TRAVELLING WELL

The "must have" guide to a safe and healthy journey.

DR DEB'S TRAVELS

Antarctica, Argentina, Australia, Austria, Belgium, Bhutan, Burma, Cambodia, Canada, Chile, China, Denmark, Fiji, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Ireland, Italy, Japan, Laos, Liechtenstein, Luxembourg, Macau, Malaysia, Mexico, Morocco, Nepal, Netherlands, New Caledonia, New Zealand, Norway, Peru, Papua New Guinea, Russia, Samoa, Singapore, South Africa, Sweden, Switzerland, Tahiti, Thailand, Tonga, UK, USA, Vanuatu, Vietnam, Zimbabwe...

by **Dr Deborah Mills** MBBS
THE TRAVEL DOCTOR

19th EDITION

About Dr Deb – THE TRAVEL DOCTOR

Dr Deborah Mills is the medical director of two travel medicine clinics in Brisbane (CBD and Stafford), and one of the pioneers of travel medicine in Australia.

Her clinics have prepared over a hundred thousand individuals venturing overseas since 1988. Her seminars on travel health are popular with both corporate and holiday travellers. She is a regular on the radio, and has been widely published in both the medical and lay press on the subject of travel health. She is the spokesperson for the Travel Medicine Alliance, a network of independent travel medicine clinics around Australia.

As well as studying infectious diseases in Australia and many regions of the globe, she draws on her own travel experience and enthusiasm, having been to over 50 countries, to ensure travellers get the critical 'been-there-done-that' information they need, to travel with confidence, and make the most of their trip.

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Cover Photo: Dr Deb travelling well in Asia

Travelling Well

A Travel Health Guide

Dr Deborah Mills MBBS

www.travellingwell.com.au

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Translated into Braille and Vietnamese
By the same author: Travelling Well Fun Book and iPhone apps; Travel Health, and Vaccine Record

All comments or suggestions for improvements to future editions will be gratefully received and can be sent to the above addresses.

Every effort has been made to ensure the information in this book is current at the time of printing. It should be used as a guide only. If you are sick, it is not ideal to be treating yourself. If you have any choice, opt to seek qualified medical advice, especially if you are getting worse. Travellers are strongly urged to consult a doctor experienced in travel medicine prior to departure.

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WHAT FELLOW TRAVELLERS SAY ABOUT
TRAVELLING WELL

"Full of sensible, easy to follow advice.....the section 'If You Get Sick' is particularly helpful to travellers."
Dr Gil Lea, MBBS (Lon)
Medical Consultant in Travel Health, Trailfinders Travel Clinic, London – UK

*"Travel Medicine is a highly specialised area that requires dedication and concerted attention. Dr Deb Mills is a recognised pioneer and leader in this field in Australia and neighbouring regions. Information gleaned from years of experience has been condensed into **Travelling Well**, a book that presents, in succinct and straightforward language, all the important, practical health information that any prospective traveller might need, before, during or after their trip."*
Dr Paul Prociv, MBBS, PhD, FRACP, FRCPA
Associate Professor, Dept of Microbiology & Parasitology, UQ – Australia

*"**Travelling Well** contains the essential information that travellers need to protect their health overseas. The feedback from our patients is that this book is extremely useful and worthy of a place in their luggage."*
Dr Norman Hohl, MBBS, DTM&H, FAFPHM
Medical Director, The Travel Doctor – Gold Coast – Australia

*"Clear, concise, practical and without doubt the most user-friendly travel health book available. This book is essential reading for all travellers. Prevention and treatment of common travellers' health problems are covered in an easy to read and understand format. I feel secure that when my clients travel with a copy of **Travelling Well** they have an excellent tool to help them on their way to having a great trip. A true don't-leave-home-without-it item."*
Dr Trish Batchelor, MBBS
CIWEC clinic, Kathmandu – Nepal

*"Travel Medicine is more than a few jabs and tablets for diarrhoea. Information on how to stay healthy while travelling and how to manage minor medical problems efficiently and effectively is essential. **Travelling Well** is written by one of Australia's most experienced travel medicine practitioners and will make an excellent companion in your travels."*
Dr Bob Kass, MBBS MRCP MScMCH DCH FAFPHM
International Public Health Consultant – Australia

*"There are three things I wouldn't dream of leaving Australia without – a passport, a sarong and a copy of **Travelling Well** tucked into my first aid kit. It's a hell of a lot cheaper than carting a real, live physician around the world with you!.. (and the crew are always borrowing it to diagnose themselves on the road.) It's a gem."*
Sorrel Wilby
World traveller and presenter on Getaway

WHAT FELLOW TRAVELLERS SAY ABOUT TRAVELLING WELL

*"**Travelling Well** is a great travel companion. It is packed full of information and is so easy to refer to. Everything you may need to find out about, from 'Accidents' to 'Yellow Fever'. It is a must read before, during and after your travel adventures."*
Grant Kenny
Phenomenal athlete and world traveller

"The information in this book, and the medicines that go with it, are a very valuable thing when in a country where the hospitals can make you sicker than you already are. Thank you very much for your help so far in my travels."
Chris Barnes
Ongoing traveller – Central and South America

"The eternal dilemma of which tablet, when and why! This book is an invaluable resource in answering this question and many more when medical assistance may be unavailable or just plain dodgy! Keep it stashed somewhere amongst all those other essentials."
Kathryn Fulton
Ongoing traveller – Middle East and Africa

*"Thank you **Travelling Well** for 18 months of guidance in India, Nepal, Africa and Madagascar. You gave us (and all those who borrowed you) peace of mind when we were isolated and proved a true friend in times of need with diarrhoea and infection! Thanks to you we fulfilled our dream of marriage on the summit of Mt Kilimanjaro in excellent shape, as we watched others battling with the altitude or even being forced to turn back. (Sadly, we also heard of the preventable (?) death of a trekker from acute mountain sickness that very week. Thank you for keeping us safe and for being written in such a user-friendly, easy to understand style."*
Lucinda and Ed Shelton
Safely returned to Australia

*"**Travelling Well** is a precious publication. This book provides all the necessary information on the prevention of travel-related sickness. I wish this book had been available while I was an airline manager based in Tokyo. It could have helped many Japanese travellers who have had to suffer unnecessarily during or upon their return from their holiday."*
Yukiko White
Former Air Nuigini Regional Manager for South East Asia and Micronesia

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- Finally to my wonderful father, whose memory always gives me strength and inspiration.

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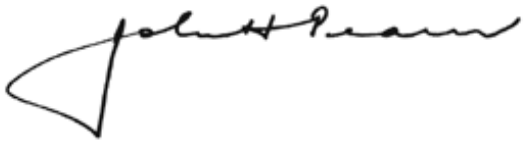
FOREWORD

International travel and widespread national excursions have become the norm. Almost three million Australians travel overseas each year; and our national prosperity depends significantly on the income derived from more than nine million travellers coming to Australia annually.

Each leave the secure base of their own home and community; and enjoy the adventures of new experiences. Every new geographic region brings with it the potential for new illnesses and injuries; and those who extend the long "travellers' umbilical cord" away from their own families, doctors and personal health care systems venture into unfamiliar territory.

Mostly being a tourist or business traveller poses no health problems. But much can be done to prevent illness or injury when one is away from one's own familiar places and this book will help the traveller become a "street-wise tourist".

Extended national and international travel is now a normal way of life for almost everybody in society. This book will help one to experience new places and meet new people without such enjoyment being spoilt by illness or disease.



Major General John Pearn
Former Surgeon General, Australian Defence Force
Emeritus Professor, Faculty of Medicine and Health Sciences,
University of Queensland

HOW TO USE THIS BOOK

This book has the background information you need to stay healthy while travelling.

No book can tell you exactly which vaccines or other specific precautions you need for your particular journey.

Information changes all the time, and recommendations vary depending on your past health, what vaccines you have had before, what you will be doing while you are away, and what part of a particular country you will be visiting. You need to consult a doctor experienced in travel medicine to access up-to-date information about the exact recommendations for your particular trip.

Travelling Well is divided into sections for easy reference.

Before you go: to read initially and become familiar with vaccinations, malaria prevention, medical kits and pre travel health checks.

While you are away: you need to thoroughly familiarise yourself with the hints on how to stay healthy.

If you get sick: hopefully you will not need it, but this section covers travellers' first aid. Generic drug names are in lower case where possible.

A Few Details: this is for readers interested in finding out more information about the various diseases.

When You Get Home: important information on post travel precautions and medical checks.

Symptoms Fast Find Index: this allows the reader to quickly find the pages that discuss a particular symptom, and treatment.

'Of the gladdest moments in human life...
is the departure on a distant journey
into unknown lands'

Sir Richard Burton
Late 19th century explorer

INTRODUCTION

...So you are going travelling! There is much to be done - organising tickets, visas, passports, travellers' cheques - and organising your *good health*. Travel is about new experiences, but sickness or accidents are experiences we can all do without!

- In March 1991, a young man from Brisbane died of malaria contracted in Thailand.
- In June 1996, a 32-year-old American tourist was bitten by a dog she had stopped to pat in the street in Kathmandu. Two months later she died of rabies.
- In February 1999, a 21-year-old woman from Melbourne developed measles after a holiday in Bali. It did not stop there. She sold tickets at a busy cinema and infected 16 patrons in one night. Altogether 75 persons contracted measles as a result.
- In 2004, a 32 year old woman was reported to have contracted Japanese Encephalitis while backpacking in Asia. It was 5 months before she could return to work.

These examples of *preventable* disasters highlight the importance of proper pre-travel preparation. There are many diseases travellers are not familiar with. Many hazards can be avoided completely if you know how, or at least minimised with rapid and appropriate treatment.

Pre-travel preparation is the key!

People travel for different reasons, and in different degrees of style; backpackers, businessmen, shoppers, missionaries, ministers of government, honeymooners, and those going to visit family and friends. No matter what your reason to travel, this book is designed to assist you, dear reader, to minimise the health risks of your trip the easy way - without pain and suffering. The goal is to be careful, without being paranoid. Reading this book is the first step towards preparing yourself for a healthy trip - towards Travelling Well.

Even if nothing is compulsory for my trip?

You may still be *highly recommended* to have certain vaccinations, medications or advice for your trip. A travellers' medical kit can be useful no matter where you go. Compulsory requirements are made to protect the local inhabitants, *not the visitor*. Developing countries usually pose greater risks to the traveller, yet even visitors to industrialized countries like Europe, UK, and USA may need something.

Can you remember when you last had a tetanus booster? Even a simple thing like a tetanus booster may be difficult to access while overseas. The vaccine quality may be poor - it may have been manufactured or stored incorrectly.

Treasure your vaccination records

Vaccines can be safely repeated if necessary, but keeping a secure record of all your vaccinations will save you time, money and unnecessary side effects. There is no national register. Doctors only have to keep records for 7 years: vaccines can last for life. It is up to the individual. Like any important information, make a copy and keep it safe, and take it with you when you consult your travel doctor.

BEFORE YOU GO

Most travellers need to seek medical advice *8 weeks* before departure.

For those going to live or work overseas, you need to seek advice *6 months* prior to departure.

For those leaving at short notice, *it is never too late* to seek advice, however not all treatments are available.

VACCINATIONS

WHICH ONES DO I NEED?

The following is a rough guide only. No book can tell you exactly what you need, as recommendations often change. You need to consult a doctor with expertise in travel medicine. Ask for numbing cream if you are worried about pain from the injection.

All travellers

All travellers should ensure routine vaccines are current (Tetanus, Diphtheria, Whooping cough, Measles, Mumps, Rubella and Chickenpox). All travellers should seriously consider having influenza vaccine. Shingles and Pneumonia vaccines are recommended for travellers over 65 years of age.

Depending on where you go

Sometimes it depends on which country you visit: e.g.

- If you visit a developing country you will need Hepatitis A vaccine, even if you only visit resorts and 5 star hotels. You may also need typhoid vaccination especially if you wish to eat food from markets or street stalls.
- Travellers to Sub-Saharan Africa need Meningitis vaccine.
- A Polio booster may be recommended when visiting countries where polio still occurs, e.g. India, Pakistan, Nigeria.

Sometimes it depends on which parts of a country you visit:

- Cholera vaccine may be recommended if visiting an outbreak area.

Depending on what you do while away

Certain vaccines are recommended depending on what you will do while away:

- Those who anticipate contact with blood products e.g. health care workers, need Hepatitis B vaccine.
- Those who may have contact with animals, especially dogs, may be recommended Rabies pre exposure vaccination.
- Travellers who plan extensive hiking in Europe in the summer may need the Tick Encephalitis vaccine.
- Those visiting developing countries for longer than 3 months may need a TB test. Children may need the TB vaccine.

Cholera certificate no longer required

The requirement for a cholera vaccination certificate was removed from the International Health Regulations in 1973.

Special cases need special advice

Children, pregnant women, and those with medical conditions are highly recommended to consult a travel medicine specialist or travel doctor. There is an international register of travel medicine clinics at www.istm.org.

Donating blood after vaccination

For those who wish to donate blood, it is advisable to donate prior to vaccination, or delay donation for 3 days after receiving inactivated (dead) vaccines e.g. influenza, and delay giving blood for one month after receiving live vaccines e.g. yellow fever.

HOW LONG VACCINATIONS LAST

The table below outlines the expected duration of protection once the vaccination course is complete. For some vaccines, the duration of protection is not confirmed. For other vaccines, a blood test may be recommended after the course is completed, e.g. Hepatitis B or intradermal Rabies vaccine.

DISEASE (VACCINE NAME)	DURATION
Chickenpox *(Varivax / Varilrix)*	Life
Cholera / ETEC *(Dukoral)*	2 years / 3 mths
Diphtheria *(Adacel/Boostrix)*	10 years
Influenza vaccine *(Fluvax / Vaxigrip / Intanza)*	1 year
Hepatitis A *(Vaqta / Havrix / Avaxim / Twinrix)*	Life
Hepatitis B *(HBVaxII / EngerixB / Twinrix)*	Life
Human Papillomavirus *(Gardasil/Cervarix)*	Life
Japanese B Encephalitis *(Jespect/Ixiaro)*	?1-2 years
Japanese B Encephalitis *(Imojev)*	5-10 years
Measles, Mumps, Rubella *(Priorix/MMR)*	Life
Meningitis ACWY *(Menomune/Mencevax)*	3 years
Meningitis ACWY *(Menveo/Menactra)*	5 years
Meningitis B *(Bexsero)*	?5 years
Pneumonia *(Pneumovax)*	Life
Pneumonia *(Prevenar)*	5 years
Polio *(Sabin/IPV Primary course + booster)*	Life
Rabies *(HDCV/ Rabipur/Verorab)*	Until bitten
Tetanus *(Tet tox/ADT/Boostrix/Adacel)*	5 -10 years
Shingles *(Zostavax)*	Life
Tuberculosis *(BCG)*	Life
Typhoid *(Typhim Vi / Typherix)*	2 years
Typhoid capsules *(Vivotif x 4)*	5 years
Whooping Cough *(Adacel/Boostrix)*	5 -10 years
Yellow Fever	10 years

HOW VACCINES ARE GIVEN

POLIO	**IPV / Adacel Polio / Boostrix IPV injection** One dose of IPV if the original course was given in childhood/school. Available combined with Adacel and Boostrix. (Oral Sabin has been discontinued in Australia.)
TETANUS DIPHTHERIA WHOOPING COUGH	**Adacel / Boostrix / ADT / Tetanus Toxoid** Tetanus booster is one injection if the original course was given in childhood. Usually given combined e.g. Adacel or Boostrix = Tetanus, Diphtheria, Whooping cough (Pertussis) ADT = Adult Diphtheria & Tetanus
HPV	**Gardasil / Cervarix Injection** HPV = Human papilloma virus; genital warts, anal and cervical cancers. Three injections, 0, 1-2 months, 6 months
MEASLES MUMPS RUBELLA	**Priorix / MMR II injection** (Rubella is also known as German measles). Two injections give lifetime protection.
CHICKENPOX	**Varivax / Varilrix injection** Two injections: 0, 1-2 months. **Zostavax** One injection protects against shingles.
INFLUENZA	**Fluvax/Vaxigrip/Intanza/Fluarix injection** Adult: one injection. Child: 6mth-9yrs: two injections 0, 1mth
PNEUMONIA	**Pneumovax injection** Adult: one injection. **Prevenar injection** Over 2 years, one injection. Under 2yrs, 2-3 doses.
TYPHOID	**Typhim Vi / Typherix injection / Vivotif Oral** One injection, or 4 capsules taken Day 1, 3, 5, & 7. Preferably given at least 2 weeks before departure.
TYPHOID + HEPATITIS A	**Vivaxim = Typhim Vi + Avaxim** One injection protects against Typhoid and Hepatitis A. Need booster for Hepatitis A in 6 months to 3 years.
HEPATITIS A	**Avaxim / Vaqta / Havrix injection** One initial dose, then a booster at 6-12 months. (Gamma Globulin is seldom used now.)
HEPATITIS A+B	**Twinrix injection** Three injections: 0, 1 month and 6 months.

HEPATITIS B

HBVax II / Engerix B injection

Usually three injections: 0, 1 month and 6 months.

Rapid course: 0, 1, 2, 12 months or 0, 1 wk, 4 wks, 12 months.

A test may be advised after final dose to ensure immunity.

MENINGITIS

ACWY – Menveo / Menactra

One injection, given at least 2 weeks before travel.

B – Bexsero

Two injections, spaced one month apart.

YELLOW FEVER

Stamaril injection

One injection, given at least 10 days before travel.

CHOLERA/ETEC

Dukoral oral

Over 6 years of age: two doses of drink, given one week apart. Vaccine gives some protection against ETEC diarrhoea for three months. Usually given 3 weeks before travel.

JAPANESE B ENCEPHALITIS

Jespect / Ixiaro injection

Two injections, spaced a month apart.

Imojev

One injection

TICK ENCEPHALITIS

TicoVac injection

Regular course: three injections: 0, 1-3 months, 5-12 months

Rapid course: two injections: 0, 14 days.

RABIES

HDCV / Rabipur / Verorab injection

Options	Before bite		After bite
1	Nothing	Bite	RIG + 0, 3, 7, 14, 28 *days*
2	0, 7, 28 *days*	Bite	*0, 3 days*

1. If you are NOT pre-immunised, when bitten – you need Rabies Immune Globulin (RIG) injected into the bite wound on the day of the bite. RIG is a blood product and not available in some developing countries. Plus you need five doses of vaccine in the arm over the next month.
2. If you are pre-immunised (three injections: Day 0, 7, 28) when bitten – you have more time to seek help, and you only need two further doses of vaccine.

TUBERCULOSIS

BCG injection

One injection, usually in childhood. BCG vaccine does not work well in adults.

A tuberculosis test (Quantiferon or Mantoux) may be recommended before travel, to document immunity. If necessary, the test is repeated 3 months after return home.

PERSONAL VACCINATION SCHEDULE

(TO BE FILLED IN BY YOUR DOCTOR)

DATE:

Polio					
Tetanus/Diphtheria/Wh.cough					
HIB					
Rotavirus					
HPV (Cervical Cancer)					
Measles/Mumps/Rubella					
Chickenpox or Shingles					
Influenza					
Pneumonia					
Typhoid					
Hepatitis A					
Hepatitis B					
Meningitis					
Yellow Fever					
Cholera / ETEC Diarrhoea					
Japanese B Encephalitis					
Tick Encephalitis					
Rabies					
Tuberculosis					
Malaria Tablets					

Don't forget your **travellers' medical kit** and a **letter of authorisation** for any tablets, medications or drugs you will be carrying overseas.

SIDE EFFECTS OF VACCINATION

Generally the side effects are minor

Vaccinations are recommended when the risk from the disease is much greater than the risk from the vaccine. On the day of vaccination, most people can do all their usual activities - work, drive a car, play sport, or go to the gym; however it is best to take it a bit easy. (One of our travellers ran a marathon within 48 hours of vaccination and then felt awful.) Modern vaccines do not leave a scar, and cause fewer side effects now than in the past. They have fewer antigens (the substance that stimulates the body's immune response). In 1960, vaccinations against 5 diseases (smallpox, diphtheria, tetanus, whooping cough and polio) included 3,217 antigens; In 2009 childhood vaccines protect against 10 diseases, yet include only 116 antigens. Ideally it is wise to have vaccines at least 2 weeks before departure in case there are any side effects, and to allow time for vaccines to take effect.

Some side effects may be:

1. Fainting

The persons most likely to faint are 20 to 29-year-old men of above average height, receiving tetanus plus another vaccine. Fainting seems to run in some families. If you have a history of fainting after injections, make sure you tell the medical staff before being vaccinated. Since there may be minimal warning of a faint, those with a history of fainting need to lie down during vaccination and for ten minutes afterwards.

2. Allergic reactions (Anaphylaxis)

Allergic reactions are rare but may be very serious. A sufferer may feel -

- **warm**
- **itchy** (or develop a rash) away from the injection site
- **faint or dizzy** (but usually this is only a part of the symptom pattern)
- **short of breath**, or develop a wheeze or cough
- swelling in throat, face, hands or limbs
- suddenly tired

Symptoms of anaphylaxis usually develop within 30 minutes of vaccination, (hence the need to wait in the clinic after receiving certain vaccines especially Yellow Fever). Occasionally allergic symptoms occur up to 10 days later, if so see a doctor immediately. Persons with severe allergies to eggs cannot have vaccines against Yellow Fever or influenza. Travellers with penicillin allergy can be vaccinated safely.

3. Pain, redness, swelling at injection site

Usually vaccinations cause nothing more serious than a sore arm for a few days. If you keep your arm moving, it will help ease the soreness. Tetanus immunisations may cause a deep lump or hardness, which can persist for a month. If your arm is red, hot and/or sore, place an ice pack over the affected area. You may take paracetamol. Intradermal vaccines (e.g. Rabies) may cause itchiness at the injection site and a small red surface mark, which may persist for weeks. Usually vaccines are given in your non-writing arm; however, if you always sleep on one side, it is more comfortable to have the vaccines in the other side.

4. Fevers and feeling sick

Yellow Fever vaccine (Stamaril) may cause a slight fever, headache, tiredness, and muscle aches in 2-10% of persons, starting 3-9 days after vaccination. These symptoms usually last for 24 hours.

MMR (Measles, Mumps, Rubella) vaccine may cause fever in 5-15% of persons, starting 5-12 days after vaccination, along with a temporary rash in 5% persons. Symptoms may last 1-3 days.

Chickenpox vaccine may cause a brief fever in 10% of persons; a rash (2-5 chickenpox-like spots) may develop up to 3 weeks after vaccination.

A feature of live vaccines (Chickenpox, MMR and Yellow fever) is that the second dose of vaccine usually causes fewer symptoms than the first dose.

An interesting piece of trivia about the live vaccines used for smallpox or tuberculosis is that studies have found that vaccination early in life confers a significant and enduring degree of protection against melanoma.

The dead vaccines (e.g. hepatitis, tetanus, influenza) do not generally cause fevers or illness. It is an urban myth that influenza vaccine can cause you to develop influenza, a runny nose or a sore throat. The influenza vaccine takes two weeks to become effective, and many persons are vaccinated in winter when colds are common, and they incorrectly blame the vaccine for their symptoms.

5. Diarrhoea or stomach problems

The oral typhoid vaccine (Vivotif capsules) may cause mild to moderate nausea, stomach cramps and diarrhoea within 12-24 hours after taking each capsule, especially after the second dose. Take each dose with 2 glasses of water.

Will vaccines weaken my immune system?

No. Careful investigations have shown there is no evidence for any weakening of the immune system. The load from vaccines is a drop in the bucket compared to the deluge that the immune system is exposed to every day. Vaccines take advantage of the immune system doing its regular job - making antibodies to kill germs.

What if I have a cold?

It is safe to be vaccinated while you have a runny nose, sore throat or cough. Vaccination should be delayed if you have a fever over 39°C or if you are sick enough to be in bed.

Alcohol and vaccines

In clinical studies, alcohol has been shown to interfere with the immune response to bacteria and viruses; hence, it is a good idea to avoid alcohol intake within 48 hours of vaccination if you want the best immune response to the vaccines.

Be mindful of alcohol intake before vaccines as well as after vaccines e.g. don't drink a great deal of alcohol on Friday night and attend for vaccines on Saturday.

Fortunately, clinical studies suggest the effects of acute alcohol consumption on the immune system are transient. One to two glasses of alcohol within 48 hours of most vaccinations may not be a problem.

MALARIA PREVENTION

No tablet is 100% effective for preventing malaria.

1. Avoid mosquitoes.
2. Take malaria tablets regularly.
3. Treat fevers immediately.

1. AVOID MOSQUITOES

On your trip YOU may be under attack!!

Don't let her bite you!

Mosquitoes carry many diseases. Malaria mosquitoes bite between dusk and dawn. *Day* biting mosquitoes transmit Dengue fever so *no* mosquito bite is safe. Moisture, warmth, carbon dioxide and odour all attract mosquitoes, and some unlucky people seem to be genetically more attractive to mosquitoes.

Long sleeved, light coloured clothes

Avoid being outside when mosquitoes are biting. If you are outside between dusk and dawn, wear loose fitting long sleeved shirts, long pants, and long socks. Avoid very thin shirts. Light coloured clothes are best: dark colours attract mosquitoes. Avoid perfumes: strong scents also attract mosquitoes.

30% DEET

DEET (Diethyl toluamide) is a clinically proven mosquito repellent to apply on your skin. Repellents are thought to work by blocking the receptors on the mosquito antennae, so these insects cannot find you. A concentration of 30% DEET is recommended for persons over 2 months of age. It should give protection for 4-5 hours. Higher concentrations protect for longer. Above 50% DEET, the duration of protection is said to plateau; however sticky products with higher DEET (e.g. Bushman 80%) may be useful in conditions where persons are sweating profusely e.g. Kokoda track. In field trials, DEET products on the skin have been found to be more effective than coils, citronella candles, sonic repellers, UV light lures, and mozzie plants. (Citronella protects for less than 20 minutes and 'insect repelling' wristbands average 12 – 18 seconds.) DEET can damage plastics, synthetic fabrics, leather, and painted or varnished materials, so be careful with eye glasses, cameras etc. DEET has no effect on cotton, wool, nylon or skin. DEET has been on the market for 45 years and side effects do not occur if used according to the directions.

19% Picaridin

Picaridin is an effective repellent that some persons find more pleasant to use. 19% Picaridin is roughly comparable to 30% DEET. It is nearly odourless, with a mild citrus scent when first applied. It is safe for plastics and synthetic materials. Higher concentrations are effective for longer: 92.8g/l (9.3%) is effective for 2 hours, 192g/l(19.2%) is effective for 8 hours.

Apply regularly

Don't wait until you see a mosquito. Apply regularly, e.g. after finishing your meals. Use just enough repellent to lightly cover your skin. Don't forget your neck and ankles. Never use repellent over wounds or inflamed skin. After application, wipe or wash the repellent off your fingers to avoid inadvertent contact with your eyes, mouth, and other sensitive areas, as it may cause irritation. Don't apply repellent to children's hands for the same reason. Ideally wash the repellent away with soap and water when it is no longer required.

Mixing sunscreen and repellent?

When sunscreen is required, apply sunscreen first, wait 20 minutes and then apply repellent. Studies have shown combination products may compromise the safety and effectiveness of both products; sunscreen loses effectiveness, and more repellent penetrates the skin.

Sleeping precautions

Use a knock down spray, if necessary, to remove stray mosquitoes from inside the bedroom or inside bed nets. Sleeping in an air-conditioned or a well screened room is the ideal. The next best alternative is to sleep under a permethrin treated mosquito net. Check there are no holes in the net, and tuck the edges under the mattress. As a last resort, burn mosquito coils, cover exposed skin with insect repellent, and sleep next to a fan.

Treat bed nets and clothes with permethrin

Permethrin is a highly effective synthetic insecticide, which can be used to treat fabric. Treated fabric will kill and/or repel insects (e.g. mosquitoes). Permethrin is related to the naturally occurring pyrethrum from the flowers of a type of Chrysanthemum. Using treated items will significantly decrease the number of bites you receive. One study showed treated bed nets were four times more effective than untreated nets at preventing disease. When you wear treated clothes, you still need to use repellent on exposed skin.

You can buy items pre-treated with permethrin (e.g. gear shops or online www.insectshield.com). Some commercially treated clothes remain effective up to 70 washes. The alternative is to treat fabric items yourself with commercially produced permethrin soaking packs. Follow the treatment instructions carefully to ensure the best effect. Do not dispose of unused solution down the sink. It is toxic to fish. Follow the disposal instructions on the pack.

Store treated articles in a sealed plastic bag; the solution wears away as well as washes out. A permethrin impregnated mosquito net is effective for 3-6 months of regular use. Home treated clothes are said to be active until the fourth normal wash. Do not iron home treated clothes.

Permethrin safety

Persons wearing home treated permethrin clothes have a very low incidence of side effects such as skin rash. Commercially treated clothes cause even fewer side effects than home treated ones. Once a bed net is treated and dried, nets can be used safely even around sleeping children and pregnant women. Treated items are not more flammable. Incidentally, a permethrin treated sheet is safe to sleep in, and will help keep bed bugs away.

Oral vitamin B - does not help you avoid mosquito bites

This is a myth. Taking large quantities of oral vitamin B does not decrease the number of mosquito bites you receive. Such an apparently simple solution to mosquito avoidance is appealing; sadly however, careful scientific trials have failed to show any mosquito repelling effects from taking oral vitamin B, including B1.

There is some evidence that taking oral B1 will make insect bites feel less itchy, but the risk of contracting a vile disease will not change.

2. TAKE MALARIA TABLETS – WHICH TYPE?

The best choice for you depends on your past medical history, your destination(s), duration of stay, planned activities and your preference for possible side effects. Your doctor may recommend one of the following:

Malarone

Take 1 tablet *daily*. Start 2 days before entering the malarial area, take every day while in the risk area, and continue daily until 7 days after leaving the risk area. Take with fatty food or drink to improve absorption.

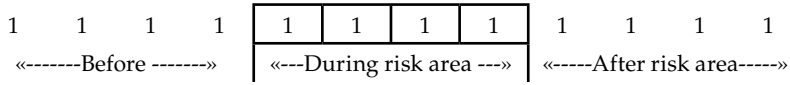
Doxycycline

Take one 100 mg Doxycycline tablet *daily*. Start 2 days before entering the area, take daily whilst there, and continue for 28 days after leaving the risk area. It is important not to miss a single day.

Mefloquine (Lariam)

Take one Mefloquine (Lariam) tablet weekly (e.g. every Monday).

To ensure useful blood levels, and reveal any side effects, you must start 4 weeks before entering the malarial area. Take weekly whilst there, and continue for 4 weeks after leaving the malarial area. E.g. for a four week visit to a risk area....



If you experience side effects, try splitting the dose - take a half tablet twice a week (half on Monday, half on Thursday).

At the start of the course, your doctor may prescribe a loading dose so you develop useful blood levels more quickly. Loading usually means one tablet on day 0, 1, 2, 7, 14, 21 and so on; i.e. one tablet on Monday, Tuesday, Wednesday, then every Monday.

Primaquine

Take 30 mg (2 x 15 mg tablets) Primaquine per day. Start 1 day before entering the malarial area, take daily whilst there, and continue until 1 week after leaving the malarial risk area. Note: You need a blood test for G6PD before taking this.

Chloroquine

Take 2 Chloroquine tablets per week (e.g. every Monday). Start 2 weeks before entering the malarial area, take weekly whilst there, and continue until 4 weeks after leaving the malarial risk area.

Chloroquine and Paludrine

Take 2 tablets of Chloroquine *weekly* plus take 2 tablets of Paludrine daily. Start 2 weeks before entering the malarial area, take while in the risk area, and continue for 4 weeks after you leave the malaria risk area. Chloroquine is not readily available in Australia.

Different option: No regular medicine for prevention

Sometimes the best option is to not take regular pills, but avoid mosquitoes, and treat fevers urgently if they develop. It may be necessary to carry emergency malaria standby treatment e.g. Malarone at a different dose (see page 89).

HOW TO TAKE MALARIA TABLETS

With Food !

Taking malaria tablets with food is extremely important to decrease your risk of side effects. Take your tablets with full fat milk or a glass of water and a meal: eat some of your meal, take your tablets and then finish your meal. (Doxycycline tablets should be taken with breakfast or lunch, not dinner or they cause indigestion).

Same day each week

Weekly tablets need to be taken on the same day each week. e.g. "Monday is Malaria day." Use the same day as your fellow travellers to help you remember.

To the bitter end

If you stop your tablets early, you may get Malaria. The tablets work by starving the parasites to death, so the tablets can take many weeks to kill malarial parasites.

If you forget a dose

1. *Daily* tablets. Take the tablet on the day you remember, and continue daily doses. Do not take extra tablets per day to make up for the ones you missed.
2. *Weekly* tablets. Take the missed tablet on the day you remember. If you are only one day late, the subsequent week you should go back to your original day. If you took them more than one day late, you need to take the subsequent doses on the new day to correspond with the day you recommenced dosing.

If you have missed doses you may get malaria. If fever develops, remember you must see a doctor ASAP.

Alcohol

You may drink alcohol in moderation while taking malaria tablets; however, heavy alcohol consumption within 24 hours of a dose of Lariam (mefloquine) is likely to provoke hallucinations, behaviour changes, or even epileptic fits.

Intriguing new research has found that drinking beer makes humans smell more attractive to malarial mosquitoes shortly afterwards, so regardless of which pill you take, avoiding beer may be a good way to lower your risk of malaria.

Do they have side effects?

Unfortunately yes, and some malaria tablets have more side effects than others.

On average 5-10% of travellers will experience troublesome side effects; however some studies have reported up to 40% of persons taking malaria pills will notice side effects.

Usually these side effects are minor, and do not mean you should stop your pills.

Doxycycline and Mefloquine should be tested before departure, so if they cause problems, you can discuss it with the doctor *before* you go. Sometimes the type of tablet, or the dose may need to be changed.

The next few pages describe the possible side effects of the common malaria pills.

Some travellers have noticed hair loss while travelling and blame the malaria pills; however this is more likely to be caused by prolonged, stressful travelling. This type of hair loss will grow back. If in doubt, speak to a doctor.

SIDE EFFECTS OF MALARIA TABLETS

Unfortunately, there is no malaria tablet which is perfectly effective and perfectly safe. It is often *not worth taking tablets* if the risk of malaria is very low, i.e. you are more likely to get sick from your tablets than get malaria; however if the malaria risk is high, putting up with minor side effects is, of course, *preferable* to catching cerebral malaria and dying.

Malarone (atovoquone + proguanil)

Malarone has a low incidence of side effects, compared to other antimalarials. Users occasionally report nausea, headache, stomach pain, loss of appetite, mouth ulcers, diarrhoea, dizziness or cough. It is worth persevering for a few days if you have slight nausea or other symptoms, as it takes about 3 days for drug levels to stabilise.

Doxycycline (doxy)

Doxycycline (often referred to as doxy) is a broad-spectrum tetracycline-based antibiotic. It is vital you take doxy *with food* or it will seriously irritate your oesophagus (felt as pain or burning in the centre of the chest). After taking doxy, wait at least 3 hours before going to bed or laying down. Avoid antacids (e.g. Mylanta) whilst taking doxy. Some persons on doxy develop a red rash or even blisters in skin exposed to light. This rash may tingle or burn, and is common on the backs of the hands: this is photosensitivity rather than sunburn, but it pays to avoid excessive sun while taking doxy. Nail abnormalities have been rarely described, due to photosensitivity of the nail bed: Fingernails have even lifted off but usually grow back. Opaque nail polish might prevent this side effect. Women may develop vaginal itching or thrush: it is wise to carry a supply of anti-thrush medication (e.g. econazole) in case. There is a very small chance doxy may interfere with the contraceptive effect of the pill: if you take doxy and the pill, use other means of contraception for the first three weeks on the doxycycline, see page 67. Doxy may also cause a drop in oestrogen levels leading women to experience symptoms akin to premenstrual tension.

Children under 8 years of age, and pregnant women should not take doxycycline as it stains growing teeth. Pregnancy should be avoided for 7 days after ceasing this drug. Headache plus visual problems (blurred, double or obscured vision) could mean an extremely rare but potentially serious side effect, most common in women who are a little overweight and 30-50 years of age: if you develop visual problems with a headache, stop the medication and see a doctor immediately.

Mefloquine (Lariam)

Although Mefloquine (Lariam) is very effective, and most people are fine, it does causes troublesome side effects in up to 15% of users. The effects usually occur within the first few doses. You need to start these tablets four weeks before travel. Mefloquine users may describe trouble sleeping and strange dreams e.g. one traveller had dreams that her tent was filling with sand. Dreams are more common the day you take the medication. Lariam has been reported to cause dizziness, feelings of disorientation, confusion, mood swings, anxiety, depression, nausea, stomach discomfort, visual disturbance and palpitations. These effects are most unpleasant, but go away completely when you stop the drug. *Do not take mefloquine on an empty stomach or within 24 hours of heavy alcohol use* or these symptoms will be

much worse. Side effects (if any) will develop more quickly if you take the loading dose. If you experience side effects, try splitting the dose - take a half tablet twice a week (half on Monday, half on Thursday).

Travellers with a history of psychiatric or seizure disorders (fits) must never take mefloquine. Approximately one in 10,000 mefloquine users will have an epileptic fit. If you develop unexplained anxiety, depression, confusion or hallucinations, you must stop taking this drug immediately and see a doctor. Mefloquine may interfere with tasks requiring fine coordination. It should not be taken by pilots or scuba divers. Driving cars is considered safe, but as a precaution, avoid driving for 24 hours after the first four doses, until you are sure you feel okay. Theoretically mefloquine interacts with some blood pressure or migraine tablets (especially the group known as Beta Blockers.) Quinine (e.g. used for cramps) should not be taken at the same time as mefloquine. If in doubt, ask the doctor. Mefloquine is not recommended for children under 5 kg.

It is preferable to defer travel to malarious areas if you are pregnant; however, if travel cannot be deferred, and the risk of malaria is very high, Mefloquine has been used without apparent problems during all stages of pregnancy.

Mefloquine has received a great deal of bad publicity. It is not a perfect drug, but is useful in areas where the malaria risk is very high and daily tablets are inconvenient.

Chloroquine (Nivaquine)

Chloroquine tastes bitter. It may cause mild nausea and headache the day it is taken. Dehydration will make these symptoms worse, so take tablets with 2 glasses of water. Paracetamol will also help. Splitting the chloroquine dose (rather than taking two on Monday, take one tablet Monday and one on Thursday) will often alleviate side effects. Temporary blurry vision may be noted after the first or second doses. Provided you have regular checks, chloroquine is safe to take continually for several years and does not cause eye damage. Chloroquine is even safe in pregnancy. Although safe at recommended doses, chloroquine is extremely toxic if an overdose is taken: a few adult tablets will kill a small child.

Chloroquine comes in 2 forms: Chloroquine *Phosphate* 250 mg and Chloroquine *Sulphate* 200 mg. Both preparations contain 150 mg of base, i.e. the same amount of actual chloroquine. Chloroquine sulphate should be avoided in persons with some types of sulphur allergies.

Paludrine (proguanil)

Paludrine is considered safe even during pregnancy. Mouth ulcers are more common in travellers taking Paludrine. Users occasionally report gut disturbance, headache, dizziness or a rash.

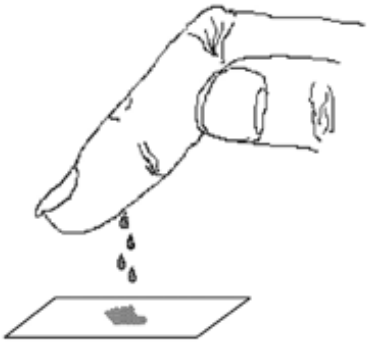
Primaquine

This drug is only occasionally used for prevention of malaria, mainly because users require a Glucose-6-phosphate dehydrogenase (G6PD) blood test before taking this medication. Some individuals are genetically deficient in this enzyme. G6PD deficient persons who take primaquine, will haemolyse (destroy) their red blood cells which can cause a dangerous anemia. Primaquine can also cause more general side effects such as abdominal pain, nausea, vomiting, dizziness, or headache.

3. TREAT FEVERS IMMEDIATELY

If you develop **a temperature over 38˚C** during or after visiting a malaria risk area, you need to **see a doctor as soon as possible...** whether you are taking malaria tablets or not!

You need an urgent blood test if you develop a fever during, or after, visiting a malaria risk area. You can still catch malaria despite taking malaria pills.



The most important malaria symptom to watch for is fever, or having a temperature. Normal body temperature is 37˚C. Fever should be treated as malaria, until proven otherwise.

Malaria can be diagnosed by a simple blood test carried out on a finger prick of blood.

Malaria can be fatal if left untreated for as little as 3 days. Malaria can be completely cured if treated early.

Common myths about malaria tablets

The pills only prevent one strain of the disease so there is no point taking them. This is partly true. The strain they are best at preventing is the deadly cerebral strain (falciparum) – the other malaria strains are unlikely to kill you, so we don't worry about them nearly as much.

Malaria pills mask the symptoms of malaria – This seems to imply that if you get malaria while you are on the prevention pills, you will secretly get dreadfully sick without realizing it. This is just not true. Persons taking *no* preventative pills, are more likely to die of malaria.

Prevention medication kills malaria parasites. Unfortunately they do not always kill every last parasite (especially in areas with resistant malaria). If you only have a few parasites on board (because most of them are dead), you only feel a little sick. If you don't feel so bad, it is easy to ignore the symptoms and wait and see. So the medication is not masking symptoms, you are just not getting sick as quickly as if you have rampaging, untreated cerebral malaria. The key point is *don't ignore fevers*. In a person taking no preventative tablets, the shortest time between getting a fever and being brain dead is 60 hours, so it is quite helpful if you don't get sick too quickly as you have more time to get to a doctor. One in 100 travellers who get cerebral malaria will die.

TRAVELLERS' MEDICAL KIT

Research shows 50% of all travellers experience medical concerns on their trip. A decent kit is especially important if you are travelling independently, without the safety net of a package tour and guide. It is wise to be prepared just in case. Purchasing medication in some countries is risky. Although the drugs may be cheap, they may also be contaminated, or out of date and ineffective. There are some instances where quality is necessary - your life may depend on it. Better to buy medications in reliable countries. Your kit does not have to be huge to be useful. What you will need depends on where you are going, what you will be doing, and your past medical history. Make your own kit or buy one ready made. The following list will help you plan your medical kit. You do not need everything on this list. Always discuss these medical supplies with your travel doctor.

☛ = items used most commonly

All travellers

- ☛ Your regular medications, even if you only use them occasionally at home. Take spare supplies.
- ☛ Digital thermometer (mercury thermometers are difficult to read, and mercury is not allowed on some aeroplanes).
- ☛ Vaccination certificate, especially if you have had Yellow Fever vaccine
- ☛ Travel insurance, especially for medical and evacuation expenses
- ☛ Spare pair of eye wear, and copy of your prescription
- ☛ Important documents plus photocopies or details of these: passport, tickets, credit cards, phone card, travelsim, drivers license, phone number of local embassy at destination/s, money belt.

To avoid insects &insect diseases

- ☛ Mosquito repellent for personal use

Long sleeved, light coloured clothes for evenings (not blue coloured)

Permethrin treated clothes may be useful

Bed net and sleep sheet treated with permethrin

Mosquito coils

Knock down insect spray to kill mosquitoes inside tents etc. (you may need to purchase this on arrival, as it may not be allowed on the aircraft)

Malaria tablets for prevention or treatment if prescribed

Malaria test kit if prescribed

To ensure safe water

Water purification - Iodine tablets, alum, vitamin C powder

Water purifier

Clean and sturdy water bottle

To prevent sun damage

- ☛ Blockout/sunscreen (15+ at least) for lips and body
- ☛ Sunglasses and hat

To treat stomach problems

- ☛ Loperamide (Imodium) - temporary stopper for diarrhoea
- ☛ Norfloxacin (Noroxin), or ciprofloxacin - Step 1 antibiotic to kill diarrhoea germs.
- ☛ Azithromycin - Step 2 antibiotic to kill diarrhoea germs.
- ☛ Tinidazole (Fasigyn) - Step 3 antibiotic to kill giardia diarrhoea germs
- ☛ Maxolon or Stemetil – to treat nausea
- ☛ Rehydration sachets e.g. Hydralyte, ORS, Gastrolyte
- ☛ Anti-spasmodic, e.g. Buscopan

BactrimDS - Step 4 antibiotic for cyclospora diarrhoea germs

Indigestion tablets, e.g. Quick-eze, Mylanta

Laxative, e.g. Coloxyl

Fibre supplement, e.g. Metamucil

To treat wounds/skin infections

- ☛ Dressings - bandaids, elastoplast, Opsite, non-stick dressing, gauze, crepe bandage, sling, SoloSite gel, Steristrips, tape
- ☛ Antiseptic, e.g. Betadine liquid or cream

Antibiotics for wound infections, e.g. cephalexin

Anti-fungal cream or powder e.g. clotrimazole

Blister management, e.g. Cutinova, Bandaid blister block, Compeed

Cold sore cream e.g. Vectavir, Zovirax, Stoxil

Anesthetic for small areas of skin irritation e.g. Orajel (benzocaine topical)

To treat aches and pains

- ☛ Painkillers, e.g. paracetamol, codeine, aspirin

Anti-inflammatory tablets, e.g. piroxicam, ibuprofen

To treat coughs, colds, sinus, chest infections

- ☛ Nasal decongestant, e.g. pseudoephedrine based tablets
- ☛ Throat lozenges, e.g. Difflam, Cepacol,
- ☛ Antibiotic, e.g. azithromycin, roxithromycin (Rulide), amoxycillin

Cough capsules, e.g. Orthoxicol

Nasal spray

Antiviral drugs for influenza, e.g. oseltamivir (Tamiflu), Relenza

To treat allergies/insect bites

Antihistamine tablets, e.g. promethazine (Avomine), Zyrtec

Stingose gel

Steroid cream, e.g. Diprosone, Betnovate

To treat eye problems

Eye drops e.g. Visine, Polytears free for pollution/wind/glare/dust

Antibiotic cream or drops to treat conjunctivitis, especially for contact lens wearers, e.g. Chloromycetin, Soframycin

To treat ear problems

Aqua-ear to dry ear canal after swimming

Antibiotic drops/cream, e.g. Soframycin

Medical Equipment

Sterile needles and syringes in different sizes
Scissors, tweezers, splinter probe
Dental emergency kit, oil of cloves, temporary filling

To assist comfort during air travel

Eye mask, neck pillow
EarPlanes (pressure regulating earplugs) to ease ear pain on descent
Compression stockings – class 1 or 2, e.g. Sigvaris
Melatonin 5 mg tablets may be useful on arrival

Other useful things to consider

☛ Packaged food, e.g. dried fruit, biscuits, snack bars, candy/lollies
Trekking pole or walking stick – to decrease your risk of falls & deflect dogs
Vitamins - especially vitamins B and C
Moisturiser, e.g. Vaseline, lip balm, Blistex lip ointment, Bepanthen
Hand sanitiser, antiseptic hand gel, or handwash (non-flammable)
Body chamois, biodegradable body wash for wilderness washing
Utility knife, cup and spoon, clean straws
Money clip or "sacrificial" wallet to use as decoy
Sturdy needle and thread, safety pins of various sizes
Scarf or mask - to cover nose and mouth if visiting dusty places
Toilet paper - in short supply in some developing countries
Thongs/rubber sandles/flipflops - to wear in communal showers, hostels etc.
Disposable ear plugs for sleeping in noisy tea houses or hotels
NapiSan to clean and sterilise when washing clothes
Dental floss and sealed container for your toothbrush
Spare dentures, and ample dental adhesive if relevant
Insecticide-treated sleep sheet to avoid bedbugs
Headlice treatment
Condoms and water soluble lubricant e.g. KY
Other – electrical adaptor, guide books, camera, padlock, torch (or head torch)

If visiting high altitude

Acetazolamide (Diamox)
Ibuprofen (this is more effective at altitude than paracetamol)
Ginkgo tablets

If travelling on cruises or boats

Motion sickness medication e.g. promethazine (Avomine/Phenergan), hyoscine (SCOP, Kwells), Dramamine, ginger
Non-slip shoes and extra sunscreen (SPF 15-30 is best)

For surfing trips

Antiseptic, transparent and waterproof dressings, e.g. Tegaderm
New soft toothbrush to clean coral cuts
Hydrogen peroxide for cleaning marine wounds
Antibiotics for infected coral cuts, e.g. cephalexin (Keflex)
Vinegar for marine stings

Women travellers

Adequate supplies of tampons/sanitary pads (not always readily available)
Medication for period pains, e.g. Ponstan, Naprogesic
Adequate supplies of the contraceptive pill
Emergency contraception (morning-after pill) e.g. Postinor
Treatment for vaginal thrush - econazole pessaries, fluconazole tablet
Treatment for cystitis or bladder infection, e.g. Citravescent, Ural, plus an antibiotic, e.g. trimethoprim, norfloxacin
Whizz freedom (hygeinic urine director) or TravelJohn (disposable urinal)

Pregnant travellers

Paracetamol
Rehydration solution (e.g. Hydralyte, ORS) Avoid loperamide
Consider antibiotics: for diarrhoea (azithromycin); for respiratory infection (amoxicillin); for bladder infection (cephalexin)
Medication for thrush (canesten); nausea (metoclopramide/B6)
Vitamins (in the first 12 weeks need folic acid)
Insect repellent with max 30% DEET if high-risk mosquito disease area
Anti-embolism compression stockings above knee (Class 1 or 2)
Snack food/handwash
Letter from treating obstetrician

Children travellers

Rehydration solution – especially the iceblock variety (Hydralyte)
Infant or child paracetamol
Medicine for colds or runny noses, e.g. Dimetapp
EarPlanes may prevent sore ears on descent in the aircraft
Antihistamine for insect bites and sedation on planes - ensure it is tested on the child before the day of departure
Calamine lotion/Stingose gel
Aqua Ear to prevent 'tropical ear' after swimming
Adequate supplies of dressings and antiseptic
Some favourite foods or snacks
Some new and entertaining toys, and a familiar toy
Vitamin drops if food will be poor quality, fluoride tablets
Large container to sterilise bottles, plus sterilising tablets
Nappy rash cream, teething gel if relevant
Plenty of baby wipes, antiseptic hand wash etc.
A change of clothes for the carer, in case the child vomits or worse while travelling.
Antibiotics should be discussed with your doctor: It is not commonly recommended to give a child antibiotics without medical supervision.

Ready-made kits

Ready-made Travellers' Medical Kits are available from specialized Travel Medicine Clinics. Travel clinics often provide kits more economically than purchasing components separately. Good quality kits must be prescribed by a doctor: they contain prescription medication, plus dressings etc. They should be tailored to the individual. To find providers of kits, visit http://www.travelmedicine.com.au

TIPS FOR TRAVELLING WITH MEDICATIONS

Keep drugs away from children

Always keep drugs out of the reach of children, (perhaps locked in your suitcase, or in a child proof container). Even a few malaria tablets can kill a toddler.

Drug Interactions

Be wary of interactions between your usual medications, herbal remedies etc, and the medications in your travellers' medical kit.

Carry written instructions and a letter of authorisation

Medications available over the counter, or by prescription in Australia, may be illegal in other countries - most particularly the UAE - check online. Medication should be kept in its original packaging, , though drugs in blister packs will still be readily identifiable if their covering cardboard box is removed. Medications, and medical equipment carried overseas should be accompanied by a covering letter from a doctor. Some years ago, a young woman was jailed in Greece when she was found to be carrying headache tablets containing codeine. Misunderstandings may be avoided by carrying the correct paperwork, even for simple things like paracetamol. Many travellers carry these letters and relatively few are asked to show them, but if a customs official is searching your bag and discovers a stash of pills, it is better to have authorisation. In your arrival paperwork you may be asked whether you are carrying any drugs or medications. The appropriate answer is 'Yes, on doctor's advice'.

PBS Medicines

PBS medicines are those where the Australian Government has subsidised the cost of the prescription. Sometimes the subsidy may be a hundred dollars per script. Many persons are not aware their medicines are PBS subsidised. Ask your pharmacist. In Australia, it is illegal to take PBS medicine overseas unless that medicine is for the personal use of the carrier, or someone travelling from Australia with them. Illegally exporting PBS medicine can attract a penalty of up to two years imprisonment and/or a $5,000 fine.

Keep your kit cool, dry, and accessible

Place all your medications in a suitable container. Ideally the container should be labelled – 'First Aid Kit' or 'Travellers' Medical Kit'.

Medications must be kept cool and dry - they will deteriorate unpredictably in hot or damp conditions. Drug expiry dates are not reliable if medicines have been stored incorrectly. Your kit should be waterproof, or at least water resistant. Soggy tablets may not be effective. Protect your kit from extremes of temperature, e.g. don't leave the kit sitting for hours in your backpack in the hot sun. Decide if you can risk placing medication in your checked luggage. Don't forget sharp instruments (e.g. scissors) need to be placed in checked baggage. It is better to carry essential medications in your hand luggage: illness can strike at any time. Gastro pills in particular should be always accessible during your travels, e.g. in your day bag.

Sharing drugs

If possible, avoid sharing medications with fellow travellers or local inhabitants. They may have allergies of which you are unaware. They may be taking other medications including herbal medicines which may interact. You may need those medications later yourself. There may also be legal implications if you give medicines to others.

Obtaining medications overseas

Home prescriptions *cannot* be filled overseas. Carry whatever you may need from home. It is better to avoid things like little red pills offered to you by fellow travellers, bus drivers, or other unqualified persons.

If possible, avoid purchasing medications in foreign countries. In many areas of the world, drugs have been altered, mislabelled, or are out of date. If you must obtain drugs overseas, buy them from large stores in major cities. Many developing countries sell *restricted* drugs without prescription. Make sure you know what you are buying. Some medications contain compounds which are dangerous if taken inappropriately. Avoid the following particularly dangerous tablets: Chloramphenicol, Butazolidin, Aminopyrine, Enterovioform, and Clioquinol. Drug names are often different in other countries. You may wish to refer to the reference table on page 143.

GENERAL PRE-TRAVEL PREPARATION

OBTAIN TRAVEL INSURANCE

All travellers are strongly recommended to buy travel insurance which covers medical evacuation and illness overseas. (Authorities estimate 30% of Australians travel with no insurance. This is akin to playing Russian roulette.) Many insurance companies provide a 24-hour phone number for emergencies - keep this handy. If you have existing medical conditions (e.g. asthma), if you are pregnant, or if you are planning activities like skiing, scuba diving, motorbike riding, hang gliding, read the policy carefully before purchase so you know what is covered. Those going to live and work in developing countries need a special type of long-term health insurance, which covers more than just the emergency medical care.

RESEARCH?

First Aid: Knowledge of basic first aid may help you save a friend's life (even when you are at home). Undertaking a first aid course makes sense for all travellers, but even more so if you are travelling with children, or planning to visit developing countries. Courses are run by organisations such as St John ambulance, the Red Cross, or Surf Life Saving clubs. Google or check the phone book for contact details.

Self Defence: Training in basic hand-to-hand self defence may be useful.

Language: Even a few words and phrases can help.

Destination: Many travellers praise the benefits of knowing more about the area.

Phones: If you are taking a smartphone - find out how to turn off data roaming. Some travellers report receiving bills of over $1000 for 'accidental' 3G data roaming.

DENTAL CHECK

It is wise to have had a recent dental check if you are going overseas, ideally within the previous 6 months. You should mention to the dentist where you are going and for how long. A dental check before departure is particularly important if you are visiting countries where dental services are poor. Your dentist may suggest X-rays if you will be away for more than six months. This will detect problems in the early stages. A loose filling may cause considerable pain if you fly in an unpressurised aircraft or if you go scuba diving. Travellers are recommended to avoid air travel for 3-14 days after extensive dental work, but check with your dentist.

MEDICAL TOURISM

Medical tourism (travel for the purpose of obtaining health care) is popular because of the potential cost savings, and shorter waiting times, however there may be addition risks involved, compared to accessing surgery in your home country.

A few things to consider:

Research your surgery thoroughly. Ideally choose locations which are accredited internationally (www.jointcommissioninternational.org) and an experienced operative and post operative team e.g. performing this operation at least several times a week. Hospital staff should be fluent in your language (communication difficulties have the potential to be very dangerous). Discuss your plans with your GP; they will want to know, and you may need to ask your GP for aftercare on your return. Choose a travel companion who will be supportive, and ideally one who is not also having surgery.

Ask questions about sterilisation and resuscitation procedures, infection control, quality of any implants and medications used, blood transfusion policies and what after care may be needed, (e.g. will you be able to swim in a pool during your recovery). Worldwide, many serious germs are becoming resistant to antibiotics, which can cause major issues if you develop any post surgical infection.

Make sure you have all necessary vaccines prior to travel, especially for Tetanus, Influenza, Hepatitis A and B. Purchase appropriate travel insurance; tourist policies may not cover planned surgical procedures. Carry your medical history in your hand luggage.

A healing scar will darken and become more noticeable if it gets sunburned. You may care to cover your scar with tape or sunscreen when outdoors for 6 months after surgery. Plan to avoid flying for several weeks after the operation to minimise your risk of a travellers thrombosis, and most importantly, follow the instructions of the surgical team.

TRAVELLING IN PLASTER

If you are travelling by air within 48 hours of the application of a hard plaster cast on a limb, it is necessary to have the cast split. This will help protect the circulation of the limb. Also, discuss with your doctor how to manage the increased risk of deep vein thrombosis during flying in a plaster cast; you may need to take anti-clotting medication.

MEDICAL CHECKS

All travellers

Make sure your routine medical care is up-to-date.

Ensure there are no medical disasters brewing; e.g. symptoms you have been meaning to get checked, or any skin lesions which may have changed. Have them examined well before departure. If you will be away for longer than six months, or visiting places with poor medical services, you may require a more in depth medical review including screening blood tests. It may also be useful to know your blood group, and that of your fellow travellers; however, the likelihood of needing a blood transfusion during international travel is low, (estimated at 13 per 100,000 travellers per fortnight.)

Carry written details of important medical history

Carry a letter from your doctor outlining details of any medical condition you have, and the usual treatment such as the drug and dosage. If applicable include recent test results and ECG. Drug allergies and blood group (if known) should be noted. Take adequate supplies of your usual medications. Pack enough medication so you can cope if your checked bag goes astray.

Are you ready for physically demanding trips?

If you will be exerting yourself more than usual, it is wise to have a medical clearance before departure. Trekkers over 40 years of age may need an exercise cardiograph (ECG). This will test the heart's performance during exercise. If you will be scuba diving for the first time while away, ensure you have a medical check from a doctor experienced in dive medicine before you leave home. (Air flights should not be scheduled within 24 hours after a scuba dive.)

Have a plan in case an existing medical condition deteriorates

If you have asthma, migraines, diabetes, heart disease, epilepsy, mental illness, AIDS, or any chronic medical problem, you need a plan for what to do if it gets worse while you are away. Here are two examples:

1. Asthma — this can worsen while travelling due to pollution, stress, infection, or fatigue. Pollution may be severe in some countries e.g. parts of China. You need to know which medication to take, and in what order, if asthma symptoms worsen. The plan may include the use of oral steroids if you will be visiting areas remote from medical care.
2. Migraine — sufferers should take plenty of their usual painkillers, sleeping tablets, anti-nausea pills etc. Discuss with your doctor whether you would be suitable for sumatriptan (Imigran) or similar. This family of drugs are expensive but act quickly to stop the migraine process.

Women travellers

Women should ensure they have had necessary routine screening (smear test, mammagrams) so there is nothing due while away. Carry adequate supplies of the contraceptive pill. If travelling for long periods of time, Implanon has been popular. Implanon is a contraceptive implant placed in the upper arm. It is effective for three years. It needs to be inserted some months before the trip, in case it causes side effects. (Some women experience excessive or irregular bleeding in the early stages).

TRAVELLERS WITH SPECIAL NEEDS

Pregnant travellers

If a woman is healthy, well organised and determined, pregnancy should not be a barrier to travel. It may be the last chance to travel unfettered! Travel in pressurized aircraft is unlikely to pose a danger to the growing child in the early stages of pregnancy, although the mother will be at slightly increased risk of deep vein thrombosis, also known as DVT. Book an aisle seat on the plane. Wear compression stockings during long journeys. Wear your seat belt low, around the pelvis.

Where to go while pregnant?

Ideally discuss the destination with a travel doctor before travel plans are finalised. Some vaccines can be safely given to pregnant women. Live vaccines are usually best avoided. Pregnant travellers can safely visit many places, but travel to a malarious area is not recommended during pregnancy. A pregnant woman is twice as likely to be bitten by mosquitoes than her non-pregnant counterpart, due to increased heat production and increased release of volatile substances from the skin surface. Malaria is more serious in pregnant women, and can lead to miscarriage, stillbirth, and even maternal death. Anti-malaria tablets are a problem in pregnancy. Travel to high altitude areas above 4,000m is not recommended in pregnancy. Pregnant travellers visiting altitudes of 3,000-4,000m for more than two days, need specialised travel health advice. The standard of local medical care should be an important factor when determining where to travel. Visiting countries which have unreliable medical services may spell disaster if complications of pregnancy develop.

What stage of pregnancy is best for travel?

The middle third of pregnancy is the best time to travel. After the first third, the risk of miscarriage is low, and morning sickness is usually over. In the last third, the mother will have a big stomach, and be more uncomfortable. She may need an afternoon nap, and her feet may swell quite considerably during air travel. Airlines generally refuse to carry women after 36 weeks pregnancy, in case they go into labour. Travel insurance will not usually cover pregnancy related problems in the last third of pregnancy. Ideally, pregnant women should travel with a companion.

Particular challenges for pregnant travellers

All the usual travelling well precautions apply... doubly so. The risk of a travellers thrombosis is increased: compression stockings are recommended. During pregnancy, women are more prone to illness e.g. thrush, bladder and respiratory infection. Carry antibiotics which are safe in pregnancy in case they are needed. Be particularly careful choosing food and drink while overseas: diseases such as hepatitis E, toxoplasmosis, and listeriosis are more dangerous when pregnant. Dehydration is more serious. Any fever increases the risk of miscarriage in the early stages of pregnancy. If this is a first pregnancy, it is worth reading about what to expect as the weeks progress. Pregnancy makes women hungry, more easily tired, and the bladder needs constant emptying. Plan ahead. Dress conveniently for frequent trips to the toilet. Organise the journey so there is time for rest. Carry snacks in case safe food is not accessible. Try to eat a balanced diet. It may be worth taking vitamin supplements, along with the usual folic acid etc.

Travellers over 60

If visiting hot climates, consider booking air conditioned accommodation. Ideally travel with a companion. Perhaps book slower paced trips e.g. 2-3 nights in one place rather than one night. Check whether travel insurance covers pre-existing illness. A collapsible trekking pole is useful for trekking, walking on uneven ground around ruins, or on slippery marble floors. Don't forget extra batteries for hearing aids if relevant, and perhaps spare reading glasses. Compression stockings are recommended for flights over 12 hours. Extra vaccines may be recommended e.g. for flu, pneumonia and shingles. Keep well hydrated.

Newborn babies

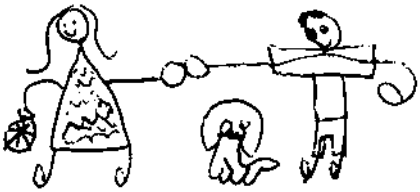
It is ideal to wait until a baby is at least 8 weeks old before taking them on a plane and exposing them to the gamut of infectious organisms in air conditioning systems etc. Some immunisations can be started early if necessary. TB and Hepatitis B vaccine can be given at birth. It is especially important the child has whooping cough (pertussis) vaccine twice before travel as this disease can kill tiny babies.

If possible, breastfeeding is helpful when travelling. It provides a convenient supply of clean and nutritious food, along with a constant supply of antibodies from the mother to help protect the child from illness. If planning to take medications while breastfeeding, remember to check they will not pass through the milk and harm the baby. A breastfeeding mother can receive most vaccines with no risk to the baby.

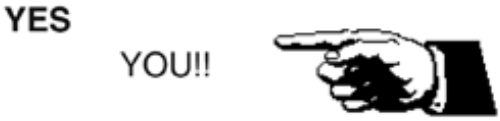
Travelling with children

Proximity to good medical care is important while travelling with children. The immune system of a child is more fragile than that of an adult. It is preferable to wait until a child is two years old before taking non-essential trips to isolated parts of the developing world. All routine childhood vaccines should be current. Taking unvaccinated children overseas exposes them to serious risk. In Australia, unvaccinated children are protected from disease by herd immunity: everyone around them is immune so they are not exposed to the germs. The Council of the Faculty of Homoeopathy in London strongly supports the standard immunisation program for children and has stated that vaccination carried out in the normal way is consistent with homoeopathic principles.

Plan your trip so the schedule is not too hectic, and there is time for the children to play. This will make everyone happier. Practice using hand sanitiser before the trip. Practice keeping the mouth closed during bathing - perhaps use very salty water in the bath before departure to deter a child who routinely drinks bath water: taking a shower is a possible alternative. Teach children the rules of travel: stay close, keep away from animals, what to do if they get lost etc.



GET FIT



Who me?

Do the best you can to get a little fitter. The fitter you are, the more you will enjoy your journey – especially if you are planning strenuous activities such as walking, trekking, cycling, rafting, or skiing.

The benefits will far outweigh the pre-travel effort. If you can't find time to exercise, you might have to find time to be sick. You do not have to run 4km a day. Thirty minutes of walking several days in the week, will make a profound difference for some individuals. Just do a bit more than usual.

Why?

Studies have proven that you decrease your risk of injuries and strengthen your immune system if you are physically fit. Unfit persons who go trekking in remote areas run the risk of having their heart attack a long way from medical care.

When?

NOW ...but no later than 8 weeks before departure.

What?

1. General cardiovascular exercise to make you fitter: walking, cycling, gym classes, yoga, swimming.
2. Specific training e.g. walking for a walking trip, cycling for a cycling trip. If you are going trekking, practise walking up and down hills with a pack. This will increase your fitness, accustom your joints to the "up and down travel", and wear in your shoes if they are new.
3. Lifting weights. A supervised program of lifting weights will benefit everyone. This is not to build Mr Atlas muscles but it strengthens your bones and improves your immune system and stamina.

Some travellers use a personal trainer for the 8 weeks before they leave – this helps some people stay motivated.

A word about general lifting

You are likely to be lifting heavy bags or suitcases while you are away. Make sure you lift properly – with a STRAIGHT back and bent knees – to avoid a miserable back injury overseas.

JET LAG PREVENTION

WEST IS BEST

(Jet lag is worse when travelling eastward.)
You need not get off the plane feeling like a Zombie.

Stopovers

Discuss with your travel agent the possibility of a stopover in your journey, especially if travelling EAST.

Planning

Two good nights sleep before leaving is ideal. If possible, schedule big farewell parties several days before departure. Plan to arrive at your destination late in the day, i.e. closer to bedtime.

Don't organise too much activity on the first day after you arrive – avoid collecting a hire car and driving, especially if you will be driving on the opposite (unfamiliar) side of the road.

Non-standard meal

Non-standard meals for the journey e.g. vegetarian, low fat, or children's meals, can be ordered in advance. (You will usually be fed first too).

An aisle seat

Consider requesting an aisle seat if you have medical problems which may be aggravated by prolonged sitting, or if you are pregnant. This allows you to stretch your legs more easily and often. Keep the seat belt fastened when seated.

Melatonin might help?

Melatonin is the hormone of darkness - a hormone from the pineal gland in the brain which controls the body's internal clock. Melatonin levels increase when it is dark outside and this causes you to feel sleepy. A great deal of research is being undertaken on melatonin to clarify its role in treatment of jetlag. In the United States, melatonin is available without a script and outsells vitamin C. In Australia, some melatonin is available on a script. In Dec 2002, a literature review found that 5 mg of melatonin, taken at the target bedtime at the destination (10pm-midnight), for 2-5 days *after arrival*, decreased jetlag resulting from flights crossing five or more time zones. It seemed to work best in persons who were travelling eastward. Melatonin is not recommended if you have epilepsy or take the drug warfarin.

Science News 2008 published information about a food related 'clock' in the brain, that overrides the light based 'clock'. A period of fasting for about 16 hours (e.g. no eating during the flight) and then eating as soon after landing seems to help travellers adjust to the new time zone more quickly than they would otherwise do.

PACKING

Travel light

Be ruthless. De-junk or perish! First time travellers always take too much stuff: it is most unlikely you will need more than 3 pair of shoes. If this is one of your first trips, ask a well travelled friend to check your luggage before the final pack. They may be more aware of what you will really use. Excess luggage is a definite health hazard: it can cause strained backs and nerves. A good rule of thumb is "Less luggage and more money". Leave expensive jewellery, clothes and bags at home, or you may become a magnet for thieves.

Luggage needs to be easy to carry and secure

You *will* have to carry your luggage at some stage. There is hardly ever a trolley, or porter, around when you need them. Depending on your style of trip, use a suitcase with wheels, or a pack. Suitcase wheels need to be sturdy. The suitcase strap or handle should be long enough so you do not hunch over when pulling it. The pack should be properly fitted. It is a nuisance to have too many outside pockets, if you have to keep locking and unlocking them. Try plastic cable ties to secure outside luggage pockets. Place scissors in a pocket that is locked with a key lock, so on arrival at your destination you can access scissors to cut the plastic ties.

Clothing for the journey

Wear layers of comfortable clothes, so you can adjust your temperature. Wear roomy, comfortable shoes in case your feet swell during the flight.

Checklist: Hand luggage for the plane

Make sure your hand luggage fits under the seat, or in the overhead locker, so it does not cramp your available leg space. Consider the following:

Valuables

Money belt, tickets, travellers' cheques, passport, vaccination book, phone, phone card, international sim card, credit cards, foreign cash.

Medical kit

Important prescription medicines (in hand luggage - checked bags can go astray). Diarrhoea medication (step 1 p101). Sharp objects need to go in the checked bags.

Glasses

Eye glasses, contact lenses (plus carry case and solution), spare lens prescription.

Toiletries

Hand sanitiser, moisturiser for face and lips, toothbrush and paste, deodorant, brush or comb etc. Liquids, aerosols and gel containers must be less than 100mls.

Other

Warm jumper/jacket (change of clothes if travelling with small kids). Compression stockings for those at risk of thrombosis (clots) in the leg. An eye mask and travel pillow may help you to sleep. A small torch. Things to do - especially if travelling with young children - pen, paper, reading material, games, camera, computer, ipod and relevant chargers.

WHILE YOU ARE AWAY

DURING THE FLIGHT

"I got on the plane very dehydrated after a bit of partying, and was really tired so I just slept for 8 hours. When I woke up, I just thought one of my legs was a bit stiff"

from a traveller who had a DVT.

Travellers' Thrombosis / DVT

Prolonged sitting can lead to a blood clot (thrombosis) forming in the deep veins of the calf, upper leg or even pelvis – hence the term DVT (Deep Vein Thrombosis). This may occur just as easily in business or first class travel as in economy class. It can occur after prolonged travel on a train, bus, car or aircraft.

A DVT is more likely in persons travelling more than 12 hours, those over 50 years of age, those with a tendency to clot, persons with cancer, or persons recently hospitalised or with a leg in plaster. The symptoms of DVT range from nothing at all, to a mild soreness or swelling in one leg. Serious problems occur when a piece of the clot breaks off and is swept via the circulation to the lungs – this is called a pulmonary embolism. If this clot is large, it can block the blood supply to the heart and be fatal. In October 2000 the media publicized the case of a young woman who suffered this rare event: She died from pulmonary embolism after a flight from Sydney to London. Not all DVT's lead to pulmonary embolism. DVT is a very rare cause of death in travellers; however, even small clots can damage the lungs permanently, and require long term anti-clotting drugs, which disrupts ones lifestyle and exercise tolerance. So what can you do?

How not to clot – think of …. W. A. L. C.

Water – Drink plenty during the journey. The air in a plane is very drying. One glass of liquid every hour will help maintain your body fluids. Fruit juice and water are best. Avoid carbonated drinks: low cabin air pressure makes the gas in your stomach expand by up to 20%, which will make you to feel bloated.

Activity – Exercise your legs and walk around the plane when possible. Exercise also helps prevent swollen feet. Exercise is especially vital in pregnant women.

Luggage – It must not press on the back of your legs. Remove bulky objects from your back pocket. Put a pillow in the small of your back. Crossing your legs interferes with the circulation and puts uneven strain on different parts of the body so minimise this if you can.

Compression stockings should be worn if prescribed, especially if you are over 50 years of age, or you have any increased risk of clotting.

Drugs

Persons at higher risk of a travel thrombosis may be recommended prescription medication to decrease their risk, eg Clexane injections or more recently tablets (Rivaroxaban 10 mg) on the day of the flight and the day after. Aspirin has been shown to stop *arterial* clotting, but its effectiveness at preventing clots in *veins* is minimal, so aspirin is not recommended for air travel: the risks of side effects (e.g. bleeding in the gut, asthma) are greater than the benefits.

Varicose Veins and DVT

There are two types of veins in your leg – deep veins running inside the calf muscle and surface veins running just under the skin, on top of the muscle. It is the clots in the deep veins that are serious. If a *surface* vein becomes permanently dilated or swollen, it is known as a varicose vein. Varicose veins may swell after a long flight. You can sometimes feel a clot in these surface veins – it feels like a hard lump in the vein: a clot in the surface veins is usually harmless.

Compression stockings – which type?

Compression stockings prevent general leg swelling (oedema) and also Deep Vein Thrombosis. Usually class 1 rated compression stockings (18-21mm) to the knee are recommended. Class 2 rated stockings (23-32mm) may be recommended for persons at higher risk. Wear rubber dish washing gloves to make it easier to put them on. Stockings should feel comfortable once they are in place.

Alcohol and food in moderation

Excessive alcohol or caffeine will make in-flight dehydration worse. Excess alcohol may also impede one's ability to react in an emergency. The boredom factor does make eating more entertaining, but of course when you are just sitting, your body needs less food than normal.

Sleeping

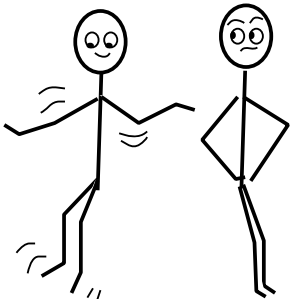
An eye mask may be useful to block light. A travel pillow will reduce neck strain from sleeping upright. Familiar (gentle) music may help.

Avoid sleeping tablets on the flight

Sleeping tablets are not recommended on aircraft, since they tend to immobilise travellers and increase the risk of thrombosis. They also impede a passengers ability to move easily in an emergency.

In flight exercises

Ideally these should be performed every hour. Follow the instructions given on the plane. One of the most important exercises is to reach for another glass of water!



IF PEOPLE LOOK AT YOU STRANGELY..... Smile and encourage them to do the exercises as well.

ADAPTING TO NEW TIME ZONES

Rest

Take it easy on the first day. Try to avoid a lot of driving, making big decisions or doing strenuous tours, on day one. You will not be at your peak. The best cure for jet lag is rest. It may take 5 days to recover from a 10 to 12 hour time shift, especially if travelling east. Symptoms are usually less if travelling west (west is best) but often one cannot choose.

Three clues to reset your body clock

When you arrive at the new time zone, you will adapt faster if you try to do what the locals are doing. Your body uses the following clues to set its internal clock:

1. Sunshine

A walk in the sunshine on the morning after arrival stimulates the optic nerve and helps the pineal gland in your head reset the body clock.

2. Meal times

Your body uses food as a clue to the time of day. Eat something at the new meal times to get your body on the right track. Avoid caffeine containing drinks after 4.00pm. The caffeine can keep you awake for many hours afterwards.

3. Sleeping times

Try to sleep at the new times. If you are very tired in the middle of the day, have a *short* nap. Set an alarm. If you cannot sleep on the first night, you may like to try one of the following:

- Taking some calcium (e.g. glass of warm milk) or a high carbohydrate snack before bedtime, (e.g. five marshmallows). This is said to increase brain serotonin and lead to drowsiness.
- Melatonin 5 mg at bedtime, for the first 2-5 nights.
- A mild sleeping pill, e.g. temazepam, or Stilnox will assist you get to sleep and help you slot into the new time zone.

Flying Australia to London

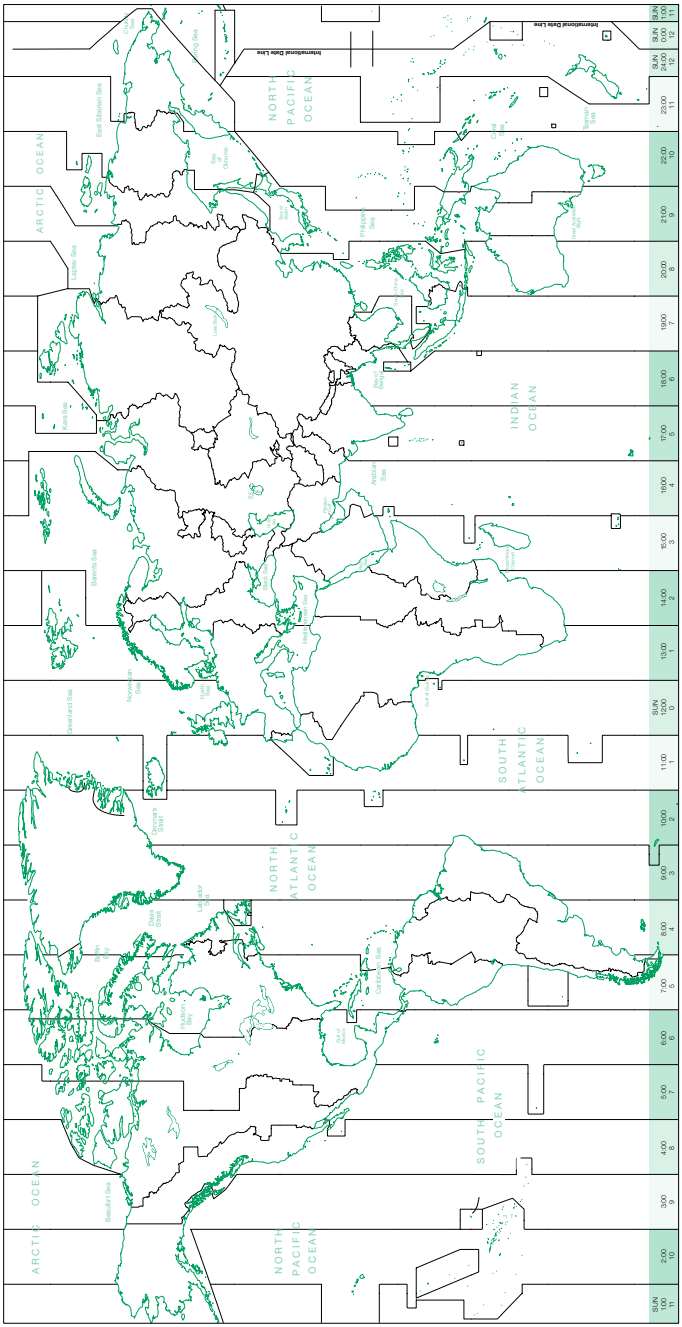
Most flights to the UK arrive first thing in the morning. You may arrive in London after 26 hours or more in the air. The clocks say 6.00am, whereas in Australia it's about 2.00pm. It is difficult to stay awake another sixteen hours until local bedtime if you have not slept on the plane.

If you can have some sleep on the plane, especially in the 7 hours or so before arrival, you will feel more like it really is 6.00am.

After arrival go for a walk in the sunshine (if there is any). Eat your meals at the English times.

Your body will adjust to the new time zones more quickly if you do as the locals do, especially eating and sleeping at the appropriate times.

TIME ZONE MAP



Jetlag is *not* feeling tired from a miserable plane flight.

Jetlag is when your internal body clock is out of synch with the local time zone.

Hormones normally synchronize your body clock with the daylight. This internal clock guides you when to feel hungry, tired, and even how often to use the bathroom.

The map left, gives you a guide to how many time zones you will cross. It may take 24 hours to adjust to every 3 hours of time jump. It can take up to 5 days to feel normal after flying from the UK to Australia.

GASTRO PREVENTION

SAFE EATING

Boil it, Cook it, Peel it, or Forget it!

It is better to miss a meal through choice than through illness! Germs are invisible and tasteless. Dangerous food can look and taste fine.

Clean hands and clean utensils

Before handling food, you need to wash your hands with soap and water and dry them with a clean towel. Tap water is usually safe to wash hands, no matter where in the world you are. If soap and water are not available, use hand sanitiser. Sanitiser is best used *after* you pull your chair in to the table. Check plates and cutlery are clean. Avoid wooden utensils (e.g. chopsticks) as they cannot be washed properly. Disinfection of dishes and utensils is best accomplished by rinsing them in water containing enough household bleach to achieve a distinct chlorine odour.

Recently cooked, well-cooked food

The safest foods are those which have been recently prepared and are served steaming hot all the way through, e.g. rice, vegetables or meat. Hot food is safe – (temperature 'hot' rather than spicy 'hot'). Thorough cooking kills germs. Spices do not kill germs. If your food is eaten immediately after cooking, germs have not had time to multiply. Be wary of 'wet dishes' e.g. curries, stews etc. that may have been prepared earlier, sometimes days before serving, and poorly refrigerated, or left to sit at room temperature. Dry items such as bread are usually safe.

Bottled or canned drinks

When buying water, always check the seal on the bottle, and buy from a reputable source. Carbonated water is safest. Enterprising locals may refill old bottles with local water, and sell them as treated. Beer, wine, and carbonated drinks are safe. Coffee and tea are usually safe if heated properly. Milk should be canned. Avoid unpasteurised milk. Alcohol in a mixed drink, will not kill germs in added juice, water or ice. When you buy bottled water, be careful you don't drink directly from the bottle as your mouth will touch the dirty sides.

Fruit and Vegetables

Washing fruit and vegetables presents a dilemma. There is very little research on this. (Can one adequately wash a lettuce?) Washing with running water will decrease the germ load on fresh produce. However, it seems more effective to scrub the surface if possible, then soak vegetables (not potatoes) / fruit for 20 minutes in iodine solution (made to the colour of dilute urine). Fruit should be washed, dried and then peeled by you. Thick-skinned fruit is preferable, so you do not contaminate the fruit as you peel it. Bananas are a great standby as careful peeling is all that is required. If you are resident of a developing country, the only way to ensure there is no contamination of your salad, may be to grow your own lettuce and tomatoes in potting mix with clean water on your own balcony.

Good/Bad gut bacteria

Current evidence shows that taking good gut bacteria (e.g. in yoghurt etc) will not stop travellers' diarrhoea. These products are known as probiotics. However, they do show promise at helping some people to recover from diarrhoea.

UNSAFE EATING

Local water

"I was in a hotel and swallowed just a mouthful of local water with some tablets, and spent a few days quite ill" Traveller to Thailand

Never drink from streams, lakes ponds etc. Avoid tap water in less developed countries, especially in the rural areas. Don't clean your teeth or open your mouth in the shower either. Blended fruit drinks often contain local water. The tap water in Western Europe, USA, UK, Australia, New Zealand and similar countries is safe.

Ice

Avoid ice, unless it is made with treated water. Ice in drinks or cocktails is a risk; Freezing preserves germs, rather than killing them.

Raw, undercooked, reheated food

Raw food should be avoided. Cooking kills germs. Raw vegetables in a healthy looking salad may actually be very unhealthy. Human manure is used to fertilise growing vegetables in some areas. Salad items may be dangerous if washed in local water. Avoid cold sauces and toppings. Avoid cold, raw or undercooked meat of any kind. It may be contaminated with bacteria or parasites. You might catch a tapeworm, which can live in your gut for ten years. Liver flukes can be contracted from eating undercooked, salted, pickled, or smoked freshwater fish. These parasites can obstruct your bile duct and even cause cancer. It is best to politely decline dishes containing raw or undercooked eggs e.g. home made mayonnaise, hollandaise sauce, or desserts such as mousse. Be suspicious of food that has been left at room temperature for some time, or food that has been cooked and reheated.

Beware of flies

Flies landing on your food are a significant cause of diarrhoea in some countries.

Shellfish and seafood

Avoid raw seafood: It may have grown in sewerage-polluted waters. Raw oysters, and cold (previously cooked) prawns are especially risky. Well cooked, recently prepared seafood is usually safe. Eating large tropical reef fish in some regions can cause ciguatera poisoning (see p 153) : the locals often know which species to avoid.

Dairy products

If refrigeration is unreliable, dairy products could be dangerous. Tinned milk is okay. Avoid unpasteurised milk, custards, ice creams, and creamy desserts. Milk and dairy products are usually safe if served by a five star hotel. Yoghurt may be hazardous depending on how it is cared for - it is easily contaminated after being cultured e.g. if stored incorrectly, or when adding flavouring.

SAFE DRINKING WATER

Safe water is essential for drinking, cleaning teeth, and washing wounds and food.

Think before you drink

Bottled water is a convenient and popular source of safe water. However there is no guarantee just because it comes in a plastic bottle, that the water is germ and chemical free. When assessing bottled water, consider the following:

- Is the seal intact?
- Is the water clear (no sediment)?
- Has it been purchased from a reputable source?
- Check the label includes brand, manufacturer's complete address, ingredients, batch number and 'best before' dates

Unfortunately the disposal of used plastic water bottles is a major environmental problem. To disinfect your own water you can use boiling, chemicals or purifiers.

Boiling

Heat is a simple, effective method for ensuring safe water. Boiling water for *one continuous minute* will ensure water is safe to drink, *even at altitude*. If you do not have the facility to boil water for one minute, it is almost as effective to bring water to the boil, then keep the water covered, and allow time for the water to cool to room temperature before drinking.

Chemical Disinfection

Iodine (e.g. Potable Aqua™) is generally more reliable for chemical water purification than chlorine (which is basically bleach) or silver. Chlorine, (Puritabs™) may fail if water is heavily contaminated. Chlorine dioxide (Pristine™) works well but is not readily available in Australia. Silver (Micropur™) is not very effective at killing viruses or parasite cysts.

Iodine tablets will remain active for six months after opening, provided the bottle remains capped. It is a good idea to write on the bottle when you open it: 'Expires _____' and the date six months hence. Iodine tablets must be stored away from excess heat or moisture. A fresh tablet is a grey colour with minimal white specks. When tablets start to take on a yellowish appearance, they should be discarded.

Using Iodine water purification tablets for a month is safe for most people.

The persons who should not use iodine include pregnant women; those with poor thyroid function, thyroiditis (inflammation of the thyroid), iodine allergy or sensitivity; possibly persons with a family history of thyroiditis. It is safe to use iodine for water purification if your thyroid has been removed and you are taking replacement thyroid hormone (thyroxine). If you will be using iodine for all your water for more than 6 months, you should have a thyroid test before you start and after 6 months of continuing use, to check you are not developing an iodine goiter from excessive iodine dose.

Complete *chemical* purification of dirty water is a two-step process (three if you want the water to taste good). Using Iodine tablets alone is effective *only* if you are using high quality source water e.g. from hotel taps.

The steps required are as follows:

Step 1. Clarification: Cloudy or dirty water must be cleared to remove unpleasant colour, taste, some dissolved metals, and some micro-organisms. Add a large pinch of alum per 4 litres of water (the dose need not be precise). Alum is aluminium potassium sulfate: it is used in the food industry as pickling powder and is non-toxic. Stir or shake briskly for one minute, then agitate gently for 5 minutes. If water is still cloudy, add more alum and repeat mixing. Allow at least 30 minutes to settle, then pour the cleared water through a fine woven cloth. In an emergency, you can use baking powder, or even fine white ash from a campfire to do the same job.

Step 2. Iodine: The purifying time for iodine depends on dose you use and the temperature of the water you are treating. Tablets are most convenient: follow the instructions on the bottle... If you have no tablets, you can use Iodine 2% tincture – 0.2ml (5 drops) per litre or even 10% povidone-iodine (betadine) - 0.35ml (8 drops) per litre and stand for one hour. If the water is icy cold, you need to double the standing time or double the dose of iodine

Step 3. Improving taste: To make treated water taste better *after disinfection time is complete*, add a pinch of vitamin C powder or the usual quantity of drink flavouring.

Commercially produced water filters/purifiers

There are a dazzling array of commercially produced water purifiers. Good ones allow you to drink 'local water' wherever you are. They work quickly, the water tastes better, and they are more environmentally sound (fewer plastic bottles). These are more economical for longer trips due to the higher up-front cost. Most incorporate filters, iodine and de-tasting agents, but some use ultraviolet (UV) radiation which disrupts the DNA of germs very nicely. Portable, battery powered UV light units (e.g. Steripen) only work on clear water. Water which is cloudy needs to be prefiltered .

Solar Disinfection

This method is used in developing countries and utilizes heat and UV light. In case of emergency, it involves leaving clean looking water, in a transparent plastic PET bottle, out in the sun, on a black background, for at least 4 hours. The heat and UV light will substantially improve the microbiological quality of the water.

Containers

Be careful not to place clean water in a contaminated container. Drink out of clean cups. Wrapped straws can be useful if you bring them from home.

Drinking water and avoiding dehydration

Dehydration is common among travellers. It develops quickly in tropical countries where the weather is hot and the water is unsafe. If you wait until you are really thirsty, you are already dehydrated. The best way to ensure you do drink plenty of water is to have safe water always on hand. The following hint may be helpful. Every morning buy or treat one or two large bottles of water and put them in your day pack or bag. If the water is easily accessible you will drink more. The weight of the water is also a reminder. Hydralyte or Gastrolyte may be added to drinking water in hot climates to replace lost electrolytes.

Difficulties with food rules

Are these ideal food and water guidelines achievable all the time? Probably not. The demands and delights of travel mean almost all travellers find it difficult to consistently follow the ideal recommendations for safe eating.

One study showed 98% of travellers made at least one error in the first 72 hours of their trip. Studies confirm that whilst being careful is no guarantee, the more careful you are, the less likely you are to get sick. Some individuals are more likely to develop more severe complications from a bout of travellers' diarrhoea; e.g. those with medical problems, persons over 65, or under 12 years of age. If you fall into those categories, it is best to take extra care.

Even persons who live for long periods of time in a developing country are not immune to stomach problems. Sometimes the risk of diarrhoea varies significantly depending on the time of year.

Even developed countries are not completely safe. A few years ago, CDC in the US estimated that food borne diseases caused approximately 76 million illnesses, 325,000 hospitalisations, and 5,000 deaths in the United States each year.

Can you pick a safe place to eat?

Studies in Mexico showed the highest risk of travellers' diarrhoea came from eating at street stalls. The next level of risk was public restaurants or school cafeterias, and the lowest risk was in private homes. However, depending on the setting, a private home is no guarantee. Not all street stalls are the same either e.g. if you eat from busy street stalls, the risk is likely to be less as the food has a higher turnover (and probably tastes better!) Five star hotels generally have an economic need to be safe or they lose business.

A quick look at the eating area might give you some clues. Are the tables and cutlery clean? Are flies abundant? Are the staff wiping dishes, tables and everything else with the one cloth? Atmosphere is one thing, but some places lean too far towards dingy and dirty. You seldom get to see where the food is being prepared. Ideally you want a restaurant with: screens to keep the insects out, reliable refrigeration facilities, vegetables washed in chemical solution, workers with clean hands, attention to proper hygiene, ice made from clean water. This may be a big ask! A restaurant may have a good reputation, but even that is no guarantee. Local haunts may be safe for locals.

All of the above means it is often better to focus on the food itself than to just trust the eating establishment.

A final note about dietary precautions

In March 2013, more than 60 diners were reported to suffer food poisoning from a danish restaurant dubbed 'the worlds best eatery'. Ultimately it is best to be prepared, so if, or when, the preventative measures fail, and you suffer gut problems, you have the necessary pills available to treat your gut problem quickly and effectively.

COLD AND FLU PREVENTION

There are over 200 different viruses known to cause the symptoms of the common cold. This includes rhinoviruses, coronaviruses, RSV, parainfluenza, adenoviruses, echoviruses and the list goes on. (SARS is caused by a different type of coronavirus). It is almost impossible to make a vaccine for the common cold, as it would need to cover so many different viruses.

These viruses are common in the environment. Cold viruses contaminate the hands of people with colds as a result of nose blowing, covering sneezes, and touching the nose. Some of these cold viruses can survive on surfaces for up to 3 hours. Shaking hands can spread germs. A cold virus deposited into the eye quickly travels down the tear duct and into the nose. Once in the nose, the virus starts the infection.

The best way to avoid all cold and flu viruses is

- Frequent careful hand washing.
- Avoid touching your eyes, nose or mouth unless your hands are washed.
- Avoid close prolonged exposure to persons who have colds.

Even people with a healthy immune system can catch a cold.

Psychological stress may make you *a little* more susceptible to getting a cold. Children may have up to 10 colds a year. Adults commonly have up to 4 colds a year. Women in the 20-30 year age group have more colds than average, possibly since they have more contact with children. Menstrual cycles may have an impact on a woman's susceptibility to colds.

Becoming chilled or cold *does not* make you get a cold, or make you more susceptible to getting a cold. This is proven in clinical trials.

The number of colds in the community increases in winter because the viruses that cause the common cold survive better when the humidity is low. These viruses also spread more easily when persons spend more time indoors. Research suggests that factors such as central heating, exercise, diet, or enlarged tonsils do not make a person more susceptible to colds. Several large medical trials have failed to find any evidence that taking large doses of vitamin C will prevent colds.

Wearing a mask is of limited value in protecting a person from colds, as the virus can still infect you via the eyes. A mask on a sick person, however, does stop them coughing or sneezing more viruses into the environment.

To help stop the spread of germs to others, it is recommended that whenever you cough or sneeze, you cover your mouth and nose with a tissue or handkerchief. Place the used tissue in the bin, or the used handkerchief in the wash or sealed plastic bag - do not leave it loose in your pocket, treat it as contaminated. If you do not have a tissue, cough or sneeze into your upper sleeve or elbow, not your hands. The best way to prevent many types of infection is to wash your hands frequently with soap and warm water for 20 seconds, or use hand sanitiser.

RABIES

Mammals carry rabies

The rabies virus is present in mammals in most developing countries. Dogs are the most common source of rabies being transmitted to humans. Other less common transmitters are cats, monkeys and bats, however all mammals have the potential to transmit rabies. Rats are rarely reported to carry rabies. Even vaccinated animals can sometimes transmit the disease.

Avoid contact with animals

If you are bitten, scratched or licked over broken skin, the virus gains entry via the animal's saliva. Being scratched by a paw is unlikely to lead to infection. Patting animals is a risk, but about half those bitten are just in the wrong place at the wrong time: walking in the street, walking behind tents, visiting a temple, sitting on a beach, watching fireworks, sitting at a restaurant table. It may help to carry a stick or umbrella to fend off animals when walking. Avoid bat caves: on rare occasions, persons have contracted rabies by inhaling the virus whilst inside the caves.

Safety around Monkeys

Monkeys are unpredictable and may be aggressive. Before approaching a monkey stronghold, remove food, and anything dangling, or sparkling from your person. Keep your hands empty. Stay close to temple workers. Move slowly. Do not stare at their eyes or they feel challenged. Take pictures from a distance. Never give monkeys food or anything else. Show them open palms.

Do rabid animals look sick?

Not always, the animal may look normal – but behave unpredictably.

Children are more likely to be bitten

Supervise children closely if they are near animals. Children are at greater risk as they are often attracted to animals and are more likely to interact with them. They may not reliably report an animal bite. They are also more likely to suffer animal bites that are severe or multiple, or involve the upper limbs, head or neck.

Joggers and cyclists

Think twice about walking, jogging or cycling in rural areas if you have not had rabies pre-exposure vaccination, especially in India.

If you get bitten

Since rabies is almost universally fatal, all animal bites or scratches must be treated as potentially rabies infected until proven otherwise (see page 119). If the skin is broken, you need treatment. Ring your travel insurance hotline to find a reliable medical provider. In the developing world, vaccine is difficult to access, and mistakes in rabies post-exposure treatment are common.

INSECT BITES

Not just a nuisance!

Midges, mosquitoes, sandflies etc ... insect bites can be irritating, but may also set off allergic reactions, become infected, or carry disease. Some insects are poisonous, e.g. spiders. The most serious problem is that some insects carry disease, e.g. Malaria, Yellow Fever, Dengue Fever, Japanese B Encephalitis, Filariasis, Kala Azar, Onchocerciasis, Typhus, Leishmaniasis, Sleeping Sickness, Chagas' Disease, Plague, Relapsing Fever, West Nile Virus, Lyme Disease and more!

How to avoid insects

DEET repellents work on most insects – not just mosquitoes. Whenever possible avoid high risk areas, times of the day or times of the year. Choose accommodation with screens. Avoid mosquitoes during the day and night. Day biting mosquitoes carry dengue fever. In Africa, try to avoid large (tsetse) flies. (Tse Tse flies are said to be attracted to blue or dark clothing.) If you dry your clothes in the open air, iron them before wearing to avoid tumbu fly/maggots. In areas where scorpions occur, check your shoes before putting them on. Wear covered shoes to avoid burrowing fleas (jiggers).

Ticks/Leeches

Light coloured clothing will help you spot the ticks more easily. Wear long-sleeved shirts and long pants and tuck your pants into your socks or boot tops to help prevent ticks reaching your skin. DEET repellents on exposed skin and permethrin soaked clothing will help repel ticks. Check your body each night for hangers on - especially groin, armpits, ears, neck and scalp. The longer a tick stays attached, the greater is the risk of catching a disease. Leeches don't carry disease.

Sleeping

Check that the walls and your bedding are clean. Check the mattress for little brown spots. Bedbugs can hide in the mattress, furniture, or curtains. A sickly sweet smell in the room might mean bedbug infestation. Head lice can be contracted from contaminated sheets, however they cannot live more than 24 hours away from a human host. Insecticide treated sleep sheets are available and a most effective way to minimise your contact with the bed bugs, lice or fleas which inhabit some sleeping quarters. Never sleep inside mud (adobe) huts in the Americas (Chagas disease). Even if you are sleeping during the day, it is important to protect yourself from mosquitoes etc. Treated bed nets are very effective. Sadly, sandflies can pass through untreated mosquito nets.

WORMS AND PARASITES

Five easy ways to avoid infestation

1. Wash your hands frequently

Wash your hands before eating and after using the bathroom. Contamination is everywhere – on money, shoelaces, door handles etc. Beware of shaking hands. It is a cultural norm in many countries, but you don't know about the state of hygiene of the other person. Many persons do not wash their hands after using the bathroom, sneezing or coughing into their hands, placing fingers in their nose and mouth, touching sores, etc.

2. Don't bite your nails

This habit efficiently transfers germs from your surroundings to your stomach.

3. Choose your food and fluids carefully.

If you follow the eating and drinking recommendations given earlier, you will dramatically reduce your contact with worms and parasites as well as decreasing your risk of gastroenteritis.

4. Keep your shoes on

Almost one quarter of the world's population is infected with hookworm. Hookworm larvae may be present in soil or sand. These immature worms can enter your body through bare skin while you are standing or sitting in contact with the ground. Beach sand below the high tide mark is washed twice daily so it is safe to sit on. Covered shoes also provide protection from snakes and sunburn. If you wear thongs or other footwear in communal showers, you will minimise the chance of fungal infections and plantar warts. Bare feet are fine in hotel rooms on carpet.

5. Avoid contact with still, fresh water

It is not recommended to swim, bathe, shower, or wade in still, fresh water in areas infected with Schistosomiasis (bilharzia). Salt or chlorinated water is safe.

This parasite is present in parts of Africa (especially Lake Malawi and Lake Kariba), South America, and Asia. Use hip waders, waterproof boots and/or gloves if wading streams or collecting water. If swimming is unavoidable, apply DEET containing repellent to your skin before water contact. After swimming, towel dry vigorously and apply rubbing alcohol (methylated spirits or even cheap booze) to the skin. These measures will help deter the larval worms from hitching a ride.

MOTION SICKNESS

What is it?

Motion sickness is a normal reaction to certain types of motion. Air sickness, sea sickness, and car sickness are basically the same thing. Regardless of the cause, the end result is the same. The sufferer turns pale, yawns, feel restless, clammy in the skin, or breaks out in a cold sweat, produces more saliva, feels nauseous and vomits. About one third of the population are highly susceptible, one third react only to fairly rough conditions, and the final third will become sick only under extreme conditions. Women are more susceptible than men. Persons 2-12 years are most susceptible with their susceptibility decreasing with increasing age. Motion sickness is uncommon after age 50.

Continuous exposure to a particular motion usually means the symptoms subside within three days, although there are a few unfortunate souls who remain sensitive to it throughout prolonged exposure. Occasionally, after adapting to the motion, symptoms return when the motion stops e.g. when you get off the ship. This is known as Mal de Debarquement Syndrome (MdDS). For a handful of people, this illusion of movement seems to last for long periods of time; weeks to months, even years. If symptoms like this persist more than a week after you return to land, medical advice should be sought urgently, as early treatment is the most effective.

History

Motion sickness has plagued humans since we began using vehicles to transport ourselves. Cicero, Julius Caesar, and Admiral Lord Nelson were notably susceptible. Even Lawrence of Arabia suffered from motion sickness when he was riding his camel during the desert campaign against the Turks. Until the 1940s it was believed that those who experienced motion sickness lacked moral fibre. This is, of course, nonsense.

Position yourself

The least irritating places on a vehicle are: the front seat of a car where you can watch the road, over the wing of an aircraft,or amidships on a boat especially on a lower deck of large ocean liner (or for short periods; in the swimming pool).

The following may also help:

- Get fresh air
- Avoid alcohol, strong odours, and spicy or greasy foods
- Lie down, close eyes, minimize head and body movement
- Never watch someone who is vomiting

Medications for the prevention of motion sickness

For maximum effect, you need to start the medicines before symptoms develop. Adult doses follow (for children's doses see the drug reference table p145-152).

Ginger – the Natural option

Ginger has been found to be effective for some people. Ginger-based tablets are available from health food shops. The required dose of ginger is somewhat uncertain.

For short trips (less than 8 hours)

Hyoscine tablets (Kwells 0.3 mg) Take 1-2 tablets 30 minutes before travel. It acts for about 4 hours. Repeat in 4-6 hours if necessary.

For longer trips (more than 8 hours)

i) Promethazine (Avomine or Phenergan 25 mg). NASA has tested everything for motion sickness (because of space sickness) and recommends promethazine as the most effective.

> **Promethazine – prevention of motion sickness**
> Adults: take one 25 mg tablet the night before travel.

Promethazine two hours before departure causes serious tiredness. If you take the tablet the night before travel, the motion sickness effect is still working in the morning but the tiredness is much less. Caffeine in the morning may help counter remaining drowsiness. (Ideally test one dose of promethazine before departure.) Promethazine is safe to take for a few days if you have continuing exposure.

ii) Scopolamine (SCOP 1.5 mg) patch. This tiny medicated patch is stuck behind the ear, 6-8 hours before exposure to the motion. It is worn continuously for three days, e.g. the first three days of a boat trip. It is not readily available in Australia, though a Scop stick, where drug is applied to the wrist, is available on prescription. N.B. SCOP and Kwells may cause dry mouth, blurry vision and dizziness. Occasionally SCOP can cause confusion, especially in persons over 65 years of age. Travellers have reported headache and anxiety while using a SCOP patch.

iii) Dimenhydrinate (Dramamine 50 mg): One tablet is taken 3 to 4 times a day. It should be started two hours before travel. It can cause drowsiness and dizziness so do not use when driving.

iv) Dilantin (Phenytoin): 50 to 100 mg is taken 1-2 hours before travelling. This prescription drug is not suitable for everyone.

v) Diazepam: 5 mg taken two hours before motion.

vi) Cinnarizine (Sturgeron): 15-50 mg. This is quite effective for some people. It takes about 4 hours to work and lasts for 8 hours. It is not readily available in Australia.

Things which do not work so well

The common anti-nausea drug prochlorperazine (Stemetil) is not very effective against motion sickness. Drugs that ease the nausea caused by radiation or chemotherapy for cancer (e.g. Zofran /ondansetron) do not work against motion sickness. Wrist-bands that exert pressure on an acupuncture point in the wrist have been shown to have no effect in clinical trials, though some travellers claim they are psychologically helpful. Caffeine alone does not decrease motion sickness.

ACCIDENT PREVENTION

Medical care may be difficult to obtain in developing countries and small injuries may develop complications and turn into serious medical problems. Even seemingly minor injuries such as a sprained ankle will severely restrict your holiday.

More travellers die from accidents than any other medical problem while away. The most common cause of serious injury is car or bike crashes. Most accidents are avoidable. Travelling means doing different things of course - even taking a few risks. However, these risks must be balanced with the risk of injury. Don't let your safety standards drop just because you are away from home.

The Price of Life is Eternal Vigilance

For example don't keep walking backwards to get that ultimate photo. This sounds obvious, but a tourist died in Australia recently from falling off a cliff under these circumstances. Watch your step.

BACKPACKERS' ACCOMMODATION SAFETY

1. Check the fire escape

Know where it is. Make sure it is not obstructed. Keep a torch by your bed. Plan how you would escape if necessary. In a smoke-filled room, there is more oxygen if you crawl along the floor.

2. Beware of balconies

Every year travellers die or suffer serious injury as a result of falls from balconies. The floor of the balcony may be designed to look pretty, but can be very slippery. Check the balustrade fixing is sound. It also needs to be sufficiently high to stop you overbalancing and falling. If not, stay well clear.

Also beware of overcrowded balconies. These structures may not be built to withstand the weight of the crowds, and have collapsed during gatherings.

3. Bathrooms

The world has an astonishing array of different shower fittings. The water may be hotter than you expect. Turn the shower on before you get in. Watch out for steps around bathtubs or showers. These become especially hazardous if you are trying to escape a spray of unexpectedly hot water. Bathroom floors can be very slippery. In Spanish-speaking countries, the 'C' on the tap stands for caliente or hot. In France, the 'C' means chaud also translating as hot.

MOTORBIKE SAFETY

One of our patients went to India to start an orphanage, and was killed when a truck crashed into the back of her stationary bike at a traffic light.

Avoid motorbikes in developing countries

Motorbike accidents are sadly quite common among travellers: traffic is chaotic, road surface and bike maintenance may be poor, rust is more aggressive in the tropics etc. Accidents may not be the rider's fault. Koh Samui Hospital, Thailand treats an average of nine people a day with motorbike injuries. The Peace Corp, USA banned their workers from riding motorbikes because serious accidents occurred so frequently. Check the machine, and especially the brakes. Check your insurance will cover a motorcycle accident. Even if you are insured, in the event of an accident, modern medical care may be impossible to access. If possible, choose a car instead.

Wear a helmet and protective clothing

If you ride motorbikes, you need the right gear: Helmets are essential, plus cover for arms, legs and feet. In a recent case, a rider chose not to wear shoes for a 5 minute ride to the hotel, had a minor accident but suffered months of pain from a terrible foot wound which shoes would have prevented. Be especially careful getting on and off the bike: Exhaust pipe burns to the lower leg are common in travellers.

Tuk Tuk

The Tuk Tuk (pronounced took took) is a three-wheeled vehicle in common use in Asia. It looks like a motorbike on steroids. Ideally limit your use of these, as they provide no protection in a crash

CAR SAFETY 

Motor vehicle accidents are the most common cause of death in travellers. Fatigue, lack of seat belt use, unfamiliar conditions such as driving on the opposite side of the road, and alcohol are common factors causing road crashes among travellers. Medical care, in the event of a crash, may be unavailable or even make the injuries worse.

Choose the safest vehicle

Cars are proven to be safer than motorbikes. Open trucks and overloaded buses may also be hazardous to your health. If renting a car, aim for a larger, more modern car. If possible choose one with seat belts (including child restraints if relevant), and air bags. If possible, request automatic transmission so there is less to distract you. Rent from a reputable, professional organisation. Check the spare tyre etc. Find out who to call if you have mechanical problems.

Choose the safest driver

Sometimes the safest driver is a local, who is familiar with the local road conditions and rules. This such an issue that some organisations send their designated local company drivers on special defensive driving courses. Even if the car and roads are well maintained, the roads may be crowded with many large trucks, buses, motor bikes, cars and careless pedestrians - all of which can be very distracting. In some countries a high percentage of drivers do not have a licence to operate the vehicle.

Avoid excessive speed

It is dangerous to drive too fast or too slowly. However if you drive too fast you are more likely to be seriously injured in a crash. Drive according to the road conditions. Stick to the speed limits and follow the road rules. Some taxi drivers travel fast so they can earn more fares in a day. (One traveller regularly offers the driver a $20 bonus if he drives below a set speed e.g. 50k/h.)

Avoid alcohol – Drive sober

No matter what country you are in, alcohol is one of the top contributing factors to deadly road accidents. If you drink, don't drive. Ensure you are not a passenger when the driver has been drinking.

Drive well rested

Fatigue or jetlag plus unfamiliar roads and driving conditions make a deadly combination. Ideally wait 24 hours to adjust to the new time zone before you get behind a wheel. Seek local advice regarding realistic travelling times. Rest every two hours or so during long drives. Get out and stretch your legs. Have meal breaks. Hungry drivers have slower reaction times. The editor of a book which analysed 1,400 fatal collisions that took place in Finland between 1998 and 2001 said in masterful understatement that "many people fail to see how dangerous it can be to fall asleep while driving".

Minimise distractions

Mobile phones, insects, noisy children, and even music are notorious distractions.

Driving on the opposite side of the road

If you are driving in a country where they use the other side of the road to what you are used to, your risk of an accident is greatly increased. When you are on a big highway, it is easier to stay on the correct side of the road; however, when entering the road from a driveway, making turns onto a deserted road or when driving in busy traffic, it is easy to forget and turn the wrong way. Roundabouts can also be a challenge. Confusion over which side of the road to drive on, was reported to be a major factor in the death of an American tourist in Brisbane recently. Each time you go round a corner remind yourself out loud: Turn left onto the right hand side of the road, (or right onto the left hand side of the road depending on where you are). This might help you get into the new habit.

Choose the safest time to travel

Daytime is best. Try to avoid travelling by road in rural areas after dark in the developing world. Night buses are a greater risk than day buses. Driving in daylight is much safer. Accidents are less common, and medical care is more readily available.

Beware of animals on the road

Whether they are kangaroos, cows, moose, camels, or bears, collisions will make a mess of you, your car (and them). Every year in the USA alone, 10,000 people are injured and over 100 are killed in collisions with animals. Be especially careful at dusk in rural areas.

Wear seat belts

In many countries it is *not* compulsory to wear a seatbelt, but if you have a crash it can mean the difference between life and death.

The Fatal Five

The five most common human errors that contribute to fatal accidents are:

Excessive speed, alcohol, tiredness, distraction, lack of seat belts.

PEDESTRIAN SAFETY

Be especially careful if crossing roads at dusk. Look both ways. In countries where they drive on the opposite side of the road to what you are used to, cars appear unexpectedly from the other direction. This is a common cause of pedestrian accidents happening to travellers.

In some countries (e.g. Vietnam), the locals encourage visitors to just step out onto the road and keep walking at a steady pace and the traffic will go around you. Certainly never stop in the middle of the road as someone may be aiming to drive behind you and if you stop, you will get hit. This 'step onto the road plan' is all very well in theory; however if locals decline to wear helmets on motorbikes, or seat belts in cars, they may not be as safety conscious as we would like them to be. Mind altering drugs are inexpensive in some countries, and you don't know what drugs the occasional driver may have taken. There is no magic shield – pedestrians do get hit – if possible cross in a group, or alongside a few locals. There is safety in numbers.

AEROPLANE SAFETY

A significant fear of flying is quite common, although many persons are unwilling to admit this even to family and friends.

There are some excellent pre-departure books and programs to help people get their fear under control, ask Google to find them for you.

Misunderstandings about the principles of aviation can make the problem worse. Some persons find it helpful to learn that the engines do not support the aircraft in the air. All airliners can glide without engines. The engines allow the aircraft to maintain altitude over long distances, and travel faster.

It may also be useful to remind yourself that it is much safer to travel with a reputable airline, than to drive a car. It is lack of familiarity with air travel that increases a persons fear of flying. The human mind is programmed to be on the alert in new situations. Try to focus your mind on something else - movies, food, where you are going etc.

Once you are in the air, the most important safety tasks are to count the number of seats to the nearest exit, keep your shoes on during take off and landing, and keep your seat belt fastened whenever you are seated.

PERSONAL SECURITY

Even at home, your personal security can never be taken for granted. Whenever you travel overseas, a few simple precautions will ensure your personal safety. Both sexes are at risk.

Leave expensive trappings at home

Expensive watches, rings, earrings, necklaces, handbags, purses, even expensive clothes attract criminals like moths to a flame - let someone else attract the criminals. Even loud shirts will shout the message that you may be a rich tourist.

Plan ahead

Keep someone at home regularly informed of your movements. If travelling independently, research the places you will visit. Know the parts of town to avoid. Avoid looking lost on the street or in train stations etc. Read your map inside a shop. Being in a hurry puts your personal security at greater risk. Endeavour to keep yourself out of potentially dangerous situations. If you see a commotion, head in the opposite direction. Be a little suspicious. Never take food or drink from strangers. Recently travellers were robbed after sedatives were hidden in hazelnuts offered by seemingly friendly locals. If meeting persons who you do not know well, always meet in very public places. Hitchhiking is akin to playing Russian roulette. Avoid very crowded situations if possible, and be alert to jostling, even if it appears innocent. This may be a ploy by pickpockets to distract you.

Keep your hands free

Interviews with criminals in prison revealed they target men and women in a hurry, encumbered by purses, and packages. Let go if your bag is snatched. It is better to tuck possessions onto your person in pockets, or money belts etc. Keep wallets in front pockets. If a bag is necessary, a battered backpack will keep your hands free. Be alert to your surroundings; do not walk around with headphones in your ears.

Have a decoy ready

Carry a money clip containing a $50 note in an accessible pocket. If you are waylaid, you can throw the weighted note at the bandit, and run the other way. The weight of the money clip stops the note blowing back at you. A sacrificial wallet - containing a few notes and old credit cards - will work too.

Accommodation Safety

If you can choose, the safest rooms are from 2nd to 6th floor of a hotel, away from public areas. Familiarize yourself with escape routes in case of fire or other catastrophe. Use the door chain or bolt lock whenever you are in your room. Use the door viewer (peephole) before opening the door to visitors. Do not allow strangers into your hotel room. Do not discuss your room number while standing in the lobby, or leave your room key on restaurant or bar tables. Never leave valuables in your hotel room exposed or unattended, even in a locked suitcase. Keep your room neat so you will notice disturbed or missing items quickly.

MIND ALTERING DRUGS

People are more likely to experiment with mind altering drugs while travelling.

Travellers are away from the usual social restraints such as family and friends, and they don't have to go to work the next day. They are generally more relaxed, and in holiday mode. Many people see alcohol as an integral part of the holiday experience.

Alcohol

Alcohol is often cheap and readily available overseas. Check the alcoholic content of your drink. The brews overseas often have a higher alcoholic content than you may be used to, e.g. some varieties of Mekong whisky would be a good substitute for rocket fuel. Home brewed alcohol may be especially hazardous. Contaminants in the alcohol (e.g. Methanol) can lead to severe hangovers or even death. Accidents, theft and assault are more likely when intoxicated.

Illegal drugs

Experimentation with these sorts of drugs is extremely dangerous to your health.

Drugs are cheaper, and more widely available in developing countries. Intravenous drugs carry a risk of contracting diseases such as AIDS. Drugs may be stronger or laced with harmful contaminants. There is often no-one to collect you and take you home, if you lose control. Possession of these drugs can lead one to be jailed or handed the death penalty. Of course don't carry packages, dolls, toys, gifts etc. for others, especially across borders.

Drink spiking really happens!

Only drink beverages you have opened and poured yourself. Avoid open bottles of spirits – especially in beach bars. Don't accept drinks from anyone unless you know them well – not one sip. Drinks can be spiked with:

1. **Alcohol** – this is the most common drug used in spiking both alcoholic and non-alcoholic drinks.
2. **Sedatives** – e.g. Rohypnol, can cause you to feel very drunk and to forget what happened after you were drugged. In some countries, Rohypnol has a dye in its core, so it dissolves blue in light coloured drinks; however, the colour is not visible in dark or blue drinks. The effects of this drug are typically felt within 15 to 20 minutes of administration, and may persist for more than 12 hours.
3. **Gamma hydroxybutyrate acid (GHB)** – this can be added to drinks without trace. It can cause amnesia and make walking and talking difficult. The harmful effects of this drug are worse when mixed with alcohol.

Watch your drink. Keep your finger or thumb over the mouth of any bottle from which you are drinking. Stay with your friends. If you start to feel dizzy, or ill, ask someone you trust to take you to a safe place.

WOMEN TRAVELLERS

FEMININE HYGIENE

Toilets in some parts of the world can be extremely unclean. During a menstrual period, ensure your hands are clean before tampons are used. Wash hands with soap and water, (tap water is safe for this), and dry your hands with a clean towel. Hand sanitiser can be used where soap and water are not available. The use of tampon applicators may be convenient.

TRAVELLING AND THE PILL

Delaying Periods ... and the Pill

Some contraceptive pills can be taken continuously, thus avoiding periods altogether. This is safe. It is easier with monophasic (one strength pills) like Microgynon, Levlen, or Nordette. You simply skip the sugar pills for that month. This will delay your period 3 weeks. Most women can safely skip three periods in a row.

If you are taking multiple dose pills (e.g. Triquilar, Triphasil, Trifeme), skipping the sugar pills may not work. To delay a period on these pills you need to do this: when you reach the end of your active pills for the month - instead of taking the sugar pills, use a spare packet and take the last week of active pills from the spare packet. Then take the sugar pills. This will delay your period for a week.

Generally it is best to always take a Saturday pill on a Saturday or confusion may occur. Discuss this with your doctor. If you want to skip periods, it may be easier to temporarily change to a one strength pill.

Time Zones ... and the Pill

If you are happy to change your regular time of pill taking, you can keep a watch or phone on home time, and continue to take the pill at 24 hour intervals. To enable you to take your pill at your preferred time (morning or night), you should shorten the interval between two pills but not lengthen it. This may mean adding an extra active pill. If you wish to keep the days in sync with what is written on the pill packet, this extra pill should be taken from a spare packet so that the Tuesday pill continues to be taken on the Tuesday etc.

Forgetting ... and the Pill

When travelling out of the usual routine, it is easy to forget a pill. A late pill is now defined as being taken within 48 hours of the last swallowed dose. A missed pill is defined as being more than 48 hours after the last swallowed dose. The active pills closest to the sugar tablets are the most risky to miss as they prolong the pill free interval and increase the chance of break through ovulation (egg release).

Seven consecutive active pills are sufficient to suppress ovulation after which seven pill free days are needed for ovulation to occur.

In practical terms, this means...

If it is less than 48 hours from the last swallowed pill, take the tablet as soon as you remember, and continue taking the remaining pills at the original time (e.g. 6am if you normally take your pill at 6am). No additional contraceptive protection is required.

If more than 48 hours have elapsed since the last pill taken, you should take the pill when you remember, take subsequent doses at your regular time, and use other means of contraception until you have taken 7 active pills in a row.

Vomiting ... and the Pill

If you vomit within five hours of taking the pill, it may not have been absorbed. You should take another pill to replace the one lost.

Diarrhoea ... and the Pill

It is difficult to predict the effect that diarrhoea will have on pill absorption. The safest course of action is to continue taking the pill, but use other means of contraception until 7 active pills after the diarrhoea has ceased.

Antibiotics ... and the Pill

This is important if you need to take antibiotics for diarrhoea. Some antibiotics interfere with the effectiveness of the contraceptive pill. This may lead to spotting in the middle of the month, or even pregnancy. For most antibiotics, use other means of contraception while taking the antibiotic and for 7 active contraceptive pills afterwards.

Malaria tablets ... and the Pill

Chloroquine, Maloprim, Malarone, primaquine, and mefloquine (Lariam) do not interfere with the oral contraceptive pill. Doxycycline may interfere by temporarily decreasing gut bacteria and therefore changing the way the pill is metabolised in the body. This effect only occurs in the *first 3 weeks* of taking doxycycline, so women need to use other means of contraception for the first 3 weeks on the doxycycline only. After that time, the gut flora will have recovered and no further precautions are needed.

High altitude ... and the Pill

It is safe to continue taking your pill if your trip spends less than four weeks at high altitudes, e.g. most treks in Nepal. You may need to cease the pill if you will be travelling above 3,700 metres for more than 4 weeks. There is a small increased risk of blood clots in the brain, lungs, or legs. The blood thickens at high altitudes, in order to carry oxygen more efficiently. The pill also causes so called thickening to a small extent. The combination of both may be harmful. Women planning a trip like this may need to stop the pill several weeks before they travel, particularly if they smoke. Discuss this with your doctor.

Carry spare packets

It is vital you carry spare packets of the pill. If you lose any pills through vomiting or diarrhoea, it is better to use a replacement pill for the correct day of the week, i.e. take a Thursday pill on a Thursday.

OTHER FEMALE CONCERNS

Irregular periods

If you are not on the pill, it is common to have irregular periods while travelling, especially on long and/or busy or stressful trips. It is often due to the upset in routine. It is harmless except for the worry of possible pregnancy.

Thrush

Thrush is a most unpleasant condition to have while travelling! Avoid unnecessary antibiotics, try not to get rundown, pay careful attention to hygiene, wear cotton underclothes, and treat thrush promptly if symptoms develop, (see treatment section).

Cystitis/Urinary Tract Infection

Drink more fluids! Cystitis may be partly caused by a low fluid intake. Many women experience cystitis or urinary tract infections when travelling. If you are prone to this, ensure you drink plenty of fluids, and treat yourself promptly if symptoms develop, (see treatment section).

Emergency Contraception

Plan ahead so you don't need it, but if you do, see the treatment section for how to take it.

Hair loss during or shortly after travel

This is not a specifically female problem, but tends to be more noticeable and cause more concern in women. It is quite common after prolonged or stressful travel to notice an increase in the amount of hair on brushes, or on the pillow after sleeping. The hair does grow back. Have a check when you get home just in case it is due to something else.

Different Customs

Customs are very different in some countries, e.g. there is a great contrast between the dress and behaviour of the average western woman, and that of the local women in Islamic countries. In these countries, this contrast has furthered the mistaken belief that western women are promiscuous. Learn all you can about the local customs and respect them.

Carry some modest clothes

Always try to dress with complete modesty by local standards. In some parts of the world, respect for a woman decreases with the increase in skin she has showing. In some cases even the shape of various parts of the body (e.g. tight jeans) is considered offensive.

A long, loose skirt, and long sleeved shirt with high neck, is usually safe. Dark sunglasses are useful if you wish to avoid eye contact with the locals. The other advantage of blending with the locals is you are less likely to be targeted for theft, since you don't look like a rich tourist.

Travel in a group?

In some parts of the world, travelling in a group may be safer.

TRAVELLING WITH CHILDREN

The usual Travelling Well precautions apply with a few extras.

While travelling

Infants may need to breastfeed or take a bottle as the aircraft takes off and lands. Swallowing helps equalise the pressure in their ears and minimises ear pain. Older children may find it helpful to suck on a lolly or candy. Some children are prone to motion sickness, especially if they read or do puzzles during long car journeys. Carry a vomit bag in the car, just in case. Learn where the nearest medical care is available.

Eating and drinking

The food and water precautions apply doubly for kids. If children under 3 years of age tend develop diarrhoea, it is likely to be more severe and last longer. As much as possible, screen what they eat and don't allow children to drink untreated water. Carry a wet washer, or antiseptic hand wash so you can clean their hands regularly. Try to regularly sterilise the utensils they use such as bottles, cups etc. Always use treated water for drinking, cleaning their teeth, and washing toothbrushes. Give kids a shower if they want to drink bath water.

Hot and cold climates

Be careful to protect children from extremes of heat or cold. Beware of frostbite on tiny fingers and toes. Children cannot regulate their body temperature as well as adults. Dress them appropriately and offer fluids regularly. Children can dehydrate rapidly and their thirst sensation is unreliable. Use maximum sunscreen to protect their delicate skin.

Accidents

Whilst travelling, you have less control over a child's environment. Drowning, poisoning, burns, and falls are particular hazards. Watch for loose wires, uncovered power points, low balconies, and unfenced pools or waterways: a one-year-old Australian baby recently drowned in Indonesia. Closely supervise children around animals as animal bites may carry a risk of rabies. Make sure you keep medications out of their reach, e.g. locked in your suitcase.

Child minding

Of course we are always careful who we leave our kids with. Recently a chilling tale was reported from Bali: a two-year-old Australian girl was sexually assaulted and infected with a sexually transmitted disease during her stay in a five star hotel's child minding facility.

SEX AND DISEASE

This planet has a wide range of sexually transmitted diseases including Herpes, HIV/AIDS, Hepatitis B, Gonorrhoea, Syphilis, Genital warts, CMV, Chancroid and others. AIDS is the most serious. Some of these diseases are not treatable and/or resistant to standard antibiotics, especially in Asia.

Travellers are more at risk!

Persons are estimated to be 200 times more likely to contract AIDS while travelling, than when at home. For what it is worth, studies have shown that male travellers are more likely to have sex with local persons and female travellers are more likely to have sex with fellow travellers. The reasons for this increased risk are thought to be:

1. Change in behaviour when away from home. Travellers are more likely to engage in sexual activity with different partners e.g. fellow travellers or local sex workers.
2. Travellers often visit countries where the incidence of AIDS or other sexually transmitted diseases is higher than in their own country.

The HIV test can take 3 months to become positive or be a definite negative. Travellers find it very stressful waiting for the result, and discussing the situation with their current sexual partner.

TO DECREASE YOUR RISKS

1. Minimise sexual contact

Reducing the number of sexual partners reduces your risk.

2. Practice Safer Sex

If you wish to avoid contracting a nasty disease, use a condom every time you engage in intercourse. If lubricant is needed, it must be water soluble e.g. KY, Wetstuff, Lubafax. Safer Sex means not exchanging semen, blood or vaginal fluids with your partner. Buy your condoms before you leave home. In some parts of the planet, locally made condoms may be of poor quality, and break when used. They may also be the wrong size: condoms in Asia are reported to be smaller than westerners require.

3. Beware of alcohol

This sounds obvious, but alcohol is a common trap. Despite the best of intentions, many unsafe contacts occur when a person's judgment is affected by drugs or alcohol. It may only take one unsafe sexual contact to contract a sexually trainsmitted disease.

4. Also avoid

The following are best avoided: blood transfusions, injections (unless using your own sterile equipment), dental procedures, ear piercing, acupuncture, tattooing (even eyeliner tatoo), manicures, shaving by public barbers, sharing razors or toothbrushes. You cannot catch a sexual disease from sharing food, taking bites from the same plate or sharing a drink bottle.

HOT CLIMATES

Who is most at risk of heat stress?

No-one is immune if it is hot enough. However, if you are young, physically fit and relatively thin, you will adapt to hot climates more quickly. The sweat glands will learn to trigger more quickly, increase sweat production and conserve salt. The process of adaptation takes about two weeks. If you are over 65, overweight or have heart or blood pressure problems, you will probably feel the heat more. Some individuals are genetically more prone to over-heating.
Illness increases your risk of over-heating.

Everyone needs an awareness of avoiding heat stress, however if you are particularly susceptible to the heat, extra care will be needed.

9 TIPS FOR PREVENTING HEAT STRESS

1. Plan to avoid the heat if possible

Avoid long periods of time directly in the hot sun. Plan your day so you do not go out in the heat of the day. Also try to avoid undue exertion in the heat. However it is interesting to note that those who exercise in the heat will adapt to the heat a little more quickly.

2. Gear: loose cotton clothes, covered shoes, hat and sunglasses

Long pants and long sleeves are cooler than shorts and short sleeves. Light coloured clothes are better, since they reflect the heat. (The Arabs in their long white robes have the right idea.) Shoes should be made from a breathable material and cover the foot. Sandals do not protect feet from sunburn. Ideally the hat should have a wide brim and shade the neck: a cap gives limited protection only. Sunglasses are essential as prolonged exposure to glare will damage your eyes.

3. Plenty of liquids - but not too much

Make sure you always have access to clean water so you are not tempted to drink the local variety, which may be contaminated. Small amounts often, is better than large amounts infrequently. If you are drinking enough fluid, your urine will be consistently pale.

Travellers also need to be aware that too much water when exercising, can be just as dangerous as not enough water. The symptoms of overhydration may be hard to distinguish from dehydration. Overhydration may occur when people undertake prolonged exercise (generally > 4 hours) and are worried about dehydration. They keep drinking beyond the point of thirst. Sometimes well meaning guides or friends encourage excess water consumption. Overhydration has been reported among hikers, military personnel, and long distance sports participants. It is more

common in women, in hot conditions. Slow performance pace may also be a factor. Sports drinks do not help prevent this. Symptoms include tiredness, dizziness, headache, nausea and vomiting. Slight weight gain may be noticed. Symptoms may rapidly progress to confusion, lack of coordination, fits, and even coma. If left untreated, overhydration can be fatal. Since symptoms of overhydration can be similar to dehydration, sometimes sufferers mistakenly drink more water. This makes the problem worse. Careful assessment of fluid intake provides the best clue to the cause of the symptoms. Overhydration is dangerous because excess water dilutes the salt in the bloodstream. Treatment requires an urgent visit to hospital, and salty fluid must be administered via an intravenous drip. In a dire emergency, salty fluid has been inserted rectally by first aid officers, and led to improvement.

4. Avoid excessive caffeine

Coffee, tea and caffeinated drinks will make dehydration worse, as will alcohol. If you are thirsty - you need water.

5. Eat lightly

You will feel better if you stick to fruit and vegetables. Avoid salads if they are not hygienically prepared.

6. Salt?

A little extra salt in your food or drinks will offset the increased losses from sweating. Most people have adequate salt in their diet so salt tablets are seldom recommended. If you have heart or blood pressure problems you should consult your doctor regarding salt intake. Hydralyte or similar may be helpful if added to your water bottle to replace lost electrolytes.

7. Beware of humidity

In dry climates, sweat is able to evaporate and remove heat from the body. In humid environments, the sweat on your skin cannot evaporate because the air is already full of water. Heat cannot escape, so overheating occurs more quickly in humid environments. Under these conditions, exert yourself as little as possible.

8. Retreat to air conditioning

Air-conditioned environments such as hotels or movie theatres are heavenly when you feel overheated.

9. Use Blockout 15+ regularly

For best effect, blockout should be applied 30 minutes before exposure. Avoid the sun especially between 10.00am and 2.00pm. Beware of cloudy or smoggy days. One traveller got quite sunburned in Bangkok and remarked “I normally always wear blockout when I’m out in Australia, but the weather seemed so dull because of all the smog, I didn’t think I needed it.”

Dermatologists strongly advise against sunbathing. The suns rays are damaging to human skin; they cause premature ageing, wrinkling, spotting and, of course, skin cancers. If you are determined to get a tan, remember it is a gradual process. Skin which tans after burning will peel off in three weeks.

COLD CLIMATES

5 HINTS TO DRESSING WARMLY

1. Wear socks and gloves

Your fingers and toes are the most susceptible to frostbite. Good quality socks and gloves should be worn. Mittens are better if you are prone to cold fingers. If you still have cold fingers – add more layers of clothing to warm the rest of the body, especially the head and neck.

2. Always wear a hat or beanie

A great deal of body heat is lost from the head and neck especially while sleeping and at altitude. Always wear a head covering (e.g. a wool beanie) to keep your head warm. Wear a scarf, muff or balaclava to keep your neck warm. Keep your ears covered, as they are more susceptible to frostbite.

3. Avoid wearing shorts

A high wind chill factor on bare legs can lead to hypothermia very quickly. Long trousers will prevent this.

4. Dress in layers

Layers trap air which keeps you warm. Dressing in multiple thin layers provides flexibility. Layers can be removed if you become more active or the weather warms. The layer closest to the body needs to keep the skin dry by sucking sweat away e.g. polypropylene. Middle layers need to provide insulation and yet breathe e.g. fleece fabric.

5. Windproof clothing on top

The top layer needs to be waterproof and windproof, and yet allow sweat to escape. Goretex™ and similar fabrics do this - the pore size stops liquid water but allows water vapour to pass through.

Eating in cold climates

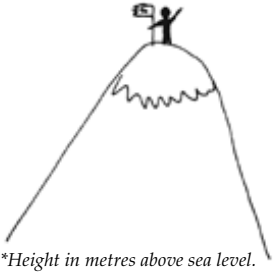
Frequent small meals have been shown to provide the best energy levels in cold climates. Your body needs plenty of fuel to produce heat. Skipping meals in cold climates is not an easy way to shed pounds. Lack of food will make you tired and more susceptible to frostbite, hypothermia and injuries.

Drinking Liquids

Drink plenty of liquids, especially water. In cold environments you are less aware of losing moisture from your body. Cold air is very dry and draws moisture from the skin and lungs as you breathe. Slight dehydration can make a big difference to performance. Studies on world class skiers show a mere 2% reduction in body fluids may reduce performance up to 15%. Note that alcohol will not warm you if you are seriously cold. Alcohol interferes with the body's normal mechanism for preventing heat loss. After alcohol consumption, blood flows into the skin, giving a warm feeling and making your face flush. However, blood flowing in the skin loses heat rapidly which can decrease your core body temperature. Also intoxication may mean you do not care that you are cold, and fail to seek warmth and shelter.

HIGH ALTITUDE TRAVELLERS

8,848m	Everest
5,895m	Kilimanjaro
5,500m	Everest Base camp
4,101m	Kinabalu
3,577m	La Paz
2,350m	Machu Pichu
2,300m	Mexico city
2,230m	Kosciusko
867m	Uluru (Ayers Rock)
0m*	Sea level



Height in metres above sea level.

What is Altitude Sickness?

Altitude sickness or Acute Mountain Sickness (AMS) is a set of unpleasant symptoms, which start 6-48 hours after rapid ascent to high altitude. The air is thinner as altitude increases. Symptoms are due to the lack of available oxygen in the brain, lungs, gut, muscles, etc. Your speed of ascent is the most important contributing factor to AMS. No one is immune. Fit people may get more severe AMS as they ascend more quickly.

It is normal to notice a change in breathing pattern while sleeping at altitude (very deep or rapid breathing followed by a short period of no breathing). This is not a sign of AMS.

How high is high?

AMS is rare below 2,500 metres. A study in the Swiss Alps showed the rate of AMS increases at different heights, see table right.

Height in metres above sea level	% of climbers with Altitude Sickness
2,850m	9%
3,650m	34%
4,559m	53%

AMS is especially common in travellers who fly to Cusco in Peru, La Paz in Bolivia, Lhasa in Tibet, Leh in Ladakh, Lukla to trek the Everest region, or if climbing Mt Kilimanjaro in Tanzania.

Symptoms of Altitude Sickness

MILD AMS	SEVERE AMS†
Feeling unwell	Feeling very unwell
Headache	Severe headache
Nausea	Unsteadiness on feet
Lack of appetite	Unusual behaviour
Unusual tiredness	Extreme drowsiness
Trouble sleeping/frequent waking	Difficulty breathing
Shivering	Blue nails and lips
Dizziness	Cough with frothy sputum

†Severe Altitude Sickness comes in two varieties – fluid on the brain known as HACE – High Altitude Cerebral Edema (American spelling) – and fluid on the lung known as HAPE - High Altitude Pulmonary Edema. Both severe varieties still kill unprepared travellers and climbers every year. See page 130 for treatment of AMS.

THREE GOLDEN RULES TO AVOID DYING FROM ALTITUDE ILLNESS

Thanks to David Shlim at CIWEC clinic, Nepal for originating the idea of the golden rules.

AMS = Acute Mountain Sickness

1. If you feel unwell at altitude, it is altitude sickness until proven otherwise.
2. Never go higher if you have symptoms of AMS.
3. If you are getting worse (or have HACE or HAPE), go down at once.

EIGHT STEPS TO MINIMISING AMS

1. Plan your itinerary

Try to make the itinerary slow and flexible. A rough guide is to ascend *no more than 300 metres per day* when you are above 3,000 metres. Sleeping height is what matters.

2. Consider using medication for prevention

1. Acetazolamide (Diamox) 125 mg (half a tablet) morning and night will speed adaptation to altitude. Higher doses give more side effects with no increased benefit. This drug makes your blood more acid, changes the way you process carbon dioxide in the kidneys and helps you to breathe faster. It will not mask symptoms of AMS, while you get worse without realising it. (It is akin to taking motion sickness pills prior to travel by sea. Ideally take a test dose before departure). Start on the morning of the day you reach 2500m. Acetazolamide is a type of diuretic so it causes increased urination. Carbonated drinks (e.g. beer) may taste odd. It may also cause a tingling sensation in the hands and feet. If the tingling is intolerable, shave a bit off the tablet, so you are taking a slightly smaller dose. Diamox requires a prescription. Persons allergic to sulphur drugs, or on high doses of aspirin should seek medical advice before using this medication.

2. Dexamethasone 4 mg every 12 hours for not longer than 10 days. This is used when persons cannot take acetazolamide.

3. Ginkgo 125 mg orally twice a day, starting 5 days prior to the ascent, and continuing while at altitude. This is a herbal remedy. One clinical trial found subjects taking ginkgo had milder symptoms and half the incidence of AMS compared to placebo. Other trials have shown conflicting results. Diamox has a more powerful effect. Ginkgo does not require a prescription. Do not take ginkgo with warfarin, ergotamine, nifedipine, aspirin, or ibuprofen.

4. Nifedipine is sometimes prescribed for prevention of HAPE (lung symptoms only) in persons who are particularly susceptible to the condition. The adult dose is 30 mg of extended release every 12 hours, or 20 mg every 8 hours. Salmeterol (Serevent puffer) may also help in conjunction with Nifedipine. Tadalafil, 10 mg twice a day, during ascent has also been shown to prevent HAPE in one small study.

3. Get enough rest

Exercise is equivalent to further ascent. Take it easy. Rest for 24 hours if you fly from sea level to high altitude (e.g. Cusco or Quito).

4. Eat light meals

A high carbohydrate diet improves the efficiency of oxygen use and decreases symptoms of AMS. Eat light, starchy meals rather than fatty ones; e.g. toast or rice with vegetables is better than bacon and eggs. Avoid very salty food. (Peruvians like their food quite salty.)

5. Drink more fluid

Mountain air is dry. Dehydration may make altitude sickness worse. Aim to drink six litres per day, so your urine is pale. Coca leaves are a popular remedy in the Andes, however there are no scientific studies that support its use. Coca tea is said to act as a mild stimulant and encourage fluid intake. It is an acquired taste. According to the locals, for best effect, the tea should be made with real coca leaves in boiling water and you need to drink at least four cups of this tea per day.

6. Avoid alcohol and cigarettes especially on first day

Alcohol increases dehydration, and depresses breathing, and should ideally be avoided for 48 hours. Smoking also decreases your available oxygen.

7. Avoid sleeping pills

Insomnia at altitude is due to oxygen starvation. Sedatives may slow your breathing and make the symptoms worse. The best sleeping pill at altitude is acetazolamide 125 mg before bed - even if you do not take the medication in the daytime.

8. Treat any infection quickly

Infection increases the oxygen requirements of the human body. Treat any infection (e.g. wound infection, bronchitis, diarrhoea) sooner rather than later.

OTHER PROBLEMS AT ALTITUDE

Swelling

Some people notice puffy eyes, swollen face or hands in the morning, and ankle swelling later in the day. They may feel perfectly well, or have symptoms of mild AMS. This swelling is not a serious problem. The fluid disappears on descent.

Sunburn/Snow blindness

Sunburn occurs rapidly at altitude, as there is less atmosphere to filter the sun's rays. Sunscreen, hats and long-sleeved clothing are essential. Good quality sunglasses (99% UV absorption, CR39 lens) with side protection need to be worn at all times. Eyes are especially sensitive. Unshielded glare at altitude will rapidly (in minutes) burn the back of your eye. Most persons with snow blindness will not notice anything is amiss while their eyes are being damaged. They have no symptoms when they go to bed, but wake during the night in a mess - with gritty, painful eyes. There is no treatment for this except rest.

Persons who have had previous radial keratotomy (a type of surgery to correct shortsightedness) may experience a major loss of clarity of their vision at altitude - sometimes up to 3 diopters. This is due to the lack of oxygen at altitude causing their corneal scars to change shape. It recovers on descent, but lack of vision in the mountains is a major safety hazard. Unfortunately there is no specific treatment. Those who have had LASIK surgery are not as prone to this problem.

GOING TO THE SNOW

SNOW SKIERS/BOARDERS

Gear

Keep your gear in good order and have it serviced yearly. Know how to check your own bindings. Check them daily while in the snow.

Sunglasses

If you ski without sunglasses you risk permanent damage to your eyes. Ultraviolet light is partly responsible for cataracts and other vision problems in the elderly. Many years of UV exposure also causes permanent, ugly, fat deposits (pinguecula) to build on the white of your eye. Larger sunglasses offer more efficient protection for the delicate skin around your eyes. Side flanges will stop light entering the sides of the lenses. Winter sunglasses should filter all ultraviolet, and about 90% of visible light. Stand two feet from a mirror with sunglasses on and you should not be able to see your eyes.

Avoiding injuries

You can decrease your risk of injury if you:

- Undertake preseason training
- Check your bindings every day
- Stretch, plus warm your muscles before the first run, and after long stops
- Take lessons
- Endeavour to ski in control of your skis
- Stop when tired or even before you are too tired – there is a higher risk of injury if you ski when tired
- Maintain fluid and food intake
- Avoid alcohol during skiing
- Stay within the patrolled areas unless you are prepared for an overnight stay in the snow.

If you do get hurt:

Cold decreases swelling, so an injury may feel deceptively minor while on the slopes. You may make the injury worse if you continue to ski or snow board. Don't ski until you get it checked by a doctor. This will ensure that you do not lose any more precious skiing time than is absolutely necessary!

Sauna/Spas

Drinking alcohol while in a spa or sauna is risky. Heat and alcohol both have a tendency to lower your blood pressure. The result is you may feel light headed and faint, or slip as you exit the spa. It is embarrassing to break your ankle on a ski holiday from falling over in the spa!

TREKKING

Keeping blisters at bay

Blisters are caused by friction on the skin. The upper layers of the skin tear away from the lower layers, creating a space that fills with fluid. To prevent blisters you need to stop the friction.

1. Choose the right shoe, and wear the shoes in before departure.
2. Tape any area that is prone to blisters. Apply Cutinova, Compeed or similar, at the first hint of any rubbing.
3. Clean, dry socks are not a luxury but a necessity. Moisture makes the friction worse. Dry socks decrease the friction between the skin on your feet, and your shoes. Some experts recommend wearing two pairs of socks. You can even get special two layer socks. Fabrics that wick or pull the fluid away from the skin (e.g. polypropylene), will further decrease the chance of a blister.
4. Drying agents, such as foot powders may also help keep your feet dry.
5. Some people have found that a thin layer of petroleum jelly or Vaseline, applied to the feet every morning, is helpful to decrease the friction on the skin and minimise blisters.

Knee pain

When walking down hills, try to take the weight of the body with the leading leg bent at the knee slightly. This will prevent the common problem of trekker's knee. Use a trekking pole or stick while walking, to help take some of the weight.

Don't forget about your porters

Although porters may seem almost superhuman, this is not the case. Porters, too, are mortal — they die every year from exposure, altitude sickness, and tragic falls. In 1997, a young Nepali mountain porter, employed by a trekking company got sick and was dismissed. After being paid off and sent down on his own, it took about 30 hours for him to die. As a result of this tragedy an organisation called IPPG (International Porter Protection Group) was formed in Nepal, and is now spreading its influence to other trekking regions. The aim of IPPG is to improve the health and safety of the trekking porters working in the mountains, and reduce their incidence of avoidable illness, injury and death. They aim to raise awareness of the issue among trekking/travel companies, leaders, sirdars, and the trekkers. IPPG offers practical assistance to porters, e.g. clothing banks where trekkers can hire clothes for their porters at no cost. A deposit is paid and refunded when the clothing is returned at the end of the trek. If the clothing is given to the porters, they tend to sell it to feed their family so it is not available for the next trek.

To check their website go to www.ippg.net

Waste disposal

One of the challenges of trekking is the proper disposal of human waste, to preserve the rural environment and prevent further contamination of water supplies. Human waste should be buried 20-30cm deep, at least 30 metres from any water, where rain is not likely to wash organisms into nearby water sources. Groups of three persons or more should dig a common latrine to avoid numerous individual holes.

SCUBA DIVERS

Gear

Check SCUBA gear thoroughly. Before hiring equipment, seek recommendations from the locals. Be concerned if dive shop staff do not ask to see your card. Some dive shops have problems with contaminated air tanks. This can lead to carbon monoxide poisoning which limits the amount of oxygen that can be carried by the blood.

Dive tables

Be generous with safety margins on the dive tables. The best dive spots are often in remote areas. It may be a long way to the nearest decompression chamber. Air flights must not be scheduled within 24 hours of a dive.

Safety first

Do not be tempted to dive beyond your ability because someone will let you. It could be fatal. 20 out of 51 sports-diving deaths in Australia between 1980 and 1986 involved divers who were not properly trained for the dives that killed them. Only two deaths were triggered by equipment faults. Get a copy of the waterproof book, The Diving Emergency Handbook by Lippmann and Bugg. Carry it in your dive bag. In the Australasian area there is a free emergency 24 hour phone number to access medical advice on possible diving-related illness; 1800 088 200. If calling from outside Australia, number is +61 8 8212 9242.

Don't dive if sick

Accidents happen more commonly if you dive when feeling ill or generally weak. Do not dive with a severe cold. Decongestants (e.g. pseudoephedrine) should be used with extreme caution. They cannot unblock a really clogged nose, and you will not be able to equalise underwater. They are useful for mild congestion, but they do wear off after a few hours.

Don't drink and dive, or smoke and dive

Alcohol causes diving accidents like it causes driving accidents. Other drugs that impair your concentration should also be avoided.

Smoking prior to a dive decreases the amount of oxygen your blood can carry.

CULTURE SHOCK

What is Culture Shock?

Culture Shock is the temporary inability to cope with a different culture. Culture Shock can be felt with varying degrees of severity.

When symptoms are mild, it may be described as Culture Fatigue.

Reverse Culture Shock can also develop on return to one's home country after an extended stay away.

Who is most at risk?

Culture Shock is most common in people going to live and work overseas for several years, even to English-speaking countries.

Long term, budget travellers, or those visiting multiple countries may also experience it to varying degrees. Travellers are particularly at risk if they are travelling by themselves, and/or in countries where they do not speak the language. When couples move overseas, the non-working partner often suffers Culture Shock more intensely. The partner may not have a familiar work environment, and work mates to cushion the impact. The partner also tends to be the one interacting with the local culture, trying to do the shopping, work out the transport system etc.

Sometimes short term travellers also have to cope with unexpected feelings on visits to the developing world e.g. one traveller described:

> *"…feeling fear due to threats to personal safety, anger and sadness at the disparity in wealth and treatment of animals, constant harassment by numerous beggars and sellers. I felt revulsion at the filthy restaurants, and even worse toilets, also despair and impotence at not being able to change a thing. We saw four serious road accidents on the first day – altogether terrible culture shock – even after extensive research"*

What causes Culture Shock?

Culture Shock is due to an excess of novelty. Culture Shock is a normal response to a very new and different situation.

Preparation for long term departure is often a major undertaking and involves leaving your job, perhaps training your replacement, selling the car and/or house, putting possessions into storage, organising finances, passports, visas, saying goodbye to all the relatives and friends and so on. Often you arrive in the new country feeling exhausted and in need of a holiday; instead you are called on to deal with a dazzling array of new things. Many of the rules we learn in childhood about how things work and how people behave… suddenly change.

Our illusion of control is shattered. In a different country there are many new things to get used to and worry about e.g. time zone shifts, differences in weather, food, language, money, tipping, taxes. Worries about avoiding illness, injury, mugging, being ripped off, leaving things behind. There are new people to meet, and new cultures and customs to understand. Things don't work as expected. Physical discomfort e.g. the effects of heat, humidity, and constant noise, may add to the mix.

Each of these changes by itself is a small challenge and part of the adventure of travel. If they occur simultaneously, it is common to become overloaded: this leads to stress. Furthermore, all this change and stress occurs in the absence of the usual social support system of family and friends.

Three stages of adaptation to a new culture

Note that different members of a family may go through the stages at different times. You may adapt to different aspects of the culture at different rates e.g. adjusting to the local food usually happens faster than adjusting to the local sense of humour. (Experienced travellers say different humour is one of the hardest things to get used to.)

1. Excitement

Initially there is great excitement at being away, out of the rut, seeing the world, meeting new people.

2. Disappointment

Once the initial excitement of being away from home has settled, it is not unusual to feel lonely. You may also feel disappointed that the experience is not as good as you expected. Other commonly described symptoms are feeling anxious, depressed, tired, lacking in enthusiasm, bored, sleepy, homesick, or emotionally on the edge. You may get cravings for so called normal food or normal behaviour. Culture Shock may cause unexplained crying. You may even decide you want to go home, and daydream about arriving home, explaining your behaviour to your friends and so on. This is all normal.

Culture Shock can even make you sick. Stress can weaken your immune system and increase your susceptibility to diseases such as diarrhoea, colds or the flu. If it is very severe, Culture Shock can make you pack your bags and head home.

3. Adjustment

During this stage, the excess of novelty is under control. You can enjoy the new challenges and the new culture. There is excitement of a different sort. People regain their feeling of control once they learn how everything works. Sometimes those feelings of sadness at the suffering of the locals can inspire visitors to do amazing work to help the locals.

The following hints may help speed the transition from excitement in stage one to adjustment in stage three. Incidentally, if you are returning home after a long time overseas, it can take some time to adjust to home; this is known as Reverse Culture Shock and the hints to follow are relevant for those symptoms as well.

HINTS TO DEAL WITH CULTURE SHOCK

1. Be aware of it

Awareness and acceptance of the inevitability of culture shock is the first and most important step. It is *normal* to feel overwhelmed in such circumstances.

2. Get used to things gradually

Don't expect to adjust overnight or do too much all at once. Give yourself time (months) to get used to the many changes. Be patient.

3. Find people who know the system

Other expatriates may be a valuable source of information and moral support. They will often help guide you through the system most efficiently – especially the day to day detail e.g. help you find where to buy safe food, who gives a good haircut etc. These day to day, seemingly basic annoyances are an underestimated cause of stress.

4. Have a disaster plan

Consider disaster preparedness. Research where to find reliable medical advice urgently. Do a test run of your emergency procedures. For example, ring the insurance or assistance company, or drive the road you would take to see the doctor. If possible, introduce yourself to the local medical facility. Find out the doctor's hours, alternative arrangements if you get sick in the middle of the night, or injured on the weekend, find out how they charge. Take a letter with significant medical history, including allergies, medication etc. While you are there, you might want to arrange medical checks for any employees you have (e.g. for Tuberculosis) – the healthier *they* are, the better it is for you *and* them. Those in remote locations, or working in humanitarian crises need a clearly defined exit strategy.

5. Take care of yourself

- Get plenty of rest. Eat as well as you can. Keep fit. Mind your personal security.
- Resist the temptation to drink excessive alcohol.
- Plan fun activities or even little holidays, so you can have a laugh and keep your sense of humour. In some postings, off site rotations are a necessity.
- Work on building a local support network.
- Keep in touch with friends or support network back home… phone home, send emails, use social media, etc.

6. Try to connect with the local culture

It is scary to learn new things, and painful to make mistakes. The normal tendency is to try and avoid this pain. If you do the thing you are afraid of, (within reason) you often find it is not as bad as you thought. If you learn some of the language you may interact more with the locals, and discover positive aspects of the local culture.

7. Giving

Many people find that doing helpful humanitarian work is the best therapy for culture shock, however, if you feel the urge to give money, it is likely to have the greatest long term effect if money is given to organisations such as NGOs or schools, rather than individual (and often professional) beggars.

IF YOU ARE SICK

TRAVELLERS' FIRST AID OVERVIEW

It is better to seek medical attention if you have a medical problem. However, it is sometimes difficult to access good quality medical care.

FINDING DOCTORS OVERSEAS

To find a reliable local doctor, try the following:

1. Ring your Travel Insurance Hotline. They will organise a reliable doctor nearby.
2. Contact IAMAT (International Association of Medical Assistance to Travellers) This organisation coordinates an international network of qualified medical practitioners to assist travellers in need of emergency medical care during their trip. Website is www.iamat.org.
3. Ring your embassy. The embassy staff will usually recommend a doctor. If there is no local embassy for your citizenship, try one of the major English-speaking embassies, e.g. US, Canadian, British, Australian, and New Zealand.
4. Go to an up-market hotel. Hotel doctors are usually reliable. Good hotels may be cleaner and have better food than the local hospital.

IF YOU CANNOT FIND A RELIABLE DOCTOR

If you cannot access reliable medical care, it is important you look after yourself properly *until* you do. The notes in this book are written assuming a person is initially in good health, for a sick person or their helper to read and follow.

These instructions are not intended to replace a consultation with a competent doctor. If you have special medical conditions, it is especially important you seek medical attention.

The most common and most serious travellers' health problems are discussed first.

To find directions for treatment of a particular condition, consult the table of contents on page 7. The fast find index inside the back cover has a list of common symptoms and the page reference for treatment.

Under general emergencies, there is only a brief discussion of issues like mouth-to-mouth resuscitation etc. This is well covered in general first aid books and not repeated here e.g. *Australian First Aid*: An authorised manual of St John Ambulance Australia. For travellers going to live in areas remote from medical care, the book *'Where There is No Doctor'* by D. Werner (Macmillan Press) will help you diagnose more serious things like appendicitis. For those travelling with children the book *'Your Child's Health Abroad'* by Dr J Wilson-Howarth and Dr M Ellis (Bradt) may be useful.

Buying medications overseas

Beware. Studies have shown up to 40% of medications in Asia are out-of-date or fake. If you must buy medicines locally go to a larger pharmacy in a major city, and ask for a receipt. In India, ask for a cash memo, which is a type of official receipt.

SIDE EFFECTS OF MEDICATION

Generally we take a medication or drug because the *benefits* of the drug outweigh the potential *side effects*. Most people do not get major side effects from drugs, but it is possible to be the unlucky one. A drug often causes different side effects in different people. It is possible to confuse the effects of the *disease*, with the effects of the *drug used to treat the disease*. For example: if you feel nauseous whilst taking an antibiotic, it is hard to tell if you feel that way because you are sick, or because of the medication. Antibiotics generally *do not* make you tired; *being sick* makes you tired.

The most common side effects of drugs are:

Nausea, vomiting, rash, headache, dizziness, diarrhoea.

If the side effect is minor, it is worth persisting with the chosen treatment. If you are in any doubt, or if the side effects seem to be getting worse, stop the treatment and seek medical advice.

The uncommon side effects of drugs

Most medications have the potential to cause serious side effects, even death, in an unlucky few. Some people are very sensitive to penicillin and can develop anaphylaxis (severe allergic reaction), which may be fatal if not treated. Some people will get hepatitis from some drugs. These side effects are rare but possible. Take medication only if needed, and seek medical attention as soon as possible if you get worse.

Natural remedies

Natural remedies may work very well, but some contain dangerous chemicals – especially if you buy them in countries where they are not regulated. One of my patients was found, on a routine drug screen, to be inadvertently taking Valium in his herbal remedy from Vietnam. Don't dismiss side effects because it is a natural drug.

Test dose of an unknown drug before departure

If you have never taken a particular tablet before, take one tablet before departure to test for side effects. The wilds of Africa are a terrible place to discover that you are allergic to a medication.

Consult the reference table

Drug dosages, side effects, cautions, interactions, other names etc. are included in the drug reference table at the end of this section.

Beware of interactions between your existing medications, and any new medication you take.

Record here for future reference

To determine variations from normal, it is useful to know what your usual healthy body measurements are. Rest for 30 minutes seated or lying, before measuring.

Your pulse rate at rest _____ per minute
Adult average is 60-80

Your breathing rate at rest _____ per minute
Adult average is 15-20

8 KEYS FOR TREATING ANY ILLNESS

1. Rest!

Resting the whole body is good for the immune system. Stress is known to increase protein breakdown, and interfere with the immune response. If injured, rest the injured body part. For example don't walk on an injured leg. Elevate the leg on pillows rather than letting it hang from the chair. Elevation will decrease swelling, increase blood flow to the limb, and encourage healing.

2. Eat well/drink plenty of fluids

Eat healthy foods and drink plenty of fluids. The body needs nourishment to provide the building blocks of new tissues e.g. protein, vitamins (A, C and K), and trace elements (iron, zinc and copper). Try to minimise your consumption of alcohol and caffeine. Some people advocate the use of vitamins, though the evidence for their effectiveness is a bit thin.

3. Go Smoke Free

Cigarette smoking slows healing by interfering with normal metabolism and decreasing the amount of oxygen carried by the blood.

4. Fever? Think malaria

If you have visited a malarious country, don't forget that any fever could be malaria. You need to stop travelling and seek medical attention as soon as possible.

5. Keep records

Keep a brief written record of any major symptoms e.g. fever or rash, what happened, the date and time. Also record the date, name of the drug and dose of any drugs you take for treatment. This will make it easier when you seek medical attention later.

6. Trust your body

You do have a powerful immune system. Look after yourself so you give your immune system the best chance to fight.

7. Seek medical advice

It is not ideal to be treating yourself. If you have any choice, opt to seek qualified medical advice, especially if you are getting worse. There is no substitute for competent medical advice if it is accessible.

8. Follow the instructions

Read the instructions in this book, and follow them carefully.

Treating symptoms is useful but may not cure the disease.

Do not give your medication to others, as they may be allergic to them. You could be held legally responsible for any adverse effects. You may also need the medications later yourself.

FEVERS

Normal Body Temperature is 36.5-37.5°C

See a doctor immediately if you have…

- Fever with no obvious cause (*Never* assume it is the flu)
- Fever over 41°C
- Fever associated with headache and neck stiffness
- Fever with altered consciousness
- Fever with any sign of bleeding
- Fever which persists more than 48 hours
- A pulse rate that is fast, weakened or irregular
- Difficulty breathing
- Decreased urine output
- Dizziness on standing up or even sitting up

(and if you feel very unwell).

Why is Fever important?

Fever, or having a temperature, is a clue that infection is present. The infection can be due to a virus (e.g. the common cold or flu), bacteria (e.g. pneumonia, septicemia or typhoid) or other parasites (e.g. malaria, amoeba).

Fever is generally a helpful immune response. A raised body temperature helps the immune system destroy invaders more quickly. Fever can occasionally be harmful in very young children where it may cause a febrile convulsion. This is a fit caused by sudden rise in body temperature, and the child needs to be seen by a doctor as soon as possible.

It is important to actually take your temperature. Sometimes you may feel hot when you do not have a fever. For accuracy it is best to take your temperature at least 15 minutes after a hot or cold drink, or food. It is useful to record your temperature and the time it was taken.

Look for an obvious site of infection

Firstly, try and work out what is causing the fever. Do you have any other symptoms? For example; sore ears, boils or wounds, a rattly cough producing green phlegm, diarrhoea with blood in the motions, burning or frequent urination? The fever may be due to these conditions. If so, the relevant diseases need to be treated appropriately. Locally contained infections do not generally cause fever. If you have an infected finger and the rest of your body feels well, the infection is most likely under control within the confines of your finger. An infected finger with a fever may mean the infection is spreading into your blood stream.

Fever with no obvious site of infection may mean the infection is in the bloodstream, e.g. malaria or septicemia (blood poisoning). This is the most dangerous type of infection.

Treating a fever

1. ***Find the source.*** Do you have any pain or redness, sores or swelling, trouble with breathing or urinating? The best treatment for a fever is to remove the source of the infection. See a doctor if you can. If you are confident the infection is under control, you may treat the symptom of fever in order to feel more comfortable.
2. ***Treat the fever***
   Paracetamol at the usual dose will lower fever. Tepid sponging is an easy way to make a patient feel comfortable. Lukewarm water is sponged onto the body, especially the trunk. Allow the water to evaporate. The process of evaporation will reduce body heat. Do not allow the person to become cold. Shivering will generate more heat.

Serious causes of fever (temp over 38˚C)

The most common serious causes of a fever in a traveller are

1. Malaria
2. Dengue Fever
3. Typhoid

Many other things can cause fevers including influenza. Malaria is the most worrying because it can be rapidly fatal. Malaria is easy to treat if discovered early.

1. FEVER - IN A MALARIOUS AREA

No malaria tablet is 100% effective in preventing malaria. Assume *any* fever is due to malaria until proven otherwise.

...but not within a week of arriving

A fever that develops within one week of arriving in a malarious area is *un*likely to be malaria. Malaria has an incubation period of at least one week between the mosquito bite and the symptoms developing.

Symptoms of malaria

Malaria usually starts as a flu-like illness. Malaria usually causes a fever plus any or all of the following: sweats, shivering, headaches, tiredness, muscle/joint/stomach pains, nausea, vomiting or diarrhoea. You may feel burning hot for a while, and then cold and shivery. Sweating and exhaustion/tiredness may follow this.

The movies portray malaria as a recurring illness. This is not always the case. The sufferer may feel constantly dreadful, or experience fever and chills for a day and then seem to recover and feel well. Malaria can imitate other diseases, even psychiatric illness. Malaria cannot be diagnosed from symptoms alone. The *only* way to confirm malaria is to have a blood test.

Babies, young children and the elderly may not have a fever when they have malaria. If they are unwell and have been in a malarious area, they need a test to exclude malaria.

Malaria tests: two types; slide and kit

1. **Blood slide:** a drop of blood is placed on a microscope slide, stained with special dyes and a technician has to search the slide to see if they can spot parasites. In some regions of the world, technicians are not given enough training so they tend

to over report malaria. They worry that if they miss the diagnosis a tourist might die. If they say it is present, the worst that can happen is the tourist receives

> The test may report one or more malaria strains
> *P falciparum* = cerebral malaria = often fatal if not treated
> *P vivax, P ovale, P malariae, P knowlesi* = less common, and less likely to be fatal

unnecessary medication. Studies in Africa have shown up to 70% of the blood slides that are read as positive for malaria are really negative.

2. **Malaria test kit:** (Sometimes called a malaria survival kit). If available, this kit involves dropping some blood on a card, followed by drops of special solution to give a result. There are several manufacturers.

If any malaria test is negative, but the sufferer remains unwell, the test needs to be repeated within 24 hours. It may take time for a malaria test to become positive.

Why use standby treatment for malaria?

Standby treatment for malaria is a temporary measure that will keep the parasites under control while you make your way to medical care. You can die if a malaria fever is left untreated for as little as 60 hours (although the average is 4 days). The fever may be due to something simple such as the flu, but it is safer to over-treat the flu in this situation, rather than risk not treating malaria.

Standby treatment is needed when you develop a fever and cannot get medical advice. The drug you are given for standby treatment will not be the same drug (if any) that you take for prevention.

When to take standby treatment

If you develop either of the following:

1. A fever over 38˚C which is present continuously or intermittently for more than 48 hours (more than 24 hours in a child). Malaria is even more likely if you have a fever plus any of the other symptoms previously described.

2. If you have a positive malaria test.

If either of these occur, and medical care is not available within 24 hours, you should take the emergency standby treatment, and immediately make your way to good medical care. If you take the standby treatment when you are sick from a different disease (e.g. dengue fever), the standby treatment will not make dengue any worse. If you are not significantly better within 12-24 hours of taking standby treatment, it is probably not malaria.

Doses of tablets used for standby treatment:

Your doctor may prescribe **ONE** of the following for use in emergencies for the treatment of cerebral or *P falciparum* malaria. These doses are for adults unless otherwise specified. *All tablets should be taken with plenty of water.*

1. Artemesinin (artemether, artesunate, Riamet, Coartem, Cotexin)

Artemisinin, and its derivatives (artemether and artesunate), are fast-acting and effective treatments for malaria. However if used alone, malaria will not be completely eradicated and may recur. Hence, artemesinin treatment is often combined with other drugs e.g. mefloquine (Lariam) to decrease the chance of recurrence.

Coartemether (Riamet, Coartem) contains two drugs artemesinin and lumefantrine (a long acting medication) in the one tablet. This medication must be taken with fatty food or drink (e.g. full cream milk) in order to be absorbed properly. Milk may be hard to stomach when you feel sick, but without fat, the tablets may not be absorbed as well. In the event of vomiting within one hour of taking a dose, a repeat dose should be taken.

Adult Dose: Riamet (20 mg artemether /120 mg lumefantrine) 6 doses taken over 3 days. Each of the 6 doses consists of four tablets (i.e. a total of 24 tablets are taken over 3 days). The first dose, given at the time of initial diagnosis, should be followed by five further doses given at 8, 24, 36, 48 and 60 hours thereafter.

For example:

	Day One	Day Two	Day Three
Four tablets each dose. Take with fatty food or drink	9am	9am	9am
	5pm	9pm	9pm

2. Malarone = atovaquone 250 mg + proguanil 100 mg

MALARONE TREATMENT DOSE		
Body weight	Number of tablets each day for 3 consecutive days	Total tablets in course
11-20 kg	1	3
21-30 kg	2	6
31-40 kg	3	9
over 40 kg (adult)	4	12

Malarone is a highly effective treatment for cerebral malaria worldwide. No major side effects have been reported from Malarone use, however it is best avoided in women who are pregnant or breastfeeding (due to lack of information).

It is usually safe to take malarone if you have recently taken fansidar, lariam, or chloroquine. Take Malarone with food or a full cream milky drink, to improve absorption.

3. Chloroquine 150 mg base per tablet

(You need to check the mg in the tablet. Sometimes chloroquine tablets will say 200 mg on the label. Check the fine print carefully – it will usually say this equals 150 mg of *base*.)

Chloroquine treatment dose:

Day 1 - Take four tablets (600 mg base), wait 6 hours
Take two more tablets, then wait until next day

Day 2 - Take two tablets (300 mg base)

Day 3 - Take two tablets (300 mg base)

(Total 10 tablets of 150 mg base = 1,500 mg)

Other medications seldom used now

Quinine, fansidar, halofantrine and mefloquine are no longer recommended alone for the treatment of malaria.

Riamet and Malarone are particularly effective for malaria treatment as combination tablets are effective at killing malaria parasites that are resistant to a single medication.

You still need to see a doctor

It is *most important* to get medical advice as soon as possible. The above treatments do not replace a blood test and proper medical treatment. Standby treatment gives you time to seek medical advice. You may have another cause of fever and not malaria after all. Delayed or inappropriate treatment of malaria may be fatal. Even if you feel better once you have taken the standby treatment, you need a blood test and may need further medication to ensure a permanent cure.

Properly treated cerebral (falciparum) malaria does not come back later, however some strains of malaria (e.g. vivax) can hibernate or nest in the liver, and cause symptoms months or even a year later.

If you are found to have vivax malaria, you may be recommended a course of primaquine to kill hibernating liver forms after you return home. Before taking primaquine you must have a blood test called a G-6-P-D test. G-6-P-D (glucose-6-phosphate dehydrogenase), is an enzyme inside red blood cells. Cells which are deficient in this enzyme are more resistant to the severe effects of malaria. The lack of this enzyme is most prevalent in Africa (affecting up to 20% of the population), but is also common around the Mediterranean (4% - 30%) and south east Asia. If you are missing this G-6-P-D enzyme and take primaquine you can die. Primaquine is normally given only after you have confirmed vivax malaria, and if you are not returning to the malarious area. See drug reference table for dose.

2. FEVER – DENGUE FEVER

Dengue fever is present in most of the tropical and subtropical parts of the world. The virus is transmitted by mosquito bites. The disease is reported to occur in 1% of travellers to the tropics, but it is often not diagnosed correctly. Dengue is commonly reported from South East Asia (especially in Thailand from March to July), India, the Pacific islands and the Caribbean. The only way to confirm dengue fever is to have a blood test. Fever after visiting these areas could also be malaria, which needs a test too. The common features of dengue are:

Typical dengue

About 1 week after the mosquito bite, a mild runny nose develops, followed a few hours later by the sudden onset of fever, a splitting frontal headache, and severe muscle and joint pains. (Dengue is sometimes called break-bone fever.) Pain behind the eyes is characteristic. Some persons notice a change in taste sensation. A rash occurs in 60% of sufferers. The rash can be flat or slightly raised, red or pink, with spots or blotches. It is usually present on the trunk, limbs, palms and soles. Other diseases can cause a similar looking rash. Jaundice is rare. Severe symptoms usually last one week, with tiredness persisting for several weeks after that. Sometimes after 2 to 3 days, the fever and pains appear to settle for a few days, then symptoms return, though less severely. Usually sufferers make a full recovery.

- Symptoms develop up to 2 weeks after the bite
- Fairly sudden onset
- Fever
- Headache – especially pain behind the eyes
- Joint or muscle pain
- Rash

Although an unpleasant illness, serious complications are rare from the first attack of dengue. There are four strains of the dengue virus. If you are exposed to a different strain at a later time, the second attack is likely to be more serious than the first. The second attack of dengue can cause dengue shock, which can occasionally be fatal if not treated properly. In dengue shock, the sufferer develops excessive bleeding into the skin (leading to a rash), mouth (bleeding gums), nose (nosebleeds), internal organs, and ultimately leading to a life threatening drop in blood pressure.

Treatment for dengue?

The treatment is rest, fluids, painkillers (paracetamol), and avoid mosquitoes so you do not transmit the disease to more mosquitoes and then people. You need to avoid alcohol and cigarettes. Drink plenty of water. It is important you do not become dehydrated. Do not take aspirin as it can increase your risk of bleeding.

If you develop dizziness on standing, or signs of bleeding into the skin, gums, nose, urine or elsewhere, you need to seek medical care urgently – preferably in a well equipped hospital – as these are the warning signs of dengue shock.

Chikungunya

Chikungunya is a disease with similar symptoms to dengue, except it often causes more joint pains. The joint pains are usually symmetric, occur mainly in the hands and feet and can persist for some months. (The virus is related to Ross River virus.) The disease reemerged in 2004, and since then millions of cases have occurred and continue to occur throughout countries in and around the Indian Ocean.

Chikungunya is also contracted from day biting mosquitoes, usually in the tropics. A blood test is necessary to distinguish it from dengue, but treatment is similar to dengue as noted above. Chikungunya does not cause shock.

3. FEVER – TYPHOID

Typhoid fever can occur even in someone who has been vaccinated, although it is less likely. (The related disease paratyphoid causes similar symptoms to typhoid but there is no vaccine for it.)

Typhoid causes fever, stomach pain, constipation or diarrhoea, loss of appetite, headache, slight cough, and very occasionally a rash. To diagnose typhoid, you really need to have a blood culture. This means a sample of blood is taken and put on a petrie dish with growing medium: The lab waits for 5 days to see if any colonies of germs grow. A reliable test for typhoid is not possible in an hour.

There is a blood test, which looks for O and H typhoid antigens in the blood – this is notoriously inaccurate but is commonly used in the developing world. It is common for travellers to get sick while overseas, see a doctor and be diagnosed with salmonella typhoid. The treatment for typhoid is usually ciprofloxacin or some other strong antibiotic. These antibiotics treat other infections besides typhoid, so often the treatment cures the illness, but it wasn't typhoid.

4. FEVER – OTHER CAUSES

Discussion of other causes of fever is difficult, as you urgently need tests and medical attention if you get a fever while travelling.

The following pages give some further clues, but are no substitute for further tests.

Possible other causes of fever in travellers;

- Infectious diseases such as leptospirosis, glandular fever, rickettsial or spotted fevers, Q Fever, HIV, schistosomiasis
- Bladder and kidney infection/cystitis (especially women)
- Wound infection
- Chest or respiratory infection/influenza
- Gut infection
- Ear infection
- Tooth infection

GUT PROBLEMS IN TRAVELLERS

1. Food poisoning
2. Vomiting
3. Travellers' diarrhoea
4. Constipation
5. Rectal bleeding
6. Worms

1. FOOD POISONING

Food poisoning can happen anywhere, but seems more common in travellers because you 'eat out' so often. As one traveller wrote: *"We only ate in restaurants and four star hotels, ...yet I still got caught with bad spring rolls, and was sick for 14 hours. You can never be too careful".*

There are, broadly speaking, three types of food poisoning.

1. Fish poisoning

If you have eaten fish in the previous day, there are two types of fish poisoning which occur worldwide; ciguatera (from a toxin in tropical reef fish), and scombroid (from improperly refrigerated temperate and tropical fish). Both types can even occur from cooked fish that looks, smells and tastes normal.

"The itch is the thing that is driving me crazy, ... I can't even drink a glass of cold water as it feels too hot" ... From a ciguatera sufferer who ate some of an 11 kg coral trout during a fishing trip in Vanuatu.

Ciguatera usually begins with nausea, vomiting, diarrhoea, and abdominal pain and then odd symptoms develop 3-72 hours later. This fish poisoning may cause pain in the teeth, metallic taste, blurred vision, tingling or abnormal sensations in the limbs and mouth (cold things feel hot), itchiness, sweating, fatigue, insomnia, muscle pain and weakness. There is no specific treatment, but during the recovery phase, even months later, victims of ciguatera poisoning should avoid ingesting any of the following, as they may cause an exacerbation of symptoms: fish or shellfish products, alcoholic beverages, nuts, nut oils, opiates and barbiturates.

Scombroid is also a type of food poisoning and symptoms usually appear 10–60 minutes after eating contaminated fish. They include abdominal cramps, and diarrhoea, but also flushing of the face and upper body (resembling sunburn), severe headache, palpitations, itching, blurred vision. Untreated, symptoms usually resolve within 12 hours. The toxin does not affect everyone who ingests it. Rarely, symptoms may be more severe and affect the breathing and circulation. Symptoms may be mistaken for a moderate to severe allergic reaction. The poisoning is caused by bacteria producing histamine. Cooking kills the bacteria but the histamine remains. Scombroid poisoning usually responds well to antihistamines. Some persons report the fish had a peppery, or sharp taste.

Regular food poisoning - toxin or germ types

It is useful to try and work out which type of food poisoning you have, so you know what to do, and how long you are likely to be sick. It is often difficult to determine which was the bad meal. If possible, make a guess as to how long it has been between eating the suspect food and getting sick. The amount of time between eating the poisoned food and getting sick may be a good clue to which type of food

poisoning you have. (It can be hard to distinguish between the two types if you have eaten numerous suspect meals.)

2. Toxin type

This is due to eating food containing bacterial toxins. Germs have been growing in the food before you ate it. As they grew, they released waste products. Eating these waste products or toxins is what makes you sick, so the symptoms come on quickly.

If symptoms develop within 2-12 hours of ingesting the poisoned food, you probably have the toxin type of food poisoning.

The toxin type of food poisoning is usually associated with a lot of vomiting and a little diarrhoea. Your body is trying to get rid of the toxin. The best treatment for this type of illness is to rest, drink fluids and wait 12-24 hours. Once you have vomited your stomach contents, you recover quickly. If you have finished vomiting, and still feel nauseous it is safe to take an anti-nausea tablet (e.g. Maxolon or Stemetil). However, it is better to avoid anti-vomiting tablets initially, as your body needs to purge the toxin. See vomiting section that follows for more information.

3. Germ type

This type of food poisoning is due to eating food containing a small number of germs (e.g. Salmonella), which get into your gut, multiply and then make you sick.

If symptoms develop 12-24 hours or more after ingesting the poisoned food, you probably have the germ type of food poisoning. The germ type of food poisoning takes longer to come on, lasts longer (e.g. several days), and is more likely to cause diarrhoea. Germ type of food poisoning is one of the causes of the famous Travellers' Diarrhoea (TD). (See the following section on TD for how to treat this condition.)

Life is never simple, and there is some overlap between the two types of regular food poisoning so you cannot always be certain. Sometimes the toxin type can take up to 24 hours to develop, and sometimes you get such a large dose of germ, you can get sick within 6-12 hours.

2. VOMITING

Vomiting can be due to infectious and non-infectious causes

The most common cause of vomiting in travellers is a toxin or a germ in your gut e.g. Norovirus. However, vomiting may be a sign of more serious illness such as appendicitis.

See a doctor immediately if you have vomiting with

- Fever for more than 24 hours *(remember malaria)*
- Severe pains in the stomach (or anywhere else)
- Sudden onset of very severe headache
- If you are unable to keep down enough fluid to balance what you are losing. (Dehydration can develop)
- No relief... vomiting continues for more than 24 hours

(and if you feel very unwell)

Treatment for vomiting

Rest. Vomiting often settles once your stomach is empty. Drink small amounts of fluid regularly to replace what you are losing. Oral Rehydration Solution (ORS) will help replace lost salts and sugars.

Tablets, wafers or suppositories to treat the vomiting

1. Take medication if you have finished vomiting all the contents of your stomach (e.g. vomiting 3 or 4 times), and still feel nauseous.
2. Take anti-vomiting medication if you cannot keep *any* fluids down. These drugs help to break the vicious cycle where dehydration makes you feel terrible so you are unable to keep down fluids, which leads to more dehydration. Tablets may not stay 'down' so wafers or suppositories may be needed.

Do not take anti-nausea medications for more than 24 hours without medical advice. It is safe to take the anti-vomiting medicine at the same time as diarrhoea medicines. In children, studies from emergency departments have shown that a single dose of oral ondansetron can help reduce vomiting, the need for IV fluids, and hospital admission. The wafer can be cut to size. Dose for children 8-15kg body weight = 2mg, 15-30kg weight = 4mg, 30-40kg = 6mg, over 40kg = 8mg. If you vomit within 2 hours of taking a tablet it is safe to repeat the tablet. Beware that you can dehydrate quickly in the tropics if you have vomiting and diarrhoea. This can be extremely dangerous. If you cannot keep fluids down, go to the nearest hospital.

Ondansetron 8mg wafer - anti-vomiting
Use dry hands, place on tongue, it will dissolve in seconds.

Metoclopramide (Maxolon) – anti-vomiting
Take one 10 mg tablet every 8 hours

Prochlorperazine (Stemetil) – anti-vomiting
Take one 5 mg tablet orally every 8 hours or
Take one 25 mg suppository rectally and follow with a tablet in 6 hours

A note about nausea from motion sickness

Motion sickness is a special type of nausea. It does not respond to stemetil or ondansetron. If you are in a car or bus, try moving to the front and watching the road. If possible, lie down. Close your eyes, and avoid moving your head from side to side. If you are on the deck of a ship and cannot lie down, try keeping your eyes fixed on the horizon. Avoid reading. Take slow, deep breaths. Apply an icepack or cold cloth to your forehead and the back of your neck. Small sips of non-carbonated (flat) drinks, especially water or rehydration solution, will help replace fluids lost through vomiting. If you are able to keep medication in your stomach, try:

Promethazine (Avomine) – motion sickness
Take one 25 mg tablet

For sufferers on a cruise ship, who cannot take oral medication, the ship's doctor usually has access to promethazine that can be given by injection.

3. TRAVELLERS' DIARRHOEA

See a doctor immediately if you have diarrhoea with

- Temperature over 40°C
- Bowel motions containing blood
- Sudden onset of profuse, very watery diarrhoea - dehydration can develop within a few hours
- If you are unable to drink enough fluid to compensate for what is lost through diarrhoea
- If the diarrhoea lasts longer than two weeks
- If self treatment fails

Other names for travellers' diarrhoea?

Bowels are indeed a strange subject for conversation. To make it sound better, travellers' diarrhoea (TD) is often given exotic local names, e.g. Bali belly, Delhi belly, Montezuema's revenge or Pharaoh's curse. Guide books may talk about bowel motions, bowel actions, faeces, or stools. It's all the same, and too much is not a good thing.

What are the symptoms of travellers' diarrhoea?

Diarrhoea means having motions that are loose and more frequent. If you have loose motions but feel well, it is not travellers' diarrhoea and you do not need treatment.

Most travellers will easily recognise when they have TD.

In severe cases the bowels may need to be emptied six or more times a day. The bowels may bloat, gurgle and cramp, causing considerable pain.

Travellers' diarrhoea is defined as three (3) or more loose stools in 24 hours, plus one other gut symptom:

* Nausea
* Vomiting
* Abdominal pain or cramps
* Faecal urgency (urgent need to rush to the toilet/cannot hang on)
* Passage of bloody stools
* Fever may occur

Bowels may demand to be emptied immediately, occasionally causing an accident on the way to the toilet. Wind passed from the bottom may smell dreadful.

Sufferers may experience burning, stinging or pain in the bottom during or after a bowel action. They may feel nauseous and even vomit. Some travellers experience excessive belching. A temperature (over 37°C) may develop and the sufferer feels generally terrible; tired, weak, and incapacitated.

The most common time to develop TD is three days after arrival. It generally lasts 2-3 days (range of 1-5 days) and often goes away without treatment. About 3% of those with TD will have symptoms which persist longer than one month.

TD may affect up to 50% of travellers visiting developing countries. If one is suffering, it may be comforting to know one is not alone – TD affects at least 11 million travellers per year! 40% of those with TD are forced to change their itinerary, 20% are confined to bed, and 1% are hospitalized.

Most travellers' diarrhoea is caused by a bacteria

TD is basically caused by germs contracted from eating faecal matter. There is variation in the array of germs in different parts of the world. In developing countries, about 80% of TD is caused by a bacteria (hence can be treated with antibiotics). Common bacteria are *E. coli*/ ETEC, Shigella, Salmonella, Campylobacter, Aeromonas, Vibrio. Parasites (e.g. giardia) cause about 10% of TD. Viruses (e.g. rotavirus and norovirus) cause less than 10% of TD. The germs that cause diarrhoea in a visitor may be harmless to the local inhabitants. Some germs, e.g. blastocystis, cause symptoms in some persons and not in others.

Research has shown that symptoms are seldom a reliable clue to which germ is causing the problem. Rarely, diarrhoea may be due to chemical irritation from unusual or spicy foods, stress, jet-lag, change in bowel flora, or other diseases e.g. malaria, or even appendicitis. (If you feel well with loose bowels, no treatment is needed unless you have to travel, and then an occasional loperamide is safe.)

Diarrhoea management – 4 things

Proximity to a toilet and adequate supplies of toilet paper are essential. In the countries where travellers' diarrhoea (TD) is a problem, local medical care may not be reliable, and well informed travellers can treat most cases of TD successfully. There are four things about diarrhoea we need to cover in the next few pages:

- Stop the spread – TD is contagious
- Monitoring – 3 things; stool consistency, fever, fluid balance
- Food and drink choice
- Medication – a few myths and four steps to work through

1. Stop the Spread – Diarrhoea is contagious.

The germs causing TD are seldom airborne. Meticulous hygeine will limit the spread to family and friends. Wash your hands for 20 seconds with soap and water after the bathroom and before eating. Antibacterial hand wash can be used as an alternative. Do not share towels, drinks, water bottles, plates, spoons etc.

2. Monitoring

i) Take your temperature

Normal body temperature is 37°C.

Significant fever is >38°C. Record your results in case it is needed later.

ii) Check the motions for consistency and blood

Have a look. Although research has proven that you *cannot* identify the causative germ by what the stool looks like, the amount of gas, or the sulphur smell etc, looking at the bowel motion will help you determine the best treatment.

- Check for consistency (watery, soft or solid).

- Is there any blood or mucous mixed in the motion? A drop of blood on the paper as you wipe your bottom is a different matter – it may be a small tear or piles - see p106.

iii) Watch your fluid balance

Fluid balance is the difference between what goes *in* (what you eat and drink) and what comes *out* (of your bladder and bowels). Make a rough guess about whether you are *losing* more fluid than you are *drinking*. If your fluid intake is sufficient, your urine will be a pale yellow colour. The sensation of thirst is not a reliable indicator. If you feel thirsty, you are at least mildly dehydrated.

3. Eating and Drinking

What to DRINK when you have diarrhoea

Try to drink a variety of fluids to provide a variety of salt and electrolytes. Less than half of the fluids should be sweet. Ensure your water is not contaminated. Aim to drink at least four litres of liquid per day. In some diarrhoeal illnesses you may lose eight litres of fluid from the bowels each day, so then you would need to drink at least eight to ten litres of fluid to replace this.

Drink enough liquid to replace what is being lost, and you will be fine.

The following fluids are suitable:

While you have TD – avoid alcohol, strong coffee and milk drinks.

- Water
- Fruit juice or sugared mineral waters (less than half of intake)
- Weak tea
- Salty soups or broth
- Coconut milk or tomato juice (rich in electrolytes)

Research has shown that healthy adults with mild to moderate diarrhoea can maintain adequate fluids without the need for oral rehydration solutions (ORS). ORS (e.g. Hydralyte) is especially useful for young infants, the elderly and in anyone with extremely profuse diarrhoea, e.g. 10 watery motions per day. The frozen ice blocks containing rehydration solution are useful for children. ORS should be made accurately to have the best effect. The secret to keeping fluid down, is to drink small amounts frequently. If packaged ORS solutions are not available you can make your own ORS by *adding 6 level teaspoons of sugar, and half a teaspoon of salt to one litre of water.* Measure carefully or it can make things worse.

What to EAT when you have diarrhoea

You *do* need to eat. Do not starve yourself. In the past, it was advised to have no food for 24 hours to rest the bowel. Further research has found this is not the best thing to do. When you eat, it may seem like eating stimulates TD and that everything goes straight through. Putting food in your stomach does stimulate the bowel to empty – this is called the gastro-colic reflex. This is a normal reaction. It is NOT the same food whizzing through from one end of the gut to the other. You should avoid very large meals but you do need to eat. The good bacteria, which normally live in the bowel, assist in the absorption of water. These bacteria need starch in order to absorb the water efficiently.

The current recommendations are to drink fluids *and eat starchy foods.* Any type of starch will do. A small amount of extra salt can be added. Try the following:

- Cooked rice or rice cereal
- Cooked oats or porridge
- Wheat (toast)
- Mashed potato
- Salty crackers
- Ripe bananas (good source of potassium)

Avoid spicy or fatty foods. Minimise the use of dairy products (yoghurt, cheese, icecream) until your motions look normal.

The consistency of your motions is a useful guide to the consistency of the food you need. If your bowel motions are watery, your diet should be watery e.g. tomato juice, coconut milk. If motions are soft, perhaps eat runny porridge. As your motions become more solid, you can eat food that is more solid e.g. baked or boiled fish, chicken, vegetables, rice.

4 Medication for travellers' diarrhoea (TD)

Medication is recommended if you have: (from p97)

- 3 or more loose motions in 24 hours plus one additional gut symptom (nausea, vomiting, abdominal cramps, bloody stool, faecal urgency)

For most people, taking the correct medication will fix symptoms within 24 hours, (in contrast to untreated diarrhoea, which will last 50-90 hours). There are three types of pills for diarrhoea. **Stoppers** which paralyse the bowel and ease the symptom of diarrhoea, e.g. loperamide (Imodium, Gastro Stop), Buscopan, Lomotil. **Antibiotics** – different ones work in different areas. **Adsorbents** (e.g. charcoal, kaolin) which are supposed to absorb the diarrhoea germs - they dont, but they do interfere with the absorption of antibiotics, so should be avoided.

Research has clearly shown that the fastest recovery from TD occurs when you take a **stopper plus the correct diarrhoea antibiotic.** The stopper holds the antibiotic inside so it can work more effectively, and the antibiotic kills the germs causing the problem. The stopper plus antibiotic together eliminate the diarrhoea germs. Antibiotics used in this way have also been shown to decrease the likelihood of developing inflammatory bowel disease after an attack of TD in those who are predisposed to it.

The treatment usually works. If treatment does not work, you have lost nothing. Complications of failed TD treatment are rare. The flow chart (p102) gives a treatment overview. The step by step medication guidelines will be outlined, but first we must dispel a few myths. Many travellers get bad advice, and suffer unnecessarily.

Urban Myth 1

A common myth is that you have to be on deaths door before you take antibiotics. Many travellers have the symptoms in the box above, but still think they are not sick enough to take medication, so they wait, and suffer unnecessarily.

Reality: If it feels like a significant illness, you are sick enough. E.g. if you experience the sudden onset of one loose bowel motion with another gut symptom– you could wait for three loose motions, but it is better to start treatment after one or two loose motions.

Urban Myth 2

Diarrhoea is natural and somehow good for us and will flush out the germs and make us recover faster.

Reality: All the scientific evidence says this is not how things work.

Urban Myth 3

"I'll just take a stopper (like Imodium), because antibiotics are not natural, and they will kill off my good gut germs"

Reality: Unfortunately in TD, your good gut germs have largely been replaced by bad gut germs. In fact, taking *only* a stopper can make your problem worse. The stopper would slow the diarrhoea, but your gut is paralysed, so the bad germs stay in the gut longer and can do more damage. If you have diarrhoea with a fever or blood in your motions and take only a stopper, you are allowing the very bad germs to have free reign in your paralysed gut. Not a good thing.

Step by Step medication for Travellers Diarrhoea

Note - if you have nausea/vomiting with the gastro/diarrhoea, it is safe to take anti-vomiting medicines (Stemetil or Maxolon; ideally by suppository, see p 96). Take these 30 minutes before the diarrhoea pills. Keep taking small sips of fluid often.

Step 1 Norfloxacin or Ciprofloxacin

You need to kill the germs causing the gut problem. Currently, the most economical best guess diarrhoea antibiotic for much of the world is a drug from the quinolone family e.g. norfloxacin (Noroxin) or ciprofloxacin, (Ciproxin, Cipro or Cifran). This family of drugs is not related to penicillin, sulphur or other antibiotics. If you have the symptoms of TD (p97), take "the bomb" as follows;

ANTIBIOTIC		
Norfloxacin (Noroxin) Two x 400 mg tablets = 800 mg at once	**OR**	**Ciprofloxacin (Ciproxin)** Two x 500 mg tablets = 1,000 mg at once.
PLUS STOPPER		
Loperamide (Imodium) – One x 2 mg tablet		
Total of 3 tablets with water. Take at least 2 hours after food, milk, vitamins. Do not consume anything for 30 minutes after taking.		

Children 30-50kg body weight: dose is one 500 mg tablet of ciprofloxacin with one 2 mg loperamide.

If this diarrhoea treatment is going to work, you will usually start to improve within 4-6 hours, and diarrhoea symptoms will stop within 24 hours (untreated diarrhoea may last 50-90 hours).

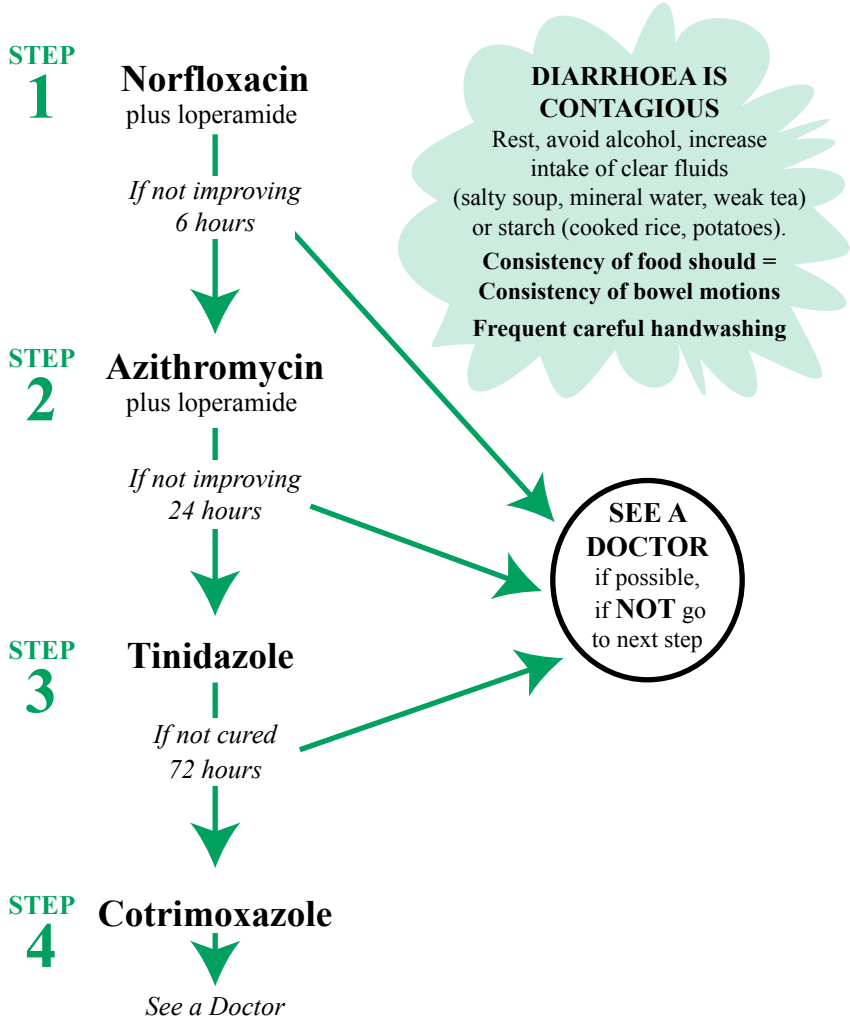
Carry Step One tablets with you in your day bag, for rapid use when needed.

If there is no improvement after 4-6 hours go to Step Two.

Travellers' Diarrhoea /Gastro Treatment Flow Chart

Refer to text for details

Sudden onset **uncomfortable** diarrhoea (1-3 loose bowel motions in 24 hours) PLUS one additional gut symptom (nausea, vomiting, abdominal pain or cramps, bloody stool, faecal urgency).



If you vomit within 2 hours of taking any medication, you can repeat the pills.
Anti vomiting medication (pills, wafers or suppositories) can be taken 30mins before each dose of medication.

Loperamide is useful if you must travel on a bus, train, raft etc. You can take more loperamide *after* the antibiotic. You can take loperamide *with* each dose of antibiotic. Just *do not* take loperamide before the antibiotic. Especially *do not* take loperamide without its partner antibiotic if you have a fever or blood in the bowel motions.

Loperamide (Imodium) — Stopper for diarrhoea
2 mg capsule after each loose motion to a maximum of eight capsules per day. Take antibiotic first, and never take for more than 48 hours.

Loperamide should be used sparingly in children and never given to children under 6 years of age. Loperamide is the best stopper drug. Lomotil is an older stopper drug, and is not recommended as it has more side effects; dry mouth, drowsiness, and blurred vision.

What if I have bad stomach cramps with diarrhoea?

If you have TD plus bad stomach cramps, you may try a more specific anti-spasmodic instead of loperamide. Buscopan can be combined with the antibiotic. If pain persists, of course see a doctor.

Hyoscine butylbromide (Buscopan) – Ease gut cramps
20 mg (2x10 mg tablets) four times daily.

Step 2 Azithromycin

If the Step One (norfloxacin or ciprofloxacin) does not seem to be leading to any improvement within 4-6 hours, and you cannot access medical attention, Step Two is to take azithromycin to treat resistant germs.

Azithromycin (Zithromax) – diarrhoea antibiotic
Take 2 x 500 mg = 1,000 mg once.
WITH
Loperamide (Imodium) – diarrhoea stopper
One 2 mg capsule

Step Two Azithromycin (Zithromax, Zedd) works a little more slowly than Step One and may cause temporary, mild nausea.

NOTE The recommended dose for Azithromycin is not yet standardised. You may read other dose schemes. One only 500 mg tablet may be recommended in some parts of the world, where resistant germs are less common. You may also be recommended the alternative dose for azithromycin which is one tablet a day for 3 days. This alternate dose may cause less nausea, but works more slowly.

Rifaxamin is an alternative antibiotic that can be used for step two, but it is not available in all parts of the world. Rifaxamin remains inside the bowel - it does not get absorbed into the main part of the body - so has fewer side effects.

As in step one, loperamide is taken with the antibiotic, or after the antibiotic if more loose stools occur.

The dose for children follows: (Very small children skip step one)

Azithromycin dose usually prescribed for children is 10 mg/kg body weight **once daily for 3 days**.	
12 kg child = 3mls (120 mg) daily 16 kg child = 4mls (160 mg) daily 20 kg child = 5mls (200 mg) daily	Supplied as powder. Water is added when ready to use. Makes 15 mls of 40 mg/ml
25 kg child = 1/2 tablet daily 37 kg child = 3/4 tablet daily 50 kg child = 1 tablet daily	Need to cut tablets. Full tablet is 500 mg Azithromycin

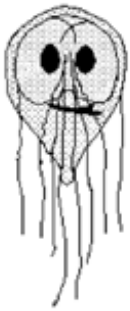
You should notice an improvement in a further 12-24 hours. If not improved, after 24 hours move to Step Three.

Step 3 Tinidazole

If you are still not well, in step three we aim to attack less common gut germs. Persistent gut problems in travellers could be giardia, amoebic dysentery or cyclospora. It is not possible to accurately diagnose the causative germ from the type of the diarrhoea but the classic descriptions of each condition follow.

NB *If you have a fever, be suspicious. Sometimes other diseases may cause diarrhoea and fever — for example malaria or even appendicitis. Try to access medical advice. Ring your travel insurance hotline. It is their job to find you reliable medical care.*

Giardia



Giardia is a notorious protozoan parasite that causes diarrhoea or gut disturbance that tends to last more than 2 weeks. It is present world wide, but common among backpackers to developing countries, e.g. India, Nepal. Symptoms generally begin 1-2 weeks after being infected (by eating the cyst in food or drink) . The characteristic diarrhoea is said to be of gradual onset, with up to 5 loose stools per day, along with stomach churning and gas, and mild to moderate fatigue. Burps, which taste of rotten eggs are said to be diagnostic but other germs can cause this too. Usually giardia does not cause blood in the motions. Some infected persons have no symptoms at all.

Tinidazole (Fasigyn, Simplotan, Tiniba) 500 mg
Take 4 x 500 mg tablets together, on ONE DAY.
Avoid alcohol for 48 hours.

Amoebic dysentary

Amoebic dysentery is more likely to cause diarrhoea with blood or mucous in the motions. Other symptoms may include fever, abdominal pain and weight loss. These symptoms may be hard to distinguish from bacterial diarrhoea.

The dose of tinidazole you need in step 3 depends a little on your symptoms. For most cases of persistent diarrhoea, one day of treatment is enough. Sometimes you need to take three days of treatment. If you improve after tinidazole and then relapse within a week, or you are unwell with symptoms more like those listed for amoebic dysentery, try 3 consecutive days of tablets.

Tinidazole is safe, but (like all medication), does have the potential for side effects. Do not take more than 4 days of tinidazole in a month without medical advice.

Tinidazole (Fasigyn, Simplotan, Tiniba) 500mg
Take 4 x 500mg tablets all together daily for 3 DAYS
Avoid alcohol for 48 hours after each dose.

About 11% of persons experience side effects e.g. unpleasant metallic taste in mouth, nausea, stomach discomfort, dizziness, weakness, fatigue, headache, itch, dark urine. Alcohol interacts badly with tinidazole; the combination gives you symptoms of a very bad hangover.

Metronidazole (Flagyl) is a less popular alternative to tinidazole, as it requires a week of treatment and side effects are therefore prolonged.

Another medication available in some parts of the world for giardia, amoebiasis and cryptosporidiosis is Nitazoxanide 500 mg twice a day for 3 days.

Step 4 Cotrimoxazole

Cyclospora is a more recently-discovered germ that causes persistent diarrhoea in travellers. It typically causes profuse watery diarrhoea, abdominal cramps, bloating and increased gas, nausea, tiredness and lack of appetite, weight loss, and low grade fever. If you have tried steps 1, 2 and 3 with no improvement and cannot get to a doctor, try:

Cotrimoxazole 160/800 (Bactrim DS, Septrin Forte)
Take 1 tablet twice daily for 7 days.

Norovirus

Sadly, some gastroenteritis is due to a virus like norovirus, and the antibiotics of step 1, 2 and 3 will not help (More info see p 166).

Final Step - if Diarrhoea is persisting for weeks

About 3% of travellers will have diarrhoea that lasts more than one month. If your diarrhoea persists after all these drugs, you need to see a doctor soon.

Multiple attacks of gastro or one long attack?

It is a common trap to mentally connect a series of isolated episodes of gastroenteritis into one long illness; e.g. one episode of TD for 3 days, then no diarrhoea for a week, then 2 days of diarrhoea treated with antibiotics, then no diarrhoea for ten days, then a further one day of TD etc.

It may seem like the diarrhoea has gone on for a month, but Travellers Diarrhoea that develops after 5 days of being healthy is likely to be a new germ, so you need to start your treatment plan at the beginning.

A FINAL REMINDER

See your doctor when you get home if you have suffered severe or bloody diarrhoea while you are away.

4. CONSTIPATION

Contrary to what many people expect, travellers do get constipated. Constipation is usually due to prolonged sitting while travelling, change of diet and even too many diarrhoea pills. Lack of safe drinking water may also lead to dehydration and worsen the constipation.

Simple treatments

The best treatment for constipation is to drink more fluids, eat more fibre, and get more exercise. A fibre supplement (e.g. Fybogel, Metamucil) may help get things moving.

Medication

If the constipation is more severe, and you are feeling uncomfortable, a mild laxative (e.g. Coloxyl) is useful. It is normally taken before bed for two to three nights. Do not be tempted to overdose or you may get diarrhoea, and cramping stomach pains.

5. RECTAL BLEEDING OR PAIN

Several conditions can cause rectal bleeding - from haemorrhoids and fissures, to rectal cancer. It is most likely to be something minor that can be easily cured, but you can never be too careful. You need to seek medical attention, when possible, to get it checked properly.

The most common complaint in a traveller is finding a small amount of fresh blood on the toilet paper after a bowel movement. This is most commonly a sign that you have haemorrhoids, often known as piles. Piles are swollen blood vessels and can develop on the outside where they are felt as small soft swellings (about the size of a pea or grape) when wiping, or they may be on the inside where they are less obvious. Sometimes the blood in these swollen blood vessels can clot, which leads to a hard painful lump just outside the anus. This pain can be quickly relieved by a doctor removing the clot, but this procedure is most effective if undertaken soon after the clot occurs. It requires competent medical care.

Sometimes blood or pain may be due to an anal fissure: this is when a small tear occurs in the lining of the anal canal – usually from straining while passing a bowel motion. Haemorrhoids and fissures are best treated with a warm salty bath, special creams (e.g. rectinol) to soothe the area after each motion, agents like coloxyl that soften the stool and reduce straining, and increasing fibre in the diet.

6. WORMS

Worms do not usually cause symptoms in travellers. If you pass a worm, there is no need to panic. Be glad it is gone. If you can take the worm to a pathology lab, they can identify it, but meanwhile take:

Albendazole (Zentel)

Take 400 mg daily for three consecutive days. Total 3 doses.

It must be taken 'on an empty stomach'. This means wait 2-3 hours after eating, take the dose, and then wait at least 30 minutes before eating again.

COUGHS, COLDS, CHEST INFECTIONS

Problems of the respiratory tract (lungs, sinus, nose and throat) affect up to 20% of travellers. These problems can be caused or made worse by viral or bacterial infection, exposure to cigarette smoke, breathing polluted air, drinking alcohol, hay fever or other allergies. Most cases of coughs, colds, and chest infection are caused by a virus and will go away without treatment.

1. COLDS AND FLU

See a doctor immediately if you have;

- Temperature over 40˚C
- Difficulty breathing/short of breath
- Trouble swallowing
- Coughing green mucous (more than 5 mls/1tsp)
- Coughing blood
- Dry cough that lasts longer than three weeks
- If self treatment fails.

(or if you are very unwell)

Be aware that you are likely to be contagious. There are over 200 different viruses known to cause the common cold. Respiratory germs are usually spread through droplets coughed or sneezed into the air, and via nasal secretions that contaminate hands and objects – e.g. cold viruses can live for up to 3 hours on surfaces.

The best ways to avoid spreading these germs are:

- Frequent careful hand washing
- Do not touch your eyes or mouth (unless you have just washed your hands)
- Cover your mouth when coughing or sneezing
- Do not leave used handkerchiefs lying about.

Persons with a fever may not be allowed on aircraft.

General treatment

Many preparations are available to minimise the symptoms. General measures as outlined in first aid overview are important: rest, fluids, and painkillers. It is useful to take your temperature.

Colds and flu – what's the difference?

Colds and the flu (influenza) are different diseases but cause many of the same symptoms. The only way to really tell them apart is to have a laboratory test for the virus. The major difference is one of severity. A cold is generally mild whereas the flu tends to be more severe. Influenza is said to affect 1 in 100 travellers.

There is a tendency for some people to say about almost any respiratory illness 'I've got the flu' – perhaps because it elicits more sympathy?

Many of the symptoms are not specific to colds or flu. The table below outlines the differences between a cold and influenza (flu).

	COLD	FLU
Onset	Slow	Sudden
Severity	Mild	Severe
Symptoms	Nil or small fever	*Fever/shaking chills
	Tiredness mild	*Tiredness can be extreme
	*Headache mild	*Headache severe
	Watery eyes	Eye pain
	*Cough	Dry cough
	Slight muscle aches	*Body aches may be severe
	*Scratchy throat	Sore throat
	*Runny nose	Nasal congestion
	*Sneezes	
Duration	2-14 days	7-14 days
	Average is 1 week	Fever 1-5 days
	2/3 people are better within a week	Tiredness – up to 2 weeks
Treatment	Rest	Rest – may need bed rest
Symptom Treatment	Painkillers (ease pain and fever) e.g. ibuprofen	

** = Most common symptoms*

The treatment for colds and influenza is broadly the same. Antibiotics do not help. There is no good evidence for the effectiveness of over-the-counter cough and cold medicines. Anti viral medications are of very limited value.

Honey and Lemon home remedies are the simplest and cheapest therapy.

Both diseases are caused by a virus. Most people recover fully.

You also do not need to suffer with your symptoms, You will recover just as quickly if you take medication to relieve the symptoms e.g. take nose drying agents. It is also important to eat properly and get enough sleep.

2. ALLERGIES

A runny nose plus itchy eyes and sneezing may also be due to an allergy, or hay fever. Most allergy sufferers will be familiar with the symptoms. Allergies are common among travellers. There are many new things to be allergic to. Developing countries may have a lot of dust or smog. Try to minimise contact with the cause of your allergy. It may be helpful to place a scarf over your nose and mouth when travelling in dusty environments. Treatment includes antihistamine medications, e.g. Zyrtec, Telfast, Hismanal, promethazine. Steroid-based nasal sprays are also quite effective against nasal symptoms: e.g. Aldecin or Beconase - take two puffs in each nostril, twice a day.

3. SORE THROAT

The most common cause of a sore throat is a viral infection. If someone looks at the back of your throat with a strong torch they will see the membranes at the back of the throat are extremely red.

Most symptoms will go away in a few days. Clinical trials of zinc lozenges, echinacea, vitamin C, etc. show these are not particularly helpful at shortening the illness. To ease the symptoms of a sore throat

- Take paracetamol or ibuprofen
- Gargle with warm salt water (1 tsp of salt per glass of water).
- Suck on throat lozenges or ice blocks
- Avoid cigarettes, alcohol and pollution

If the sore throat lasts more than 7 days, or if you have other symptoms with it, (e.g. fever or difficulty swallowing), seek medical attention.

4. TONSILLITIS

Tonsillitis is hard to distinguish from a viral sore throat but it is more likely if you have *all* the following;

- Fever (>38°C)
- Tender lymph nodes in the neck
- Swelling or pus on the tonsils
- No cough

The usual treatment for tonsillitis is

Penicillin 500 mg twice a day for 10 days
or
Roxithromycin 300 mg daily for 10 days
or
Azithromycin 500 mg daily for 3 days

5. SINUSITIS

Sinuses are the holes in bone of your skull, lined with special moist membranes, and usually filled with air. The sinuses are connected to the back of your nose via small air passages. Sinus congestion means fluid fills the sinus.

This is usually the result of viral infection or allergies. The irritant causes the membranes of your nose and sinuses to secrete fluid or mucous. When you have a runny nose, this fluid pours into your nose and you can blow your nose to remove it. When the membranes of your sinuses secrete fluid, the fluid cannot drain away as easily and so it fills your sinuses. If this happens, you will feel stuffy or blocked in the head. Bacterial sinus infection means that bacteria are growing in this pool of fluid in your sinuses. Only 0.5 -5% of cases of upper respiratory tract infection lead to bacterial sinus infection. Even if infected, this infection will clear or drain spontaneously in 70% cases.

Antibiotics may be recommended if you have the following;

- More than 7 days of mucous and or pus coming from the nose
- Pain in the face or upper teeth
- Tenderness over sinuses

The usual antibiotics that are recommended are: amoxycillin, cefaclor, azithromycin or doxycycline. Roxithromycin may also be used.

Amoxicillin 250mg – antibiotic
Take one capsule three times a day for 5 days
OR
Azithromycin (Zithromax) 500mg – antibiotic
Take one daily for 3 days.

6. ACUTE BRONCHITIS

Acute bronchitis is an infection in the bronchial tubes. These tubes carry air from the back of the throat to the lungs. When the tubes become infected, they swell and mucous forms. This causes you to cough, to expel the mucous. Acute bronchitis may also cause difficulty breathing and cause you to wheeze. This condition is more common in persons who smoke, because the bronchial tree is injured by the cigarette smoke. In persons with a normal immune system, acute bronchitis is most often viral and does not require antibiotic treatment. Clinical trials show antibiotics seldom give benefit and may cause harm. Acute bronchitis is usually treated with asthma type medications to help open the bronchial tubes and clear the mucous. The cough may persist for 3-4 weeks. Whooping cough should be considered as a cause of persistent cough. Pneumonia should be considered in persons with more severe illness.

7. PNEUMONIA

In the past, antibiotics were commonly prescribed for respiratory tract problems. The slightest bit of green sputum would mean you started antibiotics. Further research has found many of these respiratory conditions are due to viruses. Taking antibiotics did nothing and sometimes caused side effects.

Pneumonia should be suspected if you have

- sudden onset of cough
- shortness of breath
- pain in chest on taking a deep breath
- rapid breathing
- fever over 38°C/shaking chills

You need to seek medical attention and have a chest X-ray to confirm the diagnosis. If you cannot access medical attention, the antibiotic that could be used is Azithromycin which has been shown to be equally effective as Amoxycillin in a Cochrane medical review. Sometimes it is necessary to add roxithromycin or doxycycline to clear the germ. Moxifloxacin is also used sometimes. Bacterial chest infections are especially common in smokers. Consult a doctor if possible.

Azithromycin (Zithromax) 500 mg – antibiotic
Take one daily for 3 days.

8. PERSISTENT COUGH

Persistent cough *for more than 3 weeks* can be due to many different causes. You need to seek medical advice.

- Asthma is a common cause of persistent cough but usually the sufferer knows they have asthma. Treatment involves increasing one's asthma medication.
- Post viral cough is another common cause in travellers. After a viral illness or flu, a dry cough can persist for 6 weeks. The best treatment is to drink fluids and wait.
- Whooping cough (Pertussis) is another possible cause of persistent cough lasting more than a few weeks. It is quite common and not usually recognised in adults. Pertussis usually begins just like a cold; with a runny nose, tiredness and sometimes a mild fever. Coughing develops 3-7 days later. It may occur in bouts, followed by a deep gasp (or "whoop"). Sometimes people vomit after coughing. Coughing may continue for many weeks or even months, regardless of treatment. Unfortunately whooping cough can sometimes occur in persons who are vaccinated, though the disease is likely to be less severe in vaccinated persons. If you suspect pertussis – stay away from babies and pregnant women, and see a doctor for a test (blood test or throat/nose swab.) Treatment is required so you will not be contagious; e.g. Azithromycin; dose is 500 mg on day one, and then 250 mg taken daily from day 2-5 of treatment.
- Deep vein thrombosis (DVT) may be considered if you develop a cough along with a sore or swollen leg after a long journey. Seek medical attention to have an ultrasound of your leg, and a blood test to look for clotting markers: This is called a D Dimer test.
- Some parasites can cause you to cough as they migrate through your lungs.
- Tuberculosis may cause a persistent cough plus fever, sweating at night and sometimes weight loss.

SKIN DAMAGE

1. Bleeding - wounds and nose bleeds
2. Wound care
3. Burns
4. Blisters
5. Bites including insects, and bigger animals
6. Maggots
7. Skin rashes

1. BLEEDING

Bleeding wounds

If you are helping others, wear disposable gloves if possible, to minimise contact with blood. Apply firm pressure to the bleeding wound with a large dressing or clean handkerchief for at least 3 minutes. Do not use a tourniquet. If there is a foreign object in the wound, apply pressure around the wound or on the heart side of the wound. Never remove large foreign objects embedded in a wound or the bleeding may get much worse. Keep applying pressure, until the bleeding stops. If possible, raise the bleeding part above the level of the heart. If a lot of blood is lost, keep the injured person warm by wrapping them in a blanket, and keep them lying flat. Seek medical attention urgently.

Nose bleeds

Sit upright and hold the nostrils closed by pinching the soft fleshy parts together. If available, place a cold pack on the bridge of the nose. Be patient. In most cases the bleeding will stop within 15 minutes. If not, see a doctor.

2. WOUND CARE CHECKLIST

Step 1. Adequate cleaning
Step 2. Apply a little antiseptic
Step 3. If possible bring the wound edges together
Step 4. Choose the best dressing
Step 5. Monitor the wound
Step 6. Treat infection quickly

Step 1. Adequate cleaning

The presence of *some* bacteria in the wound is normal. Bacteria are everywhere in the environment. Problems occur when there are too *many* bacteria growing in the wound. Infection will delay healing. In the tropics, minor wounds will rapidly become infected if not treated correctly. Once established, tropical ulcers may be hard to cure. Do not ignore minor wounds as you might at home. The following can prevent infection:

1. **Always wash your hands (soap and water or hand sanitizer) before handling wounds.** Try to touch the wound as little as possible. Ensure all dressings are sterile. Remove rings or constricting jewellery from the affected body part. Clip hair around wound short – do not shave, as shaving may be awkward and increase infection risk.

2. **Clean all wounds thoroughly at the outset.** Inspect wounds under a good light to check for foreign particles - these must be removed. Dirt, gravel, marine slime or other foreign particles will cause infection. Adequate cleaning is especially important for deep wounds or contaminated wounds. Irrigate wounds with *room temperature* sterile (boiled or bottled) water or salt solution. *Add one quarter teaspoon of salt to 200 ml (1 cup) of clean water.* Pour water over the wound or use a 10 ml syringe to squirt water gently onto the wound to remove foreign matter. If available, the foaming action of hydrogen peroxide (3%) applied to the wound may help dislodge foreign particles. Marine slime may not be visible. If marine slime or coral is a possible contaminant, you need to gently scrub the wound with a clean toothbrush or piece of gauze to remove the slime.
3. **Dead tissue must be removed.** Dead tissue blocks healing and acts as a breeding ground for germs. Cut away obvious bits of dead tissue with sharp scissors. This is known as debridement.

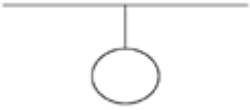
Step 2. Apply a little antiseptic

After cleaning the wound, apply a thin layer of iodine-based antiseptic, e.g. betadine. *If you have an allergy to iodine, use only the salt solution for wound cleansing.* A little antiseptic is enough: more is not better as it can irritate the healing tissues.

Step 3. If possible bring the wound edges together

The body quickly forms a bridge between two pieces of living tissue if the edges are touching and held together. Gaping wounds heal more slowly. Apply sutures, tape, steristrips, or even a firm dressing to bring wound edges together and keep them neatly aligned. Small cuts on the fingers seldom need to be sutured. The blood supply to the fingers is so good that these wounds heal quickly. On the scalp, tying two clumps of hair together across the wound can sometimes hold smaller wounds closed. In an extreme emergency, superglue has been used across the top of a clean cut wound – like a steristrip, but training would be needed before attempting this. The superglue must NOT get *into* the wound or come in contact with the healing surfaces. A wound cannot heal through the superglue.

When pulling a deep wound together, ensure you do not just pull the top layers of the wound together leaving a gap or space beneath. (Doctors use deep stitches when suturing wounds to pull the base of the wound together.) If the surface of a wound heals first, a space or gap remains beneath, where debris can collect (see diagram).



Debris which accumulates in this space cannot escape, so healing is delayed.

If wound edges cannot easily be brought together e.g. gaping deep wounds, burns or ulcers, the wound will need to heal from the base. It may be necessary to pack this type of wound with gauze to prevent a space forming. Packing the wound means gently placing tightly packed, *moist*, sterile gauze into the wound to keep the surface of the wound open until the base heals. Make sure a tail of gauze is left coming out of the wound so the gauze can be easily removed when the wound is re-dressed. Do not use cotton balls.

Step 4. Choose the best dressing

Most wounds should be covered for protection, so the wound will not be contaminated while it heals. Sea water contamination is a particular problem with larger wounds, as there are some rare but serious germs present in seawater e.g. Pseudomonas. These germs are rarely a problem in small, clean wounds of healthy persons. Swimming is safe if the dressing is waterproof. Choosing the right dressing is not critical for very small wounds. If the wound will fit under a regular Bandaid, that is usually the most practical dressing. For larger wounds, the best dressing depends on whether the wound is open or closed.

Type of wound	OPEN WOUND	CLOSED WOUND
Damaged area in contact with environment?	**in contact**	**not in contact**
Example of this type of wound	e.g. Burn, graze, ulcer	e.g. Clean cut pulled together
Type of dressing	Moist	Dry
Change dressing	Every 3-7 days	Daily

Closed wounds

In closed wounds, the edges of the wound are brought together (e.g. sutured), and most of the damaged area is hidden away and not in contact with the outside environment. These wounds heal fastest if kept dry, especially for the first 48 to 72 hours. For these wounds, choose a dry, non-adherent dressing such as Melolin, Primopore or even a Bandaid. Dressings may initially need to be changed daily, as a little ooze may occur through the suture line in the first few days.

Open wounds

In open wounds, the damaged tissue *is* in contact with the outside environment e.g. ulcers, grazes, burns etc. All the evidence from current research shows these types of wounds get less infection, **feel better and heal faster** (in some studies four days faster) **if kept moist**.

The natural ooze from wounds contains:

i) white blood cells which protect the wound from infection

ii) enzymes to remove dead tissues

iii) numerous vital growth factors which coordinate wound healing

iv) nutrients which feed the growing tissues

v) water itself, which is necessary for normal metabolism of cells, protects nerve endings from drying, and stops the healing wound sticking to the dressing and thus being damaged when the dressing is removed.

Moist or occlusive dressings (e.g. Opsite, Tegaderm, Cutifilm) are recommended for open wounds. These dressings are made from a special type of plastic that is waterproof and designed to hold this ooze in place. Some of these dressings come with a pad or gel attached and some are just like a tiny piece of plain cling film (in which you wrap sandwiches).

If there is a great deal of ooze, absorbent material (e.g. IntraSite or SoloSite gel) is needed under the dressing to hold the ooze, while still keeping the wound surface moist.

After wound cleaning, and before you apply the dressing, check to ensure the area around the wound is quite dry. You may need to shave the surrounding area to ensure the dressing will stick. Seal the area with a waterproof dressing e.g. Opsite or similar product. Ideally leave the dressing untouched for 3-7 days. Sometimes the edges lift and the dressing falls off early. If the dressing falls off or needs to be removed, clean the wound and reapply a new dressing. Note that Opsite dressing is waterproof if applied correctly. In difficult areas (elbows, knees) it may be more practical to apply a dry, non-stick dressing with a bandage than a waterproof, moist wound dressing like Opsite.

Step 5. Monitor the wound

If a wound is healing properly it will feel better each day.

Some dressings are transparent so you can inspect the wound without removing the dressing. At the very least, with each dressing change you must examine the wound under a good light. Sometimes it may help to measure the *depth* and *width* of the wound with a ruler, so you can check the progress objectively. Also note the *colour* of the wound. New growth (granulation tissue) is usually quite red and looks clean. Very white tissue is usually dead, painless to touch and should be removed so it does not provide a site for infection to develop.

Different dressings need to be changed at different intervals:

Moist dressings e.g. Opsite – usually every 3 to 7 days.

Dry, non-stick dressings e.g. Melolin – usually daily

The most suitable dressing for the wound may change over time.

The rate of wound healing varies enormously from wound to wound, and person to person. The healing rate depends on many factors such as:

- age and general health of the casualty
- where the wound is located
- how the wound occurred (clean cut or crushed tissue)
- how the wound is treated

Most wounds should be healed in one to two weeks, however it may take many months for the scar to reach full strength. That is why many scars widen over time, especially if wounds are continually stretched, e.g. over the knee.

Watch every wound closely, for the following signs of significant infection:

- increasing pain — this is a very important signal that the wound is not healing properly
- increasing redness, especially if it is spreading in a red line or streak away from the wound towards the heart
- increasing discharge, especially if the fluid is yellow, green, grey or smelly
- wound bleeds easily when touched
- generalised fever and increasing pulse rate

If any of the above develop – go to step 6.

Step 6. Treat infection quickly

If wound infection develops despite good wound management, the damage can be minimised if the infection is treated early.

If any of the listed signs of infection develop:

- Check again that there is no foreign matter or dead tissue in the wound: If so, it must be removed.
- You need to seek medical advice and will probably require antibiotics.

The following antibiotics may be appropriate.

Cephalexin 500 mg - antibiotic
Take two tablets to start, and then one every 12 hours for 5 days.

Alternatives; flucloxacillin, roxithromycin, doxycycline
Consult the drug reference table for full details of dose.

3. BURNS

Burns are a special type of wound. Unlike cuts, or grazes, tissue damage continues to occur for a time after the acute injury, due to heat in the wound.

Cool the area

Cool the area as quickly as possible. Do not delay cooling by attempting to remove burned clothing, however you need to remove rings or watches immediately when burns occur to the hands, fingers or arms. The injured area needs immediate cooling. If you remove the heat, there will be less damage to the tissue. Ideally apply running cold tap water for 20 minutes, keep the rest of the patient warm to avoid hypothermia, and never use ice or iced water. If the skin is blistered and not broken, resist the temptation to burst any blisters that form. The blister provides a clean cover for the damaged area. Beneath the blister, the wound is bathed in a beneficial fluid. Only if the blister fluid turns cloudy, should it be burst and the dead skin gently removed.

The wound should be managed as any other wound i.e. cleaned with a salt solution, a thin layer of antiseptic applied, and covered with a moist dressing, e.g. Opsite or Tegaderm. It should be watched closely for signs of infection.

See a doctor immediately if

- the burn involves the face or hands
- the burn is larger in size than the casualty's palm
- the burned area is not painful (may be a third degree burn)
- signs of infection develop, e.g. if the redness extends, the burn becomes more painful or if you develop a fever.

Sunburn

Sunburn can be extremely painful and require pain killers. If blistering occurs, the treatment is the same as described above for other burns. Moisturisers are soothing on unbroken skin especially if they have been stored in the fridge. Dehydration may occur along with sunburn. Avoid further sun exposure. Have yearly checks for skin cancers after being burned.

4. BLISTERS

Blisters occur as a result of friction. The first step is to limit further friction. Once blisters have formed, treatment depends on their size. Ideally leave the blister intact. An intact blister will seldom become infected. Cover a blister with a dressing e.g. Bandaid or Opsite. Larger blisters tend to burst. Once this happens, the wound is treated in the same way as any other wound. Clean the blister surface. Apply Betadine and cover with a non-stick dressing. Change the dressing daily. It may be necessary to use fine scissors to carefully cut away the dead skin that formed the 'roof' of the blister. Additional padding may be necessary around the blistered area, e.g. ring-shaped pads of felt which relieve pressure on the damaged area.

5. BITES

Insect bites

Bites from fleas, sandflies, mosquitoes, bees, wasps, ticks or leeches are annoying and may even transmit disease. The odd insect bite needs no particular treatment. Steroid cream (e.g. Betnovate) can be applied twice a day for the first 24 hours to decrease the itch and irritation. Hold an ice cube on the itchy spot for instant relief. If you receive many bites or the insect leaves a small wound, then manage as per the wound checklist p112, i.e. wash the site, and apply antiseptic. You need to see a travel doctor if insect bites fail to heal - it could be serious e. g. leishmania.

Bee Stings

The sting should be removed as quickly as possible. Studies have shown you do not need to scrape off a sting. Even a short delay in removal, caused by concern about correct technique (e.g. getting out a knife blade or scraper), is likely to increase the dose of venom received.

Bedbugs

If you wake from a night's sleep and discover bites, (and mosquitoes seem unlikely), inspect the room. Walls, bedding and other areas that are infested with bedbugs are often marked with the tiny black and brown spots of bedbug faeces and dried blood. Sometimes you can find the bugs. They are flattened, oval, brown insects. Adults are about 5 mm in length but nymphs can be smaller. During the day they live in furniture, folds in mattresses, cracks in walls, behind pictures and even in the pleats of curtains. They bite at night or in darkened rooms, and take 5–10 minutes to complete feeding. Rooms with heavy infestations are often described as having a sickly sweet smell. Bedbugs do not live on you like scabies or head lice. They usually find a new home via the relocation of infested furniture or possessions. Bedbugs suck your blood but do not transmit disease. The bites cause itching, inflammation and swelling, which can take several days to subside. Move

accommodation. To clear an infestation, the room needs to be cleaned, and then fumigated by professional pest control services.

Head lice

Small numbers of head lice seldom cause symptoms, and do not carry disease, but must be treated. Sometimes the eggs (nits) are visible stuck on the base of the hair – especially around the ears. Newly laid eggs are usually within 1.5 cm of the base of the hair. If you are unsure if it is an egg or a bit of fluff – try moving it. The eggs are tightly attached, as if with superglue. To confirm head lice, place conditioner in the hair, and carefully comb the whole head from the scalp to the ends with a lice comb. Check the combings. Conditioner stuns the head lice for about 20 minutes. Head lice are the size of a sesame seed, and *only* move by crawling. Lice cannot hop, jump or fly. They cannot live more than 24 hours away from a human host.

Treatments are varied and available in most pharmacies. There are four groups of chemicals — pyrethrins, synthetic pyrethroids (permethrin and bioallethrin), organophosphates (malathion or maldison), and herbal. Two treatments are required 7 days apart, because no chemical reliably kills the eggs. The eggs take about 7 days to hatch so the second treatment is necessary to kill the newly hatched insects. Comb the hair after treatment to check the lice are dead. Some head lice are resistant to some of the treatments and do not die. If this occurs restart treatment with a chemical from a different group. There is no point trying to pull off the nits. Wash the sheets normally and line dry. You do not need to boil or iron the sheets.

Ticks and their removal

If a tick is found attached: Use fine tipped tweezers to firmly grasp the tick's head very close to the host's skin. With a steady motion, pull the tick away from the skin. The tick's mouthparts may remain in the skin but do not be alarmed. Cleanse the area with antiseptic or soap and water. If you tug on the back of the body, you are likely to rupture the tick's internal gut, squeezing the contents out through the attached mouthparts into the patient. Smearing chemicals on the tick will not make it let go, and is *not* recommended. **DO NOT** use a hot match, nail polish or other products. If a tick bite becomes infected, or you notice a rash or funny lump at the bite site, see a doctor as you may require antibiotics, e.g. doxycycline. Ticks may carry disease, especially if they have been attached for a day or more.

Leeches

A leech will usually fall off within about 20 minutes. Ideally don't pull it off. Apply salt and it will release its grip. Once removed, wash the area with warm soapy water and apply a cold pack, (with pressure if bleeding persists). Seek medical advice if signs of infection develop.

Jiggers

The jigger or chigger flea (Tunga penetrans) is found in tropical South America or Africa. The flea is about 1 mm in size and lives in sand or soil. The pregnant female flea jumps onto the bare foot of a passerby. She buries herself in the skin of the feet, often under the toenails, or between the toes. The flea matures over 8-12 days, swelling to the size of a small pea. Eggs are expelled through the entry hole for the

next few weeks. The mother flea dies when the eggs are released. The eggs hatch in the ground. Travellers may notice a sore, which starts like a blood blister. Over time it may change to look whitish with a blood spot in the centre. The lesion is a little painful, but the sufferer feels well. The site may become infected. Remove the jigger from the skin with a sterile needle or pin or a scalpel to cut away the dead skin over the flea. This is uncomfortable but does not need anaesthetic. Pinhead size oval eggs may be seen in the wound. Once the flea is removed, the wound should heal readily.

Spiders

Thankfully, most spider bites are not serious. Some spiders cause local effects, e.g. pain, sweating and tissue damage in the area of the bite. Treat with ice packs and paracetamol. Occasionally persons develop a rapid, serious, allergic reaction (anaphylaxis). Some spiders (e.g. funnel web and black widow) can poison the body and cause muscle spasm, nausea, headache, breathing difficulties, heart problems, and even coma. Observe the patient closely. Catch the spider only if you can do so safely. Seek local medical advice.

Scorpions

These are present throughout the tropics. Scorpions are usually active at night; during the day they hide under rocks or in shoes. The sting is very painful but is seldom poisonous. The pain can be alleviated by an injection of local anaesthetic, so if possible see a doctor. Occasionally persons can have an allergic reaction.

Snakes

Treat all snake bites as poisonous, but it may be comforting to know that most bites are not poisonous. Identify the snake *from a distance* (or there may be more snake bites to treat). Take written notes of the size, colouring, and unusual markings. If possible, send someone for help.

- Do not wipe the bite site, as spilled venom around the wound can help identify the snake. If you must wipe, keep the swab. Anti-venom may be available.
- Remove restrictive clothing, shoes, jewellery. Immobilise the bitten limb to stop spread of venom. Use a splint.
- Compression bandages are recommended for snakes in some countries e.g. in Australia, and *not* in others e.g. in India: Indian vipers have a tissue poison and compression bandaging leads to widespread tissue death around the wound.
- Do *not* suck out the poison or apply a tourniquet. Do not leave the sufferer alone if possible. Do not give food. Panadol may be given.
- Transport to medical attention as soon as possible. Delay is deadly.

Dog/monkey/cat/bat (mammal) bites

Wash and dress the wound. Any animal bite or scratch that breaks the skin should be washed with copious amounts of soap and water for 15 minutes. Water should be poured onto the wound. Do not scrub the bite site, as this can push the infection deeper. The wound should then be treated as per the wound checklist; however, animal bites are rarely stitched initially due to the risk of infection. Antiseptic should be applied and the dressing changed appropriately. Antibiotics may be needed for a deep bite or scratch. Macaque monkey bites worldwide may need medication to stop Monkey B Encephalitis. This is very rare but 80% fatal.

Rabies is a major concern for anyone bitten by an animal in a rabies infected country. *See a reliable doctor immediately.* If someone opts to "wait and see" ... once rabies symptoms develop, it is too late (i.e. it will be fatal). Even a vaccinated animal can carry rabies. A study in Thailand showed 3-6% of *rabid* dogs had been vaccinated. **Never delay vaccination while the animal is observed for signs of rabies.** If the skin is broken, treatment is needed. A *lick* over broken skin is also a risk, as this is sufficient for the rabies virus to enter. If the skin is not broken, you do not need to be vaccinated. Sometimes it is hard to be sure if there *is* a break in the skin. In that case, it is safer to be treated just in case.

The safest rabies vaccines are the modern ones; HDVC (Human Diploid Cell Vaccine), Verorab or Rabipur. These are injected into the arm. The older, animal brain based vaccines (e.g. Semple) are cheaper, given in the stomach, and cause more side effects. Ensure all injections are given with sterile needles and syringes. Chloroquine, alcohol and immune suppressive drugs should be ceased during the course of rabies vaccine as they interfere with the vaccine. (In 1982, a traveller in Kenya died of rabies because she was vaccinated while taking chloroquine).

The ideal World Health Organisation (WHO) post-bite regime is as follows:

(Day 0 should be the day of the bite, but it is *never* too late to start.)

- If you *have* been previously vaccinated, two doses of vaccine are given in the upper arm, one each on day 0, 3. (Some doctors have not heard of this regime, but if you are pre immunised - only have two extra doses; day 0, and day 3)
- If you *have not* been previously vaccinated, 4-5 doses of vaccine are given in the upper arm, one each on day 0, 3, 7, 14, and sometimes day 28 (if local vaccine is unreliable). The vaccine takes about 2 weeks to induce protective immunity so Rabies Immunoglobulin (RIG) is needed as well. ... Human derived RIG (HRIG) is the best type, and it is ideally given on the day of the bite. Dose of RIG is 20 IU (International Units) per kg of body weight injected *into the wound.* This stops the virus attacking the brain while the vaccine takes effect.

Some of my patients have been abused by doctors for requesting the WHO recommended schedule. There have also been reports of bite victims being injected with fraudulent vaccines. If in doubt, get a second opinion or ring your travel insurance hotline. A while ago, a dog bit an American priest in Bangladesh. The local doctor told the man "Don't worry, we have no rabies in this district, you do not need vaccination". Three weeks later the priest was evacuated to Bangkok with rabies encephalitis. He was fully conscious almost to the end and kept a tape-recorded diary of his symptoms, signs and feelings while he was dying.

Marine animals - bites and stings

Seek local advice regarding treatment specific to the local cause. There are many dangerous marine creatures around the planet: sea wasps, jellyfish, bluebottle, stonefish, fire coral, sea urchins, irikanji etc. Dangerous jellyfish have been reported in many parts of the Pacific and Indian oceans.

1. **Call emergency services, especially if you are unfamiliar with the creature and recommended treatment.**

2. Monitor the casualty closely, in case breathing or circulation is affected.

3. Apply the relevant local remedy, as noted next page, and seek medical attention.

Box Jellyfish	Do not rub the area. Douse area with vinegar for 30 seconds to inactivate unfired cysts. If no vinegar available, flick off tentacles with a stick. Apply pressure immobilisation above the sting. See a doctor.
Bluebottle, Jimble, Pacific Man-o-war, Irikandji, sea anemone	Gently pick off tentacles with tweezers or fingers. Once tentacles are removed, immersion in hot water appears to be the best method to reduce the duration and intensity of the pain. See a doctor.
Fish stings, stonefish, Crown-of-thorns starfish, stingray	When a large foreign object is embedded in a wound, do not try to remove it without medical advice. A stung foot or hand can be placed in water as hot as can be comfortably tolerated to ease the pain. See a doctor.

6. MAGGOTS

Occasionally a traveller in Africa or South America returns home or even sends a horrified email to say they have found a small thing or maggot moving in a wound. This is a fly larva. The medical name for this condition is Myiasis. Travellers catch this in Africa or South America. The fly behaves slightly differently in each part of the world i.e. lays its eggs in different places. The larva penetrates the skin (some can even go through clothes on the way!) Next a sore develops which starts as a small pimple, and evolves into what looks like a boil. There may be some pain associated with it.


Larva

There is usually only *one* larva per lump, but many travellers have several lumps as they contract a few at a time. The larva makes a tiny breathing hole in the skin and if you cover the hole, the larva may emerge. Sometimes you need to *carefully* remove the larva. Once the larva has gone, the wound will heal without problems. Treat as per wound guidelines. Incidentally if you did not kill it, the larvae would develop to maturity (e.g. for *D hominis* over a period of 5-10 weeks.) When mature, they emerge from the host, fall to the ground, and pupate. The adult fly emerges several weeks later.

Place	**South America**	**Africa**
Infesting fly	Human botfly	Tumbu fly
Medical name	Dermatobia hominis	Cordylobia anthrophaga
How you catch it	Flies lay eggs on an insect e.g. mosquito. Tiny larva hatches and enters through skin after the mosquito bite	Flies lay eggs on clothing or soil. Larva hatch out and enter the skin while wearing clothes or when skin comes in contact with earth.
How to prevent it	Use mosquito repellent to stop insects biting	Iron clothes or dry clothes away from flies
Cover breathing hole with ….	Apply animal fat	Apply mineral oil
? Cut it out	You may need to *gently* remove it surgically but care must be taken not to pierce the larvae	

7. SKIN RASHES

Skin rashes can be difficult to diagnose. Ideally seek medical advice but the following may give some clues.

The first question to ask yourself if you develop a skin rash is -

Have you had recent exposure to irritants?

Chemicals, medications, plants or insect bites may cause an allergic rash, (allergic dermatitis). Fish poisoning (p94) can make you itchy. Sometimes the rash or itch occurs after you have been on a drug for some time – days or weeks e.g. it can happen from malaria pills. Treat symptomatically, with an antihistamine or mild steroid cream (e.g. Cortaid) twice a day. Cold packs over itchy areas may help. Avoid further contact with the irritant if you can determine the cause. Seek medical advice if you think it might be the malaria pills.

Have you been swimming in areas with schistosomiasis? (see p168.)

Itchy lines on the skin after exposure to sand or soil may be dog hookworm (larva migrans) – this will go away by itself but is usually treated (albendazole 400 mg daily with food for 3 days).

Are you sick?

Some viral illnesses can cause a rash over much of the body. It is hard to be sure of the cause, just by looking at the rash, as rashes *may* all look fairly similar. An important feature is whether the rash is flat (not raised above the surrounding skin) or raised (little raised spots like mosquito bites).

Flat rashes – some common possibilities in travellers are:

- Dengue fever - is usually a faint, flat, red rash
- Measles - usually separate red patches 2-6 mm in diameter mostly on the trunk and upper parts of arms and legs
- Glandular fever
- Typhoid – this is rather rare
- Meningococcal - press on the spots with a glass and look through the glass – do they disappear? If you have dark red spots, that do not go pale if you compress them, see a doctor *urgently*.

Raised rashes – some possibilities in travellers are:

- Chickenpox - more likely to start as 1-2 mm blisters that evolve into sores over 4-6 days. The incubation period is about 2 weeks. It is usually a mild disease in children. A person is infectious until the blisters are healed.
- Shingles causes a rash in a little patch affecting one side, or the other of an imaginary midline of the body, it does not cross the midline . The rash starts as tiny blisters, that evolve over a week into little sores. It is often surprisingly painful. Along with the rash, you may feel very unwell. It may be precipitated by stress. 81% of cases occur in persons over 40 years of age. Antiviral drugs may help if started early - see a doctor ASAP.
- Don't forget insect bites; mosquitoes, bedbugs, fleas.

Ring shaped rash with flaking edges?

This may be due to a fungus, known as Ringworm (because of the shape - there is no actual worm.) Anti-fungal cream (e.g. terbinafine, bifonazole, clotrimazole, Canesten) should be rubbed on the outer (growing) edges of the ring as per package instruction. This rash may take three weeks to clear. Ringworms are very contagious. If you touch the rash, and then touch another part of your skin, you can start a new rash. The ringworm fungus grows in the skin, like a plant grows in soil. Always wash your hands thoroughly after touching it.

Creeping rash

A creeping rash may be a dog hookworm infestation. The medical term is cutaneous larva migrans. It looks like a red, itchy line, that extends over time. Hookworm eggs are deposited in soil, in the faeces of infected dogs and cats. When the eggs hatch, the resulting larvae infest the soil and vegetation. When your skin touches this infested soil, the larvae enter your skin, and move... causing a linear rash and severe itching. This condition is more disgusting than dangerous. It is easily treated with drugs e.g. albendazole. It may eventually go away without treatment. Creeping rash is more common in the tropics e.g. Thailand.

Skin between your toes affected?

Flaking, soggy skin between the toes is characteristic of tinea or athletes foot. It is another fungal infection. This fungus thrives in moist conditions. Try to keep the area dry. Use anti-fungal cream twice a day. If possible, put anti-fungal powder (e.g. tolnaftate) in your socks.

Itchy rash in the armpit, waist or between thighs?

These symptoms may occur when travelling in a hot climate. They may be due to:

1. **Prickly Heat.** You can usually see small blisters or red spots in the area of the rash. Prickly heat occurs in hot climates when profuse sweating leads to blockage of the sweat glands (the red spots). The most important thing is to stop sweating. Keep your whole body cool – even a few hours a day of air conditioning can make a difference. Also you need to keep the affected area as cool and dry as possible. Wear loose, pale coloured, *cotton* clothes. Nylon clothing will aggravate the problem. Use soap sparingly. Soap may further block the sweat glands. A mild steroid cream may help. The rash normally subsides in a few days, but can last weeks if the hot humid conditions persist.
2. **Fungal rashes** may also occur in hot climates. You may see flaking skin or small red spots, which may join. Keep the area dry and cool (as above) and apply anti-fungal cream.

You can treat both prickly heat and fungal rashes at the same time if you cannot work out which it is, although a steroid cream may make a fungal rash a little worse.

Itchy all over, especially between the fingers?

Scabies is a possible cause. Scabies is caused by a mite that burrows through the skin, sometimes leaving a line or track, and especially affects between the fingers. Treatment with permethrin cream sometimes takes two weeks to stop the itch.

HEAD AND NECK PROBLEMS

1. Headache
2. Eyes
3. Ears
4. Teeth and mouth
5. Dizziness
6. Panic attacks
7. Hangovers

See a doctor immediately if you have

- Sudden severe headache unlike anything you have had before
- Headache, with neck stiffness, fever and/or rash
- Headache that persists despite painkillers

1. HEADACHE

Headache in travellers may be due to many different causes:

- Migraine
- Stress and tiredness
- Eye strain
- Dehydration
- Caffeine withdrawal
- Overheating
- Altitude sickness
- Drugs side effect/poisoning
- Overindulgence in alcohol
- Problems with ears, sinuses, teeth
- Infection

Headache in travellers is usually *not* due to something serious. Check the list above and refer to the relevant section in the rest of the book. There are a few key points.

Do you need a caffeine fix?

Caffeine withdrawal is a common cause of headache. Many persons go overseas where the coffee is not fantastic, or easily accessible, and their caffeine intake crashes. If you normally drink 3 cups of coffee a day and suddenly drop to one or none per day, the withdrawal of caffeine *will* give you a headache. Usually this is fixed in an hour by having a cup of coffee.

Do you need a rest?

Have a big drink of water, and rest in a cool, quiet, dark place for a few hours. Take a painkiller (e.g. ibuprofen) if necessary. Most headaches will settle with this therapy. If not, see a doctor.

How to tell if it is meningitis?

Meningitis is one of the diseases caused by the meningococcal germ. Meningitis is most unlikely in travellers but the classic symptoms to watch for are fever and headache, with some neck stiffness, intolerance of light, and even a purplish blotchy rash. If this occurs seek medical assistance urgently!

2. EYES

See a doctor immediately if

- you develop sudden loss of vision
- you develop severe pain in an eye
- you have any eye injury that becomes more painful or if you develop a fever.

1. Sore eyes plus mucous discharge

The symptoms of conjunctivitis are gritty, sore eyes on *both sides*, with a discharge especially in the morning, perhaps sticking the eyelids together. Your vision should be normal. You need to bathe the eyes, and lids, in warm water to remove the mucous discharge. Use antibiotic ointment or drops (e.g. Chloromycetin, Soframycin) four times a day. If there is no improvement in 48 hours see a doctor. This condition is extremely contagious and careful hand washing is essential to ensure it is not spread to others. If you wear contact lenses, these should be removed until the condition has gone.

2. Sore, gritty eyes plus watery discharge

You may feel fine when you go to bed but be woken in the night by gritty, sore, watering eyes. This could be snow blindness, due to an excess of glare. It could also be sea blindness – it is common among surfers due to glare *plus* salt water exposure. The treatment is to place a cold compress over the eyes, and take paracetamol with codeine every 4 hours. Eye drops (e.g. Polytears free) may help ease the discomfort. See a doctor if symptoms do not settle in 24 hours. Wear sunglasses to minimise the ongoing glare. Persons who have had prior radial keratotomy for their vision, may suffer a loss of clarity at altitude (see page 76).

3. Something (foreign) in the eye

Large particles, splinters, bits of steel etc. require urgent specialised medical attention. Do not attempt to remove these, especially if there is any loss of vision. Common grit can be removed safely. You need a good light to see the offending particle. Try to gently wipe the particle away with a clean cloth. If that does not work, flush the eye. Boil half a litre of water and add 1 teaspoon of salt. An empty film canister makes a good eye bath (if you can find one in this age of digital cameras). If you have no success, the particle could be lodged under the upper eyelid. Enlist a helper to evert the eyelid (turn the underside of the eyelid up and over) so you can see it clearly. This sounds dreadful but is painless and often successful! The patient should be seated facing the helper, looking down towards helper's toes.

HELPER: Lay a match stick over the upper eyelid on the side that is sore. Grasp the eyelashes of the upper eyelid firmly. Pull upwards over the match stick. Sometimes you need a few attempts. You may not see the offending particle. Wipe the underside of the eyelid with a clean, moist handkerchief. Let go, the patient blinks and the eyelid pops back into place.

3. EARS

1. Pain

1. Painkillers (e.g. oral paracetamol) are likely to be needed, especially to sleep.

2. Grasp the top of the ear and pull up and down

If this causes pain, the ear canal walls are likely infected. This is **Tropical Ear.** It is common after repeated swimming. There may be a discharge from the ear and the ear canal may be itchy. Treatment is antibiotic cream or drops (e.g. Soframycin, Chloromycetin) placed into the ear canal. If you must swim with this condition, keep your head out of the water, or it will not heal. After the condition has healed, use Aqua Ear to dry the ear canal after swimming to prevent a recurrence. (Itchy ears without pain are likely to be an allergy. Oral antihistamines may help.)

If tugging on the earlobe does *not cause pain* - the ear pain is likely to be coming from the middle ear. This may be accompanied by a runny nose and/or sore throat. Sometimes hearing may be dulled. Take your temperature.

A temperature above 38°C plus severe ear pain suggests bacteria in the middle ear space (**Middle Ear Infection).** You need to see a doctor and may need antibiotics (e.g. amoxycillin, azithromycin or roxithromycin). If your temperature is normal, antibiotics are not necessary. The middle ear canal may be blocked with mucous but it is not infected. The hearing problem is temporary.

Ear pain *while flying* is commonly due to raised pressure inside the middle ear. Pressure earache may also occur after scuba diving if you are unable to equalise for some reason e.g. you dive with a cold. Avoid diving or flying until your ear is checked. Use EarPlanes while flying if you have them. Painkillers, decongestants (e.g. Sudafed) or nasal sprays may help a little.

2. Something (foreign) in the ear

If the object is clearly visible, pliable and can be grasped easily with tweezers, gently remove it. Never attempt to remove a foreign object by probing with a cotton swab, matchstick or any other tool - you risk pushing the object farther into the ear and damaging the delicate structures of the middle ear.

If the foreign object is an insect, tilt the person's head so the ear with the offending insect is upward. Try pouring mineral oil, olive oil or baby oil into the ear. The oil should be warm but not hot. As you pour the oil, you can ease the entry of the oil by straightening the ear canal. Pull the earlobe gently backward and upward for an adult, backward and downward for a child. The insect should suffocate and may float out in the oil bath. Don't use oil to remove any object other than an insect. Do not use this method if there is any suspicion of a perforation in the eardrum, i.e. if there is pain, bleeding or discharge from the ear.

If these methods fail, or the person continues to experience pain in the ear, reduced hearing or a sensation of something lodged in the ear, seek medical assistance.

4. TEETH AND MOUTH

Loss of a tooth

If a tooth is knocked out, you need to

- Find the tooth. Handle it only by the crown (top). If it is dirty, gently rinse it with milk or your own saliva. Do not attempt to clean the tooth by rubbing or using other cleaning agents.
- Gently replace tooth in its socket and seek dental help. If you cannot replace the tooth in its socket, wrap the tooth in cling wrap or plastic while you seek help as quickly as possible.

Gold or porcelain cap (crown) fallen out

Replace the cap to stop the neighbouring teeth closing into the space, and seek dental help.

Broken tooth or loss of a filling

If the tooth is is broken with a rough edge that is cutting into the tongue or cheek, you can smooth it with an emery board or nail file. Dry the tooth as best you can with a clean handkerchief or tissue. Get a friend to help. Dab the affected area with a cotton bud dipped in oil of cloves or toothache drops. Oil of cloves will numb the nerve in the tooth. If the cavity is large, and you can access some temporary filling preparation (e.g. Cavit), use this as directed to protect the tooth's nerve from damage until you get dental advice. If you do not have Cavit, use softened candlewax as an emergency filling. Melt the wax, allow it to cool until it is soft and pliable, then place the wax in position. The victim should bite gently to make snug.

Tooth pain

The common toothache is caused by inflammation of the dental pulp and is often associated with a cavity. The pain may be severe and intermittent and is made worse by hot or cold food or liquids. A piece of cotton soaked with oil of cloves may help with moderate sensitivity and discomfort. If the toothache is severe and the tooth is sore to bite on, it may have an abscess underneath it. There may be swelling of the gum near the tooth. Take painkillers and seek dental advice. If dental help will not be available for some days, you may need a course of antibiotics (e.g. amoxycillin, azithromycin) to treat possible infection. If there is swelling of the face, you need to find medical attention urgently as the infection is spreading.

Gum pain

Sudden onset of gum pain, especially the gum next to a wisdom tooth, is usually due to an infection. Add a teaspoon of salt to a glass of warm (clean) water. Rinse your mouth with this. You should rinse several times per day, especially after eating. Brush as gently as you can. If the gum near the wisdom tooth is infected, you may need antibiotics. Orajel on the area may be provide temporary pain relief.

Mouth ulcers

Mouth ulcers may be caused by the stress of travelling, or side effects of tablets. There are commercial mouth ulcer treatments available. Use Orajel if available. If nothing is available, painful ulcers usually respond well to something as simple as regular, warm, salt water rinses. This will prevent secondary infection. Avoid acid foods e.g. pineapple. The ulcer should heal in 2-4 days. If not, see a doctor.

5. DIZZINESS

Most causes of dizziness are not serious. Only very occasionally is dizziness due to a more serious cause. As usual you need to seek medical advice, but in the interim, here are some pointers.

The symptom of dizziness means different things to different people - light headed, faint, confused, giddy, unsteady, spinning, and vertigo.

Possible simple causes of dizziness

- Low blood sugar – esp. if you have missed a meal or exercised hard
- Dehydration
- Alcohol intoxication, and sometimes withdrawal from regular intake
- Lack of sleep
- Suddenly standing – esp. after lying in a warm bed
- Getting very hot
- Being shocked e.g. the sight of blood
- Stress or anxiety
- Hormonal disturbance e.g. thyroid
- Pregnancy
- Middle ear infection or problems
- Allergy
- Exposure to poisons e.g. drugs, fumes, gases, solvents, pesticides
- Some medications
- Altitude sickness

What to do

Persons who are dizzy are not normally contagious or a risk to others. Do not drive or undertake any dangerous activities, as you are more likely to have an accident.

Try to look after yourself – eat well, drink plenty of fluids, get some rest, avoid alcohol and potential toxins, maybe avoid stress.

See a doctor if

- The dizziness is associated with other symptoms e.g. chest pain, headache
- Symptoms persist more than 48 hours

6. PANIC ATTACKS

Travelling can be a very unfamiliar (and potentially stressful) environment.

Panic attacks may sometimes happen for the first time in a person's life while travelling, especially in those under the age of 30.

A panic or anxiety attack is a sudden surge of overwhelming fear or dread that comes without warning *or obvious reason*. The body has switched on the 'fight or flight' hormone system when it is not needed. The flood of hormones (e.g. adrenaline) causes trouble breathing, sweaty palms, weakness, dizziness, and even chest pain. The sufferer may feel like they are going to die. It is best to get medical confirmation of the diagnosis but, in the meantime, if it happens you need to:

- Remind yourself or the sufferer that despite how it feels, this is completely harmless and rather common in the population. If there is no tiger attacking, the switch has been 'thrown' accidentally. It will pass in a few minutes.
- Hold your breath for as long as you can, and then commence slow breathing.
- Stay where you are, get comfortable (e.g. sit), and distract your mind with something mundane (e.g. counting backwards from 100 by 2 or 4)
- Know that panic attacks tend to recur, so seek medical advice when possible, but be reassured that although the attack feels terrible, but is harmless.
- Avoid caffeine which can make panic attacks worse
- Take one alprazolam or diazepam (Valium) tablet if available.

7. HANGOVERS

This section has been added at the request of several travellers who wrote:

"Of course it's better to avoid such things, but it's easy to get carried away when one is on holidays. Is there anything that can be done for a hangover?"

Avoidance is certainly the most effective way of dealing with hangovers, but in the real world, there are a few useful facts to know.

Water, Sugar and Rest

- **WATER** The most important thing you can do is to drink plenty of water. The major symptoms of a hangover are caused by dehydration. Drink as much water as possible before you go to bed. Alcohol often causes interrupted sleep, so place a jug of water beside your bed and if you wake, drink some water during the night.
- **SUGAR** Alcohol also decreases your blood sugar level. Food or a sweet drink can sometimes make you feel better. If you feel very nauseous, it is better to vomit and empty your stomach. Once your stomach is empty, Maxolon or Stemetil tablets are useful if the nausea persists.
- **REST** will help. Do not drive while you have a hangover. Your blood alcohol level may still be above the legal limit.

The list of alleged cures for a hangover is very long. Unfortunately, nothing, including strong coffee, will make you metabolise the alcohol faster. Berocca (containing vitamins B and C) is popular to replace B vitamins lost through drinking. It also provides a little sugar.

ALTITUDE SICKNESS

The three golden rules of altitude are

1. If you feel unwell at altitude, it is altitude sickness until proven otherwise.
2. Never go higher if you have symptoms of AMS.
3. If you are getting worse (or have HACE or HAPE), go down at once.

Acute Mountain Sickness (AMS)

AMS feels like a bad hangover or migraine. The symptoms are not very specific (see table summary p132). Many people cannot believe they have altitude sickness – they blame everything else – hence golden rule number one.

A pulse oximeter is potentially useful. It uses the different colour of oxygenated blood to calculate the oxygen content of the blood. The finger needs to fit snugly, with no nail polish, and be at normal body temperature. The reading should ideally be taken away from very bright light, and after the subject has been resting for 10-15 minutes. Normal is 94-99%. Under 90% is moderately depleted blood, at 85% the sufferer usually feels bad. The trend is more important than the level. Check the level at the same time morning and evening, a big drop (e.g. 5% or more, especially if you are under 90%) means be wary of going higher that day, even if you feel OK.

How can I be sure a headache is due to altitude?

Altitude headaches result from swelling of the brain. They tend to be at the front of the head (but can be elsewhere), worse when bending over, and quite painful and persistent. Frequently there are other symptoms of AMS. Try this simple test: Drink one litre of fluid and take some analgesic e.g. 2 x 200 mg ibuprofen. If your headache goes away quickly and completely, and you have no other symptoms of AMS, it is unlikely to have been an altitude headache. This test will exclude dehydration as a cause of your headache. (If in doubt, refer to golden rule number one).

Treatment of AMS

You do not have to descend if you only have a mild headache.

The foundation of treatment for Acute Mountain Sickness (AMS) is stay where you are, rest, fluids, mild painkillers e.g. paracetamol or ibuprofen. Remember golden rule two. *(Never go higher if you have symptoms of AMS).* People who get severe or fatal altitude sickness have usually ignored golden rule two. AMS will usually get better by itself, simply by resting at the altitude where you got sick. This usually takes 1-2 days but may take as long as 4 days. Descent will mean you recover faster.

Oxygen supplementation is an effective treatment, and may be available for those staying in hotels.

Acetazolamide (Diamox) speeds your acclimatisation to altitude, so the process that might normally take 24-48 hours, takes about 12-24 hours. Diamox will *not* mask worsening symptoms. The older guidebooks that deride acetazolamide/diamox are simply wrong. The dose used for treatment of AMS is different to the dose used for prevention of AMS. Side effects are discussed on page 75. If you are visiting Cusco, La Paz, or Lhasa etc. and wake during the first night with symptoms you can take:-

Acetazolamide (Diamox) Treatment for AMS

250 mg (one tablet) with 2 x 200 mg tablets of ibuprofen, drink plenty of fluids. Rest. Do not ascend. Continue with Diamox 250 mg every 12 hours. Stop when symptoms subside - usually a few days.

If you are already taking diamox for prevention (half tablet daily), you can increase the dose to the treatment dose. When acetazolamide (Diamox) is stopped, the acclimatization will slow to your own intrinsic rate. There is no rebound effect, i.e. if you are acclimatized when you stop the tablet, you will stay acclimatized – you will not suddenly get worse when you stop Diamox. If you take Diamox, feel better, stop the pills, then travel higher and feel sick again, you can restart the Diamox.

MORE SERIOUS ALTITUDE ILLNESS

High Altitude Cerebral Oedema - HACE

HACE means the brain is swollen from lack of oxygen and hence the brain does not function properly. The sufferer is often not aware of how sick they are. Change of personality is a sign of severe altitude sickness/HACE. A good test for lack of coordination or abnormal brain function is: Draw a straight line on the ground and ask the sufferer to walk along it heel to toe, placing one foot immediately in front of the other. If they struggle to stay on the line or fall off, they should be presumed to have HACE.

High Altitude Pulmonary Oedema - HAPE

HAPE may be present with or without symptoms of AMS or HACE. It is more frequent in young fit climbers or trekkers (ascending quickly). HAPE usually occurs on the *second* night after ascent and causes breathing difficulties and coughing as outlined in table p132.

HACE AND HAPE are rapidly fatal

Both these severe forms are usually first recognized or become worse at night. HACE and HAPE are deadly serious. Sufferers can deteriorate rapidly in a short time, and die in a few hours if untreated.

Treatment of HACE and HAPE

Descend! There is no time to lose. Descent cannot wait until morning, unless it is dangerous to travel for other reasons. People with HACE and HAPE usually survive if they descend far enough and fast enough – usually to the last elevation where they felt well – which is often two nights previously. Remember golden rule three. *(If you are getting worse (or have HACE or HAPE), go down at once).*

A descent of 300 metres can make a huge difference. Even if it is the middle of the night, (which it usually is), get the sufferer down. Be wary of companions who deny they are sick and refuse to descend.

Do not wait for a helicopter. Use whatever transport is available. If they cannot walk or stagger, they need to be carried down by porter, yak or horse. A Gamow bag (portable hyperbaric chamber) may buy some time. Severe altitude sickness requires urgent, experienced medical help and constant supervision. Under no circumstances leave a sufferer unattended if they have any symptoms of altitude illness, even if they seem to be getting better.

Summary of different types of Altitude Illness

Different types of Altitude Illness – symptoms /signs after recent ascent Modified from Lake Louise consensus on definition of Altitude Illness	
AMS	Headache plus one of the following • Loss of appetite, nausea or vomiting • fatigue or weakness • dizziness or light headed • difficulty sleeping
HACE	Two of the following • AMS • Confusion, change in behaviour • Loss of coordination/ cannot walk straight line
HAPE	Two of the following • Extreme tiredness or drowsiness • Breathless at rest • Fast shallow breathing • Cough with pink frothy sputum • Gurgling or rattling breaths • Chest tightness, fullness or congestion • Blue or grey lips or fingernails

Dexamethasone – a caution

Dexamethasone is a potent steroid, which is sometimes used to treat the brain swelling of altitude sickness (HACE) . It can completely remove the symptoms of AMS in a few hours. It does not speed acclimatization. This medication can be a *trap* – it can mask symptoms temporarily and give a false sense of security to those who want to continue ascending.

Dexamethasone

Take 4 mg, every 6 hours.

Maximum of 4 tablets unless you see a doctor.

Do not ascend until at least 12 hours after the last dose, and only then if there are no symptoms of AMS.

Other medication

Nifedipine can help treat HAPE in persons who are particularly susceptible to the condition. The adult dosage is 30 mg of extended release every 12 hours, or 20 mg every 8 hours. Patient should be resting when taking Nifedipine as it may have an effect on blood pressure. Tadalafil (Cialis) is still being studied for treatment.

COLD CLIMATE PROBLEMS

FROSTBITE

Frostbite occurs when the skin and blood vessels become extremely cold and freeze. Ice forms inside the cells and the tiny capillaries are destroyed. The condition is most common in the extremities e.g. nose, ears, toes, and fingers.

Cold skin initially just feels cold. The next step is tingling in the extremity. If your fingers or toes start to tingle, they need to be warmed immediately. If the area stops hurting, the problem may not have gone away – it may be getting worse.

Stages of frostbite symptoms
1. cold and red skin
2. tingling and red skin
3. numb and white skin

Do not attempt to warm the area unless you will remain in that warm environment. Tissue that is partly warmed and freezes again is more susceptible to gangrene. The best way to warm cold extremities is to place them against warm bare skin.

Frostbite is characterised by numbness of the area and whiteness of the affected skin - this is serious and needs medical attention. It is difficult to predict how much long term damage there will be just by looking at the damaged tissues. Only time will tell, sometimes tissues that look terrible will recover quite well. Those experienced at treating frostbite say it is important to be patient. Ibuprofen has been shown in some trials to improve the survival of cells at the edge of the frost bitten area.

HYPOTHERMIA

Hypothermia means low body temperature. It occurs when the body's warming mechanism fails or is overwhelmed. Infants and the elderly are at greater risk. Early warning signs are feeling cold, shivering, clumsiness, slurred speech, apathy and irrational behaviour. This may progress to a point where shivering stops, pulse may slow, and level of consciousness declines. As the temperature falls further, the heart may suffer abnormal rhythms or even stop.

Mild hypothermia is best treated by seeking warm, dry shelter and drinking warm sweet drinks (not alcohol). In more severe cases, the casualty should be handled as gently as possible, and unnecessary movement avoided to decrease stress on the heart. Do not rub affected areas. Wet clothing should be removed, casualty should be placed horizontal between blankets or in a sleeping bag, with head covered. a If available, a space blanket can be used around the blankets. Warmth should be provided either by hot water bottles, hot packs or other sources especially to the neck, armpits and groin but be careful to avoid burns as cold skin is often numb. Be very careful with radiant heat such as fires or electric heaters Direct body to body contact is fairly ineffective, however it may be the only means of rewarming available. Severe hypothermia needs to be treated by experts. Call an ambulance.

HOT CLIMATE PROBLEMS

DEHYDRATION AND HEAT STROKE

The two main problems from the heat are dehydration and heat stroke.

Dehydration

Mild dehydration causes tiredness and headache. People often remain mildly dehydrated for hours or days, when a slightly increased fluid intake would make them feel much better. The solution is to drink to quench your thirst. Travellers also need to be mindful of the problems associated with overhydration (see p71).

Symptoms of overheating/heat stress

As you become more dehydrated, you will feel thirsty.

As the condition progresses, further symptoms which may develop are: dizziness, nausea, profuse sweating and extreme tiredness, (hence the name heat exhaustion).

Heat exhaustion can rapidly turn into heat stroke which is much more serious and can even be fatal.

It is important to notice if the patient is sweating? A clue to the presence of heat stroke is that *sweating stops,* and the body temperature rises. Unusual behaviour may occur. Watch for this in your companions. Judgment is impaired with heat problems. The affected person may be the last to realise his or her predicament.

The differences between heat exhaustion and heat stroke are:

HEAT EXHAUSTION	HEAT STROKE
Profuse sweating	**No sweating**
Normal body temperature	Raised body temperature
Tiredness	Impaired judgment
Headache	Unusual behaviour
Thirsty	
Dizzy	
Nauseous	

Treatment of Heat Stroke

Cooling is the most important treatment.

Drink cool fluids in copious quantities (1-2 litres).

Get out of the sun and heat. Find shade, or air conditioning and lie down. Avoid activity, as activity generates heat in the muscles, which makes the problem worse. Have a cool bath. Do not bathe in really cold water, as this will shut off circulation to your skin and keep the heat in.

For severe symptoms, you need to see a doctor as soon as possible.

MUSCLES AND JOINTS

1. Injuries
2. Pain

1. INJURIES TO MUSCLES AND JOINTS

Have your injury reviewed by a doctor as soon as possible.

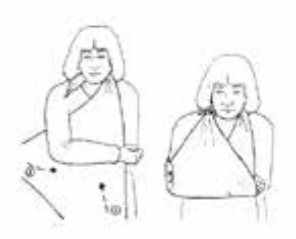
Be wary if you are injured in a cold environment, the injury may feel deceptively minor, as cold will minimise the swelling in the early stages.

For the first 48 hours, you can help speed healing by the following:

Rest, Ice, Crepe Bandage, Elevation = "RICE"

Rest

Do not overwork the affected area while it is trying to heal. Give the injury time to heal. The pain is due to torn fibres in your muscles and tendons. If you overuse these torn areas before they heal, you are liable to damage the area more. Return to normal activities gradually. If the upper limb is affected, a sling will help to rest the area – see diagram right.



Ice

Cooling the injured area in the first 24 to 48 hours will decrease swelling and speed healing. If possible, apply ice wrapped in a towel, until the area is cold and feels numb, then remove the ice for 10 to 15 minutes. Apply ice on and off even through the night if possible.

Crepe Bandage

A crepe bandage will support the injured area and protect it from further injury. This is especially important if you suspect you have broken a bone. Always apply a bandage starting at the end of the limb and working towards the trunk. It needs to be firm. Stretch the bandage slightly as you wrap. Some compression will help decrease swelling, but check it is not so tight it restricts the circulation. Check the fingers and toes are pink.

Elevation

Raise the injured part above the level of the heart to keep swelling to a minimum.

Medication

Anti-inflammatory drugs (e.g. piroxicam, ibuprofen) may be recommended to decrease pain and swelling. These medications are safe provided they are taken with food and for short periods of time. While the painkillers are working, beware of overusing the injured muscles and causing further damage.

2. PAIN IN MUSCLES AND JOINTS

In the absence of an injury, muscle and/or joint pain may be due to an illness (e.g. influenza, dengue fever, chikungunya) or rarely can be fish poisoning (e.g. ciguatera) or a parasite (e.g. trichinosis). Paracetamol or ibuprofen will provide relief from the pain but you need to fix the cause.

NB Lower leg/calf pain

If you have pain and swelling in *one* calf or lower leg, and you have recently travelled more than 5 hours, you need to be checked for a DVT. A DVT or travellers' thrombosis in the calf is usually painless, but not always. If you have a cough with pain in one lower leg you need to urgently seek medical advice.

- Pain and swelling in one leg
- No significant recent leg injury
- Recent travel/sitting more than 5 hours

DVT is usually diagnosed via a painless test (ultrasound of the veins in your leg). Sometimes a blood test (D-dimer) is also used. Early diagnosis is essential so treatment can be started and the clot does not move and cause obstruction and damage to your lungs. Do not exercise until you have the test.

BLADDER AND KIDNEYS

Infection of the urinary tract usually occurs in women. If you cannot see a doctor - Take your temperature and look at the urine.

Symptoms of cystitis/bladder infection

- Burning or stinging when passing urine
- Feel unable to fully empty the bladder
- Need to go to the toilet very frequently e.g. every half an hour
- Urine is cloudy, discoloured and odour is increased

Treatment

- Drink more fluids to flush the germs from the urinary system
- Decrease your coffee intake. Coffee is a kidney stimulant and will make you want to urinate more often.
- A urinary alkaliniser (e.g. Citravescent or Ural) may help stop the urinary stinging. Take one sachet four times a day.
- Sometimes it is necessary to take antibiotics to clear the infection. If you cannot get to a doctor, the appropriate antibiotics for urinary tract infections are trimethoprim, cotrimoxazole or norfloxacin (Many travellers carry norfloxacin for treatment of travellers diarrhoea.

Norfloxacin (Noroxin) 400 mg tablets

One tablet twice a day for 3 days

If there is no improvement in 24 hours, you need to see a doctor. Bladder infections may spread to the kidneys, which can be very serious.

Kidney infections

Bladder infections may spread to the kidneys. The following symptoms suggest the possibility of kidney infection or pyelonephritis; fever, visible blood in the urine, back pain and generally feeling sick and fatigued You need antibiotics and should see a doctor at once.

WOMEN'S PROBLEMS

1. Thrush
2. Emergency contraception

1. THRUSH

Symptoms

Thrush is a yeast infection of the vagina. Thrush is often provoked by the contraceptive pill, a course of antibiotics, or some types of malaria pills (doxycycline). The symptoms are

- A white cream cheese like vaginal discharge
- Redness/irritation of the genital skin
- Itch - sometimes quite severe.

Treatment of thrush

Thrush is easily treated with creams or pessaries (e.g. econazole nitrate pessaries - one is placed into the vagina each night for 3 nights). Other popular treatments are Canesten, Gyno-Daktarin, nystatin, or miconazole. If the symptoms do not respond to treatment in a day or two, you must see a doctor urgently as it is probably not thrush. There is also an oral tablet available for severe cases; fluconazole, one oral dose of 150 mg is taken. As one traveller put it *'expensive but worth it'*

2. EMERGENCY CONTRACEPTION

Emergency contraception (EC) may be necessary for *emergency* use for women exposed to the risk of unplanned pregnancy while travelling, if after careful thought, their wish is to avoid an unplanned pregnancy. These medications are only available on prescription in many countries.

Emergency contraception may be necessary in the following settings: After unprotected intercourse, condom or diaphragm mishap, rape, or extreme anxiety about any unprotected intercourse

This emergency contraception (or morning after pill) is only effective if it is taken *within 72 hours* of a single act of unprotected intercourse. It is more effective if it is taken taken sooner after intercourse. It should never be used repeatedly.

Emergency contraception works to prevents ovulation (release of an egg from the ovaries), prevents sperm from fertilising any egg already released, and prevent the fertilised egg from attaching itself to the lining of the womb. Nausea and vomiting occur in some women taking EC. The package may recommends if you vomit within 3 hours, you return to the doctor, clinic, pharmacy etc. for another tablet. Aquiring another tablet may be difficult. Therefore it is recommended to take an

anti-nausea pill (Maxolon or Stemetil) 30 minutes before the dose. One version of EC is to take 1.5 milligrams of levonorgestrel) taken as soon as possible (and not later than 72 hours) after unprotected intercourse. Postinor-1 (levonorgestrel 1.5 mg) prevents 84% of expected pregnancies when the tablet is taken within 72 hours of unprotected sex. Vaginal bleeding may occur in about 4 days time or at the expected period time or may be delayed. In any event, see a doctor within 4 weeks.

EMERGENCIES

CALLING FOR HELP

Emergency telephone numbers differ from country to country. E.g: Canada and US 911; Europe 112; UK 999; India 108; New Zealand 111; Australia 000. Most GSM mobile phones have the emergency numbers 112, 999 and 911 pre-programmed so they are available, sometimes even if you have no credit.

NEEDLESTICK INJURY

Exposure to a needle abandoned in the community carries a very low risk of blood borne disease, compared to during a hospital placement, but both need to be treated seriously and expert medical attention sought. The risk is higher if the needle is recently discarded, the source patient is very sick, there is visible blood on a hollow bore needle, and the needle penetrated deeply. The average risk of HIV from a needlestick is about 0.33% (1/330) and Hepatitis C about 1.8%. There is no post exposure treatment for Hepatitis C, and prior vaccination will protect against Hepatitis B. The area needs to be washed gently with soap and water. Small wounds or punctures should be cleansed with alcohol based hand sanitiser (the alcohol is deadly to the HIV, Hep B and C). Using the sanitiser will sting. Post-exposure prophylaxis (PEP) with anti-HIV drugs has been demonstrated to reduce the risk of catching HIV by at least 80 percent. The drugs should ideally be commenced within one to two hours of exposure; the benefit of PEP is greatly diminished after 36 hours, and there is no point after 72 hours. The drug regime depends on the individual, and the nature of the injury. Some doctors use Combivir (Zidovudine plus Lamivudine); one tablet twice a day for 28 days. There are side effects to this medication, and it should only be taken under medical supervision.

CHEST PAIN/HEART ATTACK

Chest pain can be serious. The person may be having a heart attack.

Warning signs of a Heart Attack:

- Chest pain, squeezing or crushing discomfort, pressure, or pain in the centre of the chest or behind the breastbone.
- Pain may spread to the back, neck and arms.
- Pain persists more than 10 minutes.
- May develop gradually or suddenly.
- May also feel sweaty, dizzy, short of breath and nauseous.

Treatment; rest, loosen clothing, call for help, chew aspirin.

REST Advise sufferer to rest. Support them in the sitting position if conscious. Loosen tight clothing. Assist sufferer to take their anginine etc, if appropriate. If pain persist for longer than 10 minutes, call emergency services.

CHEW ONE ASPIRIN If patient is conscious, ask them to chew one tablet (300mg) of aspirin (unless severely allergic to aspirin, or already taking anti-coagulant medication e.g. warfarin). Chewing speeds absorption. Panadol will not do. A single aspirin in the early stages of a heart attack has been shown to improve survival by 15%. If casualty is unconscious, prepare to give CPR.

ST JOHN DRSABCD ACTION PLAN

D assess the scene for DANGER

- To yourself, others or to the casualty

If it is safe to do so, remove the danger OR remove the casualty from danger.

R check the casualty's RESPONSE

- Ask the casualty for their name, and gently squeeze the casualty's shoulders.
- Is the casualty conscious?

No – ask someone to call for an ambulance

Yes – calm the casualty and monitor them for breathing and response. Treat any life-threatening injuries.

S SEND for help

Call the local emergency help number, or ask a bystander to make the call.

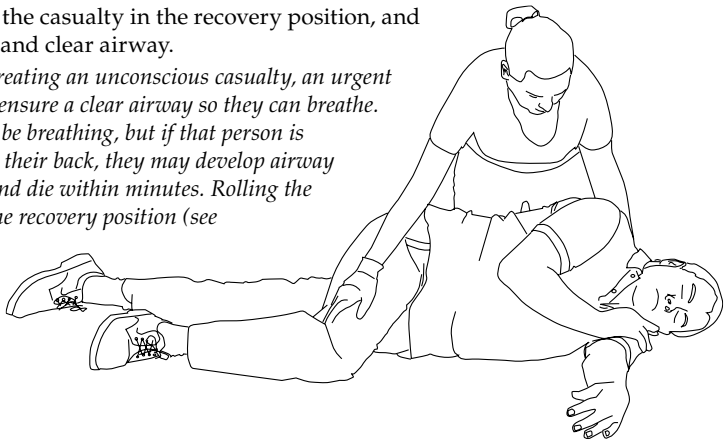
A open and clear AIRWAY

- Open the casualty's mouth and check for any foreign material
- Is there any foreign material present?

No – leave the casualty on their back, and open airway

Yes – place the casualty in the recovery position, and open and clear airway.

Note: when treating an unconscious casualty, an urgent priority is to ensure a clear airway so they can breathe. Someone can be breathing, but if that person is laying flat on their back, they may develop airway obstruction and die within minutes. Rolling the person into the recovery position (see right) makes breathing easier.



B check for BREATHING

- Tilt the casualty's head back
- Look, listen and feel for breathing for 10 seconds
- Is the casualty breathing?

No – ensure an ambulance has been called. Start CPR.

Yes – place the casualty in a recovery position. Monitor breathing and response, manage any injuries and shock, while waiting for ambulance.

C perform CPR

- Give 30 chest compressions, then tilt chin and give 2 breaths.
- Alternate 30 compressions with 2 breaths until medical aid arrives
- Stop CPR if casualty recovers, the ambulance arrives or you are physically unable to continue.

Adult/child compressions – use two hands with fingers interlocked.

Infant compressions – use two fingers.

D apply a DEFIBRILLATOR

- If a defibrillator is available, apply and follow voice prompts.

(Where a rescuer is either untrained or unwilling to give the breaths, they should still give chest compressions. This is particularly important if the victim has had a heart attack – recent research suggests that in the case of a heart attack, chest compressions do help, and mouth to mouth resuscitation may not add much to survival. Even 10 seconds delay in starting chest compressions can make a difference to survival outcome. Dr Deb)

CHOKING

Choking is most common in children. In adults, choking is more likely in someone who is eating quickly, plus talking or laughing at the same time. It is even more likely if they have been drinking alcohol and are eating food that has not been cut into small pieces. Choking can be fatal. Partial choking or partial airway obstruction is when the person can still cough, and there is some air getting in.

The signs and symptoms of choking are:

- clutching the throat, coughing, wheezing, gagging
- difficulty breathing, speaking or swallowing
- making a whistling or crowing noise or no sound at all
- face, neck, lips, ears, fingernails turning blue
- collapsing or unconscious.

Adults and children (over 1 year)

1. Ask the casualty to cough to remove the object.
2. If coughing does not remove the blockage, call for an ambulance, bend the casualty well forward and give up to 5 sharp blows with the heel of one hand in the middle of the back, between shoulder blades. Check if obstruction has been relieved after each back blow.

3. If blockage has not cleared after 5 back blows: place one hand in the middle of the casualty's back for support, place heel of the other hand in the CPR compression position on chest, give 5 check thrusts—slower but sharper than CPR compressions. Check if obstruction has been relieved after each chest thrust.
4. If blockage has not cleared after 5 chest thrusts, continue alternating 5 back blows with 5 chest thrusts until medical help arrives.
5. If the casualty becomes unconscious, call for an ambulance, remove any visible obstructions from the mouth and commence CPR.

Infant (under 1 year)

1. Call for an ambulance.
2. Give back blows: place the infant with their head downwards on your forearm, support the infant's head and shoulders on your hand, hold the infant's mouth open with your fingers, give up to 5 sharp blows between shoulders with heel of one hand. Check if the obstruction has been relieved after each back blow. If the obstruction is relieved, turn the infant onto their back, remove any foreign material that may have come loose with your little finger.
3. If the blockage has not been cleared after 5 back blows: place the infant on their back on a firm surface, place 2 fingers in the CPR position, give 5 chest thrusts – slower but sharper than CPR compressions. Check if the obstruction has been relieved after each chest thrust.
4. If blockage has not been cleared after 5 chest thrusts continue alternating 5 back blows with 5 chest thrusts until medial aid arrives.
5. If the infant becomes unconscious, commence CPR

The Heimlich Maneuver

In Australia, authorities do not recommend or teach the 'Heimlich Maneuver', but this technique is popular in some countries to help a choking victim clear the obstruction. It pushes the diaphragm up, forcing air out from the lungs and dislodging the foreign object. It does not work in partial obstruction. This is the method:

1. From behind, wrap your arms around victim's waist.
2. Make a fist. Place the thumb side of your fist against the victim's upper abdomen, just above the belly button and below the rib cage.
3. Grasp your fist with your other hand and press into their upper abdomen with a quick upward thrust. Do not squeeze the rib cage.
4. Confine the force of the thrust to your hands. Repeat until object is expelled.

Electric Shock

Many parts of the developing world have loose overhanging wires on streets, and even in bathrooms. The danger depends on the current involved, the person, and the circumstance. Ideally follow the DRSABCD scheme. Anyone who has suffered an electric shock and has any unusual symptoms should have a medical check ASAP.

CHILD TRAVELLERS' FIRST AID

The first aid instructions described in this book are intended for adults It is especially important to note that

- Often the listed medications are not suitable for children.
- With most conditions, children get sicker, quicker.

If children are unwell, they need to be taken to a competent doctor.

Self-treatment is really for adults only. Children get *sicker faster and develop more complications.* Their reserves are smaller, and their immune system is immature. They are not just short adults. If a child becomes ill, medical advice is advisable. Parents generally have a good sense of how sick their offspring are. Active grumpy children are generally less sick than the quiet ones who have gone to bed.

To assess the severity of their illness the following is helpful:

1. Take their temperature. Normal is around 37˚C (98.6˚F). It is serious if a child develops a fever persistently over 39°C (100˚F). Regular paracetamol (not aspirin) and sponging of the trunk, armpits and groins with tepid water (left to evaporate) may help lower a child's temperature while you seek medical attention. If the child has visited a malarious area, treat as malaria until proven otherwise. In a child, death from malaria can occur within 24 hours of onset of symptoms.
2. Check their pulse rate. The normal pulse rate for children is 80 -100 beats per minute and for infants 100-140 beats per minute. A raised pulse rate is usually a sign of significant illness.
3. Are they eating? and drinking? If a child is eating normally, it is a good sign they are not too sick. If they lose their appetite, but are still drinking fluids, they can hold their own. It is serious if they stop drinking fluids. If a child is not passing urine in normal amounts, they need medical care urgently. Children dehydrate much more quickly than adults.

Diarrhoea in children

The stomachs of children have less acid, and empty faster compared to adults, so children are more susceptible to diarrhoea. Research on travellers showed the highest incidence, most severe disease and longest duration of travellers' diarrhoea occurred in travellers under the age of three. If children get diarrhoea, they should never be starved. Babies should continue breastfeeding or taking formula plus oral rehydration fluids (e.g. Hydralyte).

Do not give loperamide to children under 6 years of age, and do not give stemetil to children at all.

Children may be given starchy foods e.g. cooked rice, maize, wheat (toast), or potatoes. Bananas are useful to supply needed potassium. Children who are dehydrated should never be given soft drinks. Soft drinks contain too much sugar, and not enough potassium and salt, so tend to make dehydration worse. Unfortunately taste is not a reliable way of avoiding the addition of too much salt.

Don't forget that diarrhoea or gastro symptoms can be caused by conditions such as appendicitis.

DRUG REFERENCE TABLE

Name	Use	Other Names & Strength	Dose	Precautions
REMEMBER: It is best to check with the doctor before departure, regarding the suitability to take medication, especially if you are on any OTHER medication already e.g. for blood pressure, epilepsy, diabetes, mental illness etc. This table does not replace proper medical advice. Trade names are in **bold** type, and generic or worldwide names are in normal type.				
Acetazolamide	Speeds adaptation to altitude Take either 1. Before exposure to prevent mild symptoms of altitude sickness. or 2. To treat mild symptoms of altitude sickness	Acetazolamide 250 mg tablets. **= Diamox**	Adult (> 50kg weight, see pp 74, 130) 1. For prevention; start the morning of the day you reach 2500 m, take 125 mg every 12 hours. 2. For treatment; start when you get symptoms, take 250 mg every 12 hours Children (up to 50 kg body weight) For prevention and treatment Take 2.5 mg/kg every 12 h	Do not take if allergic to sulphur drugs. While taking this medicine you should avoid high doses of aspirin or pseudoephedrine. Possible side effects are a tingling sensation in feet or hands, loss of appetite, and a flat taste of carbonated drinks. Some people notice decreased tolerance to exercise, but that could be the altitude.
Albendazole	Kills tropical worms	200 mg **= Zentel**	2 x 200 mg = 400 mg daily for 3 days	Take on empty stomach
Amoxycillin	Antibiotic for chest, sinus, middle ear, or dental infections.	Amoxycillin 250 mg or 500 mg (bigger dose if illness is more severe) **Amoxil = Moxacin**	Take one capsule or tablet every 8 hours for 5 days. Must finish the course.	Should not be taken if allergic to penicillin. Can be taken with food.
Antihistamine There are many different ones	For relief of allergies, hayfever, or insect bites. Also used for motion sickness and some types are used for sedation.	e.g. **Avil, Polaramine Claratyne, Hismanal Teldane, Telfast, Zadine, Zyrtec**	Doses are different for each medication e.g. **Telfast** is one tablet twice a day, **Zyrtec** is once a day. See promethazine for motion sickness doses	Some of the older antihistamines can cause drowsiness. Do not drink alcohol or operate machinery while using them. **Teldane** should not be used if taking erythromycin or roxithromycin.
Artemether plus Lumefantrine	Treatment for blood stage of malaria	Artemether 20 mg/ Lumefantrin 120 mg = **Riamet**	6 doses of 4 tablets each dose, (total of 24 tablets) over 3 days. see page 90	Prescription only. Care in patients with heart problems or taking metoprolol, imipramine, amitryptyline.
Avomine	See promethazine			
Azithromycin	Step 2 Antibiotic for travellers diarrhoea. Also Treats respiratory tract infections.	Azithromycin 500 mg = **Zithromax, Zedd, Aziwok**	Adults: for diarrhoea: 1000 mg once, or chest infection: 500 mg once daily for 3 days Children under 45kg: Take 10 mg/kg daily for 3 days.	Do not take if allergic to erythromycin, or if there is a history of heart conduction problems or arrhythmias. Drug may cause temporary nausea in some persons.

Name	Use	Other Names & Strength	Dose	Precautions
Bactrim DS	Antibiotic used to treat infection of chest, throat, middle ear, skin and bladder infections. Also cyclospora diarrhoea – see page 105	Cotrimoxazole = Trimethoprim 160 mg plus Sulpha - methoxazole 800 mg **= Septrin Forte**	Take one tablet morning and evening, after meals, for 7 days.	This is a sulphur drug, so it must not be taken by persons with sulphur allergies. Cease drug immediately if any rash develops.
Biltricide	See praziqantel			
Buscopan	Anti-spasmodic (stops stomach cramps)	Hyoscine butylbromide 10 mg	Take 20 mg (2 tablets) four times a day	Take the dose prescribed; it doesn't work at lower doses.
Cefaclor	Antibiotic for sinus infection	375 mg tablets **Ceclor CD**	375 mg twice a day for 5-10 days	Take tablets whole, do not break crush or chew
Cephalexin	Antibiotic for treatment of wound infections.	Cephalexin 250 mg or 500 mg **Keflex**, **Ibilex** (cephalosporin family)	Usually 500 mg twice a day Can take up to 4 g per day	This medicine belongs to a family of drugs with similarities to penicillin, so occasionally persons with penicillin allergies will react to this.
Chloromycetin ointment or drops	Antibiotic ointment or drops for conjunctivitis. Can also be used in emergency for external ear infections i.e. 'tropical ear'.	**Chloramphenicol**	Apply ointment or drops every four hours for 2 to 3 days.	Chloramphenicol *tablets* should only be used under medical supervision, but drops or ointment are much safer. Do not use on the ear if the eardrum is perforated.
Chloroquine	Anti-malarial Usually used for prevention of malaria and occasionally for treatment of malaria in chloroquine-sensitive areas.	**Aralen** **Avlochlor** **Nivaquine** **Chlorquin** Usually 150 mg of chloroquine base in each tablet	To prevent malaria take two tablets per week, e.g. two tablets every Monday. Start two weeks before exposure, take two tablets each week while in the risk area, and keep taking until 4 weeks after leaving the risk area. See page 26. For treatment dose see page 91.	Must be taken with food and plenty of water. Chloroquine tablets taste very bitter; They are similar to the quinine in tonic water. Some countries (e.g. UK) can supply coated (tasteless) tablets. Some people notice blurry vision, nausea, and headaches, especially if they are dehydrated as well.
Ciprofloxacin	Antibiotic for diarrhoea, chest infection wound infections	Ciprofloxacin 500 mg tablets = **Ciproxin** or **Cipro** **Cifran** (India)	For treatment of diarrhoea: Step 1 Adults : 2 x 500 mg tablets at once Children 30-50 kg: one 500 mg tablet See page 97 for more details For chest or wound infections; Adult take 500 mg tablet twice a day for 5-7 days.	Take 30 minutes before, and at least 2 hours after food, milk, vitamins, antacids.

Name	Use	Other Names & Strength	Dose	Precautions
Ciproxin	See ciprofloxacin			
Coloxyl	Laxative - eases constipation.	Docusate sodium 120 mg tabs	Two coloxyl each night after your evening meal.	Also drink more fluids, eat more fibre and get more exercise.
Cotrimoxazole	See **Bactrim DS**			
Dexamethasone	Altitude Sickness	Dexamethasone 4mg tablets	Treatment: 4 mg every 6h, max 24 hours Prevention: 4 mg every 12h When used for Prevention: max 7 days	Not to be used in children.
Diamox	See acetazolamide			
Diflucan	See fluconazole			
Dimenhydrinate	Motion sickness	**Dramamine** tablets and syrup Adult 50 mg tab Junior 25 mg tab Syrup 2.5 mg/ml	Adult One tablet 3-4 times a day Children's dose 2-3 times daily 2-6yrs ; 6.25 –12.5 mg 6-8yrs; 12.5-25 mg 8-12 yrs; 25-50 mg >12 years ; 50 mg	Side effects are drowsiness and dizziness. In children there can be excitement.
Diphenoxylate HCl	See **Lomotil**			
Doxycycline	1. Anti-malarial or 2. Antibiotic for chest infections or some skin infections.	Doxycycline is available in capsules or tablets at strengths of 50 mg or 100 mg. 100 mg are the most common. Also known as **Doryx,** or **Vibramycin,** or just doxy.	To prevent malaria take 100 mg per day with food — see page 26 for more details. To treat chest & other susceptible infections; take one tablet (100 mg) morning and night on the first day, then one tablet daily after that for 6 days. Always take doxy with food and fluid and do not lie down for several hours after taking this medication.	Not suitable for children under 8 years and pregnant women. Avoid anticoagulants, penicillins, iron, magnesium, calcium, and antacids while on doxycycline. If taken on an empty stomach, it will cause heart-burn. Sun sensitivity can develop. Women may develop thrush and doxycycline may occasionally interfere with the effectiveness of the birth control pill. Stop doxycycline immediately if you develop a headache plus visual disturbance: blurred, double or obscured vision.
Dramamine	See dimenhydrinate			

Name	Use	Other Names & Strength	Dose	Precautions
Econazole	For treatment of fungal infections on the skin or vaginal thrush.	Econazole Nitrate 150 mg cream or ovules = **Pevary**l	Skin: Apply cream twice a day to rash Thrush: Insert one pessary nightly for 3 nights.	See a doctor if symptoms persist. Wash hands after use.
Fasigyn	See tinidazole			
Fluconazole	For treatment of severe vaginal thrush.	Fluconazole 150 mg= **Diflucan**	Take one tablet orally.	Rather expensive but works well. Occasional side effects are nausea, abdominal pain, and /or headache.
Flucloxacillin	Antibiotic for treatment of skin infections, e.g. infected coral cuts.	Flucloxacillin 250 mg or 500 mg capsules = **Flopen**	Take one capsule every 6 hours, (one hour before meals), for 6 days.	Should not be taken if allergic to penicillin or history of liver disease. Rarely causes hepatitis: Yellow eyes, tiredness: if this happens cease immediately
Ginkgo	One clinical trial showed it aids in the prevention of Acute Mountain Sickness	Produced from the Ginkgo or maidenhair tree. Active ingredient uncertain. Tablets usually contain more than 125 mg	125 mg orally twice a day starting 5 days before ascent and continuing while at altitude.	Before taking ginkgo you should consult the doctor if you are on any other medication: Especially beware of warfarin, ergotamine, nifedipine, aspirin, or ibuprofen
Hyoscine hydrobromide	See **Kwells**			
Hyoscine butylbromide	See **Buscopan**			
Ibuprofen	Pain killer and anti - inflammatory medication Useful at altitude to take with **Diamox**	Ibuprofen 200 mg = **Nurofen**	Take one to two tablets every 4 hours as necessary. WITH FOOD	Maximum of six tablets per day. May interfere with some blood pressure and heart medication. Should be used with care if there is a history of asthma, especially if you have not previously used this drug or if you have a known allergy to aspirin. It may cause indigestion.
Imodium	See loperamide			
Iodine tablets	Water purification	Iodine tablets (also available as a liquid, but tablets are less messy)	Dose as per instructions on the bottle and leave to stand for 30 minutes. If the water is very cold, you may need up to 60 minutes. see p. 51	Tastes bad. Avoid this if you have an allergy to iodine or seafood, or if you have thyroid disease. It is safe to use if you are on thyroxine. Tablets are preferable over liquid. If the bottle leaks, it will destroy your clothes and metal items.

Name	Use	Other Names & Strength	Dose	Precautions
Kwells	Motion sickness	Hyoscine hydrobromide 0.3 mg	Take 30 minutes before travel. Repeat in 4-6 hours if needed. Adult: 1-2 tablets max 4 in 24 hrs Children: 2-7 years; 1/4 tab, max 1 tab in 24 hrs > 7 years; 1/2 to 1 tab, max 2 tabs in 24 hrs	Common side effects are dry mouth, blurry vision, and drowsiness. Very short acting – about 4 hours.
Lariam	See mefloquine			
Lomotil	Anti-diarrhoea pill. A 'stopper' – i.e. paralyses the bowel – for when diarrhoea is inconvenient.	Diphenoxylate HCl 2.5 mg, and atropine sulfate 25 mcg	Take two tablets 3-4 times a day for a maximum of 48 hours.	Do not take if you have a fever or blood in the bowel motions. Lomotil is an older drug and is no longer recommended.
Loperamide	Anti-diarrhoea medication. A 'stopper'. Helps antibiotic to work better, may be useful if no toilets available e.g. on a raft or bus etc	Loperamide HCl 2 mg = **Imodium** = **Gastrostop**	Take one with diarrhoea antibotic. Maximum 8 capsules per day for 48 hours. See p. 97 for full discussion of diarrhoea treatment	Take with antibiotic or after antibiotic, or can be taken if bowels loose and feel well and need to travel on bus, train etc.
Lumefantrine	See artemether/Riamet			
Malarone	Malaria treatment in drug resistant areas. (Also used for prevention of malaria see page 26)	Atovoquone 250 mg plus Proguanil 100 mg	For treatment: the dose is taken each day for 3 consecutive days. Adults: 4 tabs daily – total of 12 Children: Dosage per day 11-20 kg - 1 tab 21-30 kg - 2 tabs 31-40 kg - 3 tabs > 40 kg - 4 tablets	Not to be used under 3 years of age. Very low incidence of side effects. No reports of serious side effects requiring hospitalization. Users occasionally report side effects of headache, nausea, stomach pain, loss appetite, mouth ulcers, diarrhoea, and cough. Do not take with **Maxolon** / metoclopramide.
Maloprim	Anti-malarial, commonly prescribed in the past with chloroquine.	Pyrimethamine 12.5 mg, Dapsone 100 mg	One tab per week, from 2 weeks before until 4 weeks after risk area.	Rarely may lead to bone marrow failure, so is no longer used. Not very effective against cerebral malaria.

Name	Use	Other Names & Strength	Dose	Precautions
Maxolon	Anti-nausea	Metoclopramide 10 mg	After you have emptied the contents of your stomach, take one tablet. Take one tablet every 8 hours.	If nausea persists, or the vomiting continues for more than 24 hours, dehydration can occur rapidly. See a doctor.
Mebendazole	Anti-worm pill esp. for travellers who 'roughed it'	Mebendazole 100 mg tablets = **Vermox**	Take one tablet morning and night for three days (total of 6 tablets) on return home.	NB Travellers need a higher dose than persons who may use mebendazole in a 'developed country' setting.
Mefloquine	Prevention of malaria	Mefloquine 250 mg tablets = **Lariam**	For prevention: One tablet per week, start 4 weeks before entering risk area, take one tablet per week while at risk and continue until 4 weeks after return.	Take with food or plenty of fluid. May cause strange dreams, dizziness, disturbed balance, or gut upset. Avoid heavy alcohol within 24 hours of dose. Not advised in persons with epilepsy, mental illness, pilots, those taking beta-blockers, or digoxin. Avoid pregnancy for 3 months after Lariam.
Melatonin	Hormone to speed recovery from jetlag	Melatonin 5 mg	5 mg at bedtime (e.g. 10pm) for 2-5 days after arrival.	Caution in patients on warfarin or with epilepsy. Can be used in children over 5 years.
Metronidazole	Antibiotic for diarrhoea germs: Giardia or Amoebic Dysentery	Metronidazole 200 mg or 400 mg tablets = **Flagyl**	Take 400 mg three times a day for 7 days.	No alcohol must be taken during or for 2 days after course. Do not take with anti-epilepsy or some anti-ulcer drugs e.g. **Tagamet.**
Norfloxacin	Antibiotic for 1. bacterial diarrhoea or 2. bladder or urinary infections	Norfloxacin 400 mg tablets = **Noroxin/ Norflohexal**	Take two tablets of Norfloxacin with one loperamide. See p 97 for diarrhoea treatment details. For bladder infections take one tablet every 12 hours for 3 days (total 6 tablets).	Take with water, 30 minutes before, and at least 2 hours after food, milk, vitamins, or antacids. Cease Norfloxacin if you develop pain in any tendons e.g. back of ankle
Ondansetron	Severe Nausea	Ondansetron 8mg wafer = **Zofran**	Adults: one 8 mg wafer Children: use with caution 8-15 kg = 2 mg, 15-30 kg = 4 mg, 30-40 kg = 6 mg, >40 kg = 8 mg	Use dry hands, place on tongue, it will dissolve within seconds, no water needed. If not improving after one dose, see a doctor

Name	Use	Other Names & Strength	Dose	Precautions
Paludrine	Prevent malaria in certain areas. (Combined with Atovoquone it may be used for treatment of malaria see Malarone.)	Proguanil 100 mg tablets	Take two tablets per day, starting 2 weeks before entering the malarious area, take while there and for 4 weeks after malaria area.	Side effects are uncommon. May cause mouth ulcers, rash, headache, dizziness.
Paracetamol	Pain killer	Paracetamol 500 mg = **Panadol**	Take two every four hours.	See a doctor if pain persists. Maximum of eight tabs per day.
Paracetamol with codeine	Stronger pain killer	Paracetamol 500 mg plus Codeine 8 mg **Panadeine**	Take two every four hours.	Maximum of eight tablets per day. See doctor if pain persists.
Penicillin	Antitbiotic for tonsillitis	Penicillin 500 mg	Take 1 dose every 12 hours for 10 days.	Take one hour before food
Phenergan	See promethazine			
Praziquantel	Treat proven schistosomiasis.	Praziquantel 600 mg = **Biltricide**	Take dose (20 mg per kg body weight) 3 times daily (every four hours) for 1 day.	Swallow whole with liquid after meals.
Proguanil	See **Paludrine** , and	see **Malarone**		
Primaquine	Said to treat the liver forms of vivax malaria	Primaquine 7.5 mg tablets	Treat vivax malaria: 6mg/kg is dose Take 30mg per day until get to total dose. eg 60kg: 12 days, 80kg 16 days Prevent malaria 30 mg daily from 1 day prior to 7 days after risk area	Must have a blood test for the enzyme G-6-P-D before taking this medication.
Promethazine	Motion sickness	**Phenergan/ Avomine** 25 mg tabs Also available as 10 mg tablets and syrup 5 mg/5ml	Take dose each night, starting the night before travel. Adult - 25 mg Children 3-5yrs; 5 mg 6-10yrs; 10 mg	It may cause marked drowsiness. If you take it the night before the drowsiness has largely worn off but the motion sickness effects persist. Caffeine may counter the drowsiness in some people. Avoid alcohol.
Pseudoephedrine	Clears runny nose	Pseudoephedrine 60-120 mg tabs **= Sudafed**. Found in many cold and flu preparations.	Take 60 mg 3-4 times per day. Max 240 mg per day	Do not take if you are on blood pressure medication or have a tendency to raised blood pressure. May cause sleep disturbance, hallucinations, sweating, flushing, urinary problems.

Name	Use	Other Names & Strength	Dose	Precautions
Rehydration Solution	Essential salts and sugars in a balanced formula to allow increased absorption of water from the gut. Used to treat dehydration from all types of diarrhoea and vomiting, especially in very young or the elderly	Hydralyte, ORS, Gastrolyte Contains: Salt (Sodium Chloride), Sodium Citrate, Potassium Chloride, Sugar (Glucose)	Mix accurately according to instructions on packet - preferably with boiled or purified water Drink as required, e.g. one dose after each vomit or loose motion. If having difficulty, take small sips regularly.	Safe for children. If you are unable to keep down enough fluids to balance what you are losing, seek medical help immediately.
Roxithromycin **Rulide**	Antibiotic for chest, skin or dental infections. (type of erythromycin)	Roxithromycin 150 mg or 300 mg tablets = **Rulide / Biaxsig**	Take 300 mg once a day, at least 15 minutes before food, for 5 days.	3% of persons taking this will get abdominal pain, nausea, or diarrhoea; stop drug if this occurs. Do not take with **Hismanal.**
SCOP	Skin patch to prevent motion sickness.	Hyoscine 1.5 mg	Apply to dry undamaged, hairless skin behind your ear, 6-8 hours before the journey. Effective for 72 hours.	May cause dry mouth, blurred vision and drowsiness. Avoid alcohol. Remove patch for a few hours if you get side effects. Avoid if under 12 or over 65 years of age.
Septrin Forte	See Bactrim DS			
Stemetil	Anti-nausea Wait for stomach contents to empty before taking this.	Prochlorperazine maleate Tablets 5 mg or Suppositories 25 mg	*Tablets* 1-2 tabs every 8 to 12 hours. *Suppository* One rectally and follow with tablet 6 hours later.	If vomiting continues, dehydration can occur rapidly so keep drinking. Do not take for more than 24 hours without seeing a doctor. Avoid alcohol and tramadol while on this medication.
Soframycin	Antibiotic for eye and ear infection Could also be used on wound infections.	Framycetin sulphate 0.5%= Soframycin	Instill 2 drops, 3 times per day.	Once opened packet should be discarded in 4 weeks
Temazepam	Mild sleeping pill Works for about 4-6 hours.	Temazepam 10 mg = **Temaze /Normison**	1-2 tablets, 30 minutes before you wish to sleep.	Do not take with other tranquillisers, or with more than one glass of alcohol.
Tinidazole	Antibiotic for diarrhoea germs; 1. Giardia or 2. Amoebic Dysentery.	Tinidazole 500 mg tablets = **Fasigyn** = **Simplotan** **Tiniba** is also in this family of drugs	1. Giardia: take 4 tabs with food. 2. For amoebic dysentery: take 4 tablets together with food *each day for 3 days,* (total 12 tablets).	No alcohol must be taken for 2 days after dose. This is REALLY important or you will get a terrible hangover reaction. Some people notice headache, rash, or metallic taste in the mouth after tinidazole.

A FEW DETAILS

AIDS

What is it?

AIDS (Acquired Immunodeficiency Syndrome) is caused by infection with a virus known as the Human Immunodeficiency Virus (HIV). This virus attacks the immune system - the body's natural defence against infections - and causes it to slow and eventually fail. AIDS is the end result of infection with HIV. Infections the body would normally clear, can be fatal. If a person is infected with HIV, and has not yet developed AIDS, they will be infectious to others, and yet look and feel perfectly well. Occasionally a person may be infectious to others yet have a negative AIDS test. The blood test measures antibodies to the HIV. It may take three months after first contact with the virus, for these antibodies to develop.

How it is spread?

HIV is delicate and cannot survive outside the body. It must travel person-to-person in body fluids. HIV does not spread through normal social contact between friends, workmates or family members. You cannot catch HIV from shaking hands, hugging, coughing, sitting next to someone, or from cutlery or plates. Mosquitoes do not transmit HIV. The virus cannot survive in the insect's gut. HIV is transmitted by sexual contact, blood products, and sharing infected needles. As of the end of 2013, 35 million people are estimated to be living with HIV/AIDS worldwide. An estimated 2.1 million people acquired the virus in 2013. The disease led to an estimated 1.5 million deaths in 2013. The majority of all those living with HIV/AIDS are in subsaharan Africa, and just over half of the adults living with HIV/AIDS worldwide are women.

ANTHRAX

Anthrax has received a lot of publicity as an agent of bioterrorism. It is a very rare disease and is not a problem to 99.999% of travellers. Anthrax occurs globally but is more common in developing countries without veterinary public health programs. It may occur in workers exposed to dead animals or animal products. The spores can live in the soil. There are vaccines for animals. A human anthrax vaccine is available in some countries. The vaccine is normally only used by the military.

AVIAN INFLUENZA

The risk to most travellers at this time is negligible, however travellers should be aware of the following:

Large amounts of the virus are known to be excreted in the droppings of infected birds. WHO (World Health Organisation) does not recommend any travel restrictions at this time. Do not handle or eat raw or undercooked poultry... chicken, duck, eggs, blood etc. The virus cannot survive high temperatures so properly cooked chicken is not a risk. Travellers need to avoid contact with poultry farms, live animal markets, and any free ranging or caged poultry, including feathers. Frequent careful handwashing is a wise precaution and decreases your risk of many travel diseases including avian influenza / bird flu. There is no specific bird flu vaccine available. The current influenza vaccine prevents the seasonal human influenza, but will not provide protect from bird flu.

CHAGAS' DISEASE

Chagas' disease is a potentially fatal parasitic infection of the heart and gut. It is transmitted via cone-nosed bugs in the Americas - especially rural Brazil. The bugs live in the walls of mud huts, and come out at night for a blood meal. While the bug feeds, the parasites (trypanosomes) are excreted onto the victim's skin via the bug's faecal matter. Unsuspecting victims scratch these parasites into the bite wound. Early symptoms are swelling around the bite, followed by swelling of the lymph glands and/or a fever. Later complications include damage to the heart (causing sudden death), and paralysis of the gut (causing constipation and difficulty swallowing.) Treatment is difficult, so prevention is best – do not sleep inside mud huts (adobes) in the Americas. It is best to camp some distance away. Visitors to large cities or to remote jungle ruins are not at risk.

CHOLERA

Cholera causes a sudden onset of extremely profuse, watery diarrhoea one to two days after contact with the germ. The diarrhoea is completely painless, but large amounts of fluid can be lost in a short time e.g. one litre every few hours. This leads to rapid dehydration if the fluids and salts are not replaced. With proper treatment the disease lasts two days, and the person recovers completely. Cholera is rare in tourists but common in malnourished people, especially children. In areas where there are no medical facilities, cholera may be severe, and 60% of infected children may die. Cholera is caused by a bacteria (*Vibrio cholerae*), and is transmitted via contaminated water or food.

The best way to prevent cholera is to be extremely careful about what you eat and drink. Cholera is a very rare disease in tourists. The vaccine (Dukoral) may be of value for some travellers on some high risk trips e.g. aid workers, but is mainly used for its protection against ETEC travellers diarrhoea.

CIGUATERA

Ciguatera fish poisoning has been known for centuries. Ciguatera is widespread in tropical and subtropical waters, usually between the latitudes of 35°N and 35°S; it is particularly common in the Pacific and Indian Oceans and the Caribbean Sea. Up to 50,000 people worldwide suffer from the disease annually. The incidence in travellers to highly endemic areas has been estimated as high as 3 per 100. It develops after eating fish containing ciguatera toxins. These toxins arise from a type of marine algae, *Gambierdiscus toxicus*, which tends to proliferate on dead coral reefs. The risk of ciguatera is likely to increase as more coral reefs die because of climate change, construction, and nutrient runoff. The toxins are concentrated in the muscles of fish that eat the algae. The higher in the food chain (i.e. the bigger the fish), the more concentrated the toxin, and the more severe will be the symptoms. Local fishermen are often aware of the high-risk species. Fish that are most likely to cause ciguatera poisoning are carnivorous reef fish, including barracuda, grouper, moray eel, amberjack, sea bass, or sturgeon. Omnivorous and herbivorous fish such as parrot fish, surgeonfish, and red snapper can also be a risk The toxin is difficult to detect but is concentrated in the liver, intestinal tract, roe, and head. Contaminated fish taste normal. Symptoms vary but usually begin with gut discomfort within hours of eating the fish. More information see page 94.

DENGUE FEVER

The global incidence of dengue has risen dramatically in recent decades. About two fifths of the world's population is now at risk. The World Health Organization estimates that 50 million cases of dengue occur every year, and 1% of sufferers require hospitalization.

Dengue occurs mostly in the tropics and subtropics, and is spread from person-to-person by a mosquito (mostly *Aedes aegypti*). The dengue affected areas of the planet are similar to the malaria affected areas, but unlike malaria, dengue is often found in cities. Infected humans are the main carriers and multipliers of the virus, serving as a source of the virus for uninfected mosquitoes. A female mosquito acquires the dengue virus by biting a sick dengue sufferer and after 8–12 days, become infectious for the rest of her life (the mosquito life span is approximately one month).

The main dengue mosquito is a small, black-and-white, tropical mosquito that prefers to lay its eggs in artificial containers commonly found in and around homes, e.g. flower vases, old automobile tyres, buckets that collect rainwater, and general rubbish. She bites during the day (even feeding indoors), and is quite skittish so may feed on multiple persons in a short space of time. All this makes dengue a particular risk for travellers. Some studies have demonstrated that 1% of travellers to the tropics develop dengue. Some travellers infected with dengue develop no symptoms or a very mild non-specific illness.

The disease Dengue fever is caused by one of four similar viruses. Infection with one of the four viruses gives protection from that strain for life, however the cross protection against the other three dengue strains only lasts two months at the most. Persons who have had dengue before, are likely to become especially sick if they contract a different strain of dengue. This is possibly due to the antibodies from the first attack binding the second (different) dengue virus, but not quite killing the virus, so the virus is taken inside the immune cell to be processed, and because the virus is not dead, it can do more damage.

Dengue haemorrhagic fever is a leading cause of serious illness and death among children in some Asian countries. There is no specific treatment for dengue. Although there are trials underway for a dengue vaccine, it is not commercially available yet. Modern supportive medical care frequently saves the lives of patients with dengue haemorrhagic fever.

The best protection from dengue currently is to avoid mosquitoes.

Symptoms and treatment of dengue in travellers is discussed on page 92.

DIPHTHERIA

Diphtheria bacteria infect the throat and release a poison, which paralyses the heart and nervous system. You catch the disease by breathing in contaminated droplets from the air (like the common cold). Although diphtheria occurs worldwide, it is especially common in developing countries. In the early 1990s, there was a huge outbreak of diphtheria in the former Soviet Union. Vaccination is recommended for all travellers, but diphtheria is most serious in the very young and the elderly. routine childhood vaccination gives protection against diphtheria. This vaccine is usually given combined with tetanus and whooping cough vaccines.

EBOLA

Ebola haemorrhagic fever is a severe, often fatal disease in primates – both humans and monkeys etc. It was first recognized in 1976. This rare disease occurs as sporadic outbreaks in remote central Africa where medical resources are poor. The most recent and largest outbreak started in Dec 2013 in Guinea, and is ongoing at the time of print. The World Health Organisation has declared the outbreak a public health emergency of international concern. The virus spreads only from contact with sufferers' blood and body fluids (it is not airborne). The risk to the average traveller is currently extremely low as travellers are not in contact with these fluids.

FLU (INFLUENZA)

Influenza, also known as the flu, is a contagious disease that is caused by the influenza virus. It attacks the respiratory tract in humans (nose, throat and lungs).

The 1918 Spanish flu pandemic killed more than 20 million people worldwide. Although seldom fatal in travellers, it can ruin a holiday. Approximately 1% of travellers will get influenza. Influenza occurs year round in the tropics.

An individual can sneeze the virus a distance of three metres, and the flu is caught from inhaling these particles in the air. Travellers are more prone to the flu as they are often exposed to crowds (and hence more viruses) on aircraft and buses, in shopping centres and at historic sights etc. A traveller's immune system may be weakened by eating poorly, drinking too much alcohol, not getting enough rest, and jetlag. Furthermore, in the event of illness, travellers are a long way from their usual doctor, and their own bed. This makes the illness more uncomfortable and complications more likely.

Influenza vaccination is recommended for all travellers over 6 months of age, but especially for persons over 65, under 5 years of age, and overweight persons (BMI over 30) because they are more likely to be hospitalised as a result of influenza complications (e.g. bronchitis or pneumonia). A study published in 2003 showed that influenza vaccination in persons over 65 years was also associated with less hospitalization for heart and cerebrovascular disease (eg stroke) and a reduction in the risk of death from all causes by 50 percent. Vaccination of school children is worth considering if you have them in your household. From 1962 - 1987 Japan instigated compulsory influenza vaccination of school children. Researchers were able to compare the death rates of the whole population over a long study period 1949-98. They found that during the period when the school children were being vaccinated, deaths attributable to pneumonia and influenza decreased dramatically in the adult population and returned to previous levels when program stopped.

The influenza vaccine is about 80% effective against the current strains of the flu. The vaccine changes every year because the virus does too. The influenza vaccine is a dead vaccine so it is impossible for the flu vaccine to give you a dose of the flu. After vaccination, it takes about two weeks for immunity to develop. During this two weeks you can still catch the flu. The vaccine cannot prevent the common cold.

H1N1 2009 (Swine flu) was first noted in April 2009. It spread rapidly and by the time WHO declared a pandemic a few months later in June 2009, a total of 74 countries and territories had reported laboratory confirmed infections.

HEPATITIS OVERVIEW

Hepatitis means infection of the liver. There are many types of hepatitis: A, B, C, D, E, F and G at last count. Hepatitis may also occur as part of another illness such as Glandular Fever, or as a side effect from a drug. Hepatitis E is particularly serious in pregnant women.

Vaccines are only currently available against Hepatitis A and B, but if you are vaccinated against Hepatitis B, you cannot catch Hepatitis D either.

Type of Hepatitis	Disease contracted from
A	Food and water
B	Blood and blood products
C	Blood and blood products
D	Only occurs with Hep B
E	Food and water

HEPATITIS A

The disease Hepatitis A usually causes symptoms of fever, tiredness, loss of appetite, and stomach discomfort. A few days later the person develops yellowing of the whites of the eyes and skin (jaundice). The urine becomes dark and the motions become pale. On average, the sufferer loses a month off work, and alcohol may not allowed for up to one year. The likelihood of developing symptoms varies with age. In children less than 6 years of age, 70% of infections cause no obvious symptoms. In adults, Hepatitis A can cause tiredness for months afterwards. The disease is seldom fatal, though it is more likely to be so in persons over 40 years of age.

Hepatitis A is also known as 'Hep A' or 'Yellow Jaundice'. This jaundice is quite different to baby jaundice. Baby jaundice is caused by immaturity of the liver and develops in the first few days of life.

Hepatitis A virus is shed in the faeces of infected persons. Transmission occurs through exposure to contaminated water, ice, shellfish, fruit, vegetables, or other foods, or surfaces e.g. bathroom door handles. Hepatitis A is quite contagious and can be easily spread to others within a household setting. The incubation period is 2-6 weeks, so sufferers often develop symptoms after they arrive home.

This disease is most common in third world countries because sanitation is poor. In developing countries most locals contract the disease in childhood. Even in the developed world there are small outbreaks of Hep A though these are seldom reported in the press. After recovery, the sufferer has lifelong immunity. Persons over 60 years of age who live in developed countries e.g. US, UK, Australia, NZ may have had the disease in childhood as the disease was more common at that time. Testing may be recommended for some persons in case they already have antibodies so don't need the vaccine.

Travellers are more at risk if they live in or visit rural areas, or frequently eat or drink in settings of poor sanitation. Backpackers in particular are more prone to

Hepatitis A. Travellers staying in five star hotels are not always safe: infection risk is about one per 3,000 travellers per month of stay.

All travellers should be vaccinated against Hepatitis A.

Protection against Hepatitis A can be given in various ways:

1. Avaxim/ Vaqta / Havrix

   These excellent manufactured vaccines give lifetime protection after two doses of vaccine, 6-36 months apart, with few side effects.

2. Twinrix

   This gives long-term protection against both hepatitis A and B viruses.

3. Gamma Globulin / Immune Globulin

   This blood product is seldom used now; however, it was used safely for many years. It has been carefully investigated and shown not to transmit AIDS or Hepatitis B. It is less effective than the manufactured vaccines. There have been reports where a person developed severe Hepatitis A disease, despite having a recent Gamma Globulin. It was very costly to produce, as it was made from blood donations.

HEPATITIS B

The disease Hepatitis B causes symptoms of tiredness, nausea, loss of appetite, rash, muscle and joint pains. Symptoms develop two to six months after exposure to the virus. The skin and whites of the eyes turn yellow, the urine may become tea coloured and the bowel motions turn whitish. The acute illness lasts several weeks. 1.4% of sufferers will die during the acute attack. 6-10% of adult sufferers remain chronically infected or infectious to others, and one fifth of those chronically infected will die from the infection. Chronic Hepatitis B carriers are 94 times more likely than average to develop a primary liver cancer.

Hepatitis B virus is fragile and cannot survive long outside the body. It must travel from person to person through blood or other body fluids i.e. transfusions, sharing contaminated needles or sexual contact. Acupuncture, tattoos, and dental procedures can also transmit the disease. The virus uses the same route as AIDS although Hepatitis B is more contagious than AIDS. Hepatitis B is present all over the world, including UK, Europe, USA, Australia and NZ, but it is more common in developing countries.

Hepatitis B vaccination is now part of the routine childhood vaccination schedule.

Vaccination is recommended for most travellers, especially long-term travellers (greater than 3 months), those working with blood or blood products and those anticipating sexual contacts overseas. Children may be at risk if they play with infected children. Minor injuries are common during play and the virus could pass from one to the other via broken skin.

Note that the Hepatitis B virus and the Hepatitis A virus are very different. Vaccination against one does not protect you from infection with the other, however there is now a combined vaccine (Twinrix) which does give protection from both.

JAPANESE ENCEPHALITIS

Japanese Encephalitis (JE) is a viral disease spread by the bite of a particular mosquito (culex). This mosquito breeds in rice paddies and becomes infected while feeding on pigs and wading birds. For this reason, the disease mainly occurs in rural/farming areas. JE is present in rural areas of China, India, Sri Lanka, Nepal, Burma, Thailand, Laos, Vietnam, Korea, and the Philippines. Cases have recently been reported from the Torres Strait and New Guinea. These days JE is seldom a problem in Japan. Patterns of JE transmission vary regionally and year-to-year depending on rainfall (worse during summer monsoons), and other factors.

The culex mosquito bites mostly at dusk, dawn and on cloudy days. In affected areas, some studies have shown only 3% of culex mosquitoes carry the virus; however, in affected areas, almost everyone has been exposed to the JE virus by the age of 15. Of those exposed to the virus, most do not get sick; however, if sickness does develop, the virus infects the brain, leading to fevers, headache and encephalitis. 25% of those who get sick are likely to die, and 30% will be left with permanent brain damage. The JE virus seems to damage brain cells in two ways; direct injury and also by damaging the ability of the brain to repair itself. Worldwide, approximately 50,000 cases of JE are reported annually, however the risk to most travellers is very low.

Vaccination is generally be recommended for travellers having more exposure to mosquitoes in rural areas. The older style JE vaccine made by Biken has now been discontinued as there are two new vaccines, Jespect/Ixiaro (two dose course) and Imojev (single dose). The new vaccines have fewer side effects and give better antibody levels. The Jespect vaccine currently available in Australia is not yet licenced for use in children under 18 years, though trials are underway. In endemic areas, the incidence of JE disease is greater among young persons; attack rates in the 3–15 year age group are 5–10 times higher than among older persons.

KALA AZAR

Visceral leishmaniasis or kala azar is a disease which causes fevers, weakness, stomach and muscle pains, loss of appetite, diarrhoea, and constipation. It may mimic malaria with a sudden onset of high fevers. After months of infection, the skin will become grey and scaly. Kala azar means black disease. Eventually the sufferer becomes susceptible to infections (like AIDS victims) and dies. Kala azar is known in some countries as Black Fever (not related to the Black Plague). Kala azar is found in Africa, South America, Middle East, Asia (especially India), China and occasionally in Europe.

It is transmitted by the bite of infected female sandflies. Sandflies breed in rubbish or cracks in walls. Sandflies are very tiny and can fly through most mosquito nets. Although the risk to travellers is low, there are no vaccines or drugs to prevent it. Campers and backpackers are more at risk. It is recommended to avoid known sandfly infected areas, wear protective clothing and regularly use insect repellent containing DEET. Permethrin treated clothing and nets may also help.

LASSA FEVER

Lassa fever is a viral illness that occurs in West Africa. Symptoms are not specific to Lassa fever e.g. fever, pains, diarrhoea, vomiting, cough, facial swelling and neurological symptoms. It is estimated that 100,000 – 300,000 infections occur per year. 80% of those infected will experience only mild disease or no disease. 20% develop severe disease. 1% may die. Two thirds of cases develop some degree of permanent hearing loss.

Humans are usually infected after contact with the urine, and droppings, of a particular *Mastomys* rodent, which is host to the virus. The virus may also spread when a person inhales tiny particles in the air contaminated by dust from rodent droppings, when catching and eating the rodent, or even from blood or body fluid contact with a human suffering from Lassa fever. The *Mastomys* rodent lives in and around homes, where it scavenges on human food remains.

The only way to avoid this disease is to avoid contact with the rodent, and rodent infected homes. Lassa fever is extremely rare in travellers.

LEISHMANIA

Leishmaniasis is caused by a parasite transmitted by the bite of infected sandflies. In the 'cutaneous' form, which does occur in travellers, the bite does not heal as expected, and develops into a sore which may persist for months. The parasites can sometimes spread from the bite site to other parts of the body, especially the nose, mouth, and throat. It can cause permanent deformity. Non-healing sores need to be looked at by a travel doctor.

LEPTOSPIROSIS

Leptospirosis (Lepto) is tropical disease, with nonspecific symptoms similar to dengue and malaria. Experts estimate infection rates of 1-100 per 100,000 persons per year, with an estimated 300,000-500,000 severe cases occur each year worldwide. Lepto is often not diagnosed, as doctors either do not have facilities to do the right tests, or do not think to look for it! Leptospirosis causes fever, chills, headache, muscle aches, nausea, diarrhoea, cough and red eyes. Rarely it can seriously affect the liver (jaundice), brain (meningitis) and kidneys (renal failure).

Antibiotic treatment is most effective when given early, as the organisms damage the little blood vessels throughout the body. It is this damage that causes most of the complications. Untreated leptospirosis causes death in 5-30% cases. It is sometimes known as Weil's disease and occurs worldwide. It is more common in the tropics. This disease is reported to be one reason why they burnt the sugarcane in North Queensland before harvesting the sugar.

The leptospira germ commonly infects a variety of wild and domestic animals that subsequently excrete the germ in their urine or birth fluids. The germ can multiply in fresh water, damp soil, vegetation and mud. Leptospires infect humans via cuts and scratches, or across the membranes of eyes, nose or mouth. It is most commonly caught via water contact e.g. canoeing, wading, or swimming in contaminated water. During periods of flooding, the heavy rainfall washes more of this organism into surrounding surface waters so it spreads most easily. Some international

visitors have caught leptospirosis in Australia - especially young European travellers who had worked in the fruit growing industries of Northern Queensland. There is no vaccine, however doxycycline 200 mg per week may help to prevent this disease – this is less than the dose of doxycycline used for malaria prevention. So if you are taking malaria pills in tropical climates, you may be getting an extra bonus in preventing leptospirosis as well.

LYME DISEASE

Lyme disease is an infectious disease transmitted by tick bites. It occurs in temperate forested areas of Europe, Asia and in the USA – especially in the north east. Lyme disease causes a characteristic bulls-eye rash at the site of the tick attachment with non-specific symptoms or fever, chills, headache and muscle aches. Later it may cause problems with the nervous system, heart and joints (particularly arthritis). It can be very debilitating. Early treatment with antibiotics is effective. Antibiotics are less effective in the later stages of the illness. A vaccine (LYMErix) was available for some years in the USA but was withdrawn from the market in February 2002. The only prevention is to avoid ticks in high risk areas. In the USA, they have found that the tick has to be attached for at least 36 hours before it is likely to transmit the bacteria. For this reason, daily body checks for ticks, and rapid removal of any ticks that are found will help prevent infection.

MALARIA

Each year about 900 people return to Australia with this unwelcome souvenir of their travels. The following map gives you some idea where malaria occurs. Do not use it to try and work out if and where you need to take anti-malaria pills – ask a Travel Doctor for that.

Approximate Malaria regions

We do not know exactly how many people are infected worldwide. Disease estimates in third world countries are notoriously unreliable. WHO (the World Health Organisation) estimates that every year, there are at least 110 million new

cases, and about 1 million people die. A large proportion of these deaths occur among children in Africa.

History

Hippocrates first described the disease in 400 BC. It was not until the mid 1600s that the first treatment was found, using the bark of a South American tree. Legend has it that the Countess of Cinchon was cured of malaria by an infusion from the bark of a fever tree (hence it was named the Cinchona tree). Whilst there is no evidence to support this legendary tale, the infusion became popular for all sorts of feverish illnesses.. given mixed with claret. This treatment did not cure everyone's fevers but perhaps it cheered the sufferers? (More info: The Fever Trail, Mark Honigsbaum)

Though we know a great deal about the malaria parasite, there are many logistical problems in eradicating malaria.

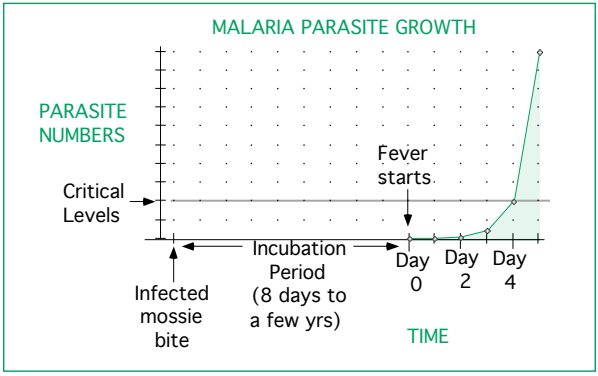
The life cycle of Malaria

There are five strains of malarial parasites which infect humans.

The most serious form is Plasmodium *falciparum*. It causes cerebral malaria and can be fatal. Falciparum parasites attack all the body's red blood cells.

Some of the other types of malaria: *vivax, ovale* and *malariae* attack only the very old or young red cells so there are many cells left to carry oxygen. For this reason *vivax, ovale* and *malariae* infections tend to be less serious. The strain *P. knowlesi* has been more commonly reported in recent years, and mainly occurs in SE Asia. It may cause severe malaria as it multiplies very rapidly.

Malaria parasites enter the blood via the bite of an infected mosquito. The parasites travel to the liver and invade individual liver cells. During the next one to two weeks each parasite multiplies up to 40,000 times within its liver cell. (The sufferer feels well during this incubation period.) Eventually, parasite numbers increase so greatly, that they cause their liver cell to burst, releasing parasites into the blood. Once in the blood stream the parasites invade the oxygen transporters - the red blood cells. Malaria parasites feed on the contents of their red blood cell and further multiply many times. That red cell eventually bursts releasing a shower of more parasites into the blood stream, which attack more red cells. Symptoms (fevers and chills) develop at this stage. Every time a red blood cell bursts, many more parasites are released to attack more red blood cells. The parasite numbers can increase very rapidly. See Graph 1, which shows a fictional attack of malaria.

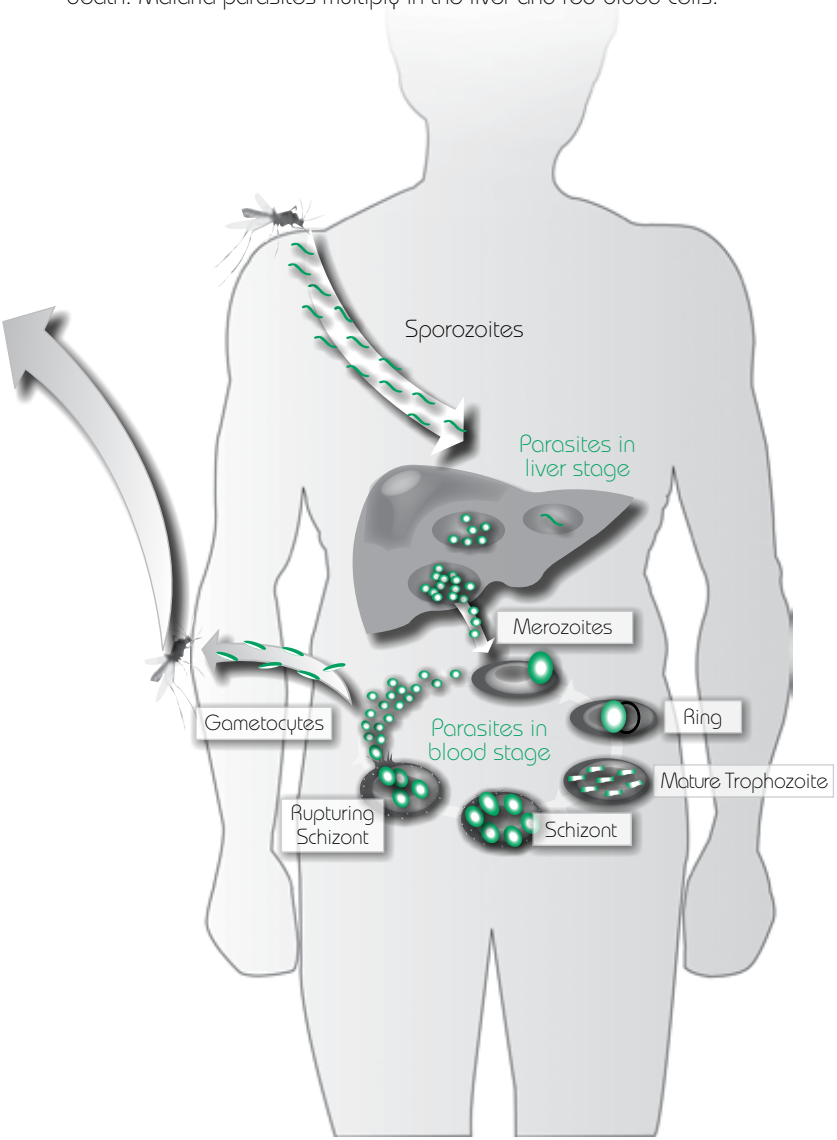


Graph 1

See over for graphic of lifecycle

THE MALARIA LIFECYCLE

Malaria is a serious disease caused by a parasite, which is spread through the bite of an infected mosquito. Left untreated, malaria can result in severe illness and eve death. Malaria parasites multiply in the liver and red blood cells.



It is vital to treat malaria as early as possible. The shortest recorded time between getting a malaria fever and being brain dead is 60 hours in an adult.

Full recovery is possible if malaria is treated in the early stages.

The *vivax* and *ovale* strains may have a long liver phase so they may not produce symptoms for many months. This is why you need a blood test for malaria even if you develop fevers *many months* after leaving the malaria risk area.

If malaria remains untreated, complications develop rapidly. At this critical stage, killing the parasites may not be enough to save the patient. Dead parasites and red cell debris block tiny blood vessels, (especially those of the brain). This is known as cerebral malaria.

Medication

Tablets to prevent malaria have only been available since World War Two. Today's tablets are a big improvement over an infusion from the bark of a fever tree mixed with claret as was used in the past. There are definitely fewer side effects for a start.

There are now many different malaria tablets with different actions and side effects. They are taken daily or weekly, alone or in combination. Unfortunately, however, none of the tablets available are perfectly safe and perfectly effective. Some are safer than others. Different areas of the world may require different tablets to prevent malaria.

Drug resistance is a grave problem. Drugs which previously worked well are now becoming ineffective. The serious falciparum strain has developed resistance to chloroquine and Maloprim in many parts of the world. Resistance to mefloquine (Lariam) is increasing.

The reasons for drug resistance are under close scrutiny. Prolonged and inappropriate use of a single drug by *local* populations encourages the malarial parasite to develop resistance to that chemical. The sensitive parasites die first, leaving only the resistant ones to multiply..

Some travellers are told that if tourists take modern drugs, they will make drug resistance worse for the locals. *This is not true.* There is no evidence that using a particular drug for tourists promotes malaria resistance. Tourist numbers are a drop in the bucket compared to the huge local population in infected countries.

New anti-malarials are hard to find, and expensive to test and register. The Walter Reed Army Institute of Medical Research in Washington DC screened many thousands of compounds over many years and found *two* useful ones mefloquine (Lariam) and halofantrine (Halfan). Halfan has been discontinued as it is toxic to the heart. Combination drugs are recommended as it is more difficult for the parasite to develop resistance to two drugs when given at the same time. Malarone is a combination drug (atovoquone and proguanil).

Some drugs are not suitable for use as prevention. Artemisinin is used for *treatment* of malaria, not for prevention. It has such a short half life in the blood, that you might have to take it every few hours.

Artemisia has been used by the Chinese for more than a thousand years in the treatment of many illnesses, including malaria. It is also called qinghaosu (pronounced ching-how-sue). It is used widely in the developing world, usually in combination with other drugs. Semi-synthetic derivatives of artemisinin, including

artemether and artesunate, have been developed as they are absorbed into the blood stream more efficiently, but work in the same way.

A vaccine for malaria is still a long way off.

If you compare malaria tablets with fellow travellers you will discover recommendations *do* vary from country to country. This is surprising since the same body of knowledge is available throughout the world.

For example: proguanil (Paludrine) is a daily malaria tablet commonly prescribed in the UK in combination with chloroquine. Australians and New Zealanders are more likely to be given doxycycline. Travellers from the US seem more likely to be given mefloquine (Lariam). Authorities in most countries do not recommend Fansidar for prevention of malaria since it occasionally causes fatal side effects. Fansidar is safe when given for treatment of malaria, since a much lower dose is used. Amodiaquine is a malaria tablet not available in Australia but used in other countries. The *dosage* recommendations may even vary from country to country. However, the drug Malarone, seems popular with everyone, except for the expense.

Comparing malaria pills is a bit like comparing blood pressure pills - everybody is on something different but there is no correct answer. If you were given the tablets by a reputable source, it is best to stick with the tablets that you were given. It is even more important to take them regularly. It is dangerous to change malaria tablets on the basis of the recommendations of other travellers.

Local inhabitants become resistant to Malaria

Persons spending their childhood in a malarious area may eventually develop some immunity to the malaria parasite. The native population suffers repeated attacks throughout childhood. Those who survive into adult life have some immunity. This immunity usually disappears after about two years absence from the infected area. Short-term visitors have no immunity, so infections will be more severe. The locals may tell you malaria is not a problem or you don't need to take those particular tablets. *It is different for them.* You would not consult the locals for any other medical issue, so why start with malaria.

Persons travelling to visit family and friends in a malarious area are at 5-7 times higher risk of contracting malaria than a general tourist. Travellers in this group typically underestimate the risks because it is just going home, yet they are exposed to more parasites as they visit areas the general tourists do not visit, and have lost any resistance they may once have had. Short term visitors and long term visitors are usually recommended different malaria preventions strategies or tablets. No tablets are 100% effective, but they will be even less effective if you don't take them regularly.

Two final stories about malaria

1. In 1993, a 56 year old British man and his wife went to Zimbabwe on holidays. He developed symptoms three days after returning to the UK but was initially told he had the flu. Five days later, he was admitted to hospital. Blood films showed a huge number of *P. falciparum* malaria parasites in his blood. Treatment was given but it was too late and he died. (His wife also became critically ill with *P. falciparum* but thankfully she recovered.) The couple had taken a tablet called pyrimethamine for prophylaxis on advice from friends in South Africa. This sad

case is an example of why travellers should *not* take the advice of unqualified friends. Furthermore, despite all the publicity that malaria gets, people with malaria still get misdiagnosed as suffering from the flu. If you get a fever you need a blood test to check for malaria, so you can be treated before complications set in.

2. A 43 year old British woman went on holiday to Ghana with her Ghanaian husband. She took chloroquine and proguanil (Paludrine) for malaria prevention but did not continue taking them after she got home. She got sick two days after returning to the UK. She was admitted to an intensive care unit seven days later, but she died within 48 hours. This story emphasises the importance of *finishing* the course of malaria tablets after you get home.

Deaths from malaria are thankfully rare but they provide a sad lesson. Make sure it does not happen to you!

MENINGITIS

The press may seem to use the terms *meningitis* and *meningococcal* interchangeably.

- Meningitis is the disease. The *meninges* are the *lining* of the brain and spinal chord. Meningitis means infection of the lining of the brain and spinal cord. Many different germs cause the disease meningitis. Meningitis is given different names depending on the virus or bacteria that causes the infection; e.g. viral meningitis, bacterial meningitis, amoebic meningitis.
- Meningococcal bacteria are particular bacteria that may cause the disease meningitis. This bacteria occurs worldwide. There are different strains of these meningococcal bacteria; e.g. A, B, C, W135, Y. To make things more complicated, sometimes the meningococcal germ causes blood poisoning (septicemia) and does not infect the brain and spinal chord at all!

Meningococcal meningitis means meningitis caused by the meningococcal bacteria. This is a particularly fierce, and rapid type of meningitis. The symptoms are headache, fever, drowsiness, neck stiffness and intolerance to light. Symptoms may rapidly progress to coma and death. If not treated, this type of meningitis can be fatal within 48 hours. This can be a real problem when travelling, as it can sometimes take days to access medical care.

Meningitis is generally caught like the common cold - from droplets in the air, so it is difficult to be careful and avoid it. There are some parts of the world, which regularly experience extra high rates of meningococcal meningitis e.g. Sub-Saharan Africa. Many persons carry the meningococcus in their nose and do not get sick. We do not understand why some persons get sick and others do not. Disease is more common in crowded settings (e.g. schools or camps), in younger age groups (e.g. up to 25 years) and in conditions where there is a great deal of contact between persons (e.g. nightclubs or tea houses). There have been large outbreaks associated with the extremely crowded pilgrimage to Mecca. As a result all persons going to the Haj need to be vaccinated prior to their journey.

The vaccines (Menactra, Menveo, Menomune or Mencevax ACWY) only protect against the meningococcal bacteria of types A, C, W135 and Y. The more modern vaccines (Menactra and Menveo) give longer lasting protection and can be used in younger children compared to the earlier vaccines (Menomune and Mencevax).

These vaccines will *not* protect against group B, viral or fungal meningitis etc. Vaccination is therefore only useful for parts of the world where A, C, W135, or Y occur. It is strongly recommended that all travellers to these areas be vaccinated at least 2 weeks before leaving home. High contact travellers in the age group most at risk, or those working in a medical setting may also be recommended vaccination regardless of the country they are visiting.

Meningitis C vaccine is now part of the childhood schedule in some countries e.g. UK and Australia. This is not the best vaccine for most travellers, as it does not cover as many strains. Young travellers going to live and work in the crowded environments, especially in schools and pubs, may be recommended the Meningitis vaccine.

There is also a group B meningitis vaccine available in New Zealand.

NOROVIRUS

Norovirus is a highly contagious cause of gastroenteritis. It typically causes sudden onset of vomiting, which can be violent and profuse. Other symptoms may include non-bloody diarrhoea, nausea, stomach cramps, fever, headache and muscle aches. Incubation is 15-48 hours and the illness can last up to 2 days.

Diagnosis is based on the patient's symptoms, and testing is not usually required. In outbreaks, it may be important to confirm the diagnosis to help direct control measures. (Confirmation requires a stool test.)

Persons with norovirus infection should rest and ensure an adequate fluid intake. There is no specific treatment and most people will recover without complications. However, norovirus can be serious for those who may have difficulty replacing fluids and salts lost through vomiting and diarrhoea, e.g. the elderly or very young.

The virus is spread through food, water, inanimate objects, and from person to person. The virus can also spread via the air: when a person vomits, large amounts of virus particles pass into the air as an invisible mist, and can be accidentally swallowed by people in the same room. As few as 10 virus particles are enough to cause infection.

A sufferer may remain infectious for 3 days or more after their symptoms subside.

Handwashing is the most effective way to reduce norovirus on the hands. Hand sanitisers also help.

Norovirus is reported to be the most common cause of acute gastrointestinal illness outbreaks in commercial cruise ships calling at US ports. Land based outbreaks are also very common. During an outbreak on a cruise ship, quarantining affected persons in their cabin helps decrease the spread of the virus, (unless you are the cabin mate and then you are likely to catch it.)

On an infected cruise, the use of communal toilets has also been shown to be a risk, so if possible, it is better to use the bathroom in your own cabin. Immunity only lasts a few months, plus there are many different strains of norovirus so repeat attacks can occur.

Recent evidence also suggests that susceptibility to infection may be genetically determined, with people of blood group O (positive and negative) being at greatest risk for severe infection.

PLAGUE

Plague is famous for causing major epidemics, including the Black Death in the fourteenth century, when it killed about 25 million people. Worldwide there are usually 30-200 deaths reported per year. A relatively tiny outbreak (less than 100 deaths) was reported in India in 1994. There will no doubt be more epidemics in the future.

Humans contract *bubonic* plague from the bite of a rat flea. The usual symptoms of bubonic plague are fever, headache, muscular aches, shaking chills, and pain in the groin or armpit. Symptoms develop about 2-7 days after exposure. Later a bubo (swollen lymph node) develops. If the infection spreads to the lungs, the bacteria *(Yersinia pestis)* can be coughed out to infect the next person - this is known as *pneumonic* plague. Thankfully, this highly contagious type is very rare. If diagnosed early, plague is readily cured with antibiotics e.g. streptomycin, tetracycline. Plague is especially rare in travellers. Vaccination is available but not very effective. The best defence is to avoid fleas (via use of repellents) and avoid rodents (rats, rabbits, squirrels etc).

PNEUMONIA

Pneumonia is caused by a germ infecting the lungs. There are many different germs that cause pneumonia, including one called the pneumococcus. The pneumonia vaccine (Pneumovax) is about 80% effective against the pneumococcus. Pneumonia is more of a problem in people over 55 years of age. People are more prone to pneumonia when travelling for the same reasons described in the previous discussion of the Flu.

POLIO

Poliomyelitis is a viral disease, which attacks the nerve cells of the body, leading to paralysis. This disease is more common in children, where the paralysis usually involves the limbs. In adults, polio can be more serious and cause death through its actions on the respiratory (breathing) muscles. In some areas of the world, up to 1% of children have some degree of paralysis due to polio. In the two decades since Rotary and its global partners launched the Global Polio Eradication Initiative, cases worldwide have decreased by over 99 percent - from over 350,000 cases in 1988, to 406 reported during 2013. The countries where transmission has never been interrupted are Nigeria, Afghanistan, and Pakistan. Occasional cases are reported elsewhere, so the world will not be safe until the last case has gone. There have been *no* cases of wild poliovirus infection in North and South America since 1991. The Americas, European, and Western Pacific regions are all classified as polio-free. This has been a stupendous effort but is not over yet. The shooting of polio vaccinators in Pakistan is an example of the difficulty of the challenge to rid the planet of this terrible disease. (More info - http://www.endpolio.org)

Polio virus is caught directly from person to person, or from food or water which has been contaminated with faecal material from an infected person. There is no cure. The disease can be prevented by vaccination. Three doses of polio vaccine are usually given in childhood. One single booster may be recommended in adulthood to maintain immunity for life. Sabin is a live vaccine, but in Australia we now use an injectable vaccine - usually mixed with the Tetanus vaccine.

RABIES

Rabies occurs in the areas outlined on the map. Reliable data on rabies is scarce in many parts of the world. The World Health Organisation reports that rabies occurs in more than 150 countries and territories. More than 55 000 persons die of rabies every year mostly in Asia and Africa. 40% of those who are bitten by suspect rabid animals are children under 15 years of age. Rabies is a viral disease caught from infected mammals. Dogs are the source in the vast majority of human rabies deaths, but other source animals include cats, monkeys, bats, wolves, raccoons, squirrels and others. The animal may look normal. When the infected animal bites a person, the animal's saliva (containing the rabies virus) is injected into the wound. Rabies has a variable incubation period .. from a week to over a year. Most cases develop within a month of the animal bite. Some cases take six years or more to develop.

Rabies very common *Rabies present*

The first symptoms of rabies are itching and burning at the site of the original bite. As the disease progresses, the sufferer may develop fever, headache, agitation, fear of water and go into a coma. The virus slowly attacks the brain leading to death. Once symptoms have developed there is no known cure and rabies is fatal!

Rabies vaccination is recommended *before* departure if you may be at risk of receiving a bite especially if visiting risk areas remote from modern medical care. Rabies vaccination is not given widely to travellers because it is a rather expensive vaccine and requires 3 trips to the travel doctor, however in the event of a bite, it saves a great deal of stress.

In the event of a bite, pre-bite vaccination gives you more time to reach help and you need fewer needles after a bite. We do not know how long it is safe to delay vaccination. The safest course is to receive vaccination within 48 hours. Rabies immunoglobulin (RIG) is necessary *as well as* rabies vaccine for those persons who are bitten and have *never* been previously vaccinated. RIG can be difficult to obtain

in some developing countries. Perfectly correct treatment of all animal bites is essential, as the following case history demonstrates.

An 11 year old boy from a middle class Thai family was bitten by his dog, which had been vaccinated against rabies twice in the preceding 2 years. He received a single puncture wound on the index finger. The wound was cleaned properly, and in accordance with the 1984 WHO recommendations, the dog was observed for unusual behaviour. The dog was found dead on the morning of the fifth day after the bite. On testing, the dog was found positive for rabies. Treatment was started immediately. The boy received the rabies vaccine correctly and some RIG was injected into his arm but none into the wound. He developed symptoms of rabies on day 18, and died on day 23. Immediate vaccination and correct use of RIG would probably have saved this little boy's life.

RIVER BLINDNESS

River Blindness or Onchocerciasis is a parasitic disease occurring in rural areas of Africa (including Kenya, Tanzania, Malawi) and Central America. Blindness develops after many years of infection.

It is contracted when the bite of a female blackfly injects the parasite under the skin. River blindness is rare in travellers, but those travelling off the beaten track should take precautions. Blackflies live near fast flowing rivers. There is no vaccine or preventative drug. To avoid this disease you need to avoid known infected areas. Wear protective clothing and use insect repellent liberally.

SARS

Severe Acute Respiratory Syndrome or SARS is an infectious disease caused by a new coronavirus. It was first noticed in Guangdong, China in November 2002. In September 2003, WHO reported the epidemic caused 8099 cases and 774 deaths from SARS. Surveillance is ongoing. The last confirmed case was in Singapore and the result of accidental laboratory contamination. Whilst the case numbers were relatively low on a global scale, SARS generated worldwide interest. SARS was brought under control by unprecedented global cooperation with the help of the internet.

SCHISTOSOMIASIS (BILHARZIA)

The map on the next page outlines where Schistosomiasis occurs. The disease is also known as bilharzia or snail fever. The disease is present in 74 developing countries, and is estimated to infect more than 200 million people – mostly in rural areas.

Over the last few years, the number of tourists returning to Australia with this disease has increased dramatically. It is best to avoid contact with fresh water in these countries.

Schistosomiasis is a disease caused by a trematode (flatworm). There are five main strains, which occur in different parts of the world. Worm eggs are deposited in fresh water by infected people using lakes and streams as their toilet. The worm must enter a particular snail for the first part of its life cycle. This snail lives only in slow moving, fresh water such as ponds, rice paddies or lakes. (We do not have the necessary snails in Australia or NZ.) After a time, the parasite leaves the snail

Schistosomiasis risk areas

and enters the water, to wait for a passing human. These creatures enter the human body by penetrating *intact* skin. They migrate through the lungs, mature in the liver, and then take up residence in the blood vessels near the bladder, bowels or genitals. The worm may live for 10 years. Gradually the worm's presence leads to scarring and organ damage.

Transmission

You catch it from contact with infected fresh water. The likelihood of infection depends on where you go and how much time you are in the water. The two most popular spots where Australian travellers become infected are Lake Malawi, (especially around Cape Maclear) and Lake Kariba in Zimbabwe. For example in 1994, a rugby team travelled from Brisbane to Zimbabwe for about 3 weeks. Their trip included 3 days on a houseboat on Lake Kariba. Seven weeks after their return, two players developed their first symptoms. Of those who could be contacted, 53% (13/27) had picked up the worm. Most were not even aware of it.

Symptoms

There may be temporary itching, or a rash may develop at the site where the entry creature passes through the skin. The next symptoms of fever, chills, tiredness, headache, stomach problems and diarrhoea may start two weeks later, or be delayed for months. This is known as Katayama Fever and occurs when the worms have matured and egg production begins. These symptoms usually last one to two weeks and then go away. They may recur a few weeks later. Visible blood may appear in the urine. Some infected persons never develop symptoms. Most travellers are lightly infected and unlikely to develop severe problems. Very rarely worm eggs may be swept into unusual places such as the spinal cord leading to paralysis.

Diagnosis and treatment

The disease is detected by tests on blood, urine or stools. The blood test may take 3-6 months after exposure to become positive. A special antibiotic praziquantel (Biltricide) taken over 24 hours will kill the adult worms. Early treatment is best however because scarring from the worms' activities cannot be reversed.

How to avoid Schistosomiasis

Avoid contact with fresh water in infected areas. This may be difficult e.g. an overland trip may stay at Lake Malawi for a week – a beautiful spot, and the weather is hot. Everybody seems to swim. Many travellers report that despite their best intentions before departure, when the time comes, it is "unavoidable", "too hard to resist", or "not practical" to stay out of the water. (If one was going to worry about every little thing, one would probably not get out of bed in the morning etc.) There is evidence that infection is more likely to occur if you have contact with water that is slow moving, or close to the shore. However, you can be infected in deeper water. The longer the water contact, the higher the risk. Rubbing the skin vigorously with a towel after swimming may decrease the risk. Locals may suggest taking drugs immediately after rafting or swimming, however this does not work: praziquantel kills the adult worms (that develop months after first contact), but does not kill the juvenile phase. If fresh water contact is unavoidable, consult a travel doctor when you get home, so you can be tested - even if it is 6 months or more later, it is never too late to have the test.

SLEEPING SICKNESS

Sleeping sickness is an African disease caused by a parasite (trypanosome). It causes symptoms of fever, rash, tiredness, headache, gut symptoms, muscle aches and may infect the brain leading to a type of meningitis, sleepiness and coma. There are two types of Sleeping sickness caused by two different varieties of the germ. It is a daily threat to more than 60 million persons in 36 countries of Sub-Saharan Africa. Large tracts of land are not cultivated due to the presence of this disease.

Transmission

Sleeping sickness is transmitted by the bite of large flies called tsetse flies. Both sexes of tsetse flies take blood meals. These flies live in game parks and the countryside outside cities. They are active during the day, and attracted to large moving objects such as cars and even horses. People on foot are less likely to be bitten. In West / Central Africa, the tsetse fly mostly feeds on local humans beside streams and rivers. In East Africa, the fly mostly feeds on cattle, near scrub and woodland. Since 1990, 14 out of 15 cases in US have been found in travellers who visited game parks in or near Tanzania, including the Masai Mara game reserve area in Kenya.

Tsetse fly has a painful bite

Not only is there a risk of sleeping sickness, but also the bite is quite painful and can penetrate clothing!

How to avoid sleeping sickness

There is no vaccine. There are no safe drugs for prevention. The best prevention is to avoid being bitten. Try to avoid known infected areas. Insect repellents containing DEET are somewhat effective but not completely. If travelling through infected areas, keep the windows closed while driving, and kill any flies that enter. It is said that blue or black clothing attracts tse tse flies so safari clothes should be light coloured and not blue.

See a doctor if..

You should seek medical attention if you notice a boil-like swelling five or more days after a fly bite, especially if you develop fevers some time later. Most people can be cured in the early stages of infection by taking special antibiotics.

TETANUS

Tetanus (also known as Lockjaw) is a painful and dangerous disease. It is caused by bacteria, which enter the body through a wound. Even a tiny scratch can lead to tetanus, though it is more common from burns, deep or infected wounds. You can be protected from this disease by vaccination. The initial course of vaccinations is three injections, usually given in childhood. Tetanus is one part of the Triple Antigen vaccine, (the other parts are diphtheria and whooping cough). After the initial series of vaccines, one booster injection is needed every ten years or so if travelling overseas. For deep and dirty high risk wounds, where many tetanus germs may be present, one needs higher antibody levels. This means that travellers undertaking adventurous activities may be recommended vaccination within the previous 5 years.

TICK ENCEPHALITIS

Tick-Borne encephalitis is a viral infection of the nervous system that may cause permanent brain damage in 10-20% of infected patients. It is caught from tick bites in forested parts of Europe (including Austria and Germany), the former Soviet Union, and Asia. Several thousand cases are reported annually – mostly April to November. Hunters, campers, forest workers and farmers are at most risk. Insect repellent and protective clothing are recommended to help prevent tick bites. A vaccine is readily available in Europe, and can be given under a special access scheme in Australia. Vaccination is recommended for those visiting forested areas in risk countries.

TUBERCULOSIS

Tuberculosis (TB) is increasing worldwide, however the risk for most travellers is very low. The TB bacteria are spread from person to person through microscopic droplets released into the air. This can happen when someone with untreated, active tuberculosis coughs, speaks, sneezes, spits, laughs or sings. Although tuberculosis is contagious, it is not especially easy to catch. Travellers are more likely to contract TB from a house mate or close co-worker, than from a stranger. Most people with active TB who have had appropriate drug treatment for at least two weeks, are no longer contagious. TB risk is greatest for long-term travellers (away over 12 months) and especially those who will be working with refugees, providing health care to local inhabitants, or visiting friends and relatives in high-risk countries. Children of expatriate workers are at higher risk due to their contact with native children. About 90% of those who are infected with the TB germ, remain free of symptoms for life. Persons who have the TB germ dormant in their lungs and contract the AIDS virus will usually develop symptoms of TB. AIDS weakens the immune system and has been likened to letting the genie (TB) out of the bottle.

Before travel, a baseline TB screening test may be recommended. This baseline test is useful if TB-like symptoms develop after returning home, as it may assist

diagnosis and minimise unnecessary treatment. The test is either a blood test (QuantiFERON) or a skin test on the forearm (Mantoux or Heaf). These tests reveal if a person has been exposed to the TB germ at some time in their life. S*kin* testing for TB requires two visits to a clinic; once to have the test, then another 2-3 days later for reading the test. The BCG (TB vaccine) is most effective in children up to 5 years of age, and in that group, it is effective at preventing overwhelming TB infection (e.g. septicemia). BCG is sometimes given to persons up to 15 years of age and seldom given to persons over 30 years of age. The effectiveness of BCG is not great in older age groups, and in fact BCG is rarely used in the USA. Usually only one BCG is necessary in a persons life.

The products used in the Mantoux and BCG are live (but harmless). Because of this live property, certain things can interfere with their effectiveness. In the four weeks prior to the skin test, and the four weeks after the BCG, a person should not have any of the following: viral infections, oral corticosteroid drugs, or other live vaccines (except for typhoid pills as these are not absorbed into your system.) Live vaccines should be given either on the same day as BCG, or one month apart.

TYPHOID

The typhoid germ causes tiredness, fever, stomach pains and a rash. Sometimes it leads to bleeding from the intestine, and rupture of the bowel. The disease lasts about three weeks, but may relapse two weeks after an apparent cure. The highest risk of typhoid is seen in travellers to India and neighbouring countries, with high rates also in Middle East, and central Africa.

An estimated 22 million cases of typhoid fever and 200,000 related deaths occur worldwide each year. Some studies have shown children under 6 years of age have three times greater risk of contracting typhoid.

Typhoid has the ability to lie dormant for a year or more in the gall bladder. About 3% of untreated persons become carriers. Mary Mallon (Typhoid Mary) was a cook who felt well, but was estimated to have infect 51 persons in the early 1900s (three of whom died). She was the first person in the United States to be identified as an asymptomatic carrier. She was reported to have said that she seldom washed her hands during cooking, as she felt there was no need.

Typhoid is caused by a type of *Salmonella* bacteria. The germ can survive several weeks in water, milk or dust. You contract typhoid from contaminated food, water and even ice, usually in situations where sanitation is poor. Antibiotics are available to treat typhoid but prevention is better than cure.

Typhim Vi and Typherix are typhoid vaccines given by injection - one injection gives protection for 2 years. Typhim Vi can be given mixed with Hepatitis A (Vivaxim or Hepatyrix). The earlier typhoid vaccine has now been discontinued – it had more side effects, and required two injections.

An oral typhoid vaccine (Vivotif) is also available. When 4 capsules are taken over 7 days, Vivotif gives longer protection than the injection, and seems to give wider coverage, i.e. some protection from paratyphoid as well as typhoid.

YELLOW FEVER

Yellow Fever (YF) is a potentially fatal viral disease that is spread to humans by the bite of an infected mosquito. It occurs in the areas outlined on the map below. An estimated 200,000 cases occur per year worldwide.

Deaths have occurred in unvaccinated tourists. Vaccination is important for two reasons – to protect the traveller from illness and to prevent the yellow fever disease spreading to other parts of the world.

Yellow Fever areas

About the disease

The yellow fever virus causes sudden onset of fever, about four days after the mosquito bite. Many cases are mild, last less than a week, and the person makes a full recovery. Sometimes it is more serious. The liver may be damaged leading to jaundice (a yellowish tinge to the skin); hence the name yellow fever. The disease may cause joint pain, and vomiting. Eventually the clotting system fails, and bleeding occurs from the nose, gums, stomach and skin. The fatality rate of the disease is 10-50% - depending on your health and whether you can access good medical care. There is no known cure.

About the vaccine

The yellow fever vaccine is generally safe, and highly effective in preventing Yellow Fever. Over 300 million doses have been given over 60 years. Yellow fever vaccine is a live virus vaccine, so it must be given either the same day, or one month before or after, other live virus vaccines (e.g. MMR, chickenpox) or the vaccines may not work properly. The current best estimates of the risk from yellow fever vaccination are:

Mild Side Effects

- Most people will get a slight sore arm
- 2-10% may feel tired, headache, muscle aches, fever for 24 hours starting 3-9 days after the vaccine
- 1% need to curtail regular activities

More Serious Side Effects

- Anaphylaxis; 1.8 cases per 100,000 doses administered ; hence need to wait in clinic 30 minutes after vaccination This can be easily treated at the clinic, but is not so easy to treat if it happens while you are on your way home.
- Inflammation of the brain; 0.8 per 100,000 doses administered. Increased in older persons; 60–69 years = 1.6 per 100,000 doses, ≥70 years = 2.3 per 100,000 doses
- Inflammation of multiple organs; 0.4 cases per 100,000 doses of vaccine administered. Increased in older persons; 60–69 years = 1 per 100,000 doses, ≥70 years = 2.3 per 100,000 doses

There have been deaths reported from the more serious side effects of the YF vaccine – the expected frequency is one death in Australia every 16 years.

Yellow fever vaccination is not given to babies under 9 months of age, pregnant women or in persons who have problems with their immune system e.g. AIDS sufferers, or persons having cancer chemotherapy or taking immunosuppressive drugs.

This vaccine is not normally recommended if you have had problems with your thymus (the immune gland behind the breastbone) e.g. myasthenia gravis, thymoma, or thymectomy.

Immunization with the current yellow fever vaccine increases the risk of relapse in patients with multiple sclerosis (MS) more than 10-fold. For patients with MS travelling to yellow fever endemic areas, vaccination against YF should be recommended only after carefully weighing the risk of acquiring YF against the risk of worsening of MS.

The vaccine is not recommended in persons who are severely allergic to eggs. If you can eat eggs in minute quantities in cooking, you can be vaccinated safely.

YF most likely originally came from Africa. It was inadvertently transported to South America through the slave trade in the 16th century. There is a distinct possibility that this virus could be carried by a traveller and introduced into other parts of the world even now. For this reason many countries require a World Health Organisation approved vaccination certificate be shown prior to entering an infected country, or when leaving an infected country and entering the next (non-infected) country. In many cases officials only look at the yellow vaccination book if there is an outbreak in progress. The certificate is valid 10 days after the injection, and is valid for 10 years.

If a person cannot be vaccinated against YF for medical reasons, the vaccinating centre can issue a special medical exemption certificate. This is only given when the risk of becoming ill from the vaccine is much greater than the risk of contracting the disease, yellow fever.

WHEN YOU GET HOME

Keep taking your malaria tablets for the recommended time

Post-travel check if necessary

Any unusual symptoms need to be reviewed by an experienced doctor as soon as possible. Tropical diseases and parasitic infestations are best treated early. For example, you need a post-travel check if you are suffering any of the following within 3 months of your return:

- fever
- persistent diarrhoea and/or stomach pains
- dark coloured urine
- skin rashes or lumps
- persistent cough
- headaches
- joint pains

You may need pathology tests. Sometimes the problem will not be revealed by initial tests and you may need more tests over weeks or months. If you feel well now, but had a major illness while you were away, or had bloody diarrhoea while away, it is also worth discussing this with a travel doctor.

Fevers

If you develop a feverish illness within *two years* of your return from a malarious country, don't forget to tell the doctor where you have been.

Schistosomiasis test

If you were exposed to water potentially contaminated with Schistosomiasis (Bilharzia) you need a check, *even if you feel perfectly well*. This usually means a blood test undertaken three months after your last exposure. Sometimes the test may need to be repeated six months after your last exposure.

Sexually Transmitted Diseases checkup

If you had sexual contacts with other travellers, locals, or sex workers while you were away, you definitely need a check on return. Using condoms is no guarantee against contracting a sexually transmitted disease. Some infections cannot be diagnosed immediately on return. For example: To detect HIV, you will need a blood test at least three months after exposure. (Of course, while awaiting the results of the HIV test, it is essential you practice safer sex and notify your sexual partners of the possibility of your infection.)

Worms

If you have visited developing countries, you may be recommended to take a course of de-worming pills on your return. This is more necessary if you have been eating on street stalls, or camping and having contact with soil. You may be prescribed:

Albendazole (Zentel)

Take 400 mg daily for three consecutive days. Total 3 doses.

It must be taken 'on an empty stomach'. This means wait 2-3 hours after eating, take the dose, and then wait at least 30 minutes before eating again.

APPENDIX A

VACCINE TRANSPORT

Sometimes travellers need to transport vaccines. It is not ideal to do this but the following information may assist if it is unavoidable.

Transporting vaccines is not usually recommended as it is difficult to ensure the cold chain is maintained. (The cold chain is the chain of cold storage environments which a vaccine is exposed to from manufacture until it is used.)

Travel Medicine clinics spend a great deal of time and effort worrying about the cold chain to ensure that the vaccines you receive are in good shape.

Most vaccines must be stored between 2 and 8° centigrade in order to ensure their effectiveness. Some vaccines will survive short periods of slightly higher temperature but their shelf life will be impaired. Shelf life is not a problem if you will be administering the vaccine within a week or so. However it is critical that vaccines **MUST NEVER BE FROZEN** as this will inactivate them.

Transport of vaccines is best undertaken in an insulated container or esky, with a frozen source such as cool brick, or ice pack. Wrap the cold source in a cloth or bubble plastic and place it on the bottom of the esky. Wrapping will prevent the vaccine coming into direct contact with the freezer block. Also place bubble plastic or cloth on top of the vaccine to insulate it from the lid. If you have access to a vaccine transport monitor or thermometer, place that in the esky. The lid of the esky should be taped so it does not accidentally dislodge. Fold the tape over on itself to make a flap at the end, so you can untape the esky more easily. Don't forget to add any syringes that will be necessary for administration if they will not be available locally. LABEL THE BOX IN LARGE LETTERS.

Keep the container with you during transport, so you can ensure the surroundings are always cool – comfortable room temperature is best. Vaccines must never be left in direct sunlight, or in hot cars.

Vaccines transported in this way will usually be safe for about 8 hours.

On arrival, remove the lid and check there is still ice in the freezer pack. If there is no remaining ice, it is likely the vaccines have not stayed cool. If in doubt, throw them out.

Vaccines should be unpacked and stored in the middle shelf of your refrigerator as this is usually the coldest part and gives the most constant temperature. Never store vaccines in the door of the fridge. Place the freezer pack in the freezer so it will be frozen when you need to move the vaccines to the next place in the chain.

APPENDIX B

RESPONSIBLE TOURISM

The International Society of Travel Medicine promotes the following tips for responsible travel.

BE INFORMED.
Travel allows us to discover natural beauties, historical sites and above all the diversity of other societies and people. Be an informed traveller before leaving home and discover what the people you'll meet at your destination can teach you.

BE OPEN-MINDED AND PATIENT.
Experience other cultures and lifestyles.

BE RESPECTFUL.
Local people welcome you. Show them gratitude and respect. Respect also local customs: the way you dress, behaviour in religious sites, displays of affection.

AVOID EXPLOITATION.
As travellers we are perceived as rich. Be generous in a constructive way by promoting the local economy. Avoid and denounce exploitation of the local people (e.g. low salaries, overwork, child abuse and sex).

PROTECT THE ENVIRONMENT.
Avoid overuse of water, wasting food, littering and damaging sites.

LEAVE A GOOD IMPRESSION.
A positive experience with local people will pave the way for those coming after you leave. Respect and mutual discovery will make your trip a wonderful experience and will promote your security and your health too!

http://www.istm.org

If possible, always ask before taking photographs of local persons

ODE TO A WORLD TRAVELLER

Travellers come in many types
But one thing is the same
Getting sick while you're away
Would be an awful shame

To be a healthy traveller
Means following the rules
Casting caution to the winds
Is only for the fools

Have your shots before you go.
To keep you out of harm
Some vaccines are oral
So do not hurt your arm

In amongst your baggage
Take a first aid kit:
Drugs to deal with problems
If and when they hit

Beware of too much luggage
Gear will weigh you down
You do not want to strain your back
Lugging it through town

If you don't want memories
Revolving round the loo
And suffering from travellers trots,
Then this is what you do

Remember that you cannot eat
Exactly when you wish
The germs may be invisible
And waiting in your dish

Avoid those foods that are not cooked
Both recently and well
Or several hours later
Your guts may feel like hell

Don't drink water from the tap
Above all don't add ice
But you can add some iodine
To make the water nice

Or pour yourself a can of coke
Or something that is sealed
Or masticate upon some fruit
That you yourself have peeled

If up into the mountains
Sometime you wish to go
The golden rule to keep in mind:
Ascending must be slow

If you should find a lover
Sometime while you're away
Don't forget about safe sex
Cos AIDS is here to stay

If you're hot in Africa
And you're going swimming
Don't forget that in some lakes
Bilharzia is brimming

If you get close to puppy dogs
And if you get a bite
A rapid course of rabies shots
Will help to set you right

Don't let mozzies bite you
All through the night or day
Using Rid and Bed nets
Will keep those bugs away

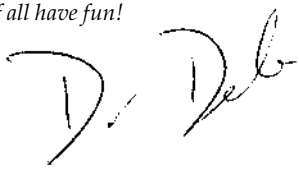
If you get a fever
And malaria is rife
Quickly have a blood test
Or you may lose your life

If you plan a hire car
Wear your seat belt tight
It is also safer
Not to drive at night

Keep away from motor bikes
The traffic will be tough
If you fall off and hurt yourself
The hospitals are rough

Be careful when you cross the street
Do not make that dash
A truck may come from nowhere
And squash you in a flash

Now I've told you all of this
My advice is done
Go and have a healthy trip
But most of all have fun!



Don't be *deterred* by all these terrible hazards...
Just be *careful*.

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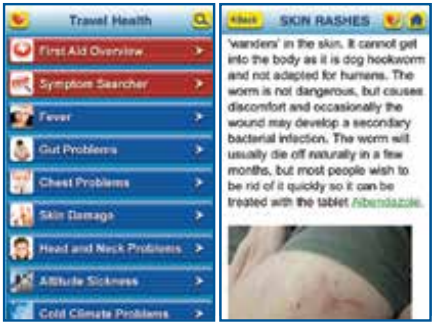
SYMPTOMS FAST FIND INDEX

Travelling Well for iPhone/iPad

The app is based on the treatment section of this book. Great news for your luggage allowance, and you do not need an internet connection to access information.

Users can search symptoms, quickly cross reference information on medication side effects, mark pages as favourites, and more.



Travel Medicine Alliance*

CLINICS ACROSS AUSTRALIA

www.TravelMedicine.com.au

Ph 1300 42 11 42

*The Travel Medicine Alliance is a network of medical clinics, which specialise in Travel Medicine. They provide up to date recommendations, specially trained Travel Doctors, all vaccinations, specialised Travellers' Medical Kits, and other healthy travel products. They also carry out post travel medical checks (and necessary treatments), if illness does occur on your return home.

Other Useful Clinics

Fleet Street Clinic
29 Fleet Street, London EC4Y 1AA
Phone 44 20 7353 5678
www.fleetstreetclinic.com

London Hospital For Tropical Diseases
(Post Travel)
Mortimer market off Tottenham Court Road
Ph 44 20 3456 7891

Kathmandu NEPAL	Ph 977 1 442 4111 (CIWEC)
Bangkok THAILAND	Ph 66 2 655 1024 (TRAVMIN)
Bali INDONESIA	Ph 62 3 6176 1263 (BIMC)
Hanoi VIETNAM	Ph 84 4 3843 0748 (HFMP)
Ho Chi Minh VIETNAM	Ph 84 8 3822 7848 (HFMP)

WEB RESOURCES
www.thetraveldoctor.com.au
visit the 'tips & links' tab

Vaccine Record for Travellers

App for Android and iPhone/iPad
Enter your immunisation records and have those details to hand when needed, either by referring to the app, or emailing a summary.
The app also allows users to set reminder alerts, for when vaccines need to be updated.

You don't want to lose a moment of your precious travelling time due to a preventable sickness or injury.

Whether your overseas get-away means staying five star, far off-the-beaten-track, or anywhere in between, this book is your invaluable travelling companion.

Written by Dr Deb The Travel Doctor, (Dr Deborah Mills MBBS), this essential hand book has the critical "been there done that" information that you must have, including:

- How to prepare for your journey – important information on what to put in your medical kit, which vaccinations you need and helpful tips about preventative measures you must take.
- Malaria pills – facts and fallacies.
- Drug side effects you need to know about.
- How to treat common health problems, including traveller's diarrhoea, jetlag, injuries, animal bites and more.
- When and how to find a doctor overseas.
- Things to watch out for when you get home.

Add this important book to your "must read" list before you go away – and take it with you to help you enjoy good health while you travel.

Dr Deb's
TRAVEL MEDICINE CENTRES
WITH YOU EVERYWHERE
THE TRAVEL DOCTOR
TRAVEL HEALTH CARE

View the film
Google: "Travelling Well youtube"