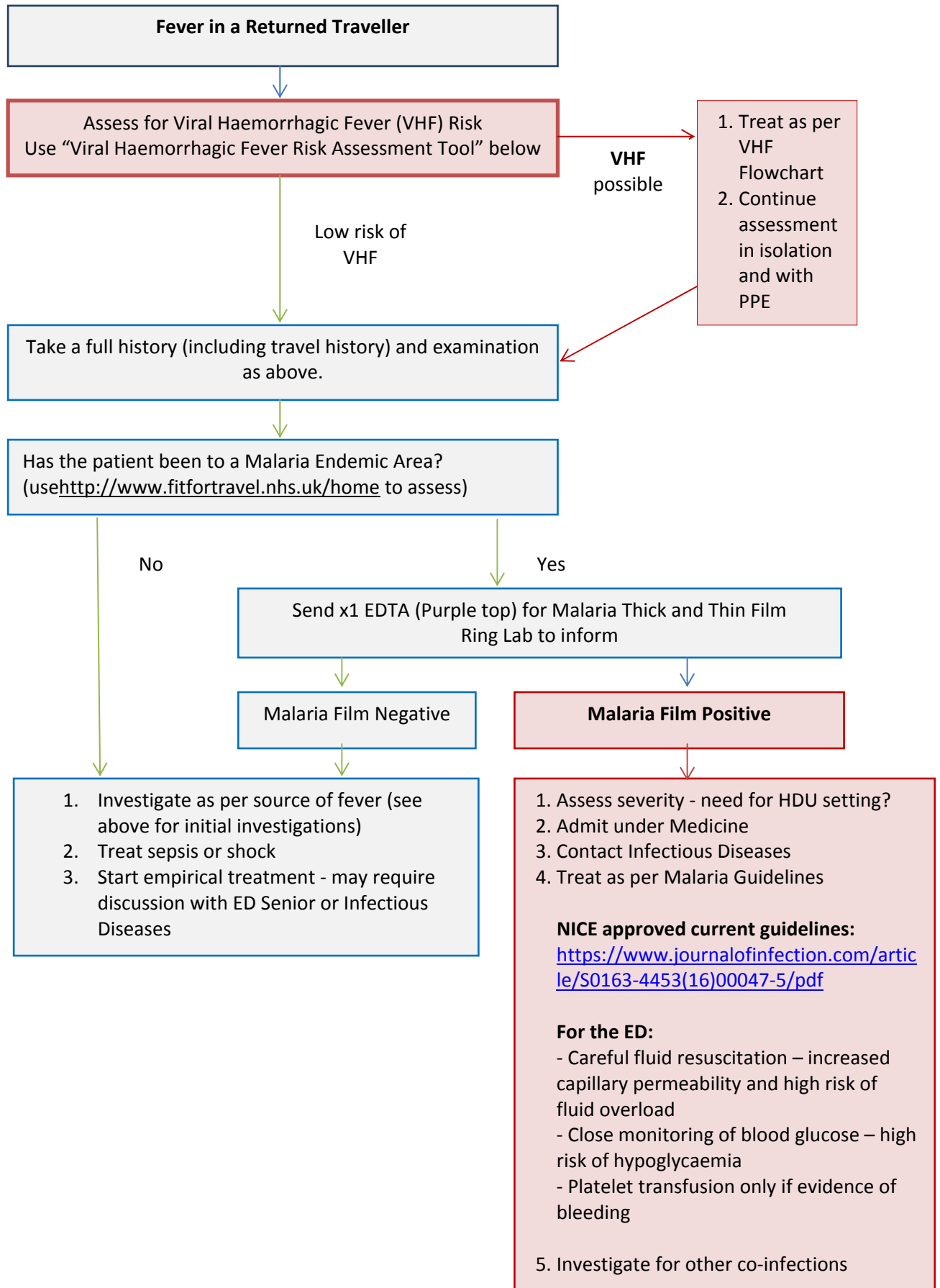


Fever in the Returning Traveller

Dr H Andrews; Dr H Stubbs; Dr E Shone
Updated May 2018

Fever in the Returned Traveller - Flowchart for Assessment



Approach to the Febrile Returned Traveller

- Wear gloves, gown and consider other PPE
- Consider Isolation
 - Viral Haemorrhagic Fever Risk Assessment (see algorithm)
 - Diarrhoeal Diseases
 - Other concerns e.g. meningism, known TB patient
- Common things are common; don't forget regular causes of fever e.g. pneumonia, pyelonephritis, cholecystitis, influenza etc.
- Beware false localising features - e.g. the headache of malaria and the breathlessness of meningitis

The Travel History

- Viral Haemorrhagic Fever - Risk Assessment
See below
- Malaria
Malaria endemic country?
Did they take prophylaxis with them?
Did they use it? [Note - always test for malaria regardless of prophylaxis]
- Fever Timing
Onset of fever and incubation period
Timeline of symptoms - did they start upon return or whilst travelling
Periodic fever - is it present all the time, or does it come and go? When is it worst?
- Location
Specific dates
Which country, for how long
Rural or urban
Specific cities and areas
Purpose of visit
- Pre-Travel
Vaccinations, malarial advice, any prophylactic meds taken.
- Specific Travel Questions:

Questions to Consider	Relevance
Safari or Game Reserves	Trypanosomiasis, Rickettsial infection
Farms	Brucellosis, Q Fever, Leptospirosis
Caves	Histoplasmosis, Rabies
Inpatient at Healthcare Facility	Hepatitis B +C, HIV, ESBL
Working at Healthcare Facility	TB, HIV, VHF, Typhus, Typhoid
Unpasteurised milk	Brucellosis, Listeria
Contact with freshwater	Acute Schistosomiasis, Leptospirosis
Food sanitation and hygiene	Diarrhoeal Diseases, Helminth infections
Funerals	VHFs
<i>Possible: Sexual practices</i>	HIV seroconversion, Syphilis

- Systems Review
Many infections - both tropical and endemic in the UK - are non-specific and do not classically present.
Run through of systems may provide helpful pointers and negatives are
- Past Medical History
Where is patient originally from? Have they been visiting friends and relatives?
Consider HIV and Sickle Cell
- Remember pregnancy / breast feeding

The Examination

Key signs on examination in the returned traveller;

General Assessment	Features of shock, sepsis, haemorrhage?	Enteric fever, meningococcal sepsis, malaria, dengue, VHF → Isolation and Contact Infectious Diseases
Head	Suffused conjunctiva Epistaxis Subconjunctival haemorrhages	VHFs, leptospirosis, Dengue
Neurological	Decreased GCS Strange behaviour Meningism	Meningitis (consider rarer causes e.g. TB, Cryptococcus) Encephalitis
Abdomen	Hepatomegaly Splenomegaly Bloody Diarrhoea	Typhoid, Leptospirosis, Viral Hepatitis Malarial, Visceral Leishmaniasis <i>Shigella, Salmonella, E. Coli, Amoebiasis</i>
Skin	Jaundice Eschar Urticarial Rash	Viral Hepatitis, Malaria, Leptospirosis Rickettsial Infection Acute Schistosomiasis, Strongyloides

The Initial Investigations

Investigate as for a normal septic screen as per focus e.g. sputum, urine, stool culture.

ALWAYS inform the lab → both for risk of samples and for accuracy of diagnosis. Don't put your colleagues at risk!

- | | |
|---------------------------------------|--|
| 1. Bloods | FBC, Glucose, U&E, LFT, CRP, Clotting |
| 2. Blood Film for Malaria Microscopy* | Send x1 EDTA (Purple) bottle and inform lab |
| 3. Blood Culture | |
| 4. Urine Dipstick | Send for MC+S if positive |
| 5. Imaging | CXR
If neurological signs → consider CT-Brain |
| 6. Point of Care Tests | Malaria Rapid Diagnostic Test
HIV POCT (if high risk and available) |

*Malarial Films - will require x3 films examined by lab over 2 days, taken at different times

Lab Indicators	Consider
Eosinophilia	Helminth Infections (Schistosomiasis, Strongyloides etc.) Does not rise in Malaria
Thrombocytopenia	Malaria, Dengue, Viral Infections, HIV, Leishmaniasis
Anaemia	Malaria, Leishmaniasis
Deranged LFTs	Hepatitis, Leptospirosis,

Incubation Periods²

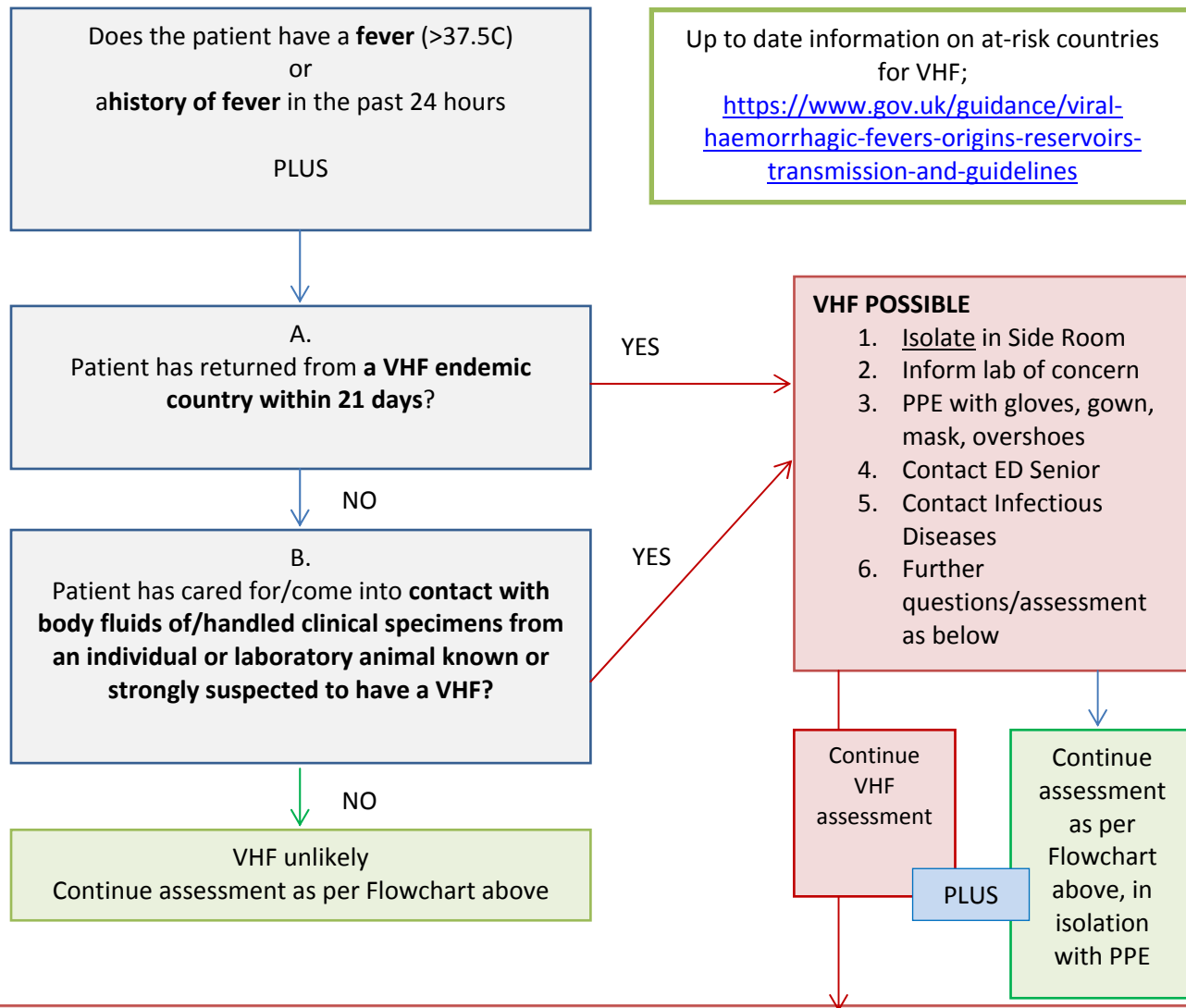
Incubation period	Infection
Short (<10 days)	Dengue, Chikungunya Gastroenteritis (bacterial, viral) Melioidosis Meningitis (bacterial, viral) Relapsing fever (borreilia) Respiratory tract infection Rickettsial infections
Medium (10 – 21 days)	Bacterial <ul style="list-style-type: none"> • Brucellosis • Enteric fever (typhoid and paratyphoid fever) • Leptospirosis • Melioidosis • Q fever (<i>Coxiella burnetii</i>) Fungal <ul style="list-style-type: none"> • Histoplasmosis (can be as short as 3 days) Protozoal <ul style="list-style-type: none"> • Chagas disease, acute [South America] • Malaria (<i>Plasmodium falciparum</i>) • Trypanosomiasis rhodesiense Viral <ul style="list-style-type: none"> • CMV, EBV, HIV, viral haemorrhagic fevers
Long (>21 days)	Bacterial <ul style="list-style-type: none"> • Brucellosis • Tuberculosis Fluke <ul style="list-style-type: none"> • Schistosomiasis, acute Protozoal <ul style="list-style-type: none"> • Amoebic liver abscess • Malaria (including <i>Plasmodium falciparum</i>) • Trypanosomiasis gambiense • Visceral leishmaniasis Viral <ul style="list-style-type: none"> • HIV • Viral hepatitis (A – E)

Viral Haemorrhagic Fever Risk Assessment Tool

VHFs Include: Ebola, Crimean-Congo, Lassa, Dengue, Yellow Fever + Others

Important as can;

- Spread easily within a hospital
- High mortality rate
- Difficult to diagnose early due to non-specific signs
- No effective treatments



VHF POSSIBLE

- Full travel history (as above)
- Specific VHF-screening questions:
 - Has the patient travelled to any area where there is a current VHF outbreak?
 - Has the patient lived or worked in basic rural conditions in an area where Lassa Fever is endemic?
 - Has the patient visited caves / mines, or had contact with or eaten primates, antelopes or bats in a Marburg / Ebola endemic area?
 - Has the patient travelled in an area where Crimean-Congo Haemorrhagic Fever is AND sustained a tick bite or crushed a tick with their bare hands OR had close involvement with animal slaughter?
- If YES to any of the specific VHF questions, **the patient must be managed as a possible case of VHF**
- If NO to the specific VHF questions, *but the patient has extensive bruising/active bleeding, the patient must be managed as a possible case of VHF*

Geographical Areas / Further info

Use an up to date resource for accurate Malarial Maps and other concerns;

<http://www.fitfortravel.nhs.uk/home>

If concerned about an outbreak of an infection, consider using ProMed;

<https://www.promedmail.org/>

Viral Haemorrhagic Fever Outbreaks;

<https://www.gov.uk/guidance/viral-haemorrhagic-fevers-origins-reservoirs-transmission-and-guidelines>

For up to date outbreak information and country specific disease risk. Phone line for health professionals also available here;

<https://travelhealthpro.org.uk>

American but very useful and well renowned. Huge database of up to date information and good disease factsheets

<https://www.cdc.gov>

References

1. Bell 2012 (<https://www.rcpe.ac.uk/sites/default/files/bell.pdf>)
2. Johnston *et al* 2009(<http://www.journalofinfection.com/article/S0163-4453%2809%2900154-6/pdf>)