

Health risks and precautions: general considerations

The number of people travelling internationally is increasing every year. According to statistics from the World Tourism Organization (UNWTO), international tourist arrivals in the year 2008 reached 922 million. International tourism receipts rose to US\$ 944 billion (approximately 642 billion euros) in 2008. International arrivals are expected to reach 1 billion by 2010 and 1.6 billion by 2020. In 2008, more than half of all international arrivals were motivated by leisure, recreation and holidays – a total of 467 million. Business travel accounted for some 15% of arrivals and travel for other purposes (visiting friends and relatives, religious reasons/pilgrimages, health treatment, etc.) for 27%. Slightly more than half of arrivals (52%) travelled by air transport in 2008 while the remainder arrived at their destinations by surface transport (48%) – by road (39%), rail (3%) or over water (6%).

International travel can pose various risks to health, depending both on the characteristics of the traveller and on the type of travel. Travellers may encounter sudden and significant changes in altitude, humidity, temperature and microbes, which can result in ill-health. In addition, serious health risks may arise in areas where accommodation is of poor quality, hygiene and sanitation are inadequate, medical services are not well developed and clean water is unavailable. Accidents are the most common cause of morbidity and mortality in travellers but it is also important to protect travellers against infectious disease.

All individuals planning travel should receive advice on the potential hazards in their chosen destinations and understand how best to protect their health and minimize the risk of acquiring disease. Forward planning, appropriate preventive measures and careful precautions can substantially reduce the risk of accidents and illness. Although the medical profession and the travel industry can provide a extensive help and advice, it is the traveller's responsibility to ask for information, to understand the risks involved and to take the necessary precautions for the journey.

Travel-related risks

Key factors in determining the risks to which a traveller may be exposed are:

- mode of transport;

- destination(s);
- duration and season of travel;
- purpose of travel;
- standards of accommodation and food hygiene;
- behaviour of the traveller;
- and underlying health of the traveller.

Destinations where accommodation, hygiene and sanitation, medical care and water quality are of a high standard pose relatively few serious risks to the health of travellers, unless there is pre-existing illness. The same is true of business travellers and tourists visiting most major cities and tourist centres and staying in good-quality accommodation. In contrast, destinations where accommodation is of poor quality, hygiene and sanitation are inadequate, medical services do not exist and clean water is unavailable may pose serious risks for the health of travellers. This applies, for example, to personnel from emergency relief and development agencies or tourists who venture into remote areas. In these settings, stringent precautions must be taken to avoid illness.

The epidemiology of infectious diseases in the destination country is of importance to travellers. Travellers and travel medicine practitioners should be aware of the occurrence of any disease outbreaks in their destination countries. Unforeseen natural or manmade disasters may occur; outbreaks of known or newly emerging infectious diseases are often unpredictable. New risks to international travellers may arise that are not detailed in this book but will be posted on the WHO web site (www.who.int).

The mode of transportation, duration of visit(s) and the behaviour and lifestyle of the traveller are important in determining the likelihood of exposure to infectious agents and will influence decisions on the need for certain vaccinations or antimalarial medication. The duration of visit(s) may also determine whether the traveller is subjected to marked changes in temperature and humidity or to prolonged exposure to atmospheric pollution.

The purpose of the visit is critical in relation to the associated health risks. A business trip to a city, where the visit is spent in a hotel and/or conference centre of high standard, or a tourist trip to a well-organized resort involves fewer risks than a visit to a remote rural area, whether for work or pleasure. However, behaviour also plays an important role; for example, going outdoors in the evenings in a malaria-endemic area without taking precautions may result in the traveller becoming infected with malaria. Exposure to insects, rodents or other animals, infectious agents and contaminated food and water, combined with the absence of appropriate medical facilities, makes travel in many remote regions particularly hazardous.

Whatever their destination or mode of travel, travellers should be aware of the risk of accidents, mainly in relation to road transport or the practice of sports.

Medical consultation before travel

Any traveller intending to visit a destination in a developing country should consult a travel medicine clinic or medical practitioner before the journey. This consultation should take place at least 4–8 weeks before the journey and preferably earlier if long-term travel or overseas work is envisaged. However, last-minute travellers can also benefit from a medical consultation, even as late as the day before travel. The consultation will determine the need for any vaccinations and/or antimalarial medication and identify any other medical items that the traveller may require. A basic medical kit will be prescribed or provided, supplemented as appropriate to meet individual needs.

Dental and—for women— gynaecological check-ups are advisable before prolonged travel to developing countries or to remote areas. This is particularly important for people with chronic or recurrent dental or gynaecological/obstetric problems. Travellers with underlying medical problems are strongly advised to consult a travel medicine clinic or medical practitioner to ensure that their potentially complex travel health needs are met.

Assessment of health risks associated with travel

Medical advisers base their recommendations, including those for vaccinations and other medication, on an assessment of risk for the individual traveller, which takes into account the likelihood of acquiring a disease and how serious this might be for the traveller concerned. Key elements of this risk assessment are the destination(s), duration and purpose of the travel, the type of transport to be used, standards of accommodation and the health status of the traveller.

For each disease being considered, an assessment is also made of:

- availability of prophylaxis, emergency treatment packs, self-treatment kits (e.g. a travellers' diarrhoea kit) possible side-effects and suitability for the traveller concerned;
- any associated public health risks (e.g. the risk of infecting others).

Collecting the information required to make a risk assessment involves detailed questioning of the traveller. A checklist or protocol is useful to ensure that all relevant information is obtained and recorded. The traveller should be provided with a personal record of the vaccinations given (patient-retained record) as vaccinations are often administered at different centres. A model checklist, reproducible for individual travellers, is provided at the end of this chapter.

Medical kit and toilet items

Sufficient medical supplies should be carried to meet all foreseeable needs for the duration of the trip.

A medical kit should be carried for all destinations where there may be significant health risks, particularly those in developing countries and/or where the local availability of specific medications is uncertain. This kit will include basic medicines to treat common ailments, first-aid articles, and any other special medical items, such as syringes and needles, that may be needed and can in some cases be used by the individual traveller.

Certain categories of prescription medicine or special medical item should be carried together with a medical attestation on headed paper, signed by a physician, certifying that the traveller requires the medication or the items for medical condition. Some countries require not only a physician but also the national health administration to sign this attestation.

Toilet items should also be carried in sufficient quantity for the entire visit unless their availability at the travel destination is assured. These will include items for dental care, eye care (including contact lenses), skin care and personal hygiene.

Contents of a basic medical kit

First-aid items:

- adhesive tape
- antiseptic wound cleanser
- bandages
- emollient eye drops
- insect repellent
- insect bite treatment
- antihistamine cream or tablets
- nasal decongestant
- oral rehydration salts
- scissors and safety pins
- simple analgesic (e.g. paracetamol)
- sterile dressing
- clinical thermometer
- sunscreens
- earplugs

Additional items according to destination and individual needs:

- anti-diarrhoeal medication (to include an antibiotic, an antimotility drug and oral rehydration sachets with appropriate written instructions regarding their use)
- broad spectrum antibiotics (e.g. flucloxacillin, amoxicillin)
- antifungal powder
- antimalarial medication
- bednet

- adequate supplies of condoms and the oral contraceptive
- medication for any pre-existing medical condition
- sedatives
- sterile syringes and needles
- water disinfectant
- sunscreen
- other items to meet foreseeable needs, according to the destination and duration of the visit

Travellers with pre-existing medical conditions and special needs

Special groups of travellers

Health risks associated with travel are greater for certain groups of travellers, including infants and young children, pregnant women, the elderly, the disabled, and those who have pre-existing health problems. Health risks may also vary depending on the purpose of travel, such as travel for the purpose of visiting friends and relatives or for religious purposes/pilgrimages (Chapter 9), for relief work or for business. All of these travellers need general medical advice and specific travel health advice, including special precautions. They should be well informed about the available medical services at their travel destinations.

Age

Air travel may cause discomfort to infants as a result of changes in cabin air pressure and is contraindicated for infants less than 48 h old. Infants and young children are particularly sensitive to sudden changes in altitude and to ultraviolet radiation. They have special needs with regard to vaccinations and antimalarial precautions (Chapters 6 and 7). They become dehydrated more easily than adults in the event of inadequate fluid intake or loss of fluid as a result of diarrhoea and can be overcome by dehydration within a few hours. They are also more susceptible to infectious diseases.

Advanced age is not necessarily a contraindication for travel if the general health status is good. Elderly people should seek medical advice before planning long-distance travel.

Pregnancy

Travel is not generally contraindicated during pregnancy until close to the expected date of delivery, provided that the pregnancy is uncomplicated and the woman's health is good. It is safest for pregnant women to travel during the second trimester.

ter. Airlines impose some travel restrictions in late pregnancy and in the neonatal period (Chapter 2).

There are some restrictions on vaccination during pregnancy: specific information is provided in Chapter 6.

Pregnant women risk serious complications if they contract malaria or viral hepatitis E. Travel to areas endemic for these diseases should be avoided during pregnancy if at all possible. Specific recommendations for the use of antimalarial drugs during pregnancy are given in Chapter 7.

Medication of any type during pregnancy should be taken only in accordance with medical advice.

Travel to high altitudes (Chapter 3) or to remote areas is not advisable during pregnancy.

Disability

Physical disability is not usually a contraindication for travel if the general health status of the traveller is good. Airlines have regulations on the conditions for travel for disabled passengers who need to be accompanied (Chapter 2). Information should be obtained from the airline in advance.

Pre-existing illness

People suffering from chronic illnesses should seek medical advice before planning a journey. Conditions that increase health risks during travel include:

- cardiovascular disorders
- chronic hepatitis
- chronic inflammatory bowel disease
- chronic renal disease requiring dialysis
- chronic respiratory diseases
- diabetes mellitus
- epilepsy
- immunosuppression due to medication or to HIV infection
- previous thromboembolic disease
- severe anaemia
- severe mental disorders
- any chronic condition requiring frequent medical intervention

Any traveller with a chronic illness should carry all necessary medication and medical items for the entire duration of the journey. All medications, especially prescription medications, should be stored in carry-on luggage, in their original containers with

clear labels. A duplicate supply carried in the checked luggage is a safety precaution against loss or theft. With heightened airline security, sharp objects and liquids in quantities of more than 100 ml will have to remain in checked luggage.

The traveller should carry the name and contact details of their physician on their person with other travel documents, together with information about the medical condition and treatment, and details of medication (generic drug names included) and prescribed doses. A physician's attestation certifying the necessity for any drugs or other medical items (e.g. syringes) carried by the traveller that may be questioned by customs officials should also be carried.

Insurance for travellers

All travellers should be strongly advised to travel with comprehensive travel insurance as a matter of routine. International travellers should be aware that medical care abroad is often available only at private medical facilities and may be costly. In places where good-quality medical care is not readily available, travellers may need to be repatriated in case of accident or illness. If death occurs abroad, repatriation of the body can be extremely expensive and may be difficult to arrange. Travellers should be advised (i) to seek information about possible reciprocal health-care agreements between the country of residence and the destination country, and (ii) to obtain special travellers' health insurance for destinations where health risks are significant and medical care is expensive or not readily available. This health insurance should include coverage for changes to the itinerary, emergency repatriation for health reasons, hospitalization, medical care in case of illness or accident and repatriation of the body in case of death.

Travel agents and tour operators usually provide information about travellers' health insurance. It should be noted that some countries now require proof of adequate health insurance as a condition for entry. Moreover, some travel insurers require proof of immunizations and/or malaria prophylaxis as a condition of their approval for treatment or repatriation. Travellers should know the procedures to follow to obtain assistance and reimbursement. A copy of the insurance certificate and contact details should be carried with other travel documents in the hand luggage.

Role of travel industry professionals

Tour operators, travel agents, airline and shipping companies each have an important responsibility to safeguard the health of travellers. It is in the interests of the travel industry that travellers have the fewest possible problems when travelling to, and visiting, foreign countries. Contact with travellers before the journey provides a unique opportunity to inform them of the situation in each of the countries they

are visiting. The travel agent or tour operator should provide travellers with the following health-related guidance (or the tools to access this information):

- Advise the traveller to consult a travel medicine clinic or medical practitioner as soon as possible after planning a trip to any destination where significant health risks may be foreseen, particularly those in developing countries, preferably 4–8 weeks before departure.
- Advise last-minute travellers that a visit should be made to a travel medicine clinic or medical practitioner, even up to the day before departure.
- Inform travellers of any particular hazards to personal safety and security presented by the destination and suggest appropriate precautions.
- Encourage travellers to take out comprehensive travellers' health insurance and provide information on available policies.
- Inform travellers of the procedures for obtaining assistance and reimbursement, particularly if the insurance policy is arranged by the travel agent or company.
- Provide information on:
 - mandatory vaccination requirements for yellow fever;
 - the need for malaria precautions at the travel destination;
 - the existence of other important health hazards at the travel destination;
 - the presence or absence of good-quality medical facilities at the travel destination.

Responsibility of the traveller

Travellers can obtain a great deal of information and advice from medical and travel industry professionals to help prevent health problems while abroad. However, travellers must accept that they are responsible for their health and well-being while travelling and on their return as well as for preventing the transmission of communicable diseases to others. The following are the main responsibilities to be accepted by the traveller:

- the decision to travel;
- recognizing and accepting any risks involved;
- seeking health advice in good time, preferably 4–8 weeks before travel;
- complying with recommended vaccinations and other prescribed medication and health measures;
- careful planning before departure;
- carrying a medical kit and understanding its use;
- obtaining adequate insurance cover;
- taking health precautions before, during and after the journey;

- obtaining a physician's attestation pertaining to any prescription medicines, syringes, etc. being carried;
- the health and well-being of accompanying children;
- taking precautions to avoid transmitting any infectious disease to others during and after travel;
- full reporting of any illness on return, including information about all recent travel;
- being respectful of the host country and its population;
- avoiding unprotected sexual contact and maintaining responsible sexual behaviour.

A model checklist for use by travellers, indicating steps to be taken before the journey, is provided at the end of the chapter.

Medical examination after travel

Travellers should be advised to have a medical examination on their return if they:

- suffer from a chronic disease, such as cardiovascular disease, diabetes mellitus, chronic respiratory disease;
- experience illness in the weeks following their return home, particularly if fever, persistent diarrhoea, vomiting, jaundice, urinary disorders, skin disease or genital infection occurs;
- they received treatment for malaria while travelling;
- consider that they have been exposed to a serious infectious disease while travelling;
- have spent more than 3 months in a developing country.

Travellers should provide medical personnel with information on recent travel, including destination, and purpose and duration of visit. Frequent travellers should give details of all journeys that have taken place in the preceding weeks and months.

Note. Fever after returning from a malaria-endemic area is a medical emergency and travellers should seek medical attention immediately.

Further reading

Keystone JS et al., eds. *Travel medicine*, 2nd ed. London, Elsevier, 2008.

UNWTO tourism highlights. Madrid, World Tourism Organization, 2009 (available at www.unwto.org/facts/eng/highlights.htm).

Steffen R, Dupont HL, Wilder-Smith A, eds. *Manual of travel medicine and health*, 2nd ed. London, BC Decker, 2007.

Zuckerman JN, ed. *Principles and practice of travel medicine*. Chichester, Wiley, 2001.

Checklist for the traveller

Obtain information on local conditions

Depending on destination

- risks related to the area (urban or rural)
- type of accommodation (hotel, camping)
- length of stay
- altitude
- security problems (e.g. conflict)
- availability of medical facilities.

Prevention

Vaccination. Contact the nearest travel medicine centre or a physician as early as possible, preferably 4–8 weeks before departure.

Malaria. Request information on malaria risk, prevention of mosquito bites, possible need for appropriate preventive medication and emergency reserves, and plan for bednet and insect repellent.

Food hygiene. Eat only thoroughly cooked food and drink only well-sealed bottled or packaged cold drinks. Boil drinking-water if safety is doubtful. If boiling is not possible, a certified well-maintained filter and/or disinfectant agent can be used.

Specific local diseases. Consult the appropriate sections of this volume as well as www.who.int and national travel health web sites.

Be aware of accidents related to

- traffic (obtain a card showing blood group before departure)
- animals (beware of venomous marine or land creatures and rabid dogs)
- allergies (wear a medical alert bracelet)
- sun (pack sunglasses and sunscreen)
- sport

Get the following check-ups

- medical—obtain prescriptions for medication according to length of stay, and obtain advice from your physician on assembling a suitable medical kit
- dental
- ophthalmological—pack spare spectacles
- other according to specific conditions (e.g. pregnancy, diabetes)

Insurance

Subscribe to a medical insurance with appropriate cover abroad, i.e. accident, sickness, medical repatriation.

Pre-departure medical questionnaire

Surname:	First name(s):
Date of birth:	Country of current residence:
Purpose of travel:	<input type="checkbox"/> Tourist <input type="checkbox"/> Business <input type="checkbox"/> NGO and other traveller categories
Special activities:	<input type="checkbox"/> Accommodation: e.g. camping, bivouac <input type="checkbox"/> Sports: e.g. diving, hunting, high-altitude trekking
Date of departure and length of stay:	

Places to be visited

Country	Town	Rural area		Dates	
		Yes	No	From	to
		Yes	No	From	to
		Yes	No	From	to
		Yes	No	From	to
		Yes	No	From	to
		Yes	No	From	to

Medical history

Vaccination record:

Current state of health:

Chronic illnesses:

Recent or current medical treatment, including current medications:

History of jaundice or hepatitis:

Allergies (e.g. eggs, antibiotics, sulfonamides):

For women: Current pregnancy
 Pregnancy likely within 3 months
 Currently breastfeeding

History of anxiety or depression:
 If yes, treatment prescribed (specify)

Neurological disorders (e.g. epilepsy, multiple sclerosis):

Cardiovascular disorders (e.g. thrombosis, use of pacemaker):
