

ADVICE FOR THE INTERNATIONAL TRAVELLER

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ABSTRACT

International travel has increased in recent years. The spectrum of disease associated with travel is wide. All travellers should be encouraged to seek pre-travel medical advice which include the need for vaccination and malaria prophylaxis and advice on preventive health measures during travel. The returning traveller with an illness should be advised to seek post-travel treatment.

Keywords: travel, vaccination, prophylaxis

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INTRODUCTION

The number of travellers crossing international boundaries has increased tremendously in recent years. In 1949, 31 million international air travellers were recorded whereas by 1990 this had risen to 1,160 million⁽¹⁾.

Groups contributing to the growth in travel include tourists, business travellers, technical experts, pilgrims, migrant workers, refugees, military personnel, political representatives, sporting participants and spectators, and travel support services.

Travellers to foreign countries are often exposed to pathogens that are absent or uncommon in their countries of residence. In addition, the likelihood of becoming infected with familiar pathogens while travelling is greater than during day-to-day life at home.

Table I compares incidence rates for selected infection in Swiss travellers with those in US residents. Although the rates are not strictly comparable, they indicate that travellers have a substantially increased risk for infection^(2,3).

SPECTRUM OF DISEASES ASSOCIATED WITH TRAVEL

Some illness may be induced by travel itself, such as motion sickness, jet lag and high-altitude illness. Exposure to unfamiliar infectious agents and the stress of altered climate and environment may also cause problems for the unwary traveller which may be compounded by the differing medical practices encountered overseas.

Some diseases that are in decline in one country may still be more prevalent in another. This could lead to problems when travellers become complacent about immunisation before travelling. For example more than 4,000 cases of diphtheria have been reported this year in the Russian Federation compared with a yearly average of only 200 in the 1970s.

Table I – Incidence of infection in Swiss travellers and in US general population

Infection	Cases/100,000 per month	
	In Swiss Travellers +	In US Residents ++
Amoebiasis	427	0.1
Gonorrhoea	330	24.9
Hepatitis A	155	0.97
Hepatitis B	39	0.79
Salmonellosis (excluding typhoid fever)	97	1.66
Shigellosis	19	1.04
Syphilis (primary and secondary)	39	1.37
Typhoid fever		0.015

+ Data based on response from 7,886 Swiss traveller who completed questionnaires during and after short-term travel to developing countries⁽²⁾.

++ Figures are derived from reports of notifiable infections to the Centres for Disease Control in 1988 and include infections in returned travellers⁽³⁾.

Another example of the continually changing global pattern of illness is cholera – there has recently been an alarming rise in cases: by July 1991, the WHO had recorded 45,159 cases in Africa with 3,488 deaths; 251,568 cases in South America (2,618 deaths, and 6,776 cases in Asia (68 deaths). In December 1992, a large epidemic of cholera-like diseases occurred in Bangladesh caused by *Vibrio cholerae* 0139⁽⁴⁾. Thus an infection which is potentially preventable by basic hygiene and effective sanitation is again proving a scourge on a global scale.

The crucial link between lifestyle and infection is especially apparent with HIV infection. The 1991 WHO Report "AIDS and Mobility: The impact of international mobility on the spread of HIV" concluded that current studies all indicate casual sexual contacts to be common among leisure travellers not accompanied by their marital partner.

The spectrum of serious illness acquired abroad is wide. Table II shows some common infections imported into the United Kingdom by travellers during the past decade.

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Table II – Common infections imported by travellers

Acquired Immune Deficiency Syndrome	Legionnaires's disease
Amoebiasis	Leishmaniasis
Brucellosis	Leptospirosis
Campylobacter infection	Malaria
Cholera	Poliomyelitis
Cytomegalovirus infection	Rabies
Diphtheria	Salmonellosis
Dysentery	Schistosomiasis
Giardiasis	Sexually transmitted disease
Helminthic infection (parasitic worms)	Shigellosis
Hepatitis A and B	Tuberculosis
Lassa Fever	Typhoid/Paratyphoid

PRE-TRAVEL MEDICAL CARE

At present, there is no official standard qualification for providers of medical care to travellers. Travel medicine services range from travel clinics, general practitioners/family physicians, immunisation centres and student health centres. The range of medical care provided include pre-travel advice, vaccination, prophylaxis and self-treatment of traveller's diarrhoea, malaria prophylaxis, physical examination as well as expertise in clinical tropical medicine for the diagnosis and treatment of exotic and parasitic diseases in returned travellers.

Pre-travel medical advice should take into account the following:

1. Underlying health of the traveller (including consideration of age, allergies, regular medications, chronic health conditions and pregnancy).
2. The travel itinerary and duration of the trip. The style of travel will influence the health risk of the traveller. An adventure traveller will face different health risks to that of a business traveller in a downtown hotel.
3. The anticipated access to medical care during the trip should the need arises.

Preventive health measures and recommendations must be individualised for each traveller.

All travellers should be encouraged to seek pre-travel medical advice as soon as an international trip is planned, preferably 4 to 6 weeks before departure but even earlier for extended or highly adventurous trips. This allows sufficient time for immunisations to be scheduled, tests of immunity to be done and antimalarial chemoprophylaxis to be initiated.

"International Certificate of Vaccination" is an important record of immunisation status and should be stored and carried with the passport. This yellow booklet is recognised by health authorities around the world and contains the "International Certificate of Vaccination or Revaccination against Yellow Fever".

Travellers undertaking remote travel (adventure travel, extended cruises or expeditions) or lengthy travel (3 weeks or more) or who have medical conditions under active treatment should carry a copy of their most recent physical examination, including data such as electrocardiogram, chest

radiograph report, full blood count and serum chemistries. The personal physician's name, address and telephone/telefax number should be included. A list of all medications taken on a regular basis including dose and medication schedule should be prepared. A trip to the dentist is advisable for all people anticipating travel to a developing country, remote travel or extended travel.

SPECIFIC PRECAUTION MEASURES

I Immunisations can be divided into 3 categories

1. Routine immunisations recommended for children and adults. Studies have shown that many travellers may be inadequately protected against vaccine-preventable diseases⁽⁵⁾. The pre-travel visit provides an opportunity to bring children and adults up-to-date on these immunisations (eg diphtheria, tetanus, measles/mumps/rubella and poliomyelitis).
2. Immunisations that are required by a country as a condition for entry. Only Yellow fever falls into this category. Vaccine requirements for each country are listed in Health Information for International Travel, which is published annually by the Centres for Disease Control (CDC)⁽⁶⁾ and World Health Organisation (WHO) in International Travel and Health: Vaccination Requirements and Health Advice⁽⁷⁾.

Because of the limited usefulness of the cholera vaccine (providing only about 50% protection), the World Health Organisation eliminated the requirement for cholera vaccine for travellers in 1988. However certain countries may arbitrarily require proof of cholera vaccine for entry.

Yellow fever vaccine uses the 17D strain of the virus grown in chick embryo. Persons who are travelling to or living in endemic zones, namely Africa and South America, should receive the vaccine.

3. Vaccines recommended to the traveller because of an exposure risk during travel. The physician must weigh the risk of disease acquisition against vaccine efficacy and side effects. Vaccine administration cannot always be a substitute for caution on the part of the traveller.

Table III lists the dose intervals for travel vaccines.

II Prevention (prophylaxis) with drugs

All prospective travellers to malaria-endemic areas should be advised of their risk of acquiring this parasitic infection. Specific recommendations for personal protection include drug prophylaxis regimens which should be individualised (Table IV).

Malaria chemoprophylaxis should ideally begin prior to travel to ensure "suppressive" blood concentrations of drug(s) and continue during travel and for 4 weeks after leaving the malarious area (Table IV)⁽⁸⁾. This period permits primary hepatic schizonts to mature and the resulting asexual parasites to be suppressed. The

traveller should be warned that they may acquire malaria even with the use of malaria chemoprophylaxis.

Table III – Dose intervals for travel vaccines

Vaccine	Primary Course			Booster Interval
	No. of doses	Interval between 1st and 2nd dose	Interval between 2nd and 3rd dose	
Yellow fever+	1			10 years
Cholera	2	7-28 days		6 months
Typhoid (injected)	2	4 weeks		3 years
Typhoid (oral)+	3*	on alternate days	on alternate days	1-3 years
Tetanus	3	4 weeks	4 weeks	5-10 years
Polio (oval)+	3	at least 6 weeks	8-12 months	5-10 years
Rabies (pre-exposure)	3	7 days	21 days	2 years
Meningitis (Meningococcal)	1			3 years
Japanese Encephalitis	3	1-2 weeks	1-2 weeks	1-4 years
Plague	3	1-3 weeks	3-6 months	6 months
Hepatitis A	3	2-4 weeks	6-12 months	5-10 years
Hepatitis B	3	1 month	5 months	2-5 years

* 4 in the USA
+ Live vaccines

Traveller's diarrhoea affects between 20% and 50% of travellers to the developing world and is usually acquired by eating contaminated food and drinking contaminated water. Antibiotics (eg doxycycline, trimethoprim –

sulphamethoxazole and ciprofloxacin) can sometimes be used to prevent traveller's diarrhoea⁽⁹⁾. The following groups of travellers can be considered for such prophylaxis:-

- travellers with a bad track record of repeated bouts of traveller's diarrhoea.
- those with a gastrectomy and achlorhydria
- athletes and the military
- those with an underlying medical disorder, for whom traveller's diarrhoea might be poorly tolerated eg person with AIDS, diabetes, chronic renal failure and inflammatory bowel disease.

GENERAL PRECAUTIONS

1. Personal Hygiene Supplies

These are best brought from home. Menstruating women should bring a supply of sanitary napkins and tampons. If there is any chance of sexual activity with new partners during the trip, the traveller should consider purchasing latex condoms before leaving home.

2. Insect Repellants

A premethrin – containing insecticide spray can be applied to clothing's external surface to create an effective shield. Premethrin sprays are also recommended for application to bednets in hotels and guest accommodations that are not air-conditioned in the malarious areas.

During outdoor activities, an insect repellent containing DEET (N,N-diethyl-m-toluamide) is recommended for application to exposed skin areas. Absorption through the skin may cause toxicity at higher concentrations, which is a concern for infants, pregnant women and people with desquamating skin conditions⁽¹⁰⁾.

Table IV – Recommended drugs for chemoprophylaxis against malaria*

Drug	Dosage	
	Adults	Children
Mefloquine	250mg (salt) once per week beginning 1 week before departure and for 4 weeks after leaving the malarious area	Weight 15-19kg: 1/4 250-mg tablet/week; 20-30kg: 1/2 tablet/week; 31-45kg: 3/4 tablet/week; >45kg : adult dose
Doxycycline	100mg daily while in the malarious area and for 4 weeks after leaving the area	Age >8yr: 2mg/kg of body weight daily up to adult dose
Chloroquine	500mg (salt) once weekly, beginning 2 weeks before departure and for 4 weeks after leaving the malarious area	8.3mg (salt)/kg once weekly in same regimen as for adults, up to 500mg (salt)
Chloroguanide hydrochloride (proguanil)	200mg once daily in combination with weekly chloroquine	Age <2yr : 50mg/day; 2-6yr : 100mg/day; 7-10yr: 150mg/day; >10 yr: 200mg/day
Pyrimethamine-sulfadoxine (Fansidar) for standby self-treatment	3 tablets as a single dose (25mg of pyrimethamine and 500mg of sulfadoxine per tablet)	Weight 5-10kg: 1/2 25-mg pyrimethamine, 500mg sulfadoxine tablet once; 11-20kg: 1 tablet once; 21-30kg: 1 1/2 tablets once; >45kg : adult dose
Primaquine for terminal prophylaxis	26.3mg (salt) once daily for 14 days	0.5mg (salt)/kg once daily for 14 days

*All the drugs listed are given orally

3. *Swimming or Wading*

Wading or swimming in lakes, rivers, canals and streams in certain tropical areas carries risk of infection with the parasites (blood flukes) causing schistosomiasis (bilharzia, "snail fever"). If specific information about the risk of schistosomiasis in a given area cannot be obtained, travellers should avoid natural waters and swim only in chlorinated swimming pools.

4. *Food Hygiene*

A consideration of food and water safety standards is appropriate whether the destination is a tropical or exotic location or one of the more usual tourist areas. In people with a healthy gastrointestinal tract, most infections are dependent on the size of the inoculum of infectious organism ingested.

If water purity is unknown, bottled carbonated mineral water, sodas or canned fruit juices should be selected and served without ice cubes. Beverages prepared from boiling water such as coffee and tea are generally safe. Beer, wine and alcohol served without ice cubes are also considered safe.

Boiling is always a good way of treating water. Boiling water for 5 minutes will kill all organisms including hepatitis viruses. Chemical treatment with iodine products, or the water Tech Water Purifier Cup can be recommended. Travellers should be advised against most available portable water filters or purifiers because these do not render water free of potential infective organisms. Travellers should avoid raw or undercooked food, salads, and food served by street vendors and advised regarding the risk of brucellosis, listeriosis and extrapulmonary tuberculosis from eating cheese and other dairy products from unpasteurised milk in any country. Fruits and vegetables should be freshly cooked or if eaten raw, then freshly peeled by the traveller. Shellfish have been the source of many outbreaks of food-borne disease and should be boiled vigorously for 10 minutes or preferably avoided altogether.

Sexually transmitted diseases (STDs)

Travellers should be counselled by their physician about the risk of STDs which include hepatitis B and HIV in foreign countries. Prostitutes (male and female) should be strictly avoided. Studies have shown that 50 to 85% of urban prostitutes in Africa and Thailand are infected with the HIV virus⁽¹¹⁾. HIV transmission is predominantly heterosexual in sub-Saharan Africa, Asia and Latin America. The dangers of STDs can be lessened by employing barrier contraceptives (eg condoms).

Motion Sickness

Over-the-counter medications for motion sickness include

antihistamines-diphenhydramine, cyclizine and meclizine. The 72-hour transdermal scopolamine patch (Transderm Scop) can be prescribed provided the patient can tolerate the anticholinergic side effects such as dry mouth, visual disturbance, urinary retention and altered mental status.

Jet Lag

Jet lag is a major problem for international travellers. The traveller should be advised that it requires about one day to readjust the body clock for each time zone change. Triazolam, a mild short-acting sedative, can be used during a long flight or at bedtime after arrival.

High-altitude sickness

For those going on mountaineering or high-altitude treks, spending a few days at intermediate altitude can help prevent mild altitude sickness. Acetazolamide may decrease these symptoms if started one day before ascent and continued through the stay at high altitude⁽¹²⁾.

Health Travel Insurance

Adequate insurance may remove anxiety about expense and provide for emergency repatriation if necessary. Remember that accidents abroad are an underestimated hazard. More travellers die from accidents than any other cause and most accidents are avoidable⁽¹³⁾.

CONCLUSION

Medical concerns of the travelling patient may be organised into pre-travel medical advice and preparation, maintenance of health and behavioural modification during travel, and post-travel diagnosis and treatment for travellers returning with an illness.

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