

## CHAPTER 2

# Urban Medicine: Threats to Travelers to Cities in Low-Income Nations

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Each year, more than 50 million travelers from industrialized nations visit low-income nations. Whereas many travelers and travel providers associate international travel with rustic and sparsely peopled environments, an increasing proportion of travelers, including students and international business travelers, spend most or all of their time abroad in urban environments. Even tourists whose final destinations are rural and remote must contend with urban settings for at least portions of their trips. Tourists who visit the game reserves of East Africa often fly into Nairobi, population 3 million; travelers to the beaches of southern Thailand usually transit through Bangkok, population 8 million; and trekkers to Machu Picchu, Peru, almost always fly first to Lima, population 9 million. Travelers must survive these urban environments if they are to reach their more rustic final destinations.

During the 20th century the world population almost quadrupled, going from 1.7 billion in 1900 to 6 billion by 2000; it passed the 7 billion mark in 2012 and is projected to reach 9.6 billion in 2050. Despite acquired immune deficiency syndrome (AIDS) and widespread malnutrition, sub-Saharan Africa is anticipated to be the region of fastest growth. A 2014 UNICEF study found that a quarter of the world's children under 18 years of age lived in Africa, and this proportion will reach almost half by 2100. If current population growth continues, Africa's population will increase from 1.1 billion today to 4.2 billion in 2100.

Growth of urban centers is markedly more rapid than that of rural areas. In 2014, 54% of the world's population lived in urban areas; by 2050 this proportion is predicted to rise to 66%. An additional 2.5 billion people will be living in cities by 2050, with almost 90% of this growth anticipated to be in Asia and Africa. The rate of urban growth in the developing world almost strains credulity. As an example, in the six and a half decades between 1931 and 1995, Lagos, Nigeria, grew from 126,000 to more than 10 million inhabitants. At the present time in almost all Latin American countries, between one-quarter and one-third of the population lives in a single city.

These trends—the overall increase in population, almost all of which is occurring in the developing nations, and the increasing urbanization—combine to yield massive and rapid growth in cities. Urban conglomerations with more than 10 million inhabitants are termed “megacities.” In 1950, there were two: New York City and Tokyo. By 1995 there were 14, and in 2015, 22, of which the majority are in low- and middle-income nations. If we extend the definition of megacity to include surrounding metropolitan area, there are 36 megacities, 14 of which have populations of at least 20 million (Tokyo, Delhi, Seoul, Shanghai, Mumbai, Mexico City, Beijing, Lagos, Sao Paulo, Jakarta, New York, Karachi, Osaka, and Manila). Regarding this proliferation of megacities, urbanists Peter Hall and Ulrich Pfeiffer wrote, “Humanity has not been down this road before. There are no precedents, no guideposts.”

This rapid growth has accentuated a number of health problems of megacity inhabitants. Large peri-urban slums—termed *favelas* in Brazil, *bastis* in India, *pueblos jóvenes* in Peru, and

elsewhere slums and shantytowns—ring megacities. Generally without basic services such as water, electricity, and controlled sewage, these neighborhoods are ideal for the spread of most infectious diseases, including tuberculosis and those caused by intestinal parasites. Rapid and haphazard urban expansion is also accompanied by poverty, crime, and pollution.

Historically, travel medicine providers have emphasized risks from infectious diseases, including vaccine-preventable diseases, malaria, and traveler's diarrhea. However, only 1–3% of deaths of international travelers are due to infectious diseases. About half of all deaths of international travelers are due to cardiovascular causes, including myocardial infarction and cerebrovascular accidents; these occur primarily in elderly travelers. The remaining deaths among travelers are due to causes that mirror those found in developed countries: motor vehicle crashes, drowning, falls, and homicide.

Travelers' risks from specific threats are certainly affected by the size of the towns in which they stay, but the complex relationships between risk and level of urbanization are only beginning to be studied, described, and elucidated. Western medicine has made impressive progress in establishing links between particular infectious diseases, behaviors that place travelers at risk for those diseases, and interventions during the pre-travel consultation to lower those risks. However, establishing the benefit of interventions for non-infectious hazards, which comprise the most significant threats to the urban traveler, remains a virtually unexplored field.

In this chapter, the particular hazards and stresses that are expected in urban environments, including motor vehicle traffic, air pollution, heat illness, crime, and recreational drug use, will be considered.

### INFECTIOUS DISEASES

Morbidity from infectious diseases is common in international travelers, with up to 75% of travelers becoming ill during their time abroad; these illnesses are most often self-limited episodes of diarrhea or upper respiratory illness. Almost every infectious disease for which travelers are at risk is transmitted in the urban setting. Indeed, it is easier to list infectious diseases that are not transmitted in cities than those that are. Japanese encephalitis, and bartonellosis, are among those not commonly spread in cities; however, these diseases are infrequent in travelers regardless of destination. Yellow fever is not currently endemic in urban areas, but its urban vector, the *Aedes aegypti* mosquito, is now present in urban areas of the Americas, and there is concern that yellow fever could erupt in explosive outbreaks from urban transmission cycles.

The vast majority of infectious diseases, including all the more common ones that are transmitted to international travelers, including hepatitis A, tuberculosis, and traveler's diarrhea, are vigorously transmitted in urban regions. Urban malaria is widespread throughout Asia and Africa. Many diseases, including meningococcal meningitis, are particularly associated with crowded living conditions. Zoonotic cutaneous leishmaniasis is expanding into many urban areas, including several cities in Colombia and peri-urban foci in Venezuela. In Brazil the national average dengue incidence rate is 34.5 cases per 100,000 inhabitants; in cities in Brazil the incidence rate of dengue fever can be as high as 268 cases per 100,000 inhabitants. Dengue fever in tourists is well documented. These infectious diseases are discussed in detail elsewhere in this book.

### TRAUMA

Motor vehicle crashes are the most common cause of death in non-elderly travelers to the developing world. Travelers between the ages of 15 and 44 years have a two- to three-fold higher rate of death in accidents as compared with the same age group in developed nations. Males are more likely to be involved in both fatal and nonfatal accidents. A study of 309 Canadians who died abroad showed that 25% of deaths were due to accidents; motor vehicle crashes formed the biggest subgroup within the accidental death category. Accidental injury was by far the most common cause of illness and death reported for 801 visitors to Jamaica's

northern coast, causing 22.3% of illness and death. Furthermore, tourists may be more likely than indigenous populations to become involved in motor vehicle crashes. In a study of tourists to Bermuda, the rate of motorcycle injuries was found to be 5.7-fold higher among tourists than among the local population. A study at a regional hospital in Corfu, Greece, showed that among residents and Greek tourists, only 15% of accidents were due to motor vehicle crashes, but among foreign tourists, 40% of accidents were due to motor vehicle crashes.

The amount of trauma attributable to driving on the opposite side of the road relative to travelers' home nations is not known but may be significant. In a study of nonfatal motor vehicle crashes in Greece, travelers from left-side-driving countries were more likely to be injured than those from right-side-driving countries. In New Zealand, the failure to drive on the left was found to be a significant factor in nonfatal motor vehicle crashes.

Travel by motor vehicle is markedly more dangerous in the developing world as measured by every metric that has been employed. The number of deaths per one billion vehicle kilometers is 3.7 in Sweden, 7.6 in the United States, and 55.9 in Brazil. Many countries probably have higher rates still, but motor vehicle crash-related mortality statistics are not collected in much of the developing world. A study performed in Ghana demonstrated that reports on fewer than 10% of pedestrian injuries were collected and tallied. An estimated 1.24 million people die each year from traffic injuries, and 25 million are permanently disabled. As bad as these statistics are, they appear to be growing worse rapidly.

The pattern of road traffic fatalities differs between developed and developing countries. In the United States, over 60% of road crash fatalities occur among drivers; in the least motorized countries, fewer than 10% of road crash fatalities occur among drivers. Most road traffic injuries in developing countries occur in urban areas, where approximately 90% of road traffic fatalities occur among passengers, pedestrians, and cyclists. Urban pedestrians alone account for 55–70% of road traffic deaths. Among children under the age of 4 years and between 5 and 14 years, the rate of death from road traffic injuries in low-income countries is six times that found in high-income countries. Those who reside in these countries are often aware of these risks. In Lagos, Nigeria, buses are known as *danfos*, “flying coffins,” or *molue*, “moving morgues.” A regular commuter on Lagos buses said, “Many of us know most of the buses are death traps but since we can't afford the expensive taxi fares, we have no choice but to use the buses.”

A study performed in Accra, the capital of Ghana, investigated alcohol use among drivers. Of 722 drivers who were selected randomly, 21% had a blood alcohol concentration higher than 80 mg/dL, indicating impairment. This rate is significantly higher than the rates of impaired drivers in the developed world, which range from 0.4% in Denmark to 3.4% in France. Alarming, 3.7% of bus drivers and 8.0% of truck drivers in this Ghana study had blood alcohol concentrations of  $\geq 80$  mg/dL.

Compounding this situation, there are no formal emergency medical systems in most low-income countries. In Ghana, 70% of trauma patients travel to the hospital by taxi or bus, 22% travel by private vehicle, 5% are brought by the police, and 3% travel by ambulance. All the patients who arrived in ambulances were transfers from other hospitals; no trauma patients were brought to the hospital directly from the field by ambulance. The absence of emergency medical services in the field and limited care at medical facilities combine to yield a markedly elevated rate of death following trauma relative to the developed world. In a study by [Mock and colleagues \(1993\)](#), the mortality rate for patients with mid-level injury severity scores, which can be thought of as life-threatening but eminently treatable, was 6% at a level I trauma center in Seattle and 36% in Ghana—a six-fold difference.

Travelers should be advised to use seat belts whenever possible and to avoid riding in motor vehicles at night. Travel by motorcycle is less safe than travel by cars; travelers should avoid riding on motorcycles. Travelers should avoid riding in informal locations on vehicles, such as the roof of a bus or the back of an open truck. Travelers planning to rent bicycles,

mopeds, or motorcycles should pack and wear appropriate helmets. Pedestrians should remain vigilant in urban settings and never assume they have the right of way. Additionally, pedestrians should not wear headphones or ear buds in urban settings.

Pre-travel providers should feel free to attempt to rearrange travelers' priorities. When travelers state that their top priority is addressing a particular (often uncommon) infectious disease, the pre-travel provider can reply, "Good question, we'll get to that; first let's discuss seat belts, helmets, and the benefits of assigning a designated driver." Additionally, the benefits of obtaining medical and evacuation insurance prior to international travel should be discussed with every traveler. The information that emergency medical evacuation alone may cost US\$50,000-100,000 may motivate travelers to obtain medical and evacuation insurance prior to travel.

## AIR POLLUTION

The first attempt to control air pollution occurred in 1306, when England's King Edward I banned the burning of coal in an effort to control the malodorous clouds of coal smoke above London. The ban was not enforced, and London became one of the first cities to suffer from significant air pollution. It is not necessary to memorize which foreign cities have significant air pollution; it is safe to state that virtually all large cities in the developing world have significantly polluted air. According to a 2013 World Health Organization (WHO) index, four of the 10 most polluted cities in the world are in Iran; two are in India.

The number of deaths attributable to air pollution is staggering. WHO estimates that each year ambient (outdoor) air pollution causes 3.7 million premature deaths; indoor pollution is estimated to cause 4.3 million deaths each year. The discussion below will focus on ambient air pollution. The majority of deaths attributable to outdoor air pollution—88%—occur in low- and middle-income countries, with the majority of these occurring in the WHO Western Pacific (including China) and Southeast Asia (including India) regions. Forty percent of deaths due to ambient air pollution are caused by acute lower respiratory infections, 40% to stroke, 11% to chronic obstructive pulmonary disease (COPD), 6% to lung cancer, and 3% to ischemic heart disease.

The US Environmental Protection Agency terms the six principal air pollutants "criteria pollutants"; these are carbon monoxide, nitrogen dioxide, ground-level ozone (not to be confused with "good ozone," which is in the stratosphere at 10-50 km above the earth), particulate matter (air-borne particles <10  $\mu\text{m}$  in diameter), sulfur dioxide, and lead. Some medical writers have tried to compare the level of air pollution in a given city with smoking a certain number of cigarettes per day, but this is an inaccurate analogy; the pollutants and carcinogens are different. Carbon monoxide is formed by the burning of fuels, such as gasoline, oil, or wood. Persons with pulmonary and cardiac disease may develop dyspnea and angina at carboxyhemoglobin (COHB) levels of 3-4%. Exercise in a traffic tunnel will increase the COHB level to 5% within 90 min. Elevated carbon monoxide levels have been found to increase the rates of hospitalization of elderly patients with congestive heart failure.

The effects of air pollution, specifically ozone and particulate matter, on mortality and hospital admissions due to respiratory and cardiopulmonary disease have been demonstrated in both short-term studies, which have investigated day-to-day variations of pollutants, and long-term studies, which have followed cohorts of urban residents over some years. Effects have been found even at very low levels of exposure.

The developing world has no monopoly on polluted air. However, the air of urban centers in high-income nations seems pristine when compared with that of large cities in low-income nations. In high-income nations the average  $\text{PM}_{10}$  (particulate matter <10 microns), in micrograms per cubic liter, is 26; this compares with a global average of 71, an average in Southeast Asia of 128, and an average in Eastern Mediterranean countries of 208. In Jakarta, Indonesia, due to the use of leaded gasoline in most vehicles, the level of lead in the atmosphere in 2000 was 1.3  $\mu\text{g}/\text{m}^3$ ; the WHO's recommended maximum is

between 0.5 and 1.0  $\mu\text{g}/\text{m}^3$ . In Bangkok, motorcycles are popular, as they can thread through the ever-present traffic jams. Between 1993 and 2000, the number of registered motorcycles in the Bangkok metropolitan region increased from 1.1 million to 2 million; future growth is projected to be 15% per year. Some 90% of these motorcycles have two-stroke engines, which are the worst offenders with regard to suspended particulate matter and hydrocarbon emissions. The numbers of vehicles in Asian urban areas have grown exponentially over the past two decades; in Delhi and Manila, the number of vehicles has been doubling every 7 years.

Air pollution does not have to be severe to affect children with asthma. In a French study, children with mild to moderate asthma had measurable short-term decrements in pulmonary function tests that correlated with prevailing levels of photo-oxidant and particulate pollution, even though the levels of these pollutants were within those specified by international air standards.

Air polluted with particulate matter causes increased serum concentrations of fibrinogen and platelets, with sequestration of red blood cells in the lungs. Particulate matter also increases the risk of cardiac arrhythmias, but the significance of these changes for cardiovascular events remains unclear. During an exacerbation of air pollution in Augsburg, Germany, in 1985, increases were noted in residents' heart rate, plasma viscosity, and C-reactive protein, all of which can contribute to an increased risk of cardiovascular events.

Multiple studies have linked air pollution to increased mortality. A restriction that reduced the sulfur content of fuel oil utilized by power plants and road vehicles in Hong Kong led to a substantial reduction in deaths from all causes, from respiratory diseases, and from cardiovascular diseases. Long-term exposure to fine particulate air pollution causes increased cardiopulmonary morbidity, including lung cancer. A study of the 1997 "haze disaster" in Indonesia found that over 90% of 543 people interviewed had respiratory symptoms. The elderly and those with a history of asthma had increased symptoms.

Ozone is produced by the effect of sunlight on volatile organic compounds or oxides of nitrogen. In a study of children who performed in outdoor team sports in 12 communities in southern California with varying levels of pollution, ozone was the pollutant most strongly associated with the development of asthma. Ozone triggers inflammation, and animal studies suggest that it causes increased susceptibility to bacterial infection. Great variability among individuals exists regarding the response to ozone, with a minority demonstrating significant responses at only moderate levels. One study showed that for each 50 parts per billion increase in peak ozone levels, hospitalization rates increase by 6-10% for asthma, pneumonia, and COPD.

Children living in Santiago, Chile, were found to have increases in lower respiratory tract illnesses in direct proportion to the levels of particulate matter and ozone. For children 3-15 years of age, the increase in lower respiratory tract symptoms is 3-9% for a 50  $\mu\text{g}/\text{m}^3$  change in particulate matter and 5% for a 50 parts per billion change in ozone. A study performed in India found that urban children had a higher level of exercise-induced bronchospasm than did children living in rural areas. A recent study performed in southern California found that associations between severity of air pollution and asthma were stronger in asthmatic children not taking anti-inflammatories (inhaled cromolyn, nedocromil sodium, or corticosteroids) than in children who were.

A Denver, Colorado, study found strong associations between rates of childhood cancers including leukemia, and distance of residence from streets with a high density of motor vehicles. In the highest traffic density category, that of close proximity to roads with >20,000 vehicles/day, the odds ratio for all cancers was 5.90, and that for leukemia was 8.28. In Amsterdam, a much higher relative risk of death was found in individuals who lived on main roads, as compared with those who lived away from main roads. Recent epidemiological research indicates that the effects of air pollution on life expectancy are not uniformly distributed throughout populations but are influenced by factors including education level and antioxidant vitamin status. Intriguingly, the use of antioxidant vitamin supplementation

has been found to markedly reduce the ozone-induced reduction in pulmonary function in young, healthy, nonsmoking adults.

It is reasonable to assume that long-term visitors to heavily polluted cities will develop many of the same sequelae as do residents. The effects of air pollution on the short-term traveler have not been studied; anecdotally, many develop eye and respiratory irritation. What are the implications for providers of pre-travel medical advice? Patients with COPD should travel with a “rescue cocktail” of three drugs for use during exacerbations: an additional bronchodilator, an oral steroid, and an appropriate antibiotic. Patients with asthma, particularly those with a history of exacerbation in response to air pollution, should carry an additional inhaler and an oral steroid. The possible benefits of placing asthmatic children on an antiinflammatory medication, for example, montelukast sodium (Singulair), just prior to and during their stay in a heavily polluted region should be considered. For elderly travelers, a pre-travel physical examination with pulmonary function tests may be useful in screening for pulmonary disease. Certainly, travelers with diagnosed cardiac or pulmonary disease should have these conditions adequately controlled prior to departure and should be advised to minimize their duration of stay in heavily polluted cities, to avoid heavy exercise while residing therein, and to have a low threshold for seeking medical care should they become dyspneic or develop chest pain (Chapter 16).

### HEAT ILLNESS

Like mountains, cities are capable of creating their own weather. Asphalt and concrete absorb light then re-radiate it as infrared radiation, raising the temperature of the air; this is termed the “urban heat island effect.” Many cities are 1–6°C warmer than surrounding rural areas; this urban-rural temperature difference is greatest at night. Plants, particularly trees, secrete large amounts of water from their leaves, and the evaporation of this water absorbs significant heat; thus urban heat is compounded both by the presence of asphalt and concrete surfaces and the absence of vegetation.

Every year there are approximately 400 deaths in the United States that are attributed to excessive heat. Multiple studies have shown that the elderly, particularly women, and the mentally ill are at increased risk for serious heat illness, including heat exhaustion, heat stroke, and death. The heightened susceptibility of the elderly is due to dysfunctional thermoregulatory mechanisms, chronic dehydration, medications, and diseases involving the systems that regulate body temperature. Additionally, some individuals may be genetically predisposed to a higher risk of exertional heat illness and malignant hyperthermia. Many drugs, including phenothiazines, anticholinergics, diuretics, beta-blockers, and alcohol, can impair thermoregulation (Chapter 9).

A Spanish study that investigated heat waves in Madrid between 1986 and 1997 found that mortality increased by 28% for every degree Celsius by which the temperature rose above 36.5°C; women above 75 years of age were most heavily affected. Another Spanish study investigated the effect of heat on mortality in Seville, which is known for its hot summers. All-cause mortality increased by up to 51% above the average in those over 75 years of age for each degree Celsius above 41°C. This was more pronounced for cardiovascular diseases than for pulmonary diseases, and, as with the Madrid study, it affected more women than men.

A study on heat-related deaths in London found that mortality due to heat began at a relatively low temperature and that there was a 3.4% increase in deaths for every 1 degree Celsius over 21.5°C. In a case study of six cases of classic heat stroke seen at a Taiwan emergency department, the most frequent co-morbid conditions were hypertension (4/6) and mental illness (3/6). All six patients were middle class and were not socially isolated. Most avoided cool air and avoided staying in air-conditioned rooms.

Mean surface temperatures in the tropics are expected to rise between 1° C and 3° C by 2050. The combination of increasing urbanization and global warming will lead to bigger, hotter cities that will alter the distribution and intensity of both infectious and chronic diseases in their inhabitants.

The combination of increasing urbanization, leading to higher temperatures, and the increasing age of tourists, leading to increased susceptibility, will probably make heat-related illness in urban travelers increasingly common. Travelers should be warned that cities are warmer than surrounding rural regions. Additionally, travelers should know that in humid regions, “sweat doesn’t work”; it does not evaporate, and hence does not cause cooling but only leads to fluid loss. Adequate hydration and limiting exposure to the mid-day heat are thought to be protective. Travelers need to be aware that thirst is not always a reliable indicator of hydration status; they should drink sufficient fluids such that urination occurs at normal frequency, and urine is near-colorless. For the elderly or those with chronic pulmonary or cardiac conditions, minimizing the duration of stay in particularly hot cities (e.g., airport transfer only) may be the wiser option.

### CRIME AND SECURITY

Personal safety is an often neglected area in pre-travel counseling but is, as Leggat and Klein (2001) state, “one of the most important areas for travel health advisors to cover when giving advice for travelers going to virtually any country.” A study that investigated the health problems of medical students at the University of Tasmania, Australia, during overseas rotations concluded that “assaults ... and harassment are of increasing concern, and students need pre-travel counseling on how to avoid getting into dangerous situations.” In a study of travel claims made by travelers from Australia, theft and assault combined to make up 12% of all claims, placing crime as the third most common reason for claims, behind “general medical” and “loss.” Urban crime is multifactorial; overpopulation and poverty are key factors.

Street crime is common in large cities around the world. Travelers from high-income nations are viewed as relatively wealthy. Travelers should avoid wearing expensive jewelry or watches and to carry no more cash than they need for the day. “Bum bags” or “fanny packs” are thought to be high-risk, as these can represent “one-stop shopping centers” for muggers. Travelers should not accept food or drinks from strangers, as the drug-and-rob strategy is a not uncommon scam. If robbed, travelers should not resist and should report the theft to the local authorities.

Urban travelers should be aware of the “mustard scam” in which a substance is squirted onto the clothes of a traveler; a seemingly helpful local then wipes off the substance while picking the traveler’s pockets. As a precaution, valuables can be kept under the clothes in a belt around the traveler’s waist or in a safety pouch hung around the neck. Should travelers experience unexpected substances spilled on their clothing, they should walk away and refuse offers of aid in cleaning. Hotel safes are generally secure, and their use for storage of all important documents and other belongings should be encouraged, although travelers should be aware that there is usually a limit to a hotel’s liability regarding theft. Particularly valuable items should be left at home.

The slash and grab technique is also common in the urban centers of the developing world; the thief slices a slit in the bottom of a traveler’s purse or backpack, then grabs whatever falls out. Some backpackers in cities with a high rate of slash and grab thieves, for example, Rio de Janeiro, take the gainfully but often effective measure of wrapping their backpacks with metal mesh wire.

The global annual homicide rate is 7.6 homicides per 100,000 inhabitants. There is marked variation between countries; respective rates for selected nations are shown in **Table 2.1**.

A study by Hargarten et al. (1991) found that 9% of fatalities among American travelers overseas are due to homicide. A Canadian study found that of a similar percentage of deaths of Canadian travelers who died abroad, 8%, were due to homicide. The US State Department maintains a regularly updated listing of Consular Information Sheets, Travel Warnings, and Public Announcements for all foreign countries at its Bureau of Consular Affairs website ([www.travel.state.gov](http://www.travel.state.gov)). Travelers should be encouraged to check this site on a regular basis, both prior to and, if possible, during their travels. Travelers should be reminded that war,

**TABLE 2.1 Annual Homicide Rate, Selected Countries, per 100,000 Residents**

Country	Homicide Rate
Germany	0.8
United Kingdom	1.0
Canada	1.6
United States	4.7
Mexico	21.5
Democratic Republic of Congo	28.3
Jamaica	39.3
Honduras	90.4

major internal strife, and natural disasters are not spectator events; countries with significant turmoil should be avoided. Street demonstrations in many low-income nations can turn violent with little notice; travelers should be advised to not photograph or join protests.

Wearing clothes with a military appearance, for example, camouflage-pattern fatigues, is unwise in low-income nations. Many low-income nations have a history of unwelcome military intervention in their recent past, and travelers dressed in garb that strikes residents as being reminiscent of armed forces may draw unwelcome attention. Tourists should avoid photographing buildings or other subjects with security implications (e.g., police barracks, military maneuvers) in countries with recent or current civil unrest. A good rule of thumb is that if uniformed soldiers or policemen are in sight, the tourist should ask permission prior to taking photographs. If the soldier or policeman says “yes,” the tourist may click away with impunity; if “no,” the traveler should put the camera away. Photographing sensitive subjects can lead to, at a minimum, impoundment and/or destruction of the camera and its film or digital memory card, if not a several-hour session of answering questions as to why the tourist was taking those particular photos.

Kidnapping of international travelers has recently increased; employees of international and nongovernmental organizations are at higher risk. The use of licensed taxis is preferable to the use of more informal ones. Hotels have a vested interest in their guests not being the victims of crime; asking a hotel to call a taxi, as opposed to hailing one randomly on the street, reduces the risk of robbery and kidnapping. Although tourists are not generally a target for terrorist attacks, the bombing of a tourist bus in Luxor in November 1997, which killed 58 people, was a notable exception.

Travelers should inform family and their local embassy of their arrival and itinerary and carry a mobile phone if possible. A key point to stress to travelers is that crime and accidents are not random; risk can be reduced by cautious strategies. The need for travelers to be informed and wary is increasing, as fewer people are traveling in package tours but are instead creating their own itineraries. Although some strategies employed by criminals, for example, the mustard scam or slash and grab robbery, are associated more with urban centers than with rural areas, the incidence of tourists who are victims of crime in urban areas as opposed to rural regions is unknown.

### ILLICIT DRUG USE

The use of illicit psychotropic drugs by travelers is common. [Potsman et al. \(2000\)](#) found that among 2500 long-term young travelers to the tropics, 22.2% used recreational drugs. In the study by [Beny et al. \(2001\)](#) regarding psychiatric problems in returned travelers seen at an Israeli clinic, 8 of 15 patients had used illicit drugs while abroad.

Whereas the link between alcohol and tourist injuries as a result of balcony falls and diving accidents has been documented, there are no studies investigating the impact of illicit



drugs on tourist accidents. A study that investigated psychiatric interventions for Japanese nationals in New York, New York, suggested that substance abuse disorders were common in those who required emergency psychiatric care.

Informing travelers of the draconian penalties for possessing illegal drugs in many developing nations may have some deterrence value. One-third of the 2500 US citizens who are arrested overseas each year are arrested for drug offenses. A number of countries, including the Bahamas, the Dominican Republic, Jamaica, Mexico, and the Philippines, have enacted more stringent drug laws that impose mandatory jail sentences for individuals convicted of possessing even small amounts of marijuana or cocaine for personal use. Many European countries, including Austria, France, Greece, Ireland, Luxembourg, and the United Kingdom, may impose a life sentence for narcotic trafficking. The death penalty remains an option in several countries (including Malaysia, Pakistan, and Turkey) for those convicted of smuggling illicit drugs.

## CONCLUSION

Cities contain the best and the worst of humankind; they are fascinating in and of themselves, and transiting through urban conglomerations is necessary for visiting many of the remote and sublime regions of the world. The author of this chapter would not recommend that travelers avoid travel therein.

Nor is it the intent of this chapter to trivialize the importance of infectious threats to travelers. These diseases, most notably malaria, traveler's diarrhea, and vaccine-preventable diseases, can cause significant illness and must be addressed with every traveler. However, given that the *raison d'être* of the pre-travel encounter is risk reduction, pre-travel healthcare providers must attempt to address other major risks to health, including road traffic injuries. It should be stressed that the morbidity and mortality among travelers is not random but can be influenced by a traveler's attention to personal safety and environmental conditions. Appropriate pre-travel advice can increase the odds that travelers to cities in low-income nations will return home with fond memories, enlightenment, and a desire for further travel in the nonwealthy regions of the world.

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*This report summarizes the global burden of ambient (outdoor) air pollution.*