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Transportation systems in the Americas and pedestrian injuries.

RISK FACTORS FOR PEDESTRIANS

Motor-vehicle speed, pedestrian and motor-vehicle density, alcohol use, transportation-system design and infrastructure.

POLICY RECOMMENDATIONS

Legal framework, enforcement, multimodal transportation systems, and an intersectoral approach involving health and transportation authorities, urban planners, police, media, and others.



Pedestrian Safety

MAGNITUDE OF THE PROBLEM

Today's complex transportation systems are used by pedestrians, automobiles, motorcycles, bicycles, buses, trucks, and even animal-drawn vehicles. All of these users compete for shared space on roadways. Shortcomings in the design of traffic systems and infrastructure increase conflict between road users, resulting in high numbers of fatal and nonfatal injuries. Pedestrians bear the brunt of these injuries more than any other group.

Throughout the Americas, pedestrians account for 23% of all road deaths—the highest percentage for any form of transportation. Pedestrians account for 43% of traffic deaths in the Andean countries, 32% in Central America, and 31% in the Southern Cone (Argentina, Chile, Paraguay, and Uruguay).

Pedestrian deaths tend to occur more frequently in countries where rates of motor-vehicle ownership are low. In Peru, where there were only 41 motor vehicles per 1,000 people in 2007, 78% of traffic deaths involved pedestrians. In Argentina, with 170 motor vehicles per 1,000 people in 2006, pedestrians accounted for 19% of road deaths.

 ***Pedestrians are the most frequent victims of fatal traffic injuries in the Americas. These deaths have enormous social and economic consequences.***

Although motor-vehicle ownership in the Region is increasing, most families in low- and middle-income countries are unlikely to purchase a car within the next 25 years. The countries with the lowest rates of motor-vehicle ownership in the Region are Guatemala, with only 19 motor vehicles per 1,000 population, and Haiti, with 12 motor vehicles per 1,000 population. In contrast, more than half the population of Canada and the United States drives automobiles, and pedestrian deaths in those countries account for, respectively, just 13% and 11% of traffic fatalities.

Pedestrian deaths and injuries have enormous social and economic consequences. Countries should address the problem of pedestrian deaths with the understanding that transportation systems can remain efficient while being made safer for pedestrians. Safe environments should address spatial equality for pedestrians relative to other modes of transportation. The cost savings of such an approach can be huge and long lasting. Individual, social, legal, and environmental conditions need to be understood and evaluated from an intersectoral perspective to implement measures that protect pedestrians.



Pan American Health Organization
Regional Office of the World Health Organization



RISK FACTORS FOR PEDESTRIANS



Street and other urban-environment risk factors

- Poor planning of residential and commercial areas, forcing pedestrians to cross streets.
- High vehicle density in commercial and other areas with large numbers of pedestrians.
- Few and often poorly illuminated roads in low-income and middle-income countries.
- Poorly regulated public transportation, in which drivers work long hours and vehicles have inadequate safety standards.
- Wide streets with few safe pedestrian-only crossings.
- Intersections with wide corners or other design factors that allow motor vehicles to make high-speed turns.
- Crowding of pedestrian spaces by motor vehicles parking on sidewalks.
- Unsafe pedestrian spaces not only lead to more injuries but are associated with health consequences

Social environment and policy factors

- Lack of a coordinated legal framework, within a national policy for road safety, that specifically addresses risks to pedestrians.
- Policies and environments that unduly favor motor vehicles over pedestrians.
- Poor enforcement of traffic laws by police; only three countries in the Region report effective enforcement of speed limits.
- High fares and inadequate availability of public transportation encourage greater use of inexpensive vehicles such as motorcycles, thus increasing the threat to pedestrians.
- Lack of policies to reduce vehicle congestion in large metropolitan areas.
- Lax regulation of vehicle safety standards.

Pedestrian factors

- Alcohol use by pedestrians increases their risk of injury.
- Pedestrian distraction and risky behaviors such as darting into streets increase the chance of injury to pedestrians.
- Pedestrian recognition of unsafe traffic conditions can encourage dangerous behavior that puts pedestrians at even greater risk.
- Children and seniors, as well as disabled persons, are more likely than other pedestrians to suffer serious injuries in traffic events.
- High pedestrian density coupled with high motor-vehicle density is among the most important factors contributing to pedestrian injury or death.

Driver factors

- Vehicle speed is a major factor in pedestrian injuries and deaths. Pedestrians have a 90% chance of surviving a collision with a car driven at 30 km/h or below, but a less than 50% chance of survival at vehicle speeds of 45 km/h or above.
- Zero-tolerance laws establishing a maximum blood-alcohol content (BAC) between 0 and 0.02 g/dl for young or inexperienced drivers can reduce crashes involving such drivers by 4%-24%. However, in the Region, only Brazil, Canada, Panama, Puerto Rico, and the United States follow the above World Health Organization recommendation for young drivers.
- Lack of driver experience and skills, especially among young drivers, increases risk to pedestrians.
- Other factors that increase risk to pedestrians include driver distraction and poor eyesight. All drivers should be required to undergo vision testing.

Motor vehicle factors

- Poorly maintained, unsafe motor vehicles and large vehicles such as SUVs raise the level of risk for pedestrians.
- Lax safety standards for private and public motor vehicles also increase the threat to pedestrians.
- Excessive driving speeds, coupled with poor enforcement of vehicle safety standards, heighten the threat to pedestrians.
- Motorcycles invading sidewalks and other pedestrian spaces are another risk factor for pedestrians.

Alcohol legislation and control

- Blood-alcohol concentration (BAC) limits for drivers should be established and enforced. The WHO recommends a maximum BAC limit of 0.05 g/dl.
- BAC laws should be backed up by laws regulating the sale of alcoholic beverages in bars and restaurants and with other policies aimed at reducing alcohol consumption and abuse.
- Restrictions on the sale of alcoholic beverages to minors should be promoted.
- Laws against driving under the influence (DUI) of alcohol should be strengthened, as necessary, by instituting a system of fines or driver's license suspension for offenders.
- Sobriety checkpoints manned by police enhance enforcement of DUI laws.
- Zero-tolerance laws for drivers and strict DUI legislation can significantly reduce pedestrian injuries and fatalities. In Argentina, an overall BAC limit of 0.05 g/dl for all drivers was introduced in 1995, with a zero-tolerance requirement for drivers of buses, taxis, and trucks. As a result, there was a 30% decline in the number of all drivers with a BAC above the legal limit.

Density, diversity, visibility

- Develop urban-planning policies that encourage walkable communities.
- Implement policies to discourage automobile use, such as congestion pricing in high-density areas and pricing schemes for parking.
- Promote pedestrian visibility. The city of Burlington, Vermont, for example, provides coupons to pedestrians and bicyclists that can be used to obtain reflective clothing and other safety gear.
- Transportation systems should foster safe, physical activity aimed at reducing the burden of multiple chronic diseases and improving quality of life.

Connection of different transportation modes

- Design transportation systems that encourage the use of different modes of transportation while highlighting safety needs of pedestrians.
- Increase investment in safe public transportation systems.



Transportation systems need to account for pedestrian safety.

Enforcement and legislation

- Stronger enforcement of traffic laws is fundamental to improving pedestrian safety. While many countries have adequate laws, poor enforcement or an insufficient police presence contributes to continuing unsafe conditions for pedestrians.
- Improving the quality of information systems that track injuries and fatalities can help in generating evidence-based policies to reduce pedestrian risks.
- Active policing and photo enforcement systems to reduce speeding and red-light running can improve pedestrian safety.
- Better street design and vehicle safety standards can be achieved through new legislation. In Brazil, introduction of a National Transportation Code contributed to more effective traffic control and reduced mortality.
- Safety education programs should be instituted for police, transportation authorities, and the general public.
- Improving job conditions for police can reduce corrupt practices such as bribe taking and improve law enforcement.

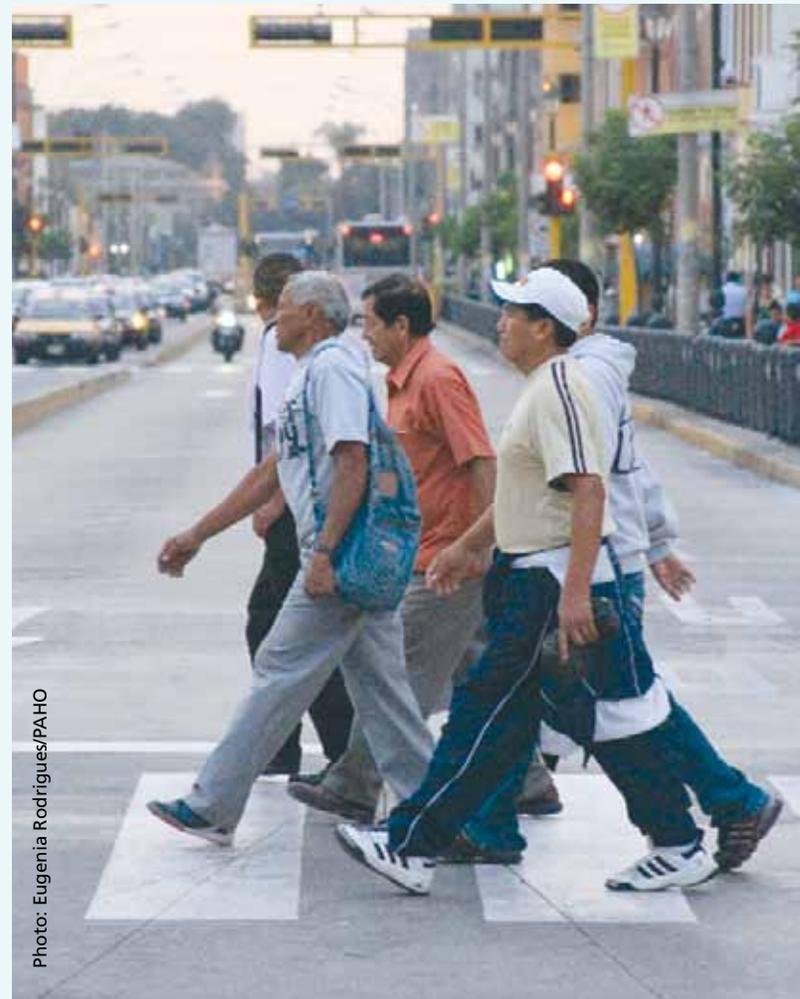


Photo: Eugenia Rodrigues/PAHO



Photo: Eugenia Rodrigues/PAHO

Speed-limit enforcement

- In high-density areas, setting speed limits at 30 km/h or slower reduces crash risks and the severity of injuries.
- Overall speed limits on urban roads should not exceed 50 km/h.
- Traffic-calming devices such as speed humps and curb extensions should be promoted, especially in residential areas.
- Traffic-calming policies can reduce serious pedestrian accidents by as much as 70%.
- Speed limits in school zones should be 30-50 km/h.
- Adopting “Safe Routes to Schools” programs enhances the safety of young pedestrians.
- Discourage car marketing strategies that may promote unsafe driving. In the United Kingdom the government has proposed legislation to forbid the portrayal of excessive vehicle speeds in automobile commercials.

Engineering and infrastructure

- Plan for easier access to transportation systems by mobility-impaired people.
- In areas of high traffic density, introduce traffic-calming devices such as pedestrian-refuge islands, speed bumps, and adequate traffic signs and traffic lights.
- Design crosswalks that enhance pedestrian safety.
- Create separate pedestrian-only zones in areas of high motor vehicle density.
- Design streets that encourage slower vehicle speeds in areas of high pedestrian density.
- Design sidewalks to be at least five feet wide, especially near schools and universities.
- Ensure that sidewalks have smooth surfaces, proper illumination, and are adequately separated from streets.
- Encourage development of vehicles with pedestrian-detection devices.