Refugee Health

Dr. Mark Birch, Newcastle Australia

A Webber Training Teleclass

Refugee Health

Malaria and Schistosomiasis

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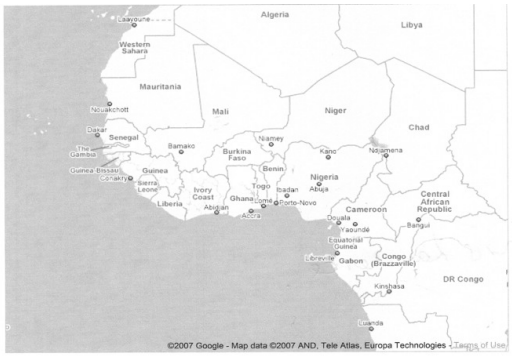
History

- Family
  - OG (mother) 37 years
  - KG (son) 18 years
  - RG (son) 16 years
  - PG (daughter) 8 years
  - WG (son) 4 years

- Liberian family
- Moved to Ivory Coast
- Guinea – 2003 (Laine Camp)
- Lost contact with husband/father in Guinea
- Emigrated to Australia 9-8-2006
- Other family in Newcastle

- F/U Refugee Clinic 14-8-2006



1. OG (mother) 37yrs

- Malaria 2 months ago
- Well
- ICT for falciparum & vivax negative
- Schistosomiasis serology negative
- FBC normal
- Past contact with Hep B
- HIV Ab negative

OG Treatment

- Vaccinations recommended

2. KG (son) 18yrs

- URTI on plane
- Well
- Positive ICT for falciparum
- Schistosomiasis IgG positive 2.5 (negative <0.7)
- FBC normal
- Past contact Hep B
- HIV Ab negative

KG Treatment

- Artemether 20mg/ Lumefantrine 120mg (Riamet) 4 tabs bd 3 days
- Vaccinations
- Praziquantel

3. RG (son) 16yrs

- Multiple attacks malaria (2x/yr), last Mar 06
- Now well
- Tippable spleen
- FBC: Lymphos 5.7, eosinophils 1.7 (NR < 0.6)
- LFT: GGT 255, ALP 350, ALT 46, AST 94
- Negative ICT for falciparum & vivax
- Chronic Hep B carrier (sAg pos, eAg pos)
- Schistosomiasis IgG positive 3.4 (neg < 0.7)
- Stool & urine schisto ova negative
- HIV Ab negative

RG Treatment

- Syphilis Ab negative

- Riamet (even though ICT negative)
- Praziquantel
- Vaccinations
- Investigate Hep B

4. PG (daughter) 8yrs

- Recent malaria treated
- Well, dental malocclusion
- ICT positive for falciparum
- Schistosomiasis IgG positive 1.8 (neg < 0.7)
- FBC normal
- Past contact Hep B (sAg neg, cAb pos, sAb pos)
- HIV Ab negative

PG Treatment

- Riamet 2 bd 3 days
- Praziquantel
- Dental referral

5. WG (son) 4yrs

- Previous malaria treated
- Well
- ICT positive for falciparum
- Schistosomiasis serology negative
- FBC normal
- LFT: GGT 355, ALP 350, ALT 363, AST 520
- Chronic Hep B carrier (sAg pos, eAg pos)
- HIV Ab negative

WG Treatment

- Riamet 2 bd 3 days
- Vaccinations
- Investigate Hep B

Contacted International Organisation for Migration (IOM)

- Health manifests of family checked
- All Rapid Diagnostic Tests for malaria negative

Summary

- Family of 5
- Screened prior to departure
- 3 positive for Falciparum malaria
- 4 treated with riamet
- 3 positive for Schistosomiasis
- treated with praziquantel

Refugees

- People of concern
  - includes refugees, internally displaced persons, asylum seekers
  - 20 million worldwide
- Definition of Refugee
  - 'Person outside his / her own country and cannot return due to well-founded fear of persecution, because of race, religion, nationality, political view or culture'

Main Countries of Refugee Resettlements (2005)

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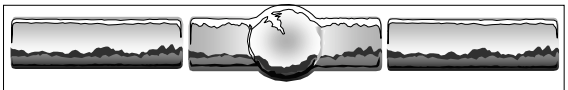
Source: UNHCR (2006). *Refugees by Numbers: 2006 Edition*



Pre-departure Health Screening Protocols for Refugees Arriving from Africa - December 2005

Communicable Diseases Network of Australia (CDNA)

Current Locations of Pre-departure Screening

- Conakry, Guinea
- Nairobi, Kenya
- Addis Ababa, Ethiopia
- Accra, Ghana
- Freetown, Sierra Leone

Step 1

(3-12 months prior to departure)

- IOM to conduct pre-departure medical screening including:
  - HIV
  - Tuberculosis

Step 2

(within 1 week of departure)

- Pre-departure screening (preferably 72 hrs prior to departure) looking for:
  - Fever
  - Respiratory tract infections
  - GI symptoms
  - CDC approved malaria rapid diagnostic test (RDT)
  - Suspect development of other diseases (e.g. TB, measles, cholera, meningitis)

Step 2(cont)

- Treatment
  - MMR (unless pregnant or > 30yrs)
  - Single dose albendazole (empirical)
- If unfit to fly
  - Treatment
  - Eg Antimalarial (artemether/lumefantrine) if RDT positive
  - Repeat Predeparture Screening if delayed departure by > 1 week

Health Manifests

- Documentation of tests & treatment
- Forwarded via e-mail to DIMA, Canberra
- Vaccinations received
- Significant medical conditions
- Hard copy carried

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Post-arrival Assessments

- History & physical exam
- Screening for:
  - Malaria
  - Hep B & C, HIV
  - Schistosomiasis
  - STI (Syphilis Ab, urinary PCR Chlamydia, gonococcus)
  - Helminths
  - Vit D deficiency

- Vaccinations
  - Catch up vaccines
  - MMR (if not already)
  - Hep B

Malaria

Malaria's Importance

- 36% world's population at risk
- 300-500 million cases yearly
- 30,000 travelers infected yearly
- Mortality 2-3 million yearly (90% African kids < 5 yrs)
- *P. falciparum* main killer
- Rising drug resistance

Epidemiology

- Areas with greatest intensity of transmission
  - Sub Saharan Africa
  - Oceania
  - India
- Exists throughout tropics
- Highest incidence in rainy season

Species

- *P. falciparium*
- *P. vivax*
- *P. ovale*
- *P. malariae*

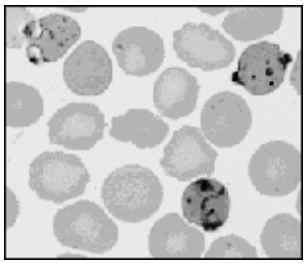
Signs & Symptoms

- Fever (periodicity)
- Rigors
- GIT symptoms
- Myalgia
- Anaemia
- Jaundice
- Thrombocytopaenia
- Hepatosplenomegaly

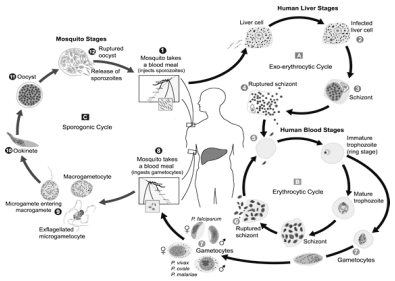
Diagnosis

- Blood smear
  - Thick and thin film
  - Gold standard
- Antigen detection tests
  - Rapid, simple (10-15 mins)
- Polymerase Chain Reaction (PCR)

Blood Film



Plasmodium Life Cycle



Electron Microscopy

Transmission

- Female anopheles mosquito
  - Bites dawn to dusk
- Congenital
- Blood transfusion
- Sharing contaminated needles
- Imported infected mosquitoes at airports

P. falciparum

- Case fatality for imported *P. falciparum* < 4%
- *P. falciparum* should be treated in hospital
- Usually oral therapy
- IV therapy if severe or unable to tolerate orals

Complications of *P. falciparum*

- Haemolysis
- ARF
- Blackwater fever
- Cerebral malaria
- Pulmonary oedema
- Hypoglycaemia
- Splenic rupture (all species)

Anti-malarials

- **Quinoline derivatives**
  - chloroquine mefloquine primaquine halofantrine
  - quinine quinidine amodiaquine
- **Antifolates**
  - pyrimethamine dapsone proguanil sulphonamides
- **Artemisinin derivatives**
  - artemisinin artemether artesunate
- **Antimicrobials**
  - Clindamycin atovaquone tetracyclines

Public Health

- Anopheles in Nth Australia & USA
  - Malaria declared eradicated from Australia in 1981
- Returning immigrants
  - Loss of immunity
  - Prophylaxis required
- Antimalarial resistance increasing
- 70% refugees coming to Australia from endemic regions

Schistosomiasis

Schistosomiasis (Bilharzia)

- 200 million cases worldwide
- One of commonest tropical diseases (1 in 30 people worldwide)
- Endemic in Africa, Asia, Sth America
- Introduced into Sth America by African slaves
- Asymptomatic in 80%
- 200,000 deaths/year

Species

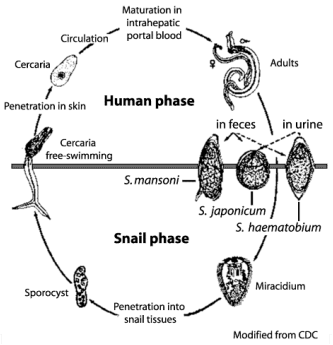
- *S. mansoni*
- *S. japonicum*
- *S. mekongi*
- *S. intercalatum*

intestinal and hepatic disease

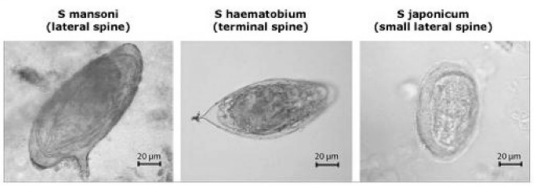
- *S. haemotobium* – kidney, bladder disease

Anatomy

- Adult male and female worms 1-2 cm long
- Lateral edges of male folded into groove where female lies
- Female egg production 300-3000 / day
- Life span 5-10 years in humans
- Cylindrical body, 2 terminal suckers, digestive tract, reproductive organs



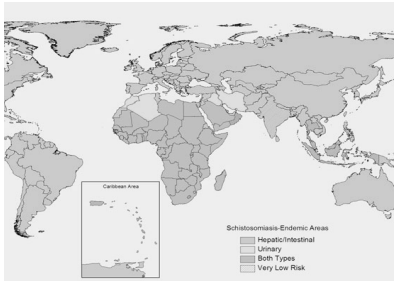
Schistosomiasis eggs



Epidemiology

- *S. mansoni* – Africa, Middle East, Sth America, Caribbean
- *S. japonicum* – China, Philippines, Thailand, Indonesia
- *S. mekongi* – SE Asia (Laos, Cambodia)
- *S. haematobium* – Africa, Middle East, Turkey, India
- *S. intercalatum* – West & Central Africa

Distribution of Schistosomiasis



Factors Affecting Endemicity

- Presence of snail intermediate host-specific types
- Poor disposal of human faeces

- Numbers of cercariae in water very low
- Diurnal and seasonal changes in snail infection rates
- Usually acquired in childhood
- Transmission higher in rural areas

Clinical Syndromes

- Acute Schistosomiasis
  - Pruritic skin rash – usually localised, lower limbs
  - Katayama fever – systemic
    - 4-8 weeks after infection
    - Fever, chills, headache, cough, myalgia, arthralgia
    - Lymphadenopathy, hepatosplenomegaly, eosinophilia
    - Patchy infiltrates on CXRay
    - Most spontaneously resolve
    - Difficult to make diagnosis

Clinical Syndromes (cont)

2. Chronic Schistosomiasis
   - Many asymptomatic
   - Heavy worm burden => chronic sequalae
  - GIT symptoms
    - Fatigue, abdo pain, diarrhoea
    - Due to all types except *S. haematobium*
    - Intestinal polyps – bleeding
    - Damage to liver venous system – chronic liver disease

Clinical Syndromes (cont)

ii. GU symptoms
   - *S. haematobium*
   - Involvement of bladder and ureters
   - Ureteric destruction
   - Haematuria, dysuria
   - Secondary bacterial infections
   - Bladder cancer

Clinical Syndromes (cont)

- Pulmonary disease (rare)
  - Pulmonary hypertension
- CNS system (rare)
  - Brain, spinal cord
  - Seizures
  - Transverse myelitis

Diagnosis

- Travel history
- Fresh water contact
- Eggs in faeces or urine (best collected between midday and 3pm)
- Schistosomal antibody (IgG)
- Biopsy e.g. rectum, polyp

Treatment

- Praziquantel 40mg/kg, 2 doses
  - Safe in pregnancy
  - Effective against all 5 species

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Public Health

- Refugees and returned travelers
  - Screening of returned travelers
- Intermediate snail host not in Australia or NZ
- ? Potential for introduction
  - Migratory birds
  - Imported fish or plants infected with snail

Public Health(cont)

- Mass community treatment in endemic areas - ? increased resistance to praziquantel
- No transmission between humans

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