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## Travelers' Health: Yellow Book

Health Information for International Travel, 2005-2006

Chapter 6 – Non-Infectious Risks During Travel

### Injuries

Injuries are among the leading causes of death and disability in the world, and they are the leading cause of preventable deaths in travelers. An estimated 5 million people lost their lives from injuries in 2000, for an overall mortality rate of 83.7 per 100,000. More than 90% of these injury deaths occur in lower and middle-income countries. Worldwide, among persons ages 15-44, injuries account for 6 of the 15 leading causes of death.

Injuries can be divided into unintentional and intentional. Examples of the former include road traffic accidents, falls, fires, poisoning, and drowning; examples of the latter are interpersonal and self-inflicted violence. The traditional viewpoint that injuries occur as "accidents" has been challenged over the last decades, as it has been increasingly appreciated that injuries constitute an important public health problem that demands greater research efforts. Risks can be defined, data are being collected, and, more importantly, prevention measures have been implemented that in many cases have had a dramatic effect on the incidence of injuries. Data, however, are lacking in many countries where reporting of injuries is poor. WHO has recently published a document prepared by an international group of scientists who reviewed this subject in depth (see bibliography). Travelers need to understand the increased risk of certain injuries, particularly in developing countries, and have greater awareness of the measures that can be taken to prevent them.

### Motor Vehicle and Pedestrian Accidents

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Worldwide, an estimated 1.2 million people are killed in motor vehicle accidents each year, and as many as 50 million more sustain significant injuries. Within 20 years these figures will increase by an estimated 65%. Road traffic injuries are the leading cause of injury-related deaths worldwide. According to WHO, countries with the highest rates of road traffic injury mortality are Cyprus, India, Kuwait, Qatar, and the United Arab Emirates. Countries in Asia account for more than half of all road traffic deaths in the world. In Thailand, motor vehicle accidents are considered one of the top three public health problems.

Small studies have suggested that traffic accidents are common in foreign tourists for a number of reasons: lack of familiarity with the roads, driving on the opposite side of the road than in one's home country, poor road surfaces without shoulders, unprotected curves and cliffs, and poor visibility due to lack of adequate lighting, both on the road and on the vehicle. Accidents tend to occur more frequently at dusk, whether dawn or evening, in poor weather

conditions, at crossroads, while speeding, and while passing other drivers. In many developing areas of the world, building safe highways and an adequate transportation infrastructure has lagged behind other aspects of modernization. As well, a major factor is the mixed vehicle and pedestrian roadways commonly seen in developing countries. The increased lateral mobility associated with the presence of cars, trucks, rickshaws, bicycles, motorbikes, public buses and pedestrians sharing one lane promotes vehicular accidents.

Other variables contribute not only to increased accidents but also to increased injuries such as lack of use of safety measures. For example, a study in Kenya found that only 26% of persons injured in crashes were wearing seat belts. In developing countries more than half of adult motorized two-wheeler drivers do not wear helmets properly (if at all), and child passengers rarely wear helmets. For the traveler, this translates into lack of availability of helmets, but even when helmets are available, into discomfort in acting differently from the local population. The rapid increase in the number of motorcycles (about 10% every year) in Vietnam has contributed to traffic accidents. Almost half of the motorcycle drivers there are unlicensed, and an estimated 75% do not follow any road laws, which are difficult to enforce. A study from Bermuda reported that tourists sustain a much higher rate of motorbike injuries than the local population, with the highest rate in persons age 50-59 (126.7 per 1,000). Loss of vehicular control, unfamiliar equipment, and inexperience with motorized two-wheelers contributed to accidents and injuries, even when traveling at speeds <30 mph. In addition, age  $\geq 65$  has been suggested as an independent risk factor for motor vehicle injuries, especially if the driver has a chronic illness or a hearing impairment.

By far the most important risk factor for road traffic injuries is the presence of alcohol in the blood of a driver or a pedestrian who is injured. Studies show that 20%-70% of fatally injured drivers have blood alcohol levels higher than legal limits. As well, travelers may have a more carefree attitude while away from home that predisposes to driving under the influence of alcohol. An alcohol-impaired driver has a 17 times greater risk of being involved in a fatal crash.

## Other Unintentional Injuries

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Falls and burns are important causes of injuries in travelers. Falls from stairs, jumping or climbing accidents, and falls from trees (most frequently coconut and mango) are reported. Burns may occur with vehicular accidents but are more likely due to careless use of small kerosene stoves and candles. When visiting or living in rural destinations, particularly in developing countries, injuries from burns, animals, and older farming equipment used without protection may occur.

Travel by local commercial air carriers in many countries carries a far greater risk than appreciated. Pilots may not be as well trained and mechanical maintenance may not be regulated as well as it is in the United States. A survey of crashes of commercial jets at airports showed that rates in Latin America and Africa were 7 times that in North America. Travel on unscheduled flights and in small aircraft have the highest risk.

Poisoning in travelers can occur in several settings. Persons traveling with children should carry antimalarial medication in child-proof containers; similarly, when planning for housing in developing areas, risks such as exposed wires and lead paint should be considered.

## Prevention

Injuries account for a substantial proportion of evacuations of tourists from developing countries. Travelers should consider purchasing special health and evacuation insurance if their destinations include countries where there may not be access to good medical care. In many countries, victims of injuries never reach a hospital, and there is no coordinated ambulance service. CDC recommends that long-term travelers or those who will be using public transportation, bicycles, and motorbikes prepare by taking first-aid courses, bringing first-aid equipment, a communications device, and equipment that will add visibility to themselves and/or their vehicles (e.g., reflecting vest or highly visible, brightly colored clothing and accessories, and portable vehicle lights [high-mounted brake lights are best]). In addition, travelers planning to bicycle should carry their own light-colored helmet. Helmets have significantly reduced the number of injuries and deaths wherever laws have been implemented (e.g., Italy and Malaysia). Protective clothing should be worn when riding on motorbikes. When renting vehicles, travelers should choose those with seat belts and should test the vehicle to be sure that brakes and lights are functional. Bringing child seats is advisable, as they can reduce infant deaths in car crashes by 71% and toddler deaths by 54%. Children <12 years of age should ride in the back seat. Careful consideration to safe public transportation within country destinations requires planning ahead and avoidance of trips using local unscheduled small aircraft, riding in the back of open trucks, and traveling at night.

Recommendations for avoiding other injuries include staying on one of the lower floors of high-rise hotels, choosing lodging that has smoke detectors and a sprinkler system, and checking to see where the fire exits are on one's floor. Overall, the use of common sense and avoiding alcohol excess, which contributes to risky behaviors, can prevent many injuries in travelers.

## Intentional Injuries

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Violence and collective violence (conflicts among nations and groups, terrorism, torture and rape as a consequence of war, kidnappings, and refugee movements resulting in bloodshed) are leading worldwide public health problems and are growing concerns of travelers. The 20<sup>th</sup> century was one of the most violent periods in history. Of the hundreds of millions who lost their lives because of violence, more than half were civilians. In 2000, about 1.6 million persons lost their lives to violence, and only 1/5 were casualties of armed conflicts. Rates of violent deaths in low to middle-income countries are more than 3 times those in higher-income countries, although there are great variations within countries, depending on regional demographic differences.

Risk factors that travelers should remain alert to and that should alert travelers to reconsider a particular itinerary are destinations where the government is unstable, even for short periods of time; where recent coups have taken place; where there is marked social inequality; where there have been rapid demographic changes, or where the government is under control by a single group that identifies itself by a particular ethnic background or religious fundamentalism. These same regions usually lack emergency response systems should there be violence.

Homicide and suicide risk may be different for the traveler than at home. Unfamiliarity with a destination, not being vigilant to one's surroundings, and attention-seeking behaviors may increase risk of assault. For longer-term travelers (e.g., missionaries and volunteers), social isolation and substance abuse, particularly in the face of living in areas of poverty and rigid gender roles, may increase the risk of depression and suicide.

## Prevention

Education about and greater awareness of regions of the world where political and civil unrest are present are important for all travelers. Remaining vigilant and aware of one's surroundings at all times is essential. The U.S. State Department maintains a website that features a section on Travel and Living Abroad ([www.state.gov/travel](http://www.state.gov/travel)), which covers issues such as warnings, emergencies, crisis awareness and preparedness, consular information, and special services. The following commercial site also contains useful travel safety advice for international travelers: [www.kevincoffee.com/safety\\_tips\\_index.htm](http://www.kevincoffee.com/safety_tips_index.htm). Organizations sending people to remote areas of the world or areas of unrest should strongly consider screening measures to try to avoid premature returns because of risk-taking behaviors, substance abuse, or suicide attempts. For travelers, the use of common sense is most important, with moderation in alcohol consumption and avoidance of illegal substances.

## Summary

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The increasing acceptance of injuries and violence as major public health problems has led to the development of preventive strategies, particularly for travelers who find themselves in new environments and who may be more likely to be unaware of risks or complacent in exotic surroundings. Despite greater understanding and increased research efforts in this field, much is still unknown in many countries about the extent of injury-related morbidity and mortality. Travel health advisors need to bring greater awareness to other health-care providers and to the public about these risks and especially about preventive measures that have been shown to be effective and simple to implement. The creation of an International Society for Violence and Injury Prevention has been proposed ([www.who.int/violence\\_injury\\_prevention/isvip/en](http://www.who.int/violence_injury_prevention/isvip/en)).

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