Fever in the Returned Traveller

Background

- Returned travellers commonly suffer from health problems related to travel, which can present as minor self-limited illnesses or potentially life threatening infections.\(^1\)
- Non-specific viral illness, diarrhoeal diseases and respiratory illnesses are the most common clinical syndromes.\(^3,4\) The most common specific diagnoses among returned travellers with fever are malaria, dengue and salmonella infections including typhoid.\(^3,4\)
- Clinicians who are evaluating returned travellers who are ill must maintain a broad differential diagnosis that includes routine infections, as well as exotic infections and illness that may be non-infectious in nature.\(^2\)
- Returned travellers from Bali will still need investigation for Malaria, even if they have not travelled to rural/remote or the Lombok area.

Assessment

<table>
<thead>
<tr>
<th>Travel history checklist</th>
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<tr>
<td>Where did you travel?</td>
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<tr>
<td>Information regarding country specific risks can be found at:</td>
</tr>
<tr>
<td>• The WHO website <a href="http://who.int/ith">who.int/ith</a> under ‘disease distribution maps’</td>
</tr>
<tr>
<td>When did you travel?</td>
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<tr>
<td>• Include travel dates and duration of travel to establish possible incubation period</td>
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Vaccination status including routine vaccines and travel vaccines?

- Vaccines such as typhoid, provide incomplete protection and travellers are still at risk.\(^2,6\)
- Travellers unimmunised to standard vaccines, such as measles, are at increased risk of exposure abroad.\(^6\)

Malaria prevention strategies

- Malaria prophylaxis is never 100 percent effective and the use of bed nets is the most effective strategy
- Type of medication and dosing regimen
- Adherence to medication and duration of therapy prior to and after leaving an endemic area

**Differential Diagnosis**

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<tr>
<th>Infection</th>
<th>Incubation Period</th>
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<tr>
<td>Malaria</td>
<td>Variable</td>
</tr>
<tr>
<td>Typhoid (Salmonella)</td>
<td>3 days – 3 months (usually 8-14 days)</td>
</tr>
<tr>
<td>Rickettsial infection</td>
<td>3-21 days (depending on type)</td>
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<tr>
<td>Dengue</td>
<td>3-14 days (usually 5 days)</td>
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<tr>
<td>Chikungunya</td>
<td>1-12 days (usually 3-7 days)</td>
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<tr>
<td>Influenza</td>
<td>1-5 days (usually 2 days)</td>
</tr>
<tr>
<td>Campylobacter</td>
<td>1-10 days (usually 3 days)</td>
</tr>
<tr>
<td>Shigella</td>
<td>12 hours-7 days (usually 2 days)</td>
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<tr>
<td>Measles</td>
<td>7-18 days (usually 10 days)</td>
</tr>
<tr>
<td>Viral haemorrhagic fever (Ebola)</td>
<td>2-21 days (usually 8 days)</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>2-7 weeks (usually 30 days)</td>
</tr>
<tr>
<td>Rabies</td>
<td>3-8 weeks (sometimes years)</td>
</tr>
</tbody>
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**Management**

Children are unlikely to present as severely unwell, if indicated please refer to the management for the **severely unwell patient**.

**Non Severely Unwell Patient**

- Always consider infection control precautions – refer to [Rash Management](#)
- Take a travel history
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Perform a thorough examination including:
- Rashes / skin lesions (dengue, typhoid, rickettsia, measles, leptospirosis)
- Hepatomegaly (malaria, typhoid, dengue, viral hepatitis)
- Splenomegaly (malaria, typhoid, mononucleosis)
- Acute abdomen or GI haemorrhage (typhoid)
- Cough, coryza, conjunctivitis (respiratory viruses, measles)
- Jaundice (viral hepatitis, malaria)
- Lymphadenopathy (rickettsia, toxoplasmosis, brucellosis, HIV, infectious mononucleosis)
- Petechiae (meningococcal disease, viral haemorrhagic fever, rickettsia)
- Neurologic findings: confusion, lethargy, meningism (malaria, meningitis)
- Insect bites and eschars (malaria, dengue, rickettsia)

**Investigations** (to be performed on all returned travellers with a history of fever):
- Blood culture
- Thick and thin blood film for malaria (purple top) - this must be performed on 2-3 separate occasions, 12-24 hours apart, to be reliably negative
- Rapid diagnostic test for malarial Ag (purple top) (only positive in P. falciparum: call Hematology lab for urgent results available 24hr/day)
- FBC
- LFT, EUC

**Other tests to consider:**
- Serology for dengue/arboviruses (+/- the dengue NS1 Ag in the 1st week of illness) (red/gold top)
- Measles PCR on PNA/urine/blood and IgM + IgG for Measles in suspected cases (most frequently identified in unimmunised cases)
- CXR +/- NPA for respiratory viruses
- Stool bacterial cultures and enteric viruses
- Urine microscopy and culture

**Management**
- Depends on the patient's clinical presentation and specific diagnosis.
- If the patient is suitable for outpatient management, consult Infectious Diseases (in hours) prior to discharge. If urgent advice is required after hours contact Clinical microbiology on call.
- If the patient requires admission, the primary admitting team will be General Paediatrics with consideration for obtaining an Infectious Diseases Consultation

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**Severely Unwell Patient**

- Haemodynamic compromise
- Altered conscious state
- Seizures
- Bleeding

Refer to the **Serious Illness** guideline
Always consider infection control precautions - refer to **Rash Management**

**Initial Investigations**
- Blood cultures
- FBC and thick and thin blood film for malaria (purple top)
- Rapid diagnostic test for Malaria Ag (purple top) - label urgent and call Haematology Lab for result (available 24hrs/day)
- Microscopy and culture of urine, CSF and stool (including rectal swab for ESBL)
- LFT and EUC (green top)
- Coagulation profile (blue top)
- PCR (meningococcal, malaria) (purple top)
- Serum tube (dengue and other serology) (red/gold top)
Treatment

- Malaria positive – refer to Malaria guideline
- Otherwise treat with empirical antibiotics
  - First: IV Meropenem 40mg/kg (maximum 2 grams) 8 hourly then
  - IV Vancomycin 15mg/kg (maximum 750mg) 6 hourly

For Further advice contact the Infectious Diseases Fellow or Clinical Microbiologist (after hours)

References

3. Wilson ME, Weld LH, Boggild A, Keystone JS, Kain KC, Sonnenburg FV,
8. Traveller’s diarrhoea. In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; 2015 Mar
13. Typhoid In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; 2015 Mar
14. Princess Margaret Hospital CHAMP guidelines. Presumed Bacteraemia, Sepsis. Last revised 4th November 2013
15. Malaria In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; 2015 Mar

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