Guidelines for assessment and management of the febrile returned traveller

General principles

- Most febrile illnesses occurring soon after travel are travel related. Many of these infectious diseases require notification to the WA Department if Health if suspected or confirmed – the list can be found here.
- The most common specific diagnoses in returned travellers are **malaria**, **dengue** and **typhoid**.
- Up-to-date region-specific information can be found at:
  - WHO Disease distribution maps
  - Centre for Disease Control and Prevention
  - Geosentinel

Detailed assessment of exposures, symptoms and timing are invaluable in narrowing down the differential diagnoses.

Important questions to ask on history	
Reason for travel	Tourism / Expats / Work / Visiting friends & relatives / Migrants
Symptoms	Timing, pattern and duration of symptoms, pattern of fever, focal vs non-focal symptoms
Background	Immunosuppressed? Any medications, over the counter/supplements/herbs? Where were these medications acquired (Australia / overseas)?
Geographic exposures	• Countries travelled to, and transited through (even if only in the airport) • What regions or cities specifically were visited? • Include travel dates and duration of travel to establish possible incubation period
Other exposures	• What did the patient do while travelling (occupational / hobbies)? • Insect precautions taken (such as repellent, bed nets) • Source of drinking water • Ingestion of raw meat, seafood, raw eggs or unpasteurized dairy products • Any exposure to rural / forest /caves / farm / abattoirs / water areas? • Insect or arthropod bites (mosquitos, sand flies, ticks, spiders, lice, centipedes etc.) • Freshwater exposure (swimming, rafting) • Body fluid exposure (tattoos, sexual activity) • Medical care while overseas (injections, transfusions) • Any animal exposure (scratches/bites/patting)? • Any unwell contacts while travelling? (e.g. fever, cough, vomiting) • Drug use – particularly iv use
Vaccination status and malaria prophylaxis	• Routine (Australian vaccination schedule) and extra (travel) vaccinations? • Was any malaria prophylaxis taken? If so, which agent, when was it taken, assess adherence, and when it was ceased? What about other strategies (eg bed nets, insect repellent)?

Guidelines for assessment and management of the febrile returned traveller

!!! Specify on request forms the travel destinations

Differential diagnosis

Four diagnoses make up the **majority of presentations** for non focal febrile syndromes in travellers:

- **Malaria**
- **Dengue**
- **Typhoid**
- **COVID-19**

Travel destination influences **diagnostic likelihood**:

- **Africa**: malaria > rickettsial infection/arbovirus > typhoid
- **South East Asia**: dengue > malaria > typhoid
- **Indian Subcontinent**: typhoid > arbovirus > malaria
- **South America**: arbovirus (Zika / Dengue / Chikungunya)> malaria (vivax) > typhoid

Infections **to be considered once these initial four are excluded**:

- Other arboviruses
- Zoonotic bacteria (Leptospirosis, Rickettsiosis)
- Specific exposures - Q fever, Brucella, Borrelia
- HIV + STIs (disseminated gonorrhoea + syphilis)
- Hepatitis A
- Amoebic liver abscess
- Melioid: Thailand
- Bacterial dysentery (non-typhoid Salmonella / Campylobacter / Shigella / Amoeba)
- Cosmopolitan infections (eg influenza/EBV/Meningococcus/ resistant urosepsis/pneumococcal pneumonia/legionellosis etc)
- Recent emerging / re-emerging diseases: measles, influenza
- Rare but high impact: viral haemorrhagic fever

Investigations

All patients who present febrile after recent travel overseas should have:

- Full blood count, liver function tests, electrolytes, urea & creatinine, CRP
- Blood cultures
- Thick and thin blood film and rapid antigen test for malaria (purple top – EDTA tube)
- Arboviral serology and specify destination + Dengue rapid test for dengue(red/gold top) + request serum to be held
- If diarrhoeal illness – stools M/C/S, ova & parasites, AND Faecal multiplex PCR *(mention on request form "traveller's diarrhoea and countries travelled to)*
- Urine microscopy, culture and sensitivity (MC&S)
- Chest Xray

Further investigations should be individualised depending on history, clinical findings and area travelled to:

- Meningococcal and pneumococcal PCR (EDTA purple top tube)
- Nasopharyngeal aspirate for respiratory viruses
- Measles PCR on nasopharyngeal aspirate / urine in suspected cases (rare in adults, most frequently identified in unimmunised children)
- HIV, hepatitis A/B/C/D/E serology
- STI screen
- Serologies (+/- PCR) for zoonotic disease (eg leptospirosis / rickettsiosis / Qfever)
- Histoplasma serology and serum/urine antigen
- Stool MC+S / OCP +/- multiplex PCR
- Swabs (skin / wound etc)
- Cross sectional imaging (eg amoebic liver abscess)
- Neuroimaging +/- lumbar puncture

Guidelines for assessment and management of the febrile returned traveller: management

For further advice at any stage contact Infectious Diseases team via switchboard.

Febrile returned traveller with non-focal febrile illness

Is the patient septic or in septic shock?

YES

- Manage sepsis as per guidelines
- Administer empiric antibiotics:
  gentamicin iv (check Therapeutic Guidelines for dose)
  PLUS
  flucloxacillin 2 g iv 4-hourly
  PLUS *if the patient is at increased risk of MRSA infection AND after discussion with oncall ID*
  vancomycin 25 to 30 mg/kg iv (as loading dose)
  PLUS *if Neisseria meningitidis or typhoid infection is suspected*
  ceftriaxone 2 g iv 12-hourly
- If patient meets clinical criteria for severe malaria AND has been to an area where *Plasmodium falciparum* is endemic start treatment AND seek advice from ID prior to confirmation of diagnosis with thick & thin films
  artesunate iv (see malaria guidelines)
- If patient has been to an area in the tsutsugamushi triangle seek advice from ID as they may need to be treated empirically for severe scrub typhus
- Contact ID team early for specific advice
- Early referral to ICU if clinically indicated
- Refer patient to MAU team for admission

NO

Malaria diagnosis?

YES

Criteria for severe malaria?

YES

NO

- Start antimalarial treatment as per eTG guidelines (and see separate guideline for malaria management)
- Patient to be followed up either by own GP OR in the Infectious Diseases outpatient clinic (referral to be sent only after discussion with the oncall ID Registrar or Consultant)
- Discharge letter to include any treatments given or started and tests that need to be followed up

NO

Likely dengue diagnosis?

YES

NO

Warning signs for severe dengue? (see separate Dengue guidelines)

YES

NO

- If patient travelled to a malaria endemic area and the initial blood film is negative, admit to Observation ward for repeat blood film + antigen test in 12 – 24 hours
- Patient to be followed up either by own GP OR in the Infectious Diseases outpatient clinic but referral should be sent only after discussion with the oncall ID Registrar or Consultant
- Discharge letter to include any treatments given and tests that need to be followed up

References:

1. Therapeutic Guidelines 2021. Antibiotic. Acute Infectious Diarrhoea. Available from Topic | Therapeutic Guidelines (health.wa.gov.au)
2. Infectious Diseases / Returned Traveller section Emergency Care Institute Returned Traveller | Emergency Care Institute (nsw.gov.au) (Accessed May 2023)
3. Gherardin A, Sisson J. Assessing fever in the returned traveller. Aust Prescr 2012; 35: 10 – 14

Guideline designed by Dr Ioana Vlad & Dr Darren Rebello (ED) in collaboration with Dr Thomas Gliddon (ID)

May 2023