article views: 397



View related articles [↗](#)



Citing articles: 1 View citing articles [↗](#)

INVITED EDITORIAL

Death and Injury from Automobile Collisions: An Overlooked Epidemic

Jason L. Forman, Aileen Y. Watchko, and
Maria Seguí-Gómez

Automobile collisions are a major source of injury, death, and disability worldwide. Roadway injuries are affected by societal and cultural influences as much as any other health-related event, but have historically received relatively little attention from the medical anthropology community. The development of safety intervention strategies is affected by notions of responsibility for preventive care, including a balance between regulation, technology, and personal choice. This balance may be affected by perceptions of the risks associated with roadway use, potentially related to notions of individual control and the portrayal of collisions in the popular media and lexicon. Prevention efforts are also affected by the definition of injury as a disease—a biological phenomenon requiring research and intervention efforts from the medical

JASON L. FORMAN holds a PhD in mechanical engineering from the University of Virginia, with research focusing on injury biomechanics and automobile safety. He is currently a Whitaker International Scholar, Profesor Asociado in the Universidad de Navarra School of Medicine, and the Deputy Director for Science of the European Center for Injury Prevention, Pamplona, Navarra, Spain.

AILEEN Y. WATCHKO holds an MA in anthropology from George Mason University with a focus in medical anthropology. She is currently an administrative coordinator for the Abbreviated Injury Scale Committee of the Association for the Advancement of Automotive Medicine and a member of the European Center for Injury Prevention, Pamplona, Navarra, Spain.

MARIA SEGUÍ-GÓMEZ holds an MD and MPH from the University of Barcelona and MSc and ScD degrees from Harvard University. She is currently Profesor Titular in the Universidad de Navarra School of Medicine and is the Director of the European Center for Injury Prevention, Pamplona, Navarra, Spain.

Correspondence may be directed to Jason Forman, European Center for Injury Prevention, Universidad de Navarra, School of Medicine, Irunlarrea 1, ed. Los Castaños s230, Pamplona, Navarra, Spain 31008. E-mail: jforman@unav.es

and public health communities. Injury prevention priorities and strategies also differ across cultures and locales, dependent in part on economic constraints, native mobility practices, and the quality and expediency of post-trauma care. Progressing injury prevention worldwide requires multidisciplinary action, including an examination of these various cultural and societal influences. We believe that future efforts will benefit from the expertise and analysis of the medical anthropology community.

Key Words: automobile; injury; prevention; safety; trauma

What do cars, X-rays, and antibiotics have in common? They're all ubiquitous in our society, filling roles necessary for modern life—but all three can also have tragic effects on our health. Every year, more than 1.3 million people die and 50 million people are injured in road traffic crashes. Automobile collisions are currently the ninth leading cause of death worldwide (World Health Organization [WHO] 2009). It is projected that by 2020, fatal and nonfatal road traffic injuries will increase by approximately 65 percent (Kopits and Cropper 2003) and will be the third leading cause of Disability Adjusted Life Years (DALYs) lost worldwide (WHO 2004). This problem is not limited to the developed world; low-income and middle-income countries account for more than 90 percent of the DALYs lost to road traffic injuries (WHO 2004).

Injury prevention efforts historically have involved physicians, engineers, public health professionals, and policymakers. But despite its multidisciplinary nature, it has received relatively little attention from the medical anthropology community. Automotive injury is affected by societal and cultural factors as much as any other health-related event. It is affected by public perceptions of risk, notions of the “self” and personal freedom, attitudes of the role of government in protecting public health, and differences in mobility needs and resources across cultures. The cultural influences on automotive injury can be categorized by at least four dimensions: (1) the definition of automotive injury as a disease that can be mitigated through public health efforts; (2) notions of responsibility for prevention, including a balance between regulation, technology, and personal choice; (3) differential risk perception; and (4) injury prevention and treatment challenges among vulnerable road users (e.g., children, the elderly) and in developing countries.

While great strides have been made in post-trauma care, injury prevention remains marginalized as a topic in medical research. Billions of medical research dollars are spent every year to prevent cancer and heart disease, to prevent the spread of HIV or the flu—but relatively little is spent to prevent injury. Underlying this disparity may be the basic perception of injury as a disease—a biological phenomenon that requires the attention of the public

health and medical community to prevent it. Is injury communicable? No, but neither are most forms of cancer. Is injury caused by a micro-organism that invades the afflicted person? No, but neither is congenital heart disease. Is injury the result of an exposure to some external phenomenon that may or may not be a personal responsibility? Yes, but so are carcinogen-related cancer and obesity and diabetes resulting from high-fat diets. Like most diseases, injury has a definable cause, exposure pathway, measure of tolerance, means of care, and means of prevention. With injury, however, it is a mechanical phenomenon that harms bodily tissues and disrupts normal physiological function, instead of the chemical, microbiological, genetic, or nutritional risk factors usually considered within preventive medicine.

The perception of injury as a disease affects not only research priorities but also notions of responsibility for injury prevention. In the automotive injury field, responsibility for prevention is spread across at least four stakeholders: automobile manufacturers, government, designers and maintainers of roadways, and road users. In the United States (and some other countries), responsibility for injury prevention is a balancing act between government regulation and perceived personal freedoms. For example, seatbelts are regularly shown to be one of the greatest protective factors in an automobile collision, reducing the risk of death in a collision by approximately 45 percent (National Highway Traffic Safety Administration [NHTSA] 2010). Efforts to increase seatbelt use in the United States, however, are often met with arguments regarding individual choice and personal liberties. Attempts by US regulators in the 1970s to require seatbelt ignition interlocks (devices that prevent a car from starting if a driver's seatbelt is not fastened) were defeated by Congress (Transportation Research Board 2003), largely in response to these concerns of personal freedom. Somewhat ironically, this contributed to the widespread adoption of airbags—restraints that offer some protection (albeit less effective than seatbelts; NHTSA 1999) without allowing a usage choice by the driver. Roadway regulation is more encompassing in Europe, including the widespread use of speed cameras and procedures for the assessment of pedestrian safety of new cars. Some European countries have even called for manufacturers and governments to take comprehensive responsibility for preventing roadway deaths. This philosophy—known as Vision Zero or more recently Safe System—postulates that engineers can design vehicles and roadways that can prevent deaths regardless of the actions of drivers and states that even a single roadway death is unacceptable (Fahlquist 2006). These differing attitudes on choice and responsibility reflect the cultural distinctions between the United States and Europe (and between different communities within the two). The challenge lies in adapting injury prevention strategies to work with cultural norms, leveraging both to promote a greater awareness and safety benefit.

Central to the balance between notions of personal freedom, technology acceptance, and government regulation is the public's perception of risk. According to the US Centers for Disease Control, 42,031 people died from unintentional road traffic injuries in the United States in 2007 (Xu et al. 2010). This was greater than the number of deaths from homicide (18,361 people), brain and central nervous system cancer (13,234), complications due to medical and surgical treatment (2697), and unintentional water and air transport injuries (1083), combined. Despite this, there is still a prevailing sense that "it will never happen to me." The foreignness of automotive injury may result from a feeling of control over one's own safety while piloting a vehicle. People tend to regard themselves as good drivers, and hence may be less willing to accept that they are at as great a risk as anyone else. This may affect individual choices such as seatbelt use or driving aggressiveness. There may also be a desensitization of the public to the risk of automotive injury. Local traffic reports convey the occurrence of collisions to millions of road users daily, but very rarely do we see the consequences of those collisions to the individuals involved. Notions of risk are also likely influenced by the perception of automobile collisions as "accidents"—inevitable random occurrences that are going to happen and are ultimately beyond our control. At some point, almost every person has heard the forgiving words "don't worry, accidents happen" following an embarrassing episode of destruction. As a result, referring to traffic collisions as accidents may produce complacency regarding an event that holds the potential to cause serious—and possibly life threatening—injury. To combat this, recent efforts (including the Safe System movement) have promoted the philosophy that automobile collision injury occurs as a definable progression of events wherein multiple opportunities for injury prevention may be identified. The majority of the injury prevention community has even opted to remove the term accident from the lexicon, choosing instead to adopt the terms "collision," "impact," or "crash."

Most of the examples discussed relate to roadway safety in the developed world. Economic resources and cultural differences can present completely different challenges—and injury prevention priorities—in the developing world. Urban areas in developing countries often present a different mix of road users, with greater potential for interaction between pedestrians and vehicles. Economic constraints also affect native mobility solutions, with a shift toward increased use of powered-two-wheelers (motorcycles, mopeds, scooters; WHO 2004) and smaller, cheaper vehicles that may not meet the stringent safety requirements of developed countries. The consequences of injury also likely vary between developed and developing countries. Differences in trauma care (both expediency and quality) can affect the risk of death following a collision. For people who survive, lasting disability

may affect quality of life differently based on a person's or a region's economic situation. Partial paralysis or the loss of a limb is an obstacle for anybody, but a person may still live a happy and productive life with the proper care and resources. For a person with limited resources that relies on his or her physical capabilities to work, such an injury could be devastating not just to himself but also to his family and dependents. Thus, the perceived severity and consequences of certain injuries may differ across cultures and economies, affecting priorities to target for intervention. Differential risk factors and priorities are also present in vulnerable populations within developed countries. Recent research efforts have begun to focus on road safety for the elderly, anticipating the increased fragility and mobility needs of the aging population worldwide (Kent et al. 2009).

In the end, the question arises: "Why should injury prevention and automobile safety be topics for study in medical anthropology?" We ask—why not? The fundamentals of injury prevention go to the very definition of disease and depend on perceptions of personal responsibility, risk, and the consequences of injury. Injury prevention also depends on our definition of the role of the medical system in preventive care and the roles of government regulation and industry self-regulation in public health. While we've focused here on automotive safety, many of these issues are universal across other injury prevention fields (such as domestic or occupational safety). Understanding these issues is not simply an academic exercise but is critical to making a practical difference in peoples' quality of life. We'd like to issue an open call to the medical anthropology community to explore issues in injury prevention, including factors related to research practices, public health strategies, needs for different societies, and the roles of personal and cultural perceptions described. Holistic injury prevention efforts require multidisciplinary action; we truly believe that future efforts can benefit from the expertise and analysis of the medical anthropology community.

REFERENCES

- Fahlquist, J. N.
 2006 Responsibility ascriptions and Vision Zero. *Accident Analysis and Prevention* 38:1113–1118.
- Kent, R., M. Trowbridge, F. J. Lopez-Valdes, R. Heredero-Ordoyo, and M. Seguí-Gómez
 2009 How many people are injured and killed as a result of aging? Frailty, fragility, and the elderly risk-exposure tradeoff assessed via a risk saturation model. *Annals of Advances in Automotive Medicine* 53:41–50.
- Kopits, E. and M. Cropper
 2003 Traffic Fatalities and Economic Growth 2003. Policy Research Working Paper Number 3035. Washington DC: The World Bank.

National Highway Traffic Safety Administration [NHTSA]

- 1999 Fourth Report to Congress: Effectiveness of Occupant Protection Systems and Their Use. Washington DC: US Department of Transportation, National Highway Traffic Safety Administration.

-
- 2010 Traffic Safety Facts: 2008 Data. US Department of Transportation, National Highway Traffic Safety Administration. Publication No. 811368. <http://www-nrd.nhtsa.dot.gov/Pubs/811368.pdf>

Transportation Research Board

- 2003 Buckling Up: Technologies to Increase Seat Belt Use. Special Report 278. Washington DC: Committee for the Safety Belt Technology Study, Transportation Research Board of the National Academies.

World Health Organization [WHO]

- 2004 World Report on Road Traffic Injury Prevention. M. Peden, R. Scurfield, D. Sleet, D. Mohan, A. Hyder, E. Jarawan, and C. Mathers, eds. Geneva: WHO.

-
- 2009 Global Status Report on Road Safety: Time for Action. Geneva: WHO.

Xu, J., K. D. Kochanek, S. L. Murphy, and B. Tejada-Vera

- 2010 Deaths: Final data for 2007. National Vital Statistics Reports 58(19). Hyattsville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.