Manual of Travel Medicine

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Fourth Edition

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Preface

The first edition of the *Manual of Travel Medicine* was published in 1999 through the Victorian Infectious Diseases Service at the Royal Melbourne Hospital, when the discipline of travel medicine in Australia was only in its infancy. At that time, there were few high-quality travel medicine information and education resources available. The *Manual of Travel Medicine* was a response to a perceived need for an authoritative and up-to-date resource to support good travel medicine practice. The first edition was written by Allen Yung and Tilman Ruff who together pioneered the growth of travel medicine in Australia. An expanded second edition saw the inclusion of three new authors, Joseph Torresi, Daniel O'Brien and Karin Leder, and was published in 2004. This was followed by an extensively revised third edition in 2011 which saw the inclusion of further two authors, Mike Starr and Jim Black. With the increasing availability of many excellent travel health resources, it became essential to proceed with a fourth edition of the *manual* in order to deliver a concise up-to-date travel medicine book.

Travel medicine has changed significantly since 2004. In 2017, the World Tourism Organization reported that international tourist arrivals reached 1323 million, with a growth in international arrivals of 84 million compared to 2016. Almost ten million outbound trips were taken by Australians in 2017. A rising volume of travel is also being undertaken by high-risk groups, such as immunocompromised individuals including transplant recipients and HIV-positive people, the elderly, pregnant women and young children, which increase complexities surrounding health issues and disease risks. Travel medicine as a discipline has also evolved substantially, with an increasing body of knowledge in the international literature and the recognition of the need to make recommendations based on the best available evidence. Accordingly, there has been an intensified surveillance of health problems among travellers as well as a tremendous growth in original research in the field. Previous recommendations were often based on case reports, case series or small descriptive studies done by single institutions. Currently, more global and generalisable data is being analysed as a basis for updating travel advice. The research has been performed by large multicentre surveillance and collaborative networks such as the GeoSentinel Surveillance Network, TropNet Europe, EuroTropNet, CanTravNet in Canada and the US-based Boston Area Travel Medicine Network (BATMN). Comprehensive guidelines developed by the Centers for Disease Control (CDC) in Atlanta, the World Health Organization (WHO) and

the International Society of Travel Medicine (ISTM) around the growing body of data have now become widely available.

The explosion of travel health information is making it increasingly difficult to keep abreast of the latest advances in the field. The growing number of resources tends to complicate rather than simplify travel guidance, especially since there is lack of consensus between different resources on many aspects of travel health advice. For example, the European perspective on antimalarials is markedly different from the US perspective. There is also no national website providing detailed Australian consensus travel guidelines.

For this fourth edition of the *Manual of Travel Medicine*, we retain the best features of its predecessors, with its focus being a user-friendly, practical handbook and desktop reference for travel health practitioners in Australasia. Two new authors, Sarah McGuinness and Katherine Gibney, joined the team, providing important contributions. The fourth edition remains a handy reference tool and not a comprehensive textbook. Recognising the controversies and different approaches advocated by different authorities, we endeavour to explain what *we* think and do. The *Manual of Travel Medicine* makes reference to advice given in other resources and provides practical recommendations on how to decide between various pretravel advice options. It is aimed at all Australian healthcare workers interested in and involved in the care of travellers, including doctors, nurses and pharmacists.

All the information within the *Manual of Travel Medicine* has been extensively revised and updated with the latest data available in the literature. Recommendations, changes, guidelines and controversies on antimalarial prophylaxis, (including new drugs such as tafenoquine), Japanese encephalitis, pneumococcal, meningococcal, rabies and yellow fever vaccines are comprehensively discussed.

The *Manual*'s prime objectives are to provide:

- A clear reference for recommendations regarding immunisations, malaria prophylaxis and other key travel health areas
- A practical approach to management of most issues that arise in the medical care of travellers

How to Use the Manual

The *Manual of Travel Medicine* is designed to provide essential information about pretravel medicine. Its organisation reflects what is needed during a consultation, progressing from principles to:

- Immunisation
- Prevention and management of malaria
- Prevention and management of travellers' diarrhoea
- Specific infectious and non-infectious conditions that may require discussion

- Specific groups of travellers
- Health issues in returned travellers
- Additional resources

As in the previous editions, we summarise:

- Our recommendations for common travel destinations
- Immunisation and malaria recommendations by country

We also include up-to-date maps for a wide range of infections. We have made every effort to ensure that the information contained in the ***Manual of Travel Medicine*** is accurate and current at the time of writing. Readers must be aware that in travel medicine—as in every field of medicine, but in this area more than in most—disease patterns, country requirements, available vaccines and drugs, and specific recommendations for their use frequently change over time. Thus, practitioners should supplement the ***Manual*** with other up-to-date authoritative information.

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Contents

Vaccine Terminology and Abbreviations

Different vaccine components that are formulated together in the same presentation (vial or prefilled syringe) are listed separated by a '-'. Vaccines that are mixed by the immunisation provider before administration are listed separated by a '/'. Thus, the combined co-formulated hepatitis A and B vaccine is designated HA-HB, and the combined HA and typhoid vaccine, which is mixed by the provider, is designated HA/Vi. The paediatric vaccine DTPa-HB-IPV used to reconstitute lyophilised Hib vaccine is designated DTPa-HB-IPV/Hib.

Vaccines of higher antigen content are designated by capitals; those containing the same antigens in substantially lower amounts are referred to using lower case. For example, paediatric diphtheria-tetanus-acellular pertussis vaccine is designated DTPa, while the corresponding lower antigen vaccine for adolescent and adult use is designated dTpa.

Antibody to a particular antigen '…' is designated as 'anti…'. For example, antibody to hepatitis B surface antigen is designated antiHBs, and antibody to hepatitis A is designated antiHA.

ABL	Australian bat lyssavirus
ADT	Adsorbed diphtheria-tetanus vaccine
AIH	Australian Immunisation Handbook
AMS	Acute mountain sickness
antiHBc	Hepatitis B core antibody
antiHBs	Hepatitis B surface antibody
ART	Antiretroviral therapy
AS	Altitude sickness
AUC	Area under the curve
BCG	Bacillus Calmette-Guérin
bid	Twice daily
CCV	Cell culture vaccine
CDC	Centers for Disease Control and Prevention (US unless otherwise specified)
CHF	Congestive heart failure
CLM	Cutaneous larva migrans
CMV	Cytomegalovirus

cVDPV	Circulating vaccine-derived poliovirus
D	Diphtheria
DEET	*N*,*N*-diethylmetatoluamide
DHF	Dengue haemorrhagic fever
DSS	Dengue shock syndrome
dT	Diphtheria-tetanus vaccine (adult formulation)
DT	Diphtheria-tetanus vaccine (paediatric)
dTpa	Diphtheria-tetanus-acellular pertussis vaccine (lower-dose adolescent/adult formulation)
DTPa	Diphtheria-tetanus-acellular pertussis vaccine (higher-dose paediatric formulation)
DVT	Deep vein thrombosis
EBV	Epstein-Barr virus
ELISA/EIA	Enzyme-linked immunosorbent assay
EIA U	ELISA units
ERIG	Equine rabies immunoglobulin
ETEC	Enterotoxigenic *Escherichia coli*
FHA	Filamentous haemagglutinin
GBS	Guillain-Barré syndrome
GMT	Geometric mean titre (the antilog of the mean of the logs of a set of antibody titres)
HA	Hepatitis A
HACE	High-altitude cerebral oedema
HAPE	High-altitude pulmonary oedema
HB	Hepatitis B
HbOC	Hib PRP conjugated to non-toxic diphtheria mutant protein CRM_{197}
HBsAg	Hepatitis B surface antigen
HDCV	Human diploid cell (rabies) vaccine
Hib	*Haemophilus influenzae* type b
HIV	Human immunodeficiency virus
HPV	Human papilloma virus
HZ	Herpes zoster
ID	Intradermal
IG	Immunoglobulin (normal unless otherwise specified)
IM	Intramuscular
INR	International normalised ratio
IPD	Invasive pneumococcal disease
IPV	Inactivated polio vaccine
IU	International units
JE	Japanese encephalitis
LT-ETEC	Heat-labile toxin-producing enterotoxigenic *Escherichia coli*
MenACWY	4-valent ACYW135 meningococcal conjugate vaccine
MenCCV	Meningococcal C conjugate vaccine
4vMenPV	4-valent (ACYW135) meningococcal polysaccharide vaccine
µg	Microgram

mg	Milligram
MMR	Measles-mumps-rubella vaccine
MMRV	Measles-mumps-rubella-varicella vaccine
NHMRC	(Australian) National Health and Medical Research Council
NHIG	Normal human immunoglobulin
NIP	National Immunisation Program
OMP	Outer membrane protein
OPV	Oral polio vaccine
ORS	Oral rehydration solution
Pa	Acellular pertussis vaccine
PCECV	Purified chick embryo cell (rabies) vaccine
PCV	Pneumococcal conjugate vaccine
PDEV	Purified duck embryo cell (rabies) vaccine
PE	Pulmonary embolism
PEP	Post-exposure prophylaxis
Pf	*Plasmodium falciparum*
Pv	*Plasmodium vivax*
PI	Product information
PPD	Purified protein derivative (of *Mycobacterium tuberculosis*)
PPV	Pneumococcal polysaccharide vaccine (23-valent)
PRN	Pertactin
PRP	Polyribosylribitol phosphate (outer polysaccharide and major virulence factor of Hib)
PRP-OMP	Hib vaccine in which PRP is conjugated to meningococcal group B OMP
PRP-T	Hib vaccine in which PRP is conjugated to tetanus toxoid
PS	Polysaccharide
PT	Pertussis toxin
PVRV	Purified Vero cell rabies vaccine
qid	Four times a day
rCTB	Recombinant cholera toxin B subunit
RIG	Rabies immunoglobulin
RR	Relative risk
SARS	Severe acute respiratory syndrome
SBET	Standby emergency treatment
SC	Subcutaneous
STI	Sexually transmitted infection
T	Tetanus
TB	Tuberculosis
TBE	Tick-borne encephalitis
TD	Travellers' diarrhoea
TGA	Therapeutic Goods Administration, Australian regulatory authority for medicines and medical devices
TST	Tuberculin skin test
Ty	Typhoid

VAPP	Vaccine-associated paralytic poliomyelitis
VDPV	Vaccine-derived poliovirus
VFR	Visiting friends and relatives
VHF	Viral haemorrhagic fever
Vi	Vi capsular polysaccharide of *Salmonella* Typhi
VTE	Venous thromboembolism
VV	Varicella vaccine
VZ	Varicella-zoster
WC/rBS	Whole cell/recombinant B subunit
WHO	World Health Organization
WTO	World Travel Organization
YF	Yellow fever
YEL-AND	Yellow fever vaccine-associated neurotropic disease
YEL-AVD	Yellow fever vaccine-associated viscerotropic disease

Principles of Pre-travel Healthcare

1

Each year, Australians undertake more than ten million overseas departures. While there are few published data on the proportion of travellers seeking pre-travel advice, it is known that many at-risk travellers fail to make a pre-travel visit to a doctor. A survey of Australian travellers by the Travel Health Advisory Group in 2002 showed that of 500 travellers, 69% did not seek professional advice, 27% saw a general practitioner and 4% attended a travel-medicine clinic. Similarly, a cross-sectional survey conducted among 2101 travellers at the departure lounges of five airports in Australia and Asia (Singapore, Kuala Lumpur, Taipei, Melbourne, Seoul) en route to a destination in Asia, Africa or South America, found that only 31% sought pre-travel health advice.

In view of the potential health hazards facing travellers, it is clear that more public education about the importance of obtaining health advice before travelling is needed. However, it is difficult to assess the impact of pre-travel advice accurately, as self-selection for advice is likely on the basis of higher individual risk from pre-existing illness or from travel to a high-risk destination. Even when correct health advice is given, recall of the advice by travellers is variable, and adherence with recommendations is not assured.

An important part of pre-travel advice is a health risk assessment of the trip. The assessment balances characteristics of the traveller (age, underlying health conditions, medications and immunisation history) with details of the planned trip (season of travel, itinerary, duration and planned activities). Provision of comprehensive pre-travel healthcare involves advice on measures to prevent infectious diseases during travel, as well as strategies to improve personal safety and avoid environmental risks. Therefore, pre-travel visits should include a discussion of vaccine-preventable illness, prevention and self-treatment of travellers' diarrhoea, avoidance of insect and animal bites, malaria chemoprophylaxis (where relevant) and advice on risk behaviour modification, including trauma avoidance and safe sex practices.

Each traveller must be considered individually, but there are several common themes and principles that underpin sound, consistent and high-quality health

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advice for travel. Those advising travellers should be familiar with these principles, have a good working knowledge of travel medicine issues and know when and how to access up-to-date information.

Our principles for pre-travel care are outlined in this chapter.

1.1 Understand the Epidemiology of Travel and Travel-Related Conditions

The most common travel destinations for Australian travellers are New Zealand, Asia (particularly Indonesia, Thailand, China, Singapore, Japan, India and Vietnam), the United States, Europe (especially the United Kingdom) and Fiji. The Middle East, Latin America and Africa are visited proportionately less commonly by Australians, although travel to these regions has been increasing over recent years. Travel-related conditions may also occur during or following domestic travel within Australia.

Travellers are exposed to many infectious and non-infectious health risks. In an often-cited 1987 study among Swiss-German travellers, 1–5% of international travellers sought medical attention, 0.01–0.1% required emergency medical evacuation and 1 in 100,000 died. Cardiovascular disease and trauma are recognised as the most frequent causes of death in travellers; however, infection-related deaths are considered more readily preventable.

Risks and types of infection vary greatly depending on the exact geographical locations visited, the circumstances of travel and the time of the year during which exposure occurs. Likely exposures will differ among travellers, long-term visitors and local residents. The type of accommodation and the recreational or occupational activities performed also influence the likely diseases encountered. Acquisition of some infections requires exposure to insect bites, animals, contaminated soil, infected water or sexual encounters. Further exploration of exposure-related risk and pertinent features of the exposure history are outlined in Chap. 5.

A significant proportion of all travellers develop at least one travel-related illness. A number of these are serious, and many are potentially preventable. Symptoms may occur during travel or after return. Travellers' diarrhoea is the most common travel-related illness, affecting 30–80% of travellers, and malaria is the most common serious infection. Multiple illnesses may coexist in one patient. A discussion of the risk of individual infections appears in the subsequent chapters. As discussed further in Chap. 8, the development of a differential diagnosis in an unwell returned traveller requires knowledge of the geographical distribution of various diseases, their incubation periods and modes of transmission; these may be at least as important in providing clues as the clinical features. A detailed knowledge of disease epidemiology is therefore required to individualise pre-travel health advice and to provide appropriate care for returned travellers.

Antimicrobial resistance is a growing global public health threat, and it is now well recognised that international travel is a risk factor for the acquisition of drug-resistant organisms. While many drug-resistant organisms can potentially be acquired

during travel, there has been increasing recent interest in, and concern regarding, the acquisition of multidrug-resistant (MDR) Gram-negative organisms, particularly the *Enterobacteriaceae* group, which includes *E. coli* and *K. pneumoniae*. The risk of gastrointestinal tract colonisation with MDR *Enterobacteriaceae* varies according to the region of travel but has been reported to exceed 90% in travellers to some destinations. Travellers to South Asia have a greater risk of acquisition than travellers to other regions. Key risk factors for colonisation include diarrhoeal illness, antibiotic exposure and hospitalisation or local healthcare utilisation while travelling. While acquisition of drug-resistant organisms is typically silent (asymptomatic) and transient (with most travellers clearing carriage within 3 months of return), persistent colonisation beyond 12 months has been reported, as has transmission to household contacts. In those who are colonised, subsequent infections have a higher risk of being due to resistant organisms and may not respond to usual antibiotic therapy. Screening for colonisation with MDR *Enterobacteriaceae* is not routinely recommended, but may be performed in recently returned travellers who are admitted to hospital or scheduled for major surgery, an invasive procedure or biopsy. Patients presenting with signs or symptoms of bacterial infection within 6–12 months of return from travel should have appropriate clinical specimens collected before antibiotic therapy is initiated. Data on antimicrobial use and resistance worldwide are freely available on the Resistance Map website (https://resistancemap.cddep.org/).

1.2 Provide Up-to-Date Information and Advice

An increasing number of information sources for pre-travel advice are available. Disease and antimicrobial drug resistance patterns, prophylactic recommendations and drug or vaccine availability can change, so it is advisable to check reputable online information sources.

Useful sources of travel-related information are discussed in Chap. 9.

1.3 Start Early

Travel health advice can never be sought too early. Last minute pre-travel consultations may impose significant constraints on ideal practice. For example, some vaccine schedules require multiple doses over a period of 6 months or more, the administration of some drugs and vaccines should be spaced, and it tends to take a few weeks after the last dose of vaccine to reach optimal immunity. Also, it is advisable to begin some medications, such as mefloquine prophylaxis, a few weeks before travel to allow steady-state levels to be achieved and to monitor for potential side effects before departure. Sometimes travellers change their itinerary or destination(s) or decide not to travel on the basis of medical advice. Disruption can be minimised if travellers seek advice and make informed choices early.

Travellers should be encouraged to present for travel health advice at least 4–6 weeks before departure. Travellers with complex medical problems, those undertaking high-risk activities and those planning prolonged stays should be encouraged to seek advice as early as possible.

1.4 Allow Sufficient Time for the Consultation

A pre-travel consultation for an experienced traveller who is well known to the travel medicine practitioner and is embarking on a simple trip may only take a few minutes. However, most take at least 15 min. In our referral clinics, we generally allow 30 min for individuals and couples and 1 h for families or groups of more than two. Sometimes multiple visits are required. The administration of vaccines requires additional time, and it is recommended that vaccinated persons remain close by for at least 15 min in case of an immediate adverse event.

For those travelling with young children, especially for prolonged periods, it may be easier to involve only the parents in the initial consultation. A detailed immunisation plan for the child(ren) can be formulated then, and a separate visit with the children can follow. This enables parents to concentrate; avoids long waits with impatient, exasperated, tired or hungry children; and minimises build-up of anxiety before immunisations.

1.5 Individualise Advice

Advice needs to be tailored to the traveller, their itinerary and their planned activities. A pregnant woman, a healthy adolescent and a person living with HIV going to the same destination will need different advice. Some disease risks are focal; for example, someone visiting Bangkok or one of the popular coastal resorts in southern Thailand is essentially at no risk of malaria, whereas a traveller staying overnight in hill tribe areas of northern Thailand is at risk.

Most travel clinics ask travellers to complete a questionnaire prior to their consultation to obtain information to help to guide risk assessment and management. It generally includes the following items:

- Traveller characteristics (including demographic data)
  - Age
  - Pregnancy (actual, possible or planned)
  - Medical history, including conditions that may influence susceptibility to or severity of infections (e.g. splenectomy), conditions that may potentially require emergency treatment (e.g. asthma, diabetes or epilepsy) or prophylaxis (e.g. thromboembolism, altitude sickness) or history of mental illness, central nervous system disease or cardiac problems (important considerations in malaria prophylaxis)
  - Past history of jaundice/hepatitis, sexually transmitted infections (STIs) and travel-related illnesses such as malaria, dengue and travellers' diarrhoea

  - Current medications, including those that might require additional documentation (e.g. insulin or adrenaline)
  - Drug allergies and prior experience of antimalarial drugs
  - Full immunisation history
- Travel details
  - Detailed itinerary, not only of countries but regional details
  - Duration of stay
  - Reason for travel
  - Planned activities, especially activities that may result in injury or pose additional risks if undertaken in remote areas
  - Likelihood of itinerary changing and likely alternatives
  - Type of accommodation
  - Season

1.6 Identify High-Risk Travellers

Particular care should be taken to identify travellers whose planned trip puts them at increased risk of illness. They include:

- Travellers with chronic conditions
- Travellers who are immunocompromised
- Young children or the elderly
- Pregnant travellers
- Expatriates and travellers on extended trips to developing countries, particularly if remote from good medical care
- Backpackers
- Visiting friends and relatives (VFR) travellers (see Chap. 7, Sect. 7.6)

Asthma and mental health problems are the most frequent conditions requiring repatriation on medical grounds among long-term Australian overseas development workers.

While most travellers' needs can be met by a knowledgeable general practitioner (GP) or nurse practitioner, high-risk travellers require a good deal of time and should generally be referred to, or at least discussed with, an infectious diseases physician or an experienced travel medicine practitioner. Details regarding the management of these travellers are addressed in Chap. 7. Some general recommendations for travellers with chronic conditions are set out below.

1.6.1 Travellers with Chronic Conditions

To help patients with chronic conditions be well prepared for their journey, travel medicine practitioners should:

- Conduct a thorough pre-departure review to ensure the condition is optimally controlled, the patient has a good understanding of his/her condition and its monitoring (particularly what to do if the condition becomes unstable) and that a

clear emergency plan has been developed, documented and understood by the patient.
- Provide a detailed letter on a clinic letterhead with contact details in case further information is required; the letter should outline the history of the condition and any complications, its current status and treatment and, if appropriate, copies of recent test results (e.g. ECG for cardiac patients).
- Ensure the patient has ample quantities of medications and any needed equipment (e.g. blood glucose monitoring equipment, peak expiratory flow meter); copies of prescriptions may help allay concern about possible customs difficulties (which we have rarely encountered for legitimate medical items).
- Provide name and contact details of an overseas colleague who can arrange continuing care (if appropriate).
- Encourage patients to become familiar with local medical resources at their destination (especially for long-term travellers or expatriates) and ensure that at least one other person is aware of their condition, what to do and who to call in the event of an emergency.
- Encourage patients to take out appropriate health insurance, including cover for emergency medical assistance.

Patients who are under specialist care should generally consult both their general practitioner and their specialist/s before travelling. If their condition is severe or unstable, they should discuss proposed travel with their specialist before making any bookings.

1.7 Encourage Personal Responsibility for Safe Behaviour

Safe behaviour can prevent more travel-related illness and deaths than specific vaccines and prophylactic drugs, important as these are. Personal responsibility should be encouraged. Emphasise health promotion, illness prevention and appropriate care of illness or injury should it occur.

Although it is common and tempting for travel medicine practitioners to focus on immunisations and medication, discussion of safe behaviour is a critical part of good travel medicine practice.

As in other areas of patient education and behaviour change, the following elements are vital to promoting risk reduction through safe behaviour:

- Ensuring sufficient knowledge of risks and of the means to minimise them
- Personalising risks
- Highlighting personal responsibility in minimising risks to self and others
- Reinforcing the importance of consistent safe behaviour (e.g. wearing seat belts all the time, ensuring every sexual contact is safe)

Key areas for safe behaviour that require education of the traveller include:

- Safe food and drink choices
- Insect avoidance
- Environmental and animal exposures
- Substance abuse
- Sexual encounters
- Injury
- Blood-borne infections

Many of these issues and how to avoid potential disease exposure are discussed further in subsequent chapters, but they will be briefly addressed here.

1.7.1 Food and Drink

Eating and drinking safely to minimise the risk of enteric infections is discussed in detail in Chap. 4. While the risk reduction measures outlined are presumably effective if applied consistently and rigorously, the difficulties in their consistent application are considerable. One classic 1985 study of Swiss travellers found that 98% had transgressed one or more dietary guidelines of which they had been informed within 3 days of arriving in Kenya or Sri Lanka.

1.7.2 Insects

Many infectious diseases are transmitted by biting insects. While mosquitoes predominate, a large variety of other insects, including ticks, mites, flies, fleas, sandflies, lice and triatomine bugs, can transmit disease. Although these insects differ widely in their ecology and biting habits, the same preventive measures are effective against virtually all of them: sleeping in screened accommodation or under a mosquito net (preferably permethrin impregnated); covering up with long sleeves and long pants; and applying DEET-containing repellent to exposed skin. Permethrin impregnation of clothing and bed sheets is an additional protective measure. See Chap. 3 for more information on DEET and permethrin.

1.7.3 Environmental Exposures

Travellers should avoid walking with bare feet and should instead wear sandals or sneakers because some parasites enter the body through skin contact with

contaminated soil. Tourists should avoid swimming at beaches that might be contaminated with human sewage or animal faeces, as this can be a source of many infections.

Contact with fresh water may enable transmission of some infections, including schistosomiasis and leptospirosis. Thus, it is advisable for travellers to avoid swimming, wading, canoeing or rafting in fresh water in areas where these infections are endemic.

Exposure to soil, excavations and caves may also be a source of endemic fungal infections; whenever possible, tourists should avoid dust exposure in contaminated areas.

1.7.4 Animal Bites

All travellers, especially those going to rabies-endemic areas, should be aware of the importance of avoiding animal bites or scratches. Interactions with animals, such as feeding, patting and playing with them, should be minimised. Risks can include camel bites while riding them! All wounds should be cleaned immediately and dressed appropriately to prevent secondary infection; some (e.g. dog and cat bites) may need prophylactic antibiotics.

Additional preventive advice for travellers to areas with rabies includes:

- Appropriate exposure site management—immediate and thorough washing of wound or saliva-contaminated mucous membrane with copious amounts of water and soap and application of an antiseptic such as iodine if available.
- Medical consultation regarding post-exposure rabies prophylaxis (PEP) should be sought as soon as possible, preferably within 48 h.

Returned travellers commonly present for rabies PEP days, weeks or occasionally months after a rabies-prone bite. PEP is generally indicated irrespective of how long it has been since the bite but should ideally be sought as soon as possible after the potential exposure.

Pre-exposure rabies vaccination should be offered to all travellers to rabies-endemic areas. In practice, uptake is limited by high cost. Children in particular should be targeted for pre-travel rabies vaccination, as they are more likely to interact with animals and less likely to report if a scratch or bite has occurred (see Chap. 2, Sect. 2.13).

1.7.5 Substance Abuse

Travel, particularly holiday travel, to an environment where anonymity is likely is often associated with a sense of freedom from the usual social, work-related, family and cultural constraints. This, combined with a variety of often appealing and inexpensive temptations, leads to increased risk-taking behaviour by many travellers. This particularly applies to sex, substance abuse and activities involving risk of injury.