

Queensland Community Pharmacy Scope of Practice Pilot

Travel Health - Clinical Practice Guideline

Guideline Overview



Key points

- The primary purpose of the pre-travel health consultation is to minimise the traveller's risk of injury and illness by providing advice, education, vaccinations, medicines and/or medical kits tailored to each individual's personal and itinerary risks ⁽¹⁻⁴⁾.
- Pre-travel consultations should be conducted as far in advance of departure as possible (ideally 6 to 8 weeks) to allow sufficient time for vaccination courses to be undertaken and commencement of malaria chemoprophylaxis if required ^(2, 5).
- Practitioners providing travel medicine services should have a working knowledge (and know how to access current and accurate information) of the global epidemiology of infectious and non-infectious diseases, health risks, trends in drug-resistant infections, and destination specific regulations regarding immunisation and the importation and use of medications ^(1, 2, 4).
- While conducting the pre-travel health consultation, pharmacists should be aware of the requirements for referral to a specialised travel health clinic (or the patient's treating medical practitioner) as these may become apparent at various stages throughout the consultation.

When applying the information contained within this clinical practice guideline, pharmacists are advised to exercise professional discretion and judgement. The clinical practice guideline does not override the responsibility of the pharmacist to make decisions appropriate to the circumstances of the individual, in consultation with the patient and/or their carer.



Refer when

Referral to a specialised travel medicine clinic or medical practitioner is required for:

- Children aged < 2 years
- Children aged ≤ 8 years travelling to areas of altitude above 2,500m
- Children aged ≤ 8 years who require malaria prophylaxis or stand-by treatment
- Adults aged ≥ 65 years who require malaria prophylaxis or stand-by treatment
- Travellers visiting areas where malaria is endemic for longer than 8 weeks
- Pregnant travellers or travellers planning to become pregnant while travelling
- Travellers that require a vaccination that is not able to be administered (not endorsed for administration in the community pharmacy setting or contraindicated)
- Travellers with complex medical histories, serious medical condition(s) or complex health care needs that require input from their usual medical practitioner:
 - Immunocompromised travellers, as per the [CDC Yellow Book 2020: immunocompromised travellers](#)
 - Conditions that may be worsened by air travel or high altitudes by hypoxaemia
 - Chronic diseases or medical conditions that are not well controlled or severe e.g., renal, liver, cardiovascular, respiratory and pulmonary diseases, diabetes, epilepsy, autoimmune and rheumatologic diseases
 - Recent surgery, trauma or injury (individual airlines and travel insurers have specific rules regarding to fitness to fly, including post-operatively and these should be reviewed on a case-to-case basis)
 - History of severe allergic reaction
 - At moderate or high risk of VTE
 - Severe psychiatric illness and/or unstable mental health conditions.
- Official medical clearance to travel/fitness to fly certification
- Travellers whose regular medication(s) are not permitted in the planned destination
- Travellers undertaking high risk activities including:
 - Travel in areas of very high or extreme altitude (>3,500m)
 - Moderate to high-risk ascents in high/very high-altitude areas
 - Extreme sports, mountaineering or activities in remote locations
 - International aid work or military posting.
- People travelling for medical treatment overseas e.g., dental treatment, cosmetic surgery, overseas-based clinical trials
- Travellers returning (or arriving) with post-travel issues/symptoms (immediate referral is required if malaria is suspected).

Gather information and assess patient's needs

Travel health consultations should be tailored to the needs of each individual traveller and should incorporate the following components (based on the Manual for Travel Medicine) ⁽⁴⁾:

- Comprehensive pre-travel risk assessment based on the traveller's medical history, travel history, itinerary and travel details, as per Table 1 below, including:
 - implications of the traveller's medical history in the context of:
 - the health effects of flying

- management of illnesses and chronic disease while travelling (and the likelihood of need for emergency health care)
 - medications and restrictions for travelling with and using required medications at destination (and documentation required)
- specific implications of the itinerary and destination-specific risks e.g., endemic diseases, prevalence of malaria and other mosquito-borne diseases, immunisation requirements, sanitation levels, and standard of medical care.
- Discussion of preventive and management measures relevant to the individual and itinerary, including:
 - immunisation and development of an immunisation plan
 - venous thromboembolism
 - travel related illnesses e.g., malaria and other mosquito-borne diseases, travellers' diarrhoea, rabies, altitude sickness, sexually transmitted diseases
 - planned activities.
- The need for appropriate travel insurance.
- Requirements of a medical kit.
- Required documentation including International Certificate of Vaccination and other vaccination documentation, documentation of medications the patient may be using (to travel with) and other instructions regarding prophylactic pharmacotherapy.
- Referral to a specialised travel medicine clinic and/or the patient's usual medical practitioner for assessment or other special requirements.

Comprehensive pre-travel risk assessment

Sufficient information should be obtained from the patient to assess the safety and appropriateness of any recommendations and medicines.

Table 1 outlines the components that should be covered in the pre-travel risk assessment.

Table 1 Components of a comprehensive pre-travel risk assessment

Table 1. Components of a comprehensive pre-travel risk assessment ⁽¹⁻⁴⁾
Patient history
<ul style="list-style-type: none"> • age • pregnancy (current or planned) and lactation status (if applicable) • medical history including past and current conditions: <ul style="list-style-type: none"> ○ conditions that influence susceptibility/severity of infections or immunocompromise e.g., splenectomy, steroid therapy, active or recent cancer ○ conditions that may cause acute illness or require emergency treatment while overseas e.g., asthma, diabetes, severe allergies and past allergic reactions ○ conditions increasing susceptibility to hypoxia e.g., cardiorespiratory disease, severe anaemia ○ mental illness and current psychological state ○ chronic conditions e.g., rheumatologic disorders

- colostomy or ileostomy
- disability or impairment
- conditions that may impact on effectiveness or safety of malarial prophylaxis e.g., previous malaria, central nervous system disease or cardiac conditions
- ongoing hormone treatment e.g., estrogen therapy, oral contraceptive pill, menopausal hormone therapy
- thrombophilic conditions
- history of venous thromboembolism (VTE)
- recent surgery or injury
 - Individual airlines and travel insurers have specific rules regarding fitness to fly post-operatively; these should be reviewed on a case-by-case basis.
- recent cardiopulmonary and/or cerebrovascular event
- current medications (including prescribed medicines, vitamins, herbs, other supplements, and over-the-counter medicines), particularly medications that may be prohibited in other countries, require supporting documentation, or require advice to be taken safely across time zones.
- allergies/adverse drug reactions, including allergies to vaccines
- alcohol and drug history (considering destination regulations)
- smoking status
- immunisation history (routine and travel vaccinations)
- obesity (BMI).

Travel history

- Previous travel experience, including:
 - experience with chemoprophylaxis for malaria
 - experience at high altitudes (if applicable to destination)
 - VTE prophylaxis
 - experience with travel-related and other relevant illnesses.

Itinerary and travel details

- Countries and regions in itinerary, considering:
 - remoteness
 - access and quality of medical facilities
 - hygiene
 - epidemiology of infectious diseases
 - season and likely weather conditions
- duration of total trip and duration of stay in each area
- reason for travel e.g., leisure, 'health tourism', international development or aid work
- planned activities e.g., snow sports, scuba diving, moped/vehicle use, disaster relief, long distance walking or cycling

- travel style, considering:
 - mode of transport and travel times e.g., cruise ships, long-haul flights
 - backpacking, guided tours etc.
 - traveller risk tolerance
 - accommodation type.

High risk travellers

Specific personal characteristics or complex itineraries may put some travellers at an increased risk of illness or require special consideration, including for the purposes of travel insurance and certification to fly, including ⁽⁴⁾:

- **travellers with chronic conditions** (medical practitioner assessment may be required)
- **travellers with risk factors for VTE** (referral to a medical practitioner required for patients at moderate to high risk of VTE)
- **immunocompromised travellers** detailed in the [CDC Yellow Book 2020: Immunocompromised travellers](#) (referral to a medical practitioner is required)
- **pregnant women** (referral to a specialist travel medicine clinic and/or usual pregnancy care provider is required)
- **young children** (referral to a specialist travel medicine clinic/medical practitioner is required for all children < 2 years, and may be required for other children, depending on itinerary)
- **the elderly or immobile** (medical practitioner assessment may be required for travel insurance purposes for adults aged ≥ 65 years)
- **travellers with disabilities**
- **travellers on extended trips** particularly to developing countries where medical care is relatively unavailable
- **backpackers** and **travellers visiting friends and relatives** (risks are often underestimated in these groups).

Pharmacists must use their professional judgement and consider the traveller's itinerary, personal characteristics and medical history when determining the need for referral to a medical practitioner/travel medicine clinic.

Prevention and management of travel-related conditions

Vaccination

Pharmacists are responsible for confirming the specific entry and transiting vaccination requirements, risk levels and vaccine recommendations for each country and traveller.

- Routine vaccines should be updated (if required), in addition to required and recommended travel vaccines ^(1, 3, 4, 6).
- Laboratory testing to determine immunity as a result of previous vaccination or infection may be requested for hepatitis A, hepatitis B, measles, mumps, rubella and varicella ⁽⁶⁾.

- Other vaccines that may be required include those used for response to a declared public health emergency, e.g., COVID-19 and monkeypox.

All vaccinations must be administered in accordance with:

- the Australian Immunisation Handbook
- the individual vaccine information provided by the TGA and aligned with current ATAGI advice.

Travellers should be provided with an up-to-date International Certificate of Vaccination (ICV) (commonly referred to as a yellow card) as outlined in annex 6 of the [WHO International Health Regulations \(2005\)](#) if they require proof of vaccination ⁽⁷⁾. The ICV can be completed by any practitioner authorised to give vaccinations ⁽⁷⁾.

Rabies

Pre-exposure prophylaxis is recommended for people travelling to rabies-enzootic regions, based on a risk assessment; this should consider a patient’s risk of rabies exposure and the patient’s access to emergency medical attention in that location (refer to Table 2) ^(3, 6).

Table 2 Risk assessment and vaccination for Rabies

Table 2. Risk assessment and vaccination for Rabies ^(3, 6, 8, 9)	
Patient risk factors	<ul style="list-style-type: none"> • Travellers who may interact with animals that could be rabid • Travellers whose occupational or recreational activities may involve contact with animals, particularly dogs.
Itinerary risk factors	<ul style="list-style-type: none"> • Travellers to Central and South America, Eastern Europe, Africa and Asia • The CDC conducts an annual assessment of individual countries rabies status worldwide that provides information related to rabies presence and treatment availability. See Rabies Status: Assessment by Country • Access to emergency medical care and post-exposure prophylaxis at the destination • Sufficient time to complete recommended pre-exposure prophylaxis prior to departure.
General advice and management	<ul style="list-style-type: none"> • Advise travellers, especially those with young children, to avoid contact with wild and domestic animals including stray dogs and cats • Avoid contact with bats anywhere in the world • Provide education about treatment for potential rabies exposure including first aid and requirement for post-exposure prophylaxis vaccine and, in some cases, human rabies immunoglobulin.
Vaccination	<ul style="list-style-type: none"> • Where pre-exposure prophylaxis is recommended, the pharmacist must prescribe the rabies vaccine in accordance with the Australian Immunisation Handbook: Rabies and other lyssaviruses and the Australian Medicines Handbook ^(6, 9). The dispensed medicine may then be administered

	<ul style="list-style-type: none"> • Pre-exposure prophylaxis is recommended as a 3-dose schedule, administered on days 0, 7 and 28.
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Pharmacist resources

- [CDC Yellow Book 2020: Health Information for International Travel](#) ⁽³⁾
 - [Vaccination & Immunoprophylaxis: General Recommendations](#)
 - [Interactions between Travel Vaccines & Drugs](#)
 - [Yellow Fever Vaccine & Malaria Prophylaxis Information, by Country](#)
 - [Rabies Status: Assessment by Country](#)
- [World Health Organisation \(WHO\) Yellow Fever webpage](#)
- [Australian Immunisation Handbook](#) (including [Vaccination for international travellers](#))
- The Department of Health and Aged Care:
 - [Immunisation for travel](#) ⁽⁸⁾
 - [Yellow fever – general fact sheet](#) ⁽¹⁰⁾
- [National Travel Health Network and Centre \(NaTHNaC\) \(UK\) Travel Health Pro](#) ⁽¹¹⁾

Travellers' Diarrhoea

Diarrhoea is commonly experienced by travellers from industrialised countries travelling to developing countries without good sanitation; it is estimated that between 20% and 50% of these short-term travellers will experience diarrhoea ⁽¹²⁾.

Travellers' diarrhoea can be caused by a range of pathogens, including bacterial and viral infections, depending on the location of acquisition ⁽¹²⁾.

The information in Table 3 is provided as a summary only; pharmacists should consult the following resources to provide tailored information for each traveller:

- [Therapeutic Guidelines: Travellers' diarrhoea](#) ⁽¹²⁾
- [Therapeutic Guidelines: Antidiarrhoeal drugs for acute gastroenteritis](#) ⁽¹³⁾
- [CDC Yellow Book: travellers' diarrhea](#) ⁽³⁾
- the Australian Medicines Handbook (for contraindications and precautions, drug interactions, pregnancy and lactation and adverse effects).

Table 3 Risk assessment and management for travellers' diarrhoea

Table 3. Risk assessment and management for travellers' diarrhoea ^(3, 4, 12, 13)	
Patient risk factors	<ul style="list-style-type: none"> • Travellers with comorbidities such as diabetes, heart failure, bowel abnormalities, cancer, HIV or immunosuppression and elderly travellers are at increased risk.

	<ul style="list-style-type: none"> • The very young are more likely to have severe disease. • Travellers aged between 15-29 years and backpackers are at increased risk predominantly due to travel style.
Itinerary risk factors	<ul style="list-style-type: none"> • The highest risk to travellers is reported in south Asia, sub-Saharan Africa and Latin America. • Most other developing countries pose a moderate risk.
General advice and management	<ul style="list-style-type: none"> • Preventive advice for travellers: <ul style="list-style-type: none"> ○ hand hygiene with soap and water or antibacterial hand wash before eating and food preparation ○ careful food and drink choices. • Travellers' diarrhoea is generally self-limiting and lasts between 1-3 days. • Rehydration is the mainstay of therapy for travellers' diarrhoea. <ul style="list-style-type: none"> ○ recognising symptoms of dehydration, appropriate fluid intake, the use of oral rehydration products, diet of light, carbohydrate-rich foods until recovered. ○ Symptoms may persist for protracted periods with pathogens that exist in chronic phase (e.g. Giardia). • Early self-treatment with standby medication (when indicated) is preferred to antimicrobial prophylaxis for most patients due to the risk of antimicrobial resistance. <p>Travellers at risk of severe disease who require antimicrobial prophylaxis, separate to standby treatment, must be referred to a medical practitioner.</p>
Pharmacotherapy (standby treatment)	<ul style="list-style-type: none"> • No treatment is required for mild, short episodes. <ul style="list-style-type: none"> ○ Antimotility drugs may be considered for self-treatment for adults and children >12 years who do not have bloody stools or fever (loperamide is preferred). • Most cases of travellers' diarrhoea do not require antibiotics; self-initiated treatment with antibiotics may be acceptable for acute, moderate to severe diarrhoea only (diarrhoea that is distressing, incapacitating, interferes with or completely prevents planned activities or dysentery (bloody stools))^{1 (14)}. • Stand-by pharmacotherapy may be provided as part of a medical kit: <ul style="list-style-type: none"> ○ Antibiotics in accordance with the Therapeutic Guidelines: Travellers' diarrhoea ⁽¹²⁾ and ○ Antidiarrhoeal drugs in accordance with the Therapeutic Guidelines: Antidiarrhoeal drugs for acute gastroenteritis ⁽¹³⁾.

	<ul style="list-style-type: none"> ○ Recommended treatments include azithromycin, norfloxacin and ciprofloxacin as single dose therapy. <p>NB1: The benefits of antibiotic therapy for travellers' diarrhoea must be weighed against the risks of adverse effects.</p> <ul style="list-style-type: none"> ○ Antibiotic use may lead to acquisition of resistant organisms that may cause urinary tract infection, <i>Clostridioides difficile</i> infection, and post-travel irritable bowel syndrome. ○ Emerging resistance to quinolones, particularly in south Asia, should be taken into account.
Post travel	Persistent diarrhoea (> 2 weeks duration) in returned travellers may have infective or non-infective causes and must be referred to a medical practitioner for investigation.

Malaria

In humans, malaria is caused by one of five species of Plasmodium parasites, most often transmitted through the bite of an infected mosquito, although transmission occasionally occurs through needle sharing, nosocomially or from mother to foetus ^(3, 4, 15).

- Illness usually occurs within a few weeks of the infection, although it may be delayed by several months ^(4, 15).
- Almost all cases of malaria in Australia are overseas acquired. However, parts of Northern Australia are malaria-receptive; the last local acquired case was reported in the Torres Strait Islands in 2013 ⁽⁴⁾.
- The risk of malaria can vary considerably between travellers and regions within the same country ⁽³⁾.
- Modifiable risk factors associated with malaria fatalities include inappropriate use (or no use) of chemoprophylaxis and delay in seeking care (diagnosis and treatment) ⁽⁴⁾.

The information in Table 4 is provided as a summary only; pharmacists should consult the following resources to provide tailored information for each traveller:

- [Therapeutic Guidelines: Malaria](#) ⁽¹⁵⁾
- [CDC Yellow Book Yellow Fever Vaccine & Malaria Prophylaxis Information, by Country](#) ⁽³⁾
- Australian Medicines Handbook (for contraindications and precautions, drug interactions, pregnancy and lactation and adverse effects).

Table 4 Risk assessment, management and prophylaxis for malaria

Table 4. Risk assessment, management and prophylaxis for malaria ^(3, 4, 15)	
Patient risk factors	Travellers at risk of severe disease must be referred to a medical practitioner.

Itinerary/ destination risk factors	<ul style="list-style-type: none"> • For Australian travellers, the most common destinations of acquisition are India and Papua New Guinea, followed by Africa ⁽⁴⁾. • Travellers visiting friends and relatives in endemic countries (risk may be underappreciated by these travellers) • Travel in malaria endemic areas for longer than 8 weeks.
General advice and management	<ul style="list-style-type: none"> • All travellers to countries where malaria is endemic should be provided with advice on mosquito avoidance and the risks of malaria, including: <ul style="list-style-type: none"> ○ Prevention through use of effective insect repellent, other insecticide products and mosquito nets, remaining indoors from dusk to dawn where possible, wearing long trousers and long-sleeved shirts in the evening and avoiding strong fragrances. ○ No chemoprophylaxis regimen is guaranteed to be 100% effective; emergency treatment must be sought for febrile illness (even if stand-by treatment has been taken). ○ Treatment for malaria may be available without a prescription overseas, however counterfeit products are common.
Pharmacotherapy (prophylactic and standby emergency)	<ul style="list-style-type: none"> • To determine whether chemoprophylaxis is required and the appropriate drugs to provide (if required), pharmacists should consider: <ul style="list-style-type: none"> ○ destination(s), including regions and seasons within endemic countries and current government recommendations <ul style="list-style-type: none"> ▪ the risk of malaria may be low in some areas of endemic countries, such as major cities or tourist resorts ⁽³⁾ ▪ patterns of antimalarial resistance in the destination(s) ○ the individual's risk of mosquito bites based on travel style, activities and trip duration ○ the individual's risk of severe malarial illness ○ the individual's risk of adverse effects and drug toxicity, and ability to swallow the prescribed prophylaxis ○ the potential for resistance to chemoprophylactic drugs ○ the efficacy of each drug ^(3, 4, 15). • If required, antimalarial chemoprophylaxis may be prescribed in accordance with the Therapeutic Guidelines: Prophylaxis of malaria ⁽¹⁵⁾. • Atorvaquone with proguanil or doxycycline may be used as per guidelines. • Stand-by emergency treatment should be prescribed to people travelling to malaria-endemic areas who choose not to use chemoprophylaxis as part of a medical kit (for when emergency

	medical care cannot be obtained within 24 hours) in accordance with the Therapeutic Guidelines: Stand-by emergency treatment for malaria and Treatment of uncomplicated malaria ⁽¹⁵⁾ .
Post travel	<ul style="list-style-type: none"> All people who fall ill during or after travel and have persisting symptoms should be referred to a medical practitioner.

High altitude travel and altitude illness

Altitude is assumed to start at 1,200m; elevations above 1,500m are considered high altitude ⁽¹⁶⁾. While the highest risk of altitude illness is in environments > 2,500m above sea-level, it may also occur at altitudes from 1,500m.

Normal physiological changes due to hypobaric hypoxia will occur in all people at high altitudes, including shortness of breath on exertion (normal if it resolves quickly on rest), increased urination, disturbed sleep with periods of hyperpnoea and dyspnoea at night ⁽⁴⁾.

Altitude illness describes a set of pathological syndromes that may be experienced when a person ascends to a high altitude environment too quickly without allowing for sufficient time to acclimatise ^(16, 17).

- Acute mountain sickness (AMS) (most common type) is characterised by a headache and at least one of gastrointestinal symptoms, fatigue or weakness, or dizziness/light-headedness.
- High-altitude cerebral oedema (HACE) (usually a progression of AMS but not always) is rare below 4000m. It is a medical emergency and requires immediate descent ^(3, 16, 17).
- High-altitude pulmonary oedema (HAPE) may occur on its own or with AMS or HACE. It is a medical emergency and requires immediate descent ^(3, 16).

The information in Table 5 is provided as a summary only; pharmacists should consult the following resources to provide tailored information for each traveller:

- [Therapeutic Guidelines: Altitude illness](#) ⁽¹⁷⁾
- [CDC Yellow Book: High Altitude Travel and Altitude Illness](#) ⁽³⁾
- [Wilderness Medical Society Clinical Practice Guidelines for the Prevention and Treatment of Acute Altitude Illness \(2019 update\)](#) ⁽¹⁸⁾
- Information on high altitude areas in each country can be found in the [Travel Health Pro Country Information pages](#).
- Travel Health Pro – [Altitude illness](#) ⁽¹⁶⁾ and individual [country information pages](#)
- the Australian Medicines Handbook (for contraindications and precautions, drug interactions, pregnancy and lactation and adverse effects).

Table 5 Risk assessment, prevention and management of altitude sickness

Table 5. Risk assessment, prevention and management of altitude sickness ^(3, 4, 11, 17, 19)	
Patient risk factors	<ul style="list-style-type: none"> There can be significant variation in how individuals with pre-existing conditions may react to exposure to high altitude

	<ul style="list-style-type: none"> • Travellers with the following pre-existing medical conditions may be at increased risk of altitude illness and must be referred to a specialised travel medicine clinical or other appropriate medical practitioner: <ul style="list-style-type: none"> ○ cardiovascular disorders (hypertension, coronary artery disease, heart failure, cardiac arrhythmias, congenital heart disease) ○ chronic kidney disease ○ coagulopathy and people taking warfarin ○ damage to carotid bodies ○ diabetes ○ gastrointestinal conditions (active peptic ulcer, active inflammatory bowel disease) ○ haematological conditions (iron deficiency anaemia, sickle cell disease) ○ neurological disorders (epilepsy, cerebrovascular disease, migraine) ○ obesity ○ ophthalmic conditions (radial keratotomy, LASIK) ○ Raynaud’s Phenomenon ○ respiratory disorders (chronic obstructive pulmonary disease, bronchial asthma, obstructive sleep apnoea, pleural and interstitial lung disease) ○ pregnancy ○ psychiatric conditions • The symptoms of altitude illness may impact other existing medical conditions (cough, disturbed sleep, cold related illnesses, photokeratitis, corneal thickening and retinal haemorrhages) • Children do not appear to be at higher risk of altitude illness, however, there is limited evidence for specific recommendations ⁽¹⁶⁾ • Children aged < 8 years travelling to elevations > 2,500m should be referred to a suitable medical practitioner for specialist advice. • Travellers with any of the above pre-existing medical conditions planning to travel to high altitudes (>1,500m) must be referred to a suitable medical practitioner for specialist advice and detailed risk assessment.
<p>Itinerary and environmental risk factors</p>	<ul style="list-style-type: none"> • Environmental factors that influence the of risk of altitude illness include: <ul style="list-style-type: none"> ○ the speed and maximum height of ascent (risk of ascent) ○ sleeping elevation ○ strenuous exertion at altitude e.g., skiing or trekking ^(17, 18). • Altitude illness is a risk in a range of common destinations for multiple kinds of travellers, including:

- tourists with relatively common itineraries that elevations above > 2,500m above sea-level e.g., the Inca trail (up to 4,200m), airports at high altitude (Cuzco, La Paz, 3,399m), many Colorado ski resorts (above 3,000m, the European Alps (multiple passes over 2,000m and summits above 3,000m), Mount Kinabalu in Malaysian Borneo (4,095m), Mount Fuji in Japan (3,776m)
 - consider the potential for rapid passive ascent to high altitudes (driving, train travel, flying, hot-air ballooning, cable cars and ski lifts etc.)
- people who live below 900m and engage in strenuous exertion or activities on arrival in high altitude areas e.g., trekking or skiing.

Low, medium and high-risk ascents for AMS (for unacclimatised individuals) ^(16, 18)

Low risk	Moderate risk	High risk
<ul style="list-style-type: none"> • no history of AMS ascending to ≤ 2,800m • ascents taking ≥ 2 days to reach 2,500m-3,000m, with further increases in sleeping elevation to a maximum of 500m per day and an extra day for acclimatisation for every 1,000m of ascent. 	<ul style="list-style-type: none"> • no history of AMS when ascending to > 2800m in in one day • history of AMS when ascending to 2,500m-2,800m in one day • increases in sleeping elevation > 500m per day when above 3,000m with an extra day for acclimatisation every 1,000m 	<ul style="list-style-type: none"> • history of AMS when ascending to > 2800m in one day • history of HAPE or HACE (at any altitude) • ascents to elevations > 3,500m in one day • increases in sleeping elevation > 500m per day when above 3,000m without extra days for acclimatisation • very rapid ascent e.g., ascent to areas of extreme altitude (> 5,800m e.g., Mount Kilimanjaro in Tanzania and Aconcagua in Argentina) in < 7 days.

Referral point: Travellers with a history of altitude illness or at moderate or high risk of AMS must be referred to a specialised travel

	<p>medicine clinic or their treating medical practitioner for specialist advice and detailed risk assessment.</p>
<p>Preventive measures and advice</p>	<ul style="list-style-type: none"> • There is no guarantee of the absolute effectiveness of any preventative strategies; vigilance is required • All people planning to travel to elevations above 2,500m should plan for a gradual, low risk ascent to enable acclimatisation and prevent altitude illness, specifically: <ul style="list-style-type: none"> ○ take at least 2 days to ascend to 3,000m ○ do not increase sleeping altitude by more than 500m per day if above 3,000m ○ allow an extra day for acclimatisation every 1,000m. • If gradual ascent is not possible (e.g., flying into a high-altitude airport), take extra rest days before and after • Advice should also be provided to the traveller regarding: <ul style="list-style-type: none"> ○ the importance of appropriate travel insurance ○ physical fitness, an appropriate medical kit, clothing and eye wear ○ travelling/trekking with an experienced guide at high altitudes ○ how to recognise the signs of altitude illness (AMS, HACE and HAPE) and that it can be potentially fatal, specifically: <ul style="list-style-type: none"> ▪ all symptoms at high altitude should be considered altitude sickness until determined otherwise ▪ seek medical care as soon as signs or symptoms are experienced ▪ never ascend to a higher altitude to sleep with symptoms of altitude sickness ▪ do not leave a person with suspected altitude illness alone ▪ always attempt to descend if symptoms are severe or worsen ○ other conditions that may be experienced at altitude including sun exposure, hypothermia and cold injury. <p>Patient resources</p> <ul style="list-style-type: none"> ○ Therapeutic Guidelines: Go slow and sleep low is the safe way to ascend ○ Travel Health Pro: Altitude illness (online factsheet).
<p>Pharmacotherapy (standby)</p>	<ul style="list-style-type: none"> • Travellers at low risk of altitude illness generally do not require pharmacological prophylaxis. • General treatment for altitude illness includes stopping, resting and rehydrating; the most effective treatment is descent. • Standby treatment may be prescribed for adults for the initial management of altitude illness as part of a medical kit (with appropriate instructions for use in the event the person cannot seek immediate medical care or descend) to people at low risk of

	<p>altitude illness travelling to elevations > 2,500m in accordance with the Therapeutic Guidelines: General treatment for altitude illness and specific drug treatments for AMS and HACE ⁽¹⁷⁾.</p> <ul style="list-style-type: none"> • Standby treatment may be prescribed for management of nausea and vomiting associated with altitude sickness for patients who cannot seek immediate medical care and/or descend, in accordance with the Therapeutic Guidelines: Antiemetic drugs in adults <ul style="list-style-type: none"> ○ Note: Ondansetron is indicated by the Therapeutic Goods Administration for the prevention and treatment of nausea and vomiting induced by cytotoxic therapy and radiotherapy, and the prevention of post-operative nausea and vomiting. Its use for any other indication is 'off-label' and not included in the Pilot.
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Venous Thromboembolism (VTE)

Venous thromboembolism is a rare, but serious, complication of long-distance travel.

The information in Table 6 is provided as a summary only; pharmacists should consult the following resources to provide tailored information for each traveller:

- [Therapeutic Guidelines: VTE prophylaxis for long-distance travel](#)
- [Padua Prediction Score for Risk of VTE](#)
- [CDC Yellow Book: Deep Vein Thrombosis & Pulmonary Embolism](#)

Table 6 Risk assessment, prevention and management of venous thromboembolism (VTE)

Table 6. Risk assessment, prevention and management of venous thromboembolism (VTE) (3, 4, 20-22)	
Patient risk factors	<ul style="list-style-type: none"> • In addition to long-distance travel, risk factors for VTE (that may indicate the need for pharmacologic prophylaxis) include: <ul style="list-style-type: none"> ○ previous history of VTE ○ reduced mobility (at least 3 days) ○ older age (≥ 70 years) ○ medical conditions including thrombophilia, rheumatological disorders, active malignancies, or heart or respiratory failure ○ chemotherapy or radiotherapy within the previous 6 months ○ recent trauma/surgery (within previous month) ○ obesity ○ pregnancy and postpartum period ○ ongoing hormonal treatment ^(4, 22). • Travellers with one or more additional risk factors for VTE (as above) should have their risk estimated using a VTE risk calculator, such as the Padua Prediction Score for Risk of VTE and

	<p>be referred to a medical practitioner if VTE prophylaxis is indicated</p> <p>Patients at moderate to high risk of VTE must be referred to a specialised travel medicine clinic or their treating medical practitioner for specialist advice and detailed risk assessment.</p>
Itinerary and environmental risk factors	<ul style="list-style-type: none"> • Long-distance travel (travel by air, road or rail of 4 hours duration or greater) has been associated with VTE, particularly air travel ≥ 8 hours, although the absolute risk is low ⁽²²⁾. • The risk of VTE may remain for up to 8 weeks post travel ⁽²²⁾.
Preventive measures and advice	<ul style="list-style-type: none"> • General advice to minimise the risk of VTE for all long-distance travellers includes: <ul style="list-style-type: none"> ○ remaining ambulant before and after travel ○ regular movement during travel such as thigh and calf stretching exercises ○ ensuring there is adequate legroom wherever possible (by sitting in an aisle seat or emergency exit seat), ○ avoiding alcohol and sedatives before and during travel ○ wearing loose clothing ^(4, 6). • The use of graduated compression stockings is not routinely recommended for travellers at low risk of VTE, however they may reduce asymptomatic deep vein thrombosis and assist with preventing leg swelling ⁽⁶⁾. All compression stockings should be professionally fitted ⁽⁶⁾. <p>Patient resources</p> <ul style="list-style-type: none"> ○ Thrombosis Australia: Travel and Thrombosis ○ CDC Travellers' Health: Blood Clots
Pharmacotherapy (prophylaxis)	<ul style="list-style-type: none"> • Prophylaxis options include aspirin, rivaroxaban, apixaban or enoxaparin ^(20, 21). Travellers requiring pharmacotherapy for VTE prophylaxis must be referred to a medical practitioner.

Medical Kits

Medical kits should be considered by all travellers, including those visiting low risk destinations ⁽⁴⁾.

- The contents should be tailored to each traveller based on destination and patient specific factors ⁽⁴⁾.
- The contents of a medical kit should be documented and include written instructions for use.

Things that should be considered for each traveller when compiling a medical kit include:

- documentation:
 - immunisation record
 - documentation of pre-existing conditions (if required)
 - copies of prescriptions and letter from the pharmacist for travelling with medications, including stand-by medications
 - travel insurance details
- basic first aid kit
- common over-the-counter medications:
 - analgesics
 - antacids
 - antidiarrheal drugs
 - antiemetics and medication for motion sickness
 - antifungal cream
 - antihistamines
 - antispasmodics
 - cough suppressant or expectorant
 - decongestants (consider regulations in destination)
 - laxatives
 - hydrocortisone cream
 - rehydration products
- standby treatments for malaria, diarrhoea and altitude sickness (as appropriate)
- usual medications and medical equipment
- other preventative items, for example:
 - contraception
 - insect repellents and bed netting
 - water purification tablets
 - hand sanitiser and/or wipes
 - face masks
 - sunscreen
- medical alert bracelet or other identifiers
- spare glasses or contact lenses.

Travelling with medications

People planning to take any type of medication or supplements overseas (including prescribed and non-prescribed medicines and medical equipment), particularly controlled

substances, must confirm any restrictions and requirements/permits with the destination country's embassy or consulate.

- All medicines should be carried in their original packaging, clearly labelled with the contents, patient name and dose; travellers should be advised not to use pillboxes ⁽³⁾.
- Travellers may also consider carrying copies of the prescriptions and a letter from the pharmacist (or prescriber) detailing all medicines they have been prescribed, the reasons they have been prescribed, doses, and any necessary medical equipment including syringes. Translated versions may also assist ⁽³⁾.
- Medications should be packed in carry-on luggage and an extra supply should be included in the event the trip is extended ⁽³⁾.

Travel health education and counselling

Comprehensive advice and counselling (including supporting written information when required) should be provided to the patient regarding:

- individual product and medicine use, including dosing and indications
- how to manage adverse effects
- accessing medications, treatment and health advice
- seeking medical care and/or treatment post travel for ongoing issues.

Travellers should be counselled and provided with advice to enable safe travel and risk minimisation ⁽⁴⁾. The topics and level of detail will vary between travellers, depending on the personal and itinerary risks identified during the [pre-travel risk assessment](#) ⁽²⁾. Travellers should be advised to sign up for [Smartraveller subscriber alerts](#) for up-to-date information about health risks.

Common issues to be discussed for all travellers may include ^(2, 4):

- emerging health issues and diseases relevant to the traveller
- appropriate travel insurance
- personal safety.

Other topics (as applicable) ⁽⁴⁾:

- choosing safe food and drinks
- insect and other pest avoidance
- avoiding environmental exposures (contaminated soil and water)
- dog or other animal bite management
- injuries including aquatic and traffic accidents
- alcohol and drug use
- weather conditions and potential for natural disasters
- prevention of VTE
- availability of counterfeit medications or supplements
- safe sex practices
- blood borne infections (acquired through cosmetic/medical procedures, tattoos, piercings and intravenous drug use)
- altitude illness and the importance of planned gradual ascent

- staying safe in conflicts or situations of civil unrest
- motion sickness
- international driving licences.

Patient resources/ information

- [Smart Traveller](#)
- [Travel Health Pro.](#)

It is the pharmacist's responsibility to ensure the suitability and accuracy of any resources provided to patients, and to ensure compliance with all copyright conditions.

Confirm management is appropriate

Pharmacists must consult the Australian Therapeutic Guidelines, Australian Medicines Handbook and other appropriate therapeutic resources to confirm the treatment recommendation is appropriate, including for:

- contraindications and precautions
- drug interactions
- pregnancy and lactation.

Clinical Review

Clinical review with the pharmacist post travel is generally not required.

All patients should be advised during the pre-travel consultation to see their usual medical practitioner or other health professional as soon as they return if they have health issues post-travel.



Pharmacist resources

- Therapeutic Guidelines:
 - Antibiotic: Travellers' Diarrhoea
 - Gastrointestinal: Antidiarrhoeal drugs for acute gastroenteritis
 - Antibiotic: Malaria
 - Wilderness Medicine: Altitude Illness
 - Cardiovascular: Venous thromboembolism prophylaxis
- Australian Medicines Handbook
- [Centers for Disease Control and Prevention Yellow Book](#)
- [Australian Immunisation Handbook](#)
- [World Health Organisation Travel Advice](#)
- Faculty of Travel Medicine of the Royal College of Physicians and Surgeons of Glasgow - [Good practice guidance for providing a travel health service](#)
- Manual of Travel Medicine (Torresi et al.)
- [Smart Traveller](#)
- [Travel Health Pro:](#)
 - [Altitude illness](#)
 - [Country information](#)
- Journal of Travel Medicine - [Journeys to High Altitude – Risks and Recommendations for Travellers with Pre-existing Medical Conditions.](#)

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