

Infections in returned travellers

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Travellers should be encouraged to have a post travel health check if they have been unwell or in high risk situations, and any returned traveller with a fever should be assessed and managed urgently.

Fatal infections in Australian travellers are rare. Of the 421 recorded deaths of Australian travellers overseas in the year 1992/1993, only 10 were attributed directly to infections, well behind deaths from trauma and pre-existing medical conditions.¹

Nonfatal infections, however, are frequent – for example, diarrhoea occurs in up to 50% of travellers. One Australian study demonstrated a significant number of diseases in returned travellers, such as malaria, respiratory tract infection, gastroenteritis, dengue fever, typhoid and hepatitis A.² Infections can often be prevented or ameliorated by prophylaxis, vaccination or prompt medical intervention, therefore they are worthy of review.

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In spite of the rapid development of travel health medicine as a subspecialty, and the greater availability of information for travellers through guidebooks and the internet, the incidence of malaria, dengue and typhoid fever in returned travellers has not decreased.³ In contrast, hepatitis A has reduced markedly in Australia, compared with some overseas countries; suggesting immunisation is having an effect. The time is overdue for travel advice, vaccinations and interventions to be audited for effectiveness.

Consideration of infections in returned travellers can either be discussed as a long list of progressively rarer diagnoses or be approached from the point of view of presentation. This article will review two common groups of travellers: those presenting for a health check after travel and those returning with a fever. The common travel-related gastrointestinal illnesses were discussed in our article in the November 2002 issue of *Medicine Today*.⁴

Post travel health check

Travellers should be encouraged to be reviewed after they return from their trip if they have been unwell or in high risk situations.

General questioning

Common questions for all returned travellers would include:

- Was there any risky sexual activity (particularly risk of exposure to gonorrhoea, chlamydia or HIV)?
- Were there any animal bites?
- Are there any nonhealing wounds or other skin lesions?
- Were there any illnesses while overseas (particularly fever or rashes)?
- Is there any bowel disturbance (the commonest returned traveller symptom)?

The rapidly increasing HIV rates in Asia, combined with already high rates in Africa, put travellers at risk of exposure to the virus. A consequence of the increasing rates of HIV is the associated increasing



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Figure. Cutaneous larva migrans in a returned traveller. These lesions are caused by dog or cat hookworms (*Ancylostoma* genus). Beaches in the tropics and subtropics are often contaminated by their larvae.

rates of tuberculosis, to which any traveller may be susceptible.

Often pathogens acquired overseas are more resistant to standard antibiotic therapy than are locally acquired infections (e.g. *Neisseria gonorrhoea* strains resistant to penicillin, doxycycline and ciprofloxacin).

An animal bite may place the traveller at risk of rabies. Postexposure rabies prophylaxis is available. Although rabies is very rare in Australia, past deaths in this country from rabies emphasise the potential risk of this preventable infection.⁵

Nonhealing wounds or other skin lesions may suggest cutaneous larva migrans (Figure), cutaneous schistosomiasis (swimmers' itch), infected insect bites or leishmaniasis.

Specific questioning and evaluation

Given the range of exotic and common pathogens to which travellers expose themselves, specific questioning and priorities for evaluation are based on the traveller's age, countries visited and activities undertaken. A trans-African traveller may require schistosomiasis serology, whereas screening for strongyloides may be appropriate in a traveller to Papua New Guinea. Information is now widely available for individual countries. Useful sources are the websites of the Centers for Disease

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Control (www.cdc.gov/travel/index.htm) and the World Health Organization (www.who.int/ith/).

If examination is unrevealing, the following investigations could be considered, depending on the abovementioned factors.

- **Chlamydia and HIV serology** – if there has been unprotected sexual intercourse.
- **Full blood evaluation** – nonspecific eosinophilia is an indication that bowel worms and parasites should be either sought or empirically eradicated.
- **Faeces examination for ova, cysts and parasites** – persistent *Entamoeba histolytica* should be eliminated. Metronidazole (Flagyl, Metrogyl, Metronide) often does not eradicate carriage, and a luminal amoebicide such as diloxanide furoate (available under the Special Access Scheme) should also be considered.
- **Strongyloides serology** – when there has been prolonged travel in Asia. *Strongyloides stercoralis* is one of the few intestinal parasites that have the potential to reactivate many years

after exposure, and it is notoriously difficult to diagnose in its prolonged fever presentation. Positive serology should be treated with albendazole (Eskazole, Zentel) or mebendazole (Chemists' Own De Worm Chewable Tablets, Combantrin-1 With Mebendazole, Vermox).

- **Schistosomiasis serology** – when there has been prolonged travel in Africa and parts of Asia. This especially applies to wading or swimming in untreated freshwater systems.
- **Liver function tests** – hepatitis E, although rare in Australia, is common in Central America and Asia. A serological test is available.
- **Chest x-ray and Mantoux test** – if there are respiratory symptoms or TB exposure.

Table. Causes of fever in returned travellers

Cause	Investigation
Tropical	
Malaria	Full blood evaluation, thick and thin blood film
Enteric fevers (including typhoid)	Blood and stool culture
Dengue	Serology
Hepatitis A	Hepatitis A IgM
Amoebic liver abscess	Amoebic serology, abdominal ultrasound
Leptospirosis, Q fever	Serology
Typhus, other rickettsiae	Serology, biopsy
General	
Bacterial sepsis (staphylococcal, streptococcal, meningococcal)	Blood culture
Atypical pneumonia (<i>Chlamydia</i> , <i>Mycoplasma</i> , <i>Legionella</i>)	Serology and culture
Acute HIV infection	Serology and PCR
Drug fever	
Very rare	
Brucellosis	Serology, blood culture
Leishmaniasis	Biopsy
Relapsing fever (<i>Bartonella</i>)	Full blood evaluation, thick and thin blood film
Melioidosis	Culture (<i>Pseudomonas pseudomallei</i>)
Trypanosomiasis	Specialised tests
Trichinosis	Specialised tests
Plague	Biopsy and culture
Viral haemorrhagic fevers	Specialised tests

Assessing returned travellers presenting with a fever

Causes of fever in returned travellers are listed in the Table. Serious tropical causes include malaria, enteric fevers (including typhoid) and dengue. These infections are potentially lethal, and in some cases transmissible, and they are treatable.

It is essential to consider both travel- and nontravel-related causes. Fever in a previously healthy young person after travel is most likely to be travel-related. Older individuals are more likely to have nontravel causes, such as urinary tract infections and pneumonia.

Fever in a returned traveller from a malarious area should be regarded as being due to malaria until proved otherwise. This particularly applies to the traveller who was in a malarious area in the preceding three months. Deaths from malaria in Australia have occurred by failure to promptly order a thick and thin blood film. Untreated falciparum malaria can be rapidly progressive. A negative blood film for malaria does not exclude the diagnosis.

Enteric fevers (including typhoid fever) usually present with progressive

fever. Blood, stool and urine cultures are indicated in all febrile travellers, along with a full blood evaluation, liver function tests and serology (Table).

Infections with haemorrhagic manifestations are potentially lethal, although fortunately they are very rare. Familiarity with the syndrome rather than the individual diseases is important, so that specialised units can be involved quickly. Bacterial causes include meningococcaemia, leptospirosis, rickettsial spotted fever and typhus, and plague. Viral haemorrhagic fevers include: Lassa fever, Ebola and Marburg virus diseases (from Africa); Argentine and Bolivian haemorrhagic fevers; and Crimean–Congo haemorrhagic fever (from Africa, Asia and eastern Europe).

All haemorrhagic fevers may begin as an undifferentiated febrile illness, and haemorrhagic manifestations develop in only a minority. The incubation of the viral haemorrhagic fevers is less than three weeks. **MT**

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Further reading

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