

Travel Advice Bulletin



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PRE-TRAVEL CARE

Many travellers believe a few injections a couple of days before departure will ensure them a healthy trouble free trip. This is far from the truth with traveller's diarrhoea and respiratory tract infections being the major causes of morbidity and cardiovascular disease and injury the major causes of death in travellers. Simple commonsense advice such as the need for insurance is probably more important than vaccines for uncommon diseases. Such advice is outlined in this bulletin.

Travel medicine cannot be reduced to a chart. Recommendations need to be individualized and depend on the traveller, their itinerary and activities. Those who travel to visit friends and relations have documented higher rates of numerous diseases such as malaria, typhoid, tuberculosis and influenza. If you have such patients in your practice who may return home to a developing or tropical country suggest that they see you before such a trip. They will often not think to seek pre-travel advice as they lived there before without vaccinations or tablets. They need to understand that their risk of illness from infections such as malaria will have increased during their absence.

To assist you in providing general travel advice we have included a series of Traveller Information Sheets at the end of this bulletin. These cover:

- General travel advice
- Travelling with children
- Malaria
- Travel at altitude
- Travel related DVT

These can be photocopied or printed out from our website, www.dml.co.nz

We have also reproduced up to date maps showing the geographical distribution of infections travellers need to consider:

- Tuberculosis
- Polio
- Hepatitis A and B
- Japanese encephalitis
- Meningococcal meningitis
- Yellow fever
- Malaria

A list of useful websites is provided on page 15.

I hope this bulletin will help you to advise travellers. Do not hesitate to call me on 571 4000 for more specific advice on complex or difficult cases.

Joan Ingram, Infectious Disease Physician and Travel Medicine Specialist

1. Advise and Discuss

Always:

- Insects
- Ingestions
- Indiscretions
- Injury
- Insurance
- Injections
- Medication Advice

Sometimes:

- Immersion
- Immobility
- Inhalation
- Altitude

2. Vaccinate

Always:

- Vaccines in national immunization schedule

Sometimes:

- Japanese encephalitis
- Meningococcal vaccine
- Rabies
- Typhoid fever
- Yellow fever

Often:

- Hepatitis A
- Hepatitis B
- Influenza

Occasionally:

- Cholera
- BCG

3. Prescribe

Always:

- Regular medications

Sometimes:

- Acetazolamide
- Antimalarial medication
- Condoms
- Diarrhoea self treatment

1. ADVISE and DISCUSS

Always:

• **Insects:**

Dengue is spread by day-time mosquitoes and is a risk throughout the Pacific, Asia, Central and South America and parts of Africa. Malaria is spread by evening and night-time feeding mosquitoes. Many other illnesses are spread by arthropod bites, e.g. ticks, fleas and lice spread rickettsial diseases, mosquitoes transmit Ross River virus and sand flies inoculate leishmaniasis.

All travellers should take repellent and use it regularly to minimize mosquito bites day or night. Night-time protection such as permethrin treated bed nets or screens and spray should be stressed for those going to areas with malaria.

• **Ingestions:**

Suggest that travellers wash their hands before eating or use alcohol hand gel. Advise care with food and water. "Boil it, cook it, peel it or forget it".

• **Indiscretions:**

HIV is global. Many STDs are more common in developing countries. Correct and consistent use of condoms lowers risk.

• **Injuries/Accidents:**

Traffic accidents and violence are significant risks in many countries. Travellers should be careful, vigilant and have their money and valuable possessions out of sight.

They should know not to feed or play with dogs or monkeys. If bitten they should wash the wound well and get medical care. Rabies vaccination will often be needed and immunoglobulin must be injected into the bite if the traveller has not previously been vaccinated.

- **Insurance:**

If a traveller can't afford insurance, they can't afford to go. They should check that their insurance covers evacuation and pre-existing medical problems.

- **Injections:**

Overuse of injections and reuse of injection equipment in the absence of sterilization is common in developing and transitional countries around the globe. Advise against any puncturing of the skin, e.g. injections, tattooing, piercing, unless the equipment is sterile.

- **Medication Advice:**

Travellers should keep their medication in its original container and carry a doctor's letter about their medication and medical conditions. Those with vital medications should have supplies in two bags in case one is lost.

Advise travellers to carry a first aid kit, e.g. oral rehydration salts such as gastrolyte, water purification tablets, plasters, repellent, sunscreen, thermometer and diarrhoea treatment. Because medications purchased while travelling may be counterfeit or substandard it is preferable for travellers to take medications they may need.

Sometimes:

- **Immersion:**

Visitors to Africa and the Middle East should not swim or paddle in fresh water because of widespread schistosomiasis. In one study the risk of acquiring schistosomiasis after one day of exposure at Cape Maclear, Lake Malawi, was between 50 to 74%.

- **Immobility:**

Advise travellers to drink plenty of water and move their legs during aeroplane travel. Below knee compression stockings reduce the incidence of DVTs. High-risk travellers such as those with a previous DVT or pulmonary embolism, recent surgery or trauma or an inherited clotting tendency should use low molecular weight heparin. A Traveller Information Sheet on travel related DVT is provided on page 22.

- **Inhalation:**

Long-stay travellers to high TB prevalence countries, see Map 1 (page 5), should consider two-step pre-travel tuberculin testing then a further test after their return from travel.

- **Altitude:**

Travellers going above 2,000 metres (about 6,500 feet) should be aware of the risk of altitude illness. Many tourist destinations are high; e.g. La Paz, Bolivia (3658m); Cusco, Peru (3225m) and Lhasa, Tibet (3685m). People vary considerably in their susceptibility to altitude illness and being fit or young does not protect

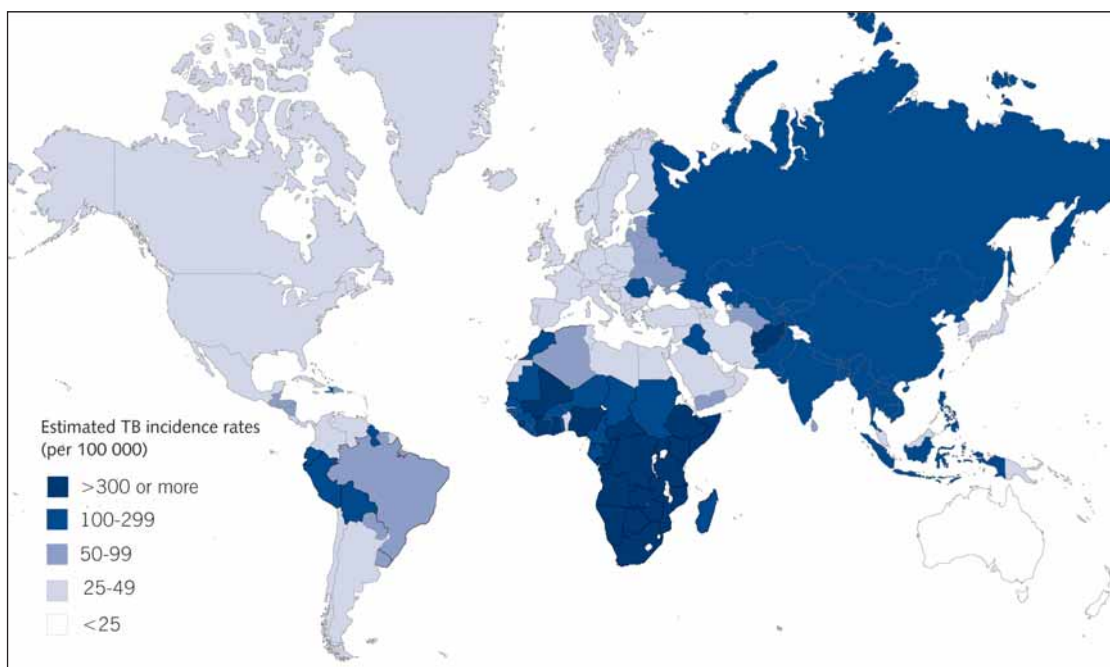
against it. For people with underlying medical conditions, such as congestive heart failure, myocardial ischemia, sickle cell disease or any form of pulmonary insufficiency, changes in altitude can be dangerous or even life threatening.

The rate of ascent as well as the altitude achieved influence the development of altitude illness. Travellers should:

1. Be aware of the symptoms of altitude illness (headache, fatigue, loss of appetite, nausea) and be prepared to admit they have them.
2. Never ascend to sleep at a higher altitude when experiencing any symptom of altitude illness.
3. Descend if the symptoms become worse while resting at the same altitude.

Acetazolamide (Diamox) can prevent altitude illness if taken before ascent and can speed recovery if taken after symptoms have developed. A frequently effective dose is 125mg taken twelve hourly beginning the day of ascent and continued for a further three days. This dose minimizes the common side effects of increased urination and paraesthesia of the fingers and toes often seen at the higher dose of 250mg. Those with symptoms of altitude illness on 125mg twelve hourly can increase the dose to 250mg twelve hourly. Acetazolamide must never be used to help a person with altitude illness go higher. Acetazolamide is related to sulfonamides and should not be used by sulphur-allergic persons unless a trial dose has been taken before travel. Ginkgo biloba is not effective at preventing acute mountain sickness.

MAP 1 Global distribution of Tuberculosis (2003)



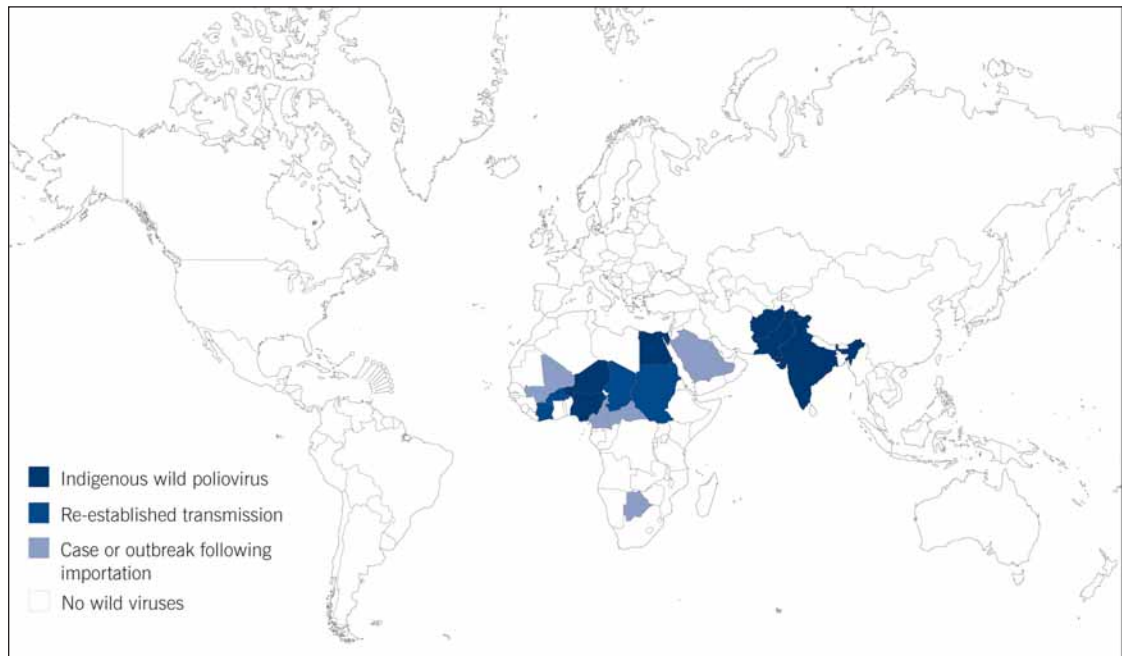
Children are probably no more likely to develop altitude related problems than adults but the symptoms are hard to recognize in children. Experts thus suggest that children aged under two years sleep no higher than 2000m and those aged 2 to 10 years no higher than 3000m.

2. VACCINATE

Always:

- Vaccines in the national immunization schedule. The schedule may need to be accelerated in young infants. Polio risk is confined to parts of Africa and Indian subcontinent so booster is not needed for travel to SE Asia, Central or South America, see Map 2 (page 6).

MAP 2 Global distribution of poliomyelitis (2004)



Often:

- Hepatitis A

See Map 3 (page 8) for global distribution of hepatitis A.

Suggest testing for antibodies if traveller grew up in or spent considerable periods in a developing country or has a history of jaundice.

An excellent booster response is seen following a second Havrix dose up to eight years after a single primary dose. Thus travellers who received a single hepatitis A vaccination previously can be given a single booster dose. Studies in primates have demonstrated that hepatitis A immunization can be protective even when administered after exposure. Although it is ideal to give hepatitis A vaccine four weeks before travel it is still worth giving it to a traveller who presents just before travel.

- **Hepatitis B (HBV)**

Many travellers incorrectly believe that sexual intercourse is the only way of acquiring Hepatitis B. They need to be told that HBV spreads to close contacts who are not sexual partners and that there is also a risk from medical and dental procedures in many countries. Hepatitis B vaccination should be encouraged for those not already vaccinated especially if they are planning prolonged travel to high-risk areas, see Map 4 (page 8), or if they are “young”. In the national schedule the vaccine is funded for all under 16 years of age. The classical 3 dose schedule can be completed in 4 months (0,1,4). For travellers requiring more rapid protection against hepatitis B accelerated schedules of 0, 1, 2 months or 0, 7, 21 days can be used. These two accelerated schedules require one additional dose at month 12 to ensure long- term protection. For travellers who attend years after having only two hepatitis B doses a third dose produces good seroprotection.

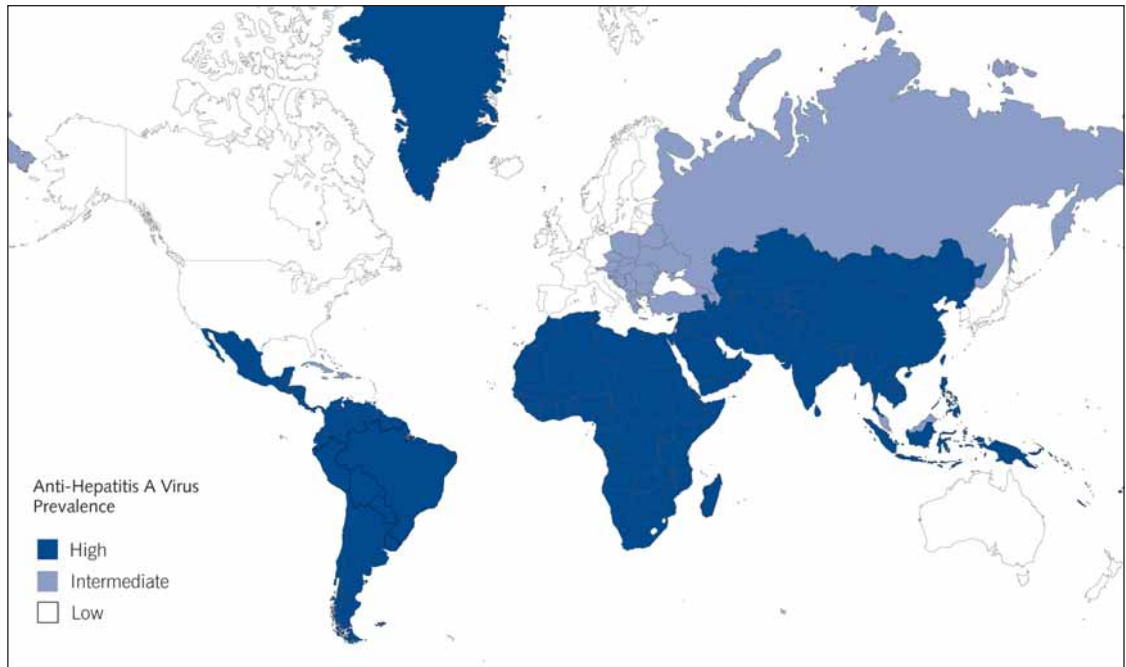
- **Influenza**

Influenza may be the most common vaccine preventable disease of travellers. Travel presents unique opportunities for close contact with large numbers of other individuals, some of who may be infected with influenza. While influenza is a wintertime disease in temperate climates the virus circulates at low levels year round in the tropics. Travellers visiting friends and relatives and those travelling for more than 30 days have been identified as particularly high risk for influenza. The risk of influenza during cruises is significant. The hemisphere in which the ship sails is not important, as there is generally a mix of passengers and crew from both hemispheres.

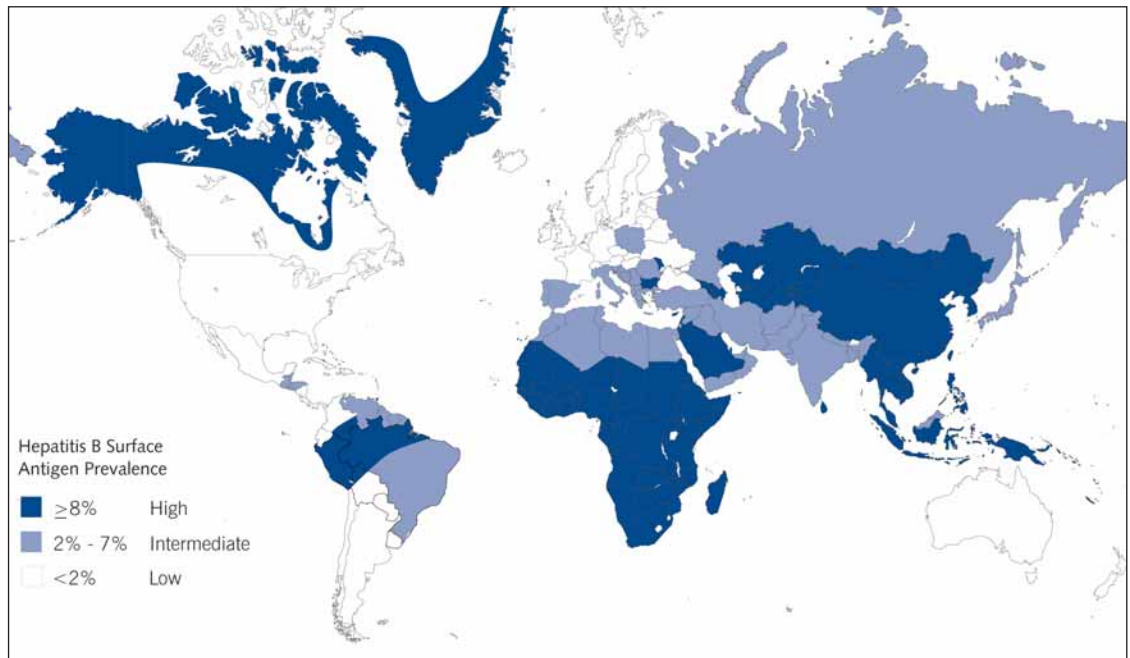
Influenza vaccination should be considered by any tropical, cruise ship, tour group or influenza season temperate traveller. Those over 65 years or with any chronic or immunocompromising condition should be strongly encouraged to receive the vaccine before travel. Most evidence indicates that there is no benefit to vaccinating patients more than once per year so for those vaccinated here in autumn another dose is not needed for travel during the following twelve months.

Although our vaccine may not always be identical to that being used in the Northern hemisphere there will be matching for some components. It is therefore preferable to give the New Zealand vaccine before travel to an unvaccinated traveller rather than not vaccinate because of concerns about vaccine coverage. Alternatively, the traveller can obtain the correct vaccine after arriving in the northern hemisphere but this is often logistically difficult and the vaccine requires a minimum of one week to offer protection.

MAP 3 Global distribution of Hepatitis A (2005)



MAP 4 Global distribution of Hepatitis B (2005)



Sometimes:

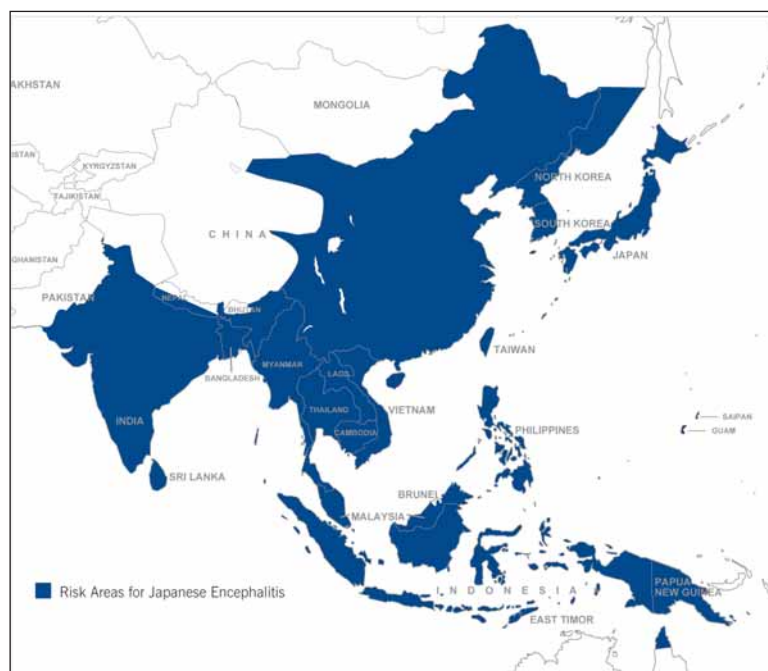
- Japanese encephalitis

Japanese encephalitis is a mosquito borne viral encephalitis found in Asia, see Map 5. The mosquitoes that transmit Japanese encephalitis bite in the evening and at night in rural areas. Pigs and wading birds increase the risk of local virus circulation. Rates of transmission are seasonal. For a table outlining risk season/ areas by country see <http://www.cdc.gov/ncidod/dvbid/jencephalitis/risk-table.htm>

Vaccination is recommended for anyone spending more than a month in rural areas of endemic countries at a high-risk time of the year. It is also recommended for long term expatriates in endemic countries even if they are based in cities.

Vaccination (under Section 29) consists of three doses of vaccine given on days 0,7 and 28. An abbreviated schedule of days 0, 7 and 14 can be used if necessary. Children over 1 year can be vaccinated. The vaccine is associated with local reactions and mild systemic side effects in approximately 20% of vaccinees. Urticaria and angioedema have occurred in approximately 0.6% of vaccinees and may be delayed for up to 10 days after vaccination. It is thus better to complete the series at least ten days before departure. These may be more common in: people with a history of urticaria, rhinitis or asthma; those with heavy alcohol consumption in the 2 days following vaccination; and those who receive other vaccines in the seven day period before having JE vaccine. Adverse neurological reactions have also rarely followed the vaccination.

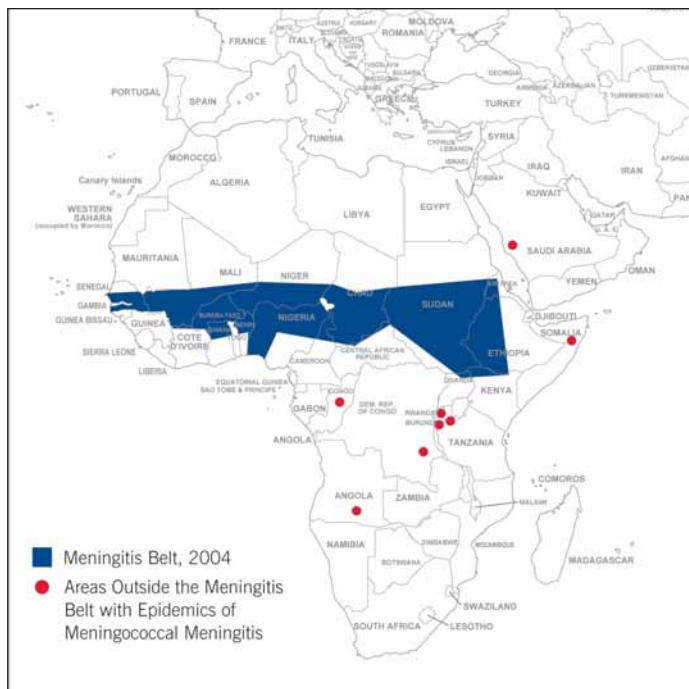
MAP 5 Distribution of Japanese Encephalitis



- **Meningococcal Vaccine**

The quadrivalent meningococcal vaccine is **required** for pilgrims to Mecca (Hajj and Umra). Travellers to meningitis prone regions of Africa, see Map 6, should consider it especially if they will have prolonged contact with local people. Outbreaks there tend to occur during the dry season from November to June. The meningococcal B vaccine is specific for our New Zealand strain and does not provide protection against the A and W-135 strains prevalent in Africa.

MAP 6 Areas with frequent epidemics of meningococcal meningitis



- **Rabies**

This vaccine should be encouraged for long stay travellers especially children and those in remote areas. It should be considered for those on even brief trips if their activities are likely to bring them in to contact with animals.

For a list of countries free of rabies see <http://www.cdc.gov/travel/>, go to Yellow Book 2005-2006, go to Table of Contents: Condensed Format, Chapter 4 "Prevention of Specific Infectious Diseases" and choose Rabies. Scroll down to Table 4-14, "Countries and political units reporting no cases of rabies during 2003". The risk of acquiring rabies is particularly high in Asia where 90% of all human rabies deaths are reported. Pre-travel vaccination (under Section 29) is 3 doses given on days 0, 7 and 28. Post-exposure (after a bite) care is much easier if the traveller has had a pre-travel rabies series. All that is required is two booster doses of vaccine three days apart. If no pre-travel series has been given five doses of vaccine are required

after a bite and in addition a dose of rabies immunoglobulin preferably in the site of the bite. Rabies immunoglobulin is frequently not available, is expensive and purity cannot be guaranteed.

- **Typhoid fever**

The typhoid risk is highest in the Indian subcontinent. Vaccination should be considered for travel there and for long stays in Africa, Asia, Oceania and Central and South America. Those visiting friends and relations have a higher risk of typhoid than typical tourists. Increasing resistance to antibiotics means typhoid fever is harder to treat so prevention is more desirable.

- **Yellow fever**

Yellow fever endemic zones in Africa and the Americas are shown in Maps 7 and 8 (see page 12).

Vaccination is **required** for many travellers to Africa and South America. For a list of requirements and recommendations by country see <http://www.cdc.gov/travel/>, go to Yellow Book 2005-2006, go to Table of Contents: Condensed Format, Chapter 5 "Yellow Fever vaccination Requirements". Yellow fever vaccination must be given at an approved Yellow Fever Vaccinating Centre such as Diagnostic Medlab, 43 Symonds Street, Auckland Central. The vaccination certificate becomes valid 10 days after vaccination and is valid for 10 years. Young age (<6-9 months) and immunocompromise are contraindications. Older age (over 60 years) and pregnancy are relative contraindications. Those with contraindications to vaccination may be issued a waiver.

Occasionally:

- **Cholera**

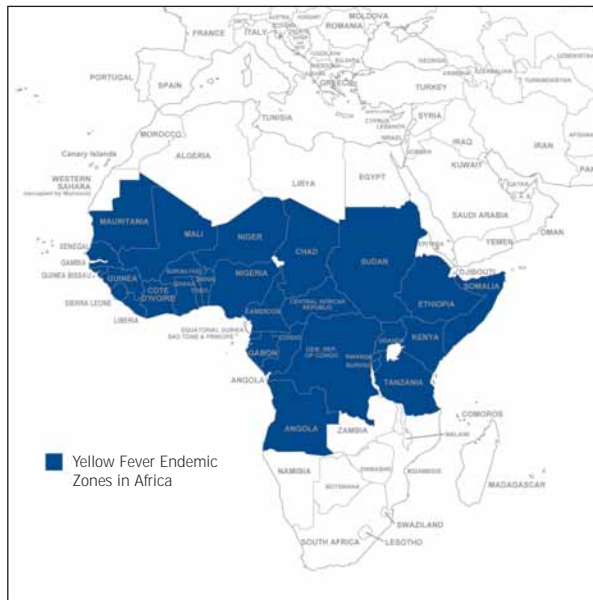
An oral vaccine is available. The risk of cholera is low to most travellers and so the vaccine is only indicated where water and sanitation are very poor such as in humanitarian disaster situations.

The cholera vaccine provides some brief protection against traveller's diarrhoea, as the heat labile enterotoxin produced by some enterotoxigenic *E.coli* (ETEC) is similar to cholera toxin. Protection against ETEC diarrhoea is not complete and ETEC cause a variable proportion of traveller's diarrhoea.

- **BCG**

This is indicated for children less than 5 years of age going for prolonged periods to countries with high rates of TB, see Map 1.

MAP 7 Yellow fever Zones Africa (2005)



MAP 8 Yellow fever Zones Americas (2005)



3. PRESCRIBE

Always:

- Regular medications

Sometimes:

- Acetazolamide

See under advice for Altitude, pages 4 and 5.

- Antimalarial medication

Before prescribing you should consider the traveller's itinerary, activities and accommodation. For a description of malaria risk areas check <http://www.cdc.gov/travel/> and go to Yellow Book 2005-2006, go to Table of Contents: Condensed Format, Chapter 5 "Yellow Fever Vaccination Requirements and Malaria Risk and Prophylaxis By Country" or www.who.int/ith Country List: Vaccination Requirements and Malaria Situation (but disregard prophylaxis suggestions provided in WHO site). For maps showing malaria risk areas see Map 9 (page 13) and www.fitfortravel.scot.nhs.uk The risk of malaria is high in Papua New Guinea and Solomon Islands. Malaria is also present in Vanuatu.

Malaria attack rates are highest among those who travel to malarious areas to visit friends and relations. Chloroquine is still effective in Central America and parts of the Middle East, see CDC site above, go to Chapter 5, however, it is not currently widely available in New Zealand. The Community Pharmacy at the Greenlane Clinical Centre stocks chloroquine for Section 29 use, eight tablets cost \$15.90. The dose is

two 200mg tablets weekly from two weeks before exposure to six weeks after. Hydroxychloroquine sulfate (Plaquenil) can be used as an alternative. The dose of plaquenil is two 200mg tablets on the same day weekly. It should be started two weeks before exposure and continued for 8 weeks after leaving the endemic area. For other areas with malaria three antimalarial medications are effective: mefloquine, doxycycline and

MAP 9 Malaria Transmission areas (2004)



malarone. They are probably equally effective apart from some resistance to mefloquine along the borders of Thailand with Myanmar and Cambodia, the western provinces of Cambodia and the eastern states of Myanmar. The choice of agent depends on individual preferences, contraindications and cost. These factors are summarized in this table (see following page).

Antimalarials should be taken after meals, with water to minimize side effects. Stress compliance during and after travel. Warn about possible side effects.

Remind travellers to seek medical care if they get a fever during or in the months after travel and to tell doctors they have visited malarious areas.

Pregnant women are more likely to develop malaria than others and malaria has serious consequences for the mother and foetus. Mefloquine is the main antimalarial used during pregnancy, however, it is wise to seek advice from a specialist when advising women who are travelling to areas with malaria while pregnant.

¹ According to WHO and CDC 8 or more years

² Fractions of adult tablets. Paediatric tablets are available overseas

| | Mefloquine | Doxycycline | Malarone |
|-----------------------------------|---|---|---|
| Adult dose frequency | 1 x 250mg weekly | 1 x 100mg daily | 1 tablet daily |
| Paediatric dose | 5 mg / kg, up to 250mg weekly | Over 12 years ¹ 2 mg/ kg, up to 100mg daily | 11-20 kg 1/4 tab ² 21-30 kg 1/2 tab 31-40 kg 3/4 tab >40 kg 1 tab |
| Start | 3 weeks before departure or load | 2 days before departure | 1 to 2 days before departure |
| Time after leaving malarious area | 4 weeks | 4 weeks | 1 week |
| Contraindications | Epilepsy Psychiatric disorders/ depression Early pregnancy | Childhood Pregnancy Breastfeeding | Pregnancy Severe renal impairment Breastfeeding |
| Main side effect | Neuropsychiatric | Gastrointestinal Photosensitivity | Low but new drug |
| Pharmacy cost for 4 week trip | \$79 | | \$298 |
| Number of tablets for 4 week trip | 11 | 58 | 36 |

- Condoms
- Diarrhoea self treatment

Usually traveller's diarrhoea (TD) is a self-limited illness in healthy adults. It is sufficient to rest and replace fluid losses with fruit juices and salty soup and crackers. Oral rehydration salts should be prescribed for those with very serious illness and for children or elderly travellers. If rehydration salts are not available 6 level teaspoons of sugar and 1 level teaspoon of salt can be added to 1 litre of safe drinking water.

Most travellers prefer not to wait the average of four days for spontaneous improvement. Loperamide can provide symptomatic relief of uncomplicated TD. It is contraindicated when given alone in all cases of invasive disease characterized by fever and/ or blood in the stools.

A single dose, one-, two- or three-day therapy with a fluoroquinolone will reduce the duration of TD to one to two days. Travellers can try 800mg of norfloxacin plus loperamide (as long as they do not have fever or blood in the stool). If symptoms continue they can have further doses of 400mg 12 hourly for a further 4 doses. For many a single dose will be all that is required. However, increasing resistance to quinolones is causing a decline in their efficacy particularly in South East Asia. A new nonabsorbable anti-bacterial agent, Rifaximin, is licensed in many countries. It has negligible gastrointestinal absorption and a broad antibacterial spectrum. Preliminary studies in TD show that it is equivalent to a quinolone in treating TD. If travellers can obtain it overseas it may work when norfloxacin fails.

Useful Websites

www.who.int/ith on line “International Travel and Health” .

www.cdc.gov/travel destination advice and “Health Information for International Travel” (Yellow Book).

www.fitfortravel.scot.nhs.uk provided by NHS (Scotland). Has destination advice including malaria maps

www.istm.org/ go to “Travel Clinic Directory” for country listings of travel clinics.

Joan Ingram Infectious Diseases Physician

Joan is a Visiting Consultant to the laboratory. She is an Infectious Diseases Physician and our advisor on travel medicine. She is a member of the International Society of Travel Medicine and recently received a Certificate in Travel Health. She is a graduate of the University of Auckland School of Medicine and Fellow of the Royal Australasian College of Physicians. Joan was a Nuffield Scholar in 1990. During her scholarship she completed a Diploma in Tropical Medicine and Hygiene at the London School of Hygiene and Tropical Medicine. She then undertook further postgraduate training in Microbiology at Duke University Medical Center, in Tropical Medicine at the John Hopkins University School of Medicine International Travel Clinic and in HIV medicine at the University of Maryland school of Medicine.



Joan has a strong interest in the prevention and management of travel related infections. She runs a comprehensive Travel Medicine Clinic at the 43 Symonds Street Collection Rooms, having started the clinic in 1993.

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