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# Refugee health update

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**Although many refugees arriving in Australia are in good health, they may be at risk of medical conditions that have been contracted overseas, as well as conditions relating to malnutrition or trauma prior to arrival. Thorough and prompt health screening after arrival is important for all refugees.**

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Worldwide there are over 43 million people who have been forcibly displaced from their place of residence. Of these, over 15 million are refugees and some 27 million have been displaced within their own country.[1] Australia accepts 13 to 14,000 people each year on humanitarian grounds as refugees (see the box on page 80).[2,3] This number has been relatively stable over the last 20 years.

Refugees arrive from many countries and health issues can be different between regions. Although many refugees are in good health, they may be at risk of medical conditions that have been contracted overseas and conditions relating to malnutrition or trauma prior to arrival.

## THE JOURNEY

The journey to Australia for refugees is often long and difficult. Many refugees have experienced significant emotional and physical trauma and may have spent many years outside of their country of origin before settling in Australia.

Those who are accepted as refugees arrive via one of two pathways (Table 1):[2,4]

- offshore processing – people overseas, particularly in refugee camps, can apply through the United Nations High Commission for Refugees (UNHCR) to be resettled in a third country. If their application is processed and they are accepted they will then be resettled in Australia

**TERMINOLOGY**

**Refugee:*** someone who, owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his or her nationality, and is unable to, or owing to such fear is unwilling to, avail him or herself of the protection of that country.[3]

**Asylum seeker:** someone who says he or she is a refugee, but whose claim has not yet been definitively evaluated.

**Immigrant:** a non-national who has moved to a new country to settle, either voluntarily or involuntarily.

* In Australia, the term refugee is often used to apply to people who have been granted refugee status and are now permanent residents (so could be considered former refugees).

- onshore processing – people who are in Australia, either by overstaying a nonresident visa or via boat arrival, can request asylum from the Australian Government.

For a refugee claim to be accepted, applicants need to satisfy health, character and security checks. Only then will they will be granted a permanent visa under the humanitarian program.

## SCREENING

### Pre-arrival

Health screening of refugees prior to their arrival in Australia includes an HIV test, a chest x-ray and a full medical examination. In most cases, a positive HIV test precludes the granting of a visa and any suggestion of active tuberculosis (TB) requires treatment before a visa will be granted. Some refugees will also have screening for malaria and, if necessary, will have treatment prior to arrival. They may also be given empirical treatment for common helminthic infections (usually albendazole). Selected groups, namely unaccompanied minors and pregnant women, are also screened for the hepatitis B virus (Table 2).[5,6]

**TABLE 1. THE MOST COMMON SOURCE COUNTRIES OF REFUGEES IN AUSTRALIA 2010-2011[2,4]**

| Rank | Offshore processing | Onshore processing |
|---|---|---|
| 1 | Iraq | Afghanistan |
| 2 | Burma | Iran |
| 3 | Afghanistan | Stateless |
| 4 | Bhutan | Iraq |
| 5 | Congo | China |
| 6 | Ethiopia | Sri Lanka |
| 7 | Sri Lanka | Pakistan |
| 8 | Iran | Zimbabwe |
| 9 | Sudan | Egypt |
| 10 | Somalia | Fiji |

### Post-arrival

After the granting of a permanent residency visa, a comprehensive health screening is recommended within one month of arrival.[7] In some states and territories, this is performed by GPs, with referral of the person to specialist centres if concerns are raised. Other states and territories have a model of centralised screening and follow up.

The health assessment involves a comprehensive history and examination. Screening investigations should include testing for frequently encountered infectious diseases and nutritional deficiencies, as well as for some rare but serious conditions (Table 3).[7-12] Additional screening is recommended based on epidemiology, clinical history and clinical or investigational findings.

Vaccination history is often limited and unless a clearly documented history of vaccination is received it should be assumed in most cases that the patient does not have up to date immunisations. Some 50% of refugee arrivals will require vaccination catch up.[8] Serological testing is not recommended except for hepatitis B virus and catch-up vaccination should be commenced.[7,9] A suitable guideline for vaccination schedules is available in the *Australian Immunisation Handbook*.[9]

Screening for dental problems, reproductive health issues and developmental assessments in children should also be considered as part of a comprehensive refugee health assessment.

**TABLE 2. PRE-ARRIVAL SCREENING**

| Examination | Requirements |
|---|---|
| Chest x-ray | • For all over 11 years old. Those with active tuberculosis will require treatment before being granted a visa, those with a suggestion of latent disease will be given a tuberculosis undertaking and require follow up in Australia |
| HIV testing | • For all refugees 15 years of age or older |
| Hepatitis B serology | • For unaccompanied minors and pregnant women only |
| Full medical examination | • For all refugees |

Note: Pre-existing medical conditions (including HIV infection) that have a potential high cost to the Australian health system often preclude the granting of a visa. Previously, syphilis screening had been conducted in those from refugee camps and similar situations; however, this is currently under review.

Refugee patients often present with nonspecific complaints, including back and abdominal pain and headaches. It is necessary to look thoroughly for a physical cause of these symptoms, including nutritional deficiencies. If no obvious cause is found, consideration should then be given to mental health concerns manifesting as pain syndromes.

Most refugee arrivals will have limited or no English and the use of professional interpreters during consultations are strongly recommended. The translating and interpreting service (TIS) is available for patients undergoing any Medicare-funded services in private practice. These can comprise of either an in-person or telephone interpreter. This service is free to both the clinician and the patient (see the box on page 82).[10]

## MENTAL HEALTH

Not infrequently, when refugees present for assistance with a physical health complaint, it becomes apparent to the clinician that the social supports and mental health of the refugee may also need attention. These issues may not necessarily be the presenting problem from the patient's point of view, but rather become evident as a secondary issue.

Mental health disorders of higher prevalence than the general population include depression, anxiety, symptoms of a somatoform nature, and post-traumatic stress disorder. The rate of post-traumatic stress disorder is up to 10 times higher in refugee groups compared with the general Australian population.[13] Risk factors include both pre- and post-migration experiences, such as exposure to trauma, separation from loved ones, detention experiences and gender (women in some ethnic groups have higher rates of these conditions than men).[14,15] Resettlement stressors can contribute significantly to mental health outcomes in this group, including cultural differences, lack of social support and language difficulties.[10,14,16] Successful resettlement involves, in the large part, broader-scale approaches at a governmental level – for example, addressing the detention of asylum seekers, as this has direct adverse effects on mental health, evidenced by significantly higher rates of suicide and self-harm among these populations.[17,18]

Clinicians should be aware of mental health problems and regularly screen for them in their routine clinical encounters with patients from refugee populations. Questions to ask refugees to establish a history of trauma and displacement, and topics to cover in a psychosocial assessment are given in the boxes on page 82.

**TABLE 3. RECOMMENDATIONS FOR POST-ARRIVAL SCREENING[8,10-12]***

| Health condition | Screening recommendations |
|---|---|
| Infectious diseases | • Latent tuberculosis (e.g. Mantoux test or an interferon-gamma release assay, such as QuantiFERON®-TB Gold)<br>• Hepatitis B serology (sAg, sAb and cAb)<br>• Hepatitis C serology<br>• Schistosomiasis serology<br>• Strongyloides serology<br>• Syphilis serology<br>• HIV serology<br>• Malaria (e.g. thick and thin film and rapid test if the patient is from, or has travelled through, endemic areas)<br>• Ova, cysts and parasites (stool samples) |
| Nutritional deficiencies | • Full blood count<br>• Liver function tests<br>• Iron studies<br>• Vitamin D levels<br>• Vitamin A levels (in children younger than 15 years of age) |
| Other health conditions | Screening is not routine but dependent on the presence of risk factors<br>• Chlamydia and gonorrhoea PCR (if ever sexually active)<br>• *Helicobacter pylori* screening (if symptomatic, using stool antigen or breath test)<br>• Beta hCG (if pregnancy is a possibility)<br>• Pap smear and breast screening (as for general Australian population)<br>• Cholesterol and glucose levels (as for general population) |
| Uncommon health conditions and examinations | Screening is not routine but can be considered based on history<br>• Haemoglobinopathy<br>• Calcium and phosphate levels<br>• Urea and electrolytes levels<br>• Urine MCS and parasites<br>• Lead levels<br>• Folate and vitamin $B_{12}$ levels |

ABBREVIATIONS: hCG = Human chorionic gonadotropin; MCS = Microscopy, culture, sensitivity; PCR = Polymerase chain reaction.

* Adapted from guidelines from the Australasian Society for Infectious Diseases and Victorian Foundation for Survivors of Torture and current Victorian Infectious Diseases Service practice.[8,10-12]

**TRANSLATING AND INTERPRETING SERVICES (TIS) NATIONAL**

Features of the national interpreting service provided by the Australian Government's Department of Immigration and Citizenship:

- 24 hour a day service
- services include in-person or telephone interpreters
- interpreters are available for over 170 languages and dialects
- free Medicare-funded services provided outside hospitals
- phone: 13 14 50
- website: www.immi.gov.au/living-in-australia/help-with-english/help_with_translating/

**QUESTIONS TO ESTABLISH A HISTORY OF TRAUMA AND DISPLACEMENT[10]**

- When did you leave your country?
- Were you forced to leave?
  What were the circumstances when you left?
- Which countries had you lived in before you reached Australia?
  What were the circumstances like in those countries?
  Have you ever been in a refugee camp?
  What were the conditions like there?
- I do not need to know the details about what you have been through but have you had any terrible experiences that might be affecting you now?

**TOPICS TO DISCUSS IN A COMPREHENSIVE PSYCHOSOCIAL ASSESSMENT[10]**

- Patient information – country of origin, countries of transit, date and means of arrival, preferred language
- Family composition, genealogy, whereabouts of close family members and quality of family functioning
- Extent of pre-arrival exposure to extreme circumstances, human rights violations and violence (trauma history)
- Current stress associated with settlement
- Social resources and support
- Psychological health – appetite, energy levels, daily activities, sleep, memory, concentration, mood, anxiety

As language difficulties and cultural factors can make it challenging to address mental health conditions in these groups, good engagement and a strong therapeutic relationship while being culturally sensitive is key. Attention to intercultural understanding and communication is also vital – as is use of an interpreter, not only in translation of language, but in understanding cultural nuances and aiding engagement. However, it should be noted that in small refugee communities, the interpreter and patient may know each other socially and this may impact on privacy. In these situations, the use of an interstate telephone interpreter is advised.

Involvement of key family members and social supports may also be necessary to help treat patients with mental health problems. Additionally, community organisations may aid resettlement and strengthen social supports.[19] Referral to a psychiatrist or community mental health team may be necessary for complex cases. A collaborative approach with the patient is an essential ingredient to effective management.

## UNCOMMON INFECTIONS

Although relatively rare, HIV infection and malaria are conditions that should not be missed in the refugee population.

### HIV infection

Refugees who arrive in Australia are screened for HIV as part of pre-arrival screening. Among those accepted into Australia, rates are very low. However repeat screening is recommended after arrival as a significant time may have elapsed since the pre-departure HIV test.

HIV testing requires pre- and post-test counselling and any positive results will require referral to a specialist (some GPs trained to prescribe s100 drugs are specialists in HIV management).

### Malaria

Malaria screening is recommended for all refugee arrivals who are from, or who have travelled through, a malaria endemic area. Malaria is potentially fatal and can present many months after refugees have arrived in Australia. More problematic is malaria acquired in immigrants who return home to visit friends and relatives. This group often does not seek pre-travel advice and there may be a false perception among immigrants that they remain immune to conditions such as malaria. Thus, immigrants returning home should be strongly encouraged to seek pre-travel advice.

Treatment for malaria caused by *Plasmodium falciparum* is with an artemesinin-based combination medication – generally, this is the artemether/lumefantrine combination administered as a three-day course.

Malaria resulting from *Plasmodium vivax* infection is sensitive to chloroquine treatment in most areas, although, parts of Papua New Guinea, East Timor, West Papua and the Solomon Islands now exhibit chloroquine-resistant *P. vivax* If malaria has been acquired in these countries, treatment with artemether/ lumefantrine is recommended. Chloroquine is no longer readily available in Australia but hydroxychloroquine can be used as an alternative. Treatment of the blood stage of malaria should be followed by primaquine therapy to remove dormant *P. vivax* infection in the liver.

## COMMON INFECTIONS

### Latent tuberculosis

Some two billion of the world's population have been exposed to TB, of whom about 10 million will develop active disease each year. Worldwide, 1.7 million people die each year from TB.[20] Australia has a very low incidence of TB (a rate of 5.4/100,000 per year), with most cases in people born overseas who acquired TB before their arrival in this country.[21]

Refugee groups have a higher prevalence of latent TB (15 to 50%) compared with both the general population and other immigrants, and so should be screened with a Mantoux test or interferon-gamma release assay (IGRA).[8,11,22,23] Most of those with latent TB will have a normal chest x-ray and therefore will not have been identified on the pre-arrival screening.[22] If either the Mantoux test or IGRA is positive, treatment for latent TB should be considered. This requires nine months' treatment with isoniazid tablets given daily (six months for children). Hepatotoxicity from the treatment is rare, but increases with age, and in patients beyond the age of 35 years most clinicians would only offer treatment if there is a clear history of recent close contact with someone with active pulmonary disease.

Adherence to therapy can be difficult as patients generally feel well and often do not understand the need for treatment. The treating doctor should spend time educating the patient about latent infection, the chance of relapse and the benefits and risks of therapy. Once therapy has commenced, monitoring for side effects and the need for strict compliance should be emphasised.

### Hepatitis B

Two billion of the world's population have been exposed to the hepatitis B virus and 350 million have chronic infection.[24] Among refugee arrivals in Australia, the prevalence of chronic infection is high (4 to 19%).[8,12,25,26] Those who acquire hepatitis B at birth or as a young child are highly likely to go on to develop chronic infection.[27] Screening should include serology for sAg, sAb and cAb levels to distinguish between prior exposure and chronic infection. Those who have not been vaccinated or exposed (i.e. HBsAg negative, HBcAb negative, HbsAb negative) will require vaccination. Household contacts of a person with hepatitis B should be screened for immunity and offered vaccination.

Those with chronic infection should be assessed for the stage of the disease with serology (eAg/eAb), viral load and liver function tests. If there is any elevation in liver function tests or any suggestion of liver damage then specialist referral is required.

Many patients with hepatitis B should be screened for liver cancer six-monthly using a liver ultrasound scan and measurement of alpha-fetoprotein levels.[28] This is particularly relevant for African patients with hepatitis B who have high rates of liver cancer, in part due to aflatoxin exposure, and high rates of liver disease from other causes such as schistosomiasis. Liver cancer screening in African immigrants with hepatitis B should start from the age of 20 years, whereas screening in Asian immigrants with hepatitis B should start from the age of 50 years for women and 40 years for men. Rates of hepatocellular carcinoma are also increased in patients with cirrhosis and in those who are HBeAg positive with high levels of viral DNA.

### Hepatitis C

Rates of hepatitis C virus infection in many refugee source countries are variable and poorly understood. Consequently, all refugee arrivals should be screened for the disease.[7,10,29]

### Helminth infections

#### *Strongyloides stercoralis*

*Strongyloides stercoralis* is a soil helminth that is endemic in many parts of the developing world and is extremely common is areas with poor sanitation. High rates of infection with this helminth have been identified in refugee groups who have arrived in Australia from both Africa and Southeast Asia, demonstrating a prevalence of positive serology of 12 to 42%.[12,30-33] The worms can be long lived with ongoing re-infection occurring via a process known as 'autoinfection'. Cases may manifest many decades after a person has left an endemic area, and deaths from overwhelming infection can occur in patients who become immunosuppressed.[31]

Most people who are infected do not have symptoms of strongyloidiasis. The parasite can be identified in stool samples; however, the sensitivity of stool microscopy is poor. Serology is the mainstay of diagnosis, although a positive result cannot distinguish between current or recent past infection.[34] Treatment is with a stat dose of ivermectin (200 g/kg), and is repeated after two weeks for improved efficacy.[35] Serology should be rechecked six months after treatment to ensure a significant reduction in titre has occurred.[34] If parasites were identified in stool samples or eosinophilia was present, these tests should be repeated two to three months after treatment to confirm resolution.

It should be noted that refugees from West African countries where the *Loa loa* parasite is endemic should have a daytime blood film performed to exclude infection with this parasite before being prescribed ivermectin. This is to prevent the rare complication of encephalopathy.[36]

#### *Schistosomiasis*

Schistosomiasis, caused by freshwater flukes, is common among refugee arrivals from Africa. Australian serological surveys in refugees have shown a prevalence of positive serology of 16 to 41%, although this may reflect past as well as current infection.[12,25,37,38] Parasites are long lived and sequelae include cirrhosis, portal hypertension and bladder cancer. Many patients are asymptomatic and some may have fatigue or haematuria.[39] Ova may be

**RESOURCES**

**Australian immunisation handbook – catch up vaccine schedule**
http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook-specialrisk239

**Foundation House: The Victorian Foundation for the Survivors of Torture**
www.foundationhouse.org.au

**Victorian Refugee Health Network**
www.refugeehealthnetwork.org.au

**The Royal Children's Hospital Immigrant Health Service**
www.rch.org.au/immigranthealth

**Australasian Society for Infectious Diseases: Guidelines for Refugee Health**
http://www.asid.net.au/images/Documents/Guidelines/RefugeeGuidelines.pdf

detected in stool and urine and eosinophilia may be present.

Treatment is with praziquantel 20 mg/kg for three doses given over one day and is very effective. Patients should be followed up to ensure parasites are cleared from stool and urine and the eosinophil count returns to normal. Serology, however, may stay positive for years even after effective treatment.[38]

## OTHER COMMON HEALTH CONDITIONS

### *Helicobacter pylori* infection

*H. pylori* infection is commonly identified in refugee and immigrant groups.[40,41] Testing for the bacteria is recommended in those with suggestive signs or symptoms; these include dyspepsia, epigastric pain, 'hunger pains', nausea, vomiting, anaemia and bloating. Testing should be performed with either a breath test or a stool antigen test.[7]

Treatment is generally with a combination of amoxycillin, clarithromycin and a proton pump inhibitor. However, such therapy is not always effective because antibiotic resistance rates worldwide are increasing.[42] If symptoms do not resolve then retesting is required and an endoscopy may be necessary. *H. pylori* infection is often asymptomatic, but at this stage the screening and treatment of all refugees is not recommended.[7]

### Nutritional deficiencies

Many refugees have experienced extended periods of poor nutrition prior to their arrival in Australia. Pre-departure screening does not include nutritional status. Screening for nutritional deficiencies is therefore recommended after arrival and should include a full blood count, liver function tests, iron studies and vitamin D level testing. Screening for vitamin A levels should also be performed in children.[10] Screening for folate, vitamin $B_{12}$, calcium, phosphate, glucose, urea and electrolyte levels should be considered.

#### *Vitamin D deficiency*

People with darker skin who move to Australia, especially to the southern states, have high rates of vitamin D deficiency (levels less than 50 nmol/L). Immigrants from Africa have particularly high rates of deficiency, with a prevalence of 73 to 88%.[43,44] This is because people with very dark skin need longer periods of sun exposure to achieve adequate levels of vitamin D from natural sources; most people are unable to achieve this, especially in colder areas.[45]

There is a high risk of vitamin D deficiency in infants of mothers who were vitamin D deficient during pregnancy, leading to an increased risk of rickets and longer term sequelae.[46] Vitamin D deficiency also leads to osteomalacia in adults and has been associated with many other conditions including malignancy, multiple sclerosis, diabetes, cardiovascular disease and TB.[44,47]

Supplementation of vitamin D intake is with 1000 to 2000 IU cholecalciferol daily or a 50,000 IU monthly tablet (if available). Supplementation may include a high-dose liquid formulation for children, but the 50,000 IU monthly dosing is not currently recommended for pregnant women. Most dark-skinned refugees who settle in southern Australia will have low levels of vitamin D and may need long-term supplementation. The many potential benefits of long-term supplementation in this group have yet to be confirmed with longitudinal trials.[43]

#### *Anaemia*

Anaemia is also common among refugee groups, with a prevalence of 13 to 15% on post-arrival screening, and it is particularly common in women of reproductive age and in children (25% of Australian refugee children in New South Wales have anaemia).[25,37,48] Anaemia in the refugee population is most often due to iron deficiency which is associated with a combination of multiple factors including poor dietary intake, helminthic infections, blood loss and *H. pylori* infection. Other considerations to determine the cause of anaemia include malaria in those from endemic areas, other nutritional deficiencies, haemoglobinopathies and lead toxicity.

Iron supplementation (either daily or intermittent dosing) is often required for treatment, along with dietary advice and the consideration of further investigations if necessary.

#### *Vitamin $B_{12}$*

Currently, testing for vitamin $B_{12}$ levels is not recommended unless symptoms suggest deficiency or if there is red blood cell macrocytosis. Refugee groups, particularly those from Bhutan (but also from Somalia), have been identified as having low vitamin $B_{12}$ levels. Pre-departure screening in Bhutanese refugees has shown rates of deficiency of 64%. Even after arrival, rates of vitamin $B_{12}$ deficiency were over 30% in these refugees.[49]

Vitamin $B_{12}$ deficiency can lead to

megaloblastic anaemia, peripheral neuropathy and other neurological problems. Other refugee groups, such as those from Iraq and Burma, have not demonstrated such high rates of deficiency, and therefore routine screening of all refugee arrivals is not recommended. However, the US Centers for Disease Control and Prevention (CDC) has recently suggested routinely supplementing Bhutanese immigrants with 30 days of oral vitamin $B_{12}$ after arrival and providing dietary advice.[49]

### *Iodine deficiency*

Iodine deficiency is the most common preventable cause of mental impairment worldwide. Many immigrants from mountainous and inland areas may have this deficiency and goitre is common in these patients. Improvements in the availability of iodised salt have enabled its use in more than 70% of the world's population and rates of deficiency are now declining.[50] Testing for iodine deficiency is not routinely suggested but should be considered in suggestive clinical situations.

### Lead toxicity

Lead exposure has been noted to be high in some refugees groups. Recent studies carried out in the USA found high rates of lead toxicity in Burmese children as well as higher rates of toxicity among refugee children in general compared with local US children.[51,52] Lead toxicity can lead to neurological, haematological, gastrointestinal and renal symptoms and should be considered in those with developmental delay of language, chronic abdominal pain and anaemia.

The US CDC recommends screening all refugee children who are younger than 16 years of age for lead levels.[53] Although this is not an Australian recommendation, clinicians should be have a low threshold for testing blood lead levels.

## FOLLOW UP

After a period of time living in Australia many refugee groups develop health problems that are prevalent in developed countries. For example, studies of African immigrants have found high rates of obesity and overweight. High rates of increased cholesterol levels and type 2 diabetes have also been reported.[43,54,55]

The healthcare of individuals who arrive as refugees in Australia is very much a shifting challenge, and can involve an initial period of nutritional screening and infectious diseases management, followed by the management of mental health conditions. The subsequent management of health issues associated with a rapid transition to a western diet and lifestyle is also important. Adding to the complexity of care involved is that these health issues need to be managed among a patient group that often has limited health literacy and is highly mobile. The box on page 84 lists some useful health-related resources for refugees and their healthcare providers.

## SUMMARY

Refugee arrivals in Australia represent a diverse range of health and socioeconomic issues. The health concerns differ slightly for each ethnic group but the need for thorough and prompt screening after arrival is important for all refugees. Many consultations will require an interpreter and much time will be needed for patient education about health-related issues. In many cases, specialist referral will also be necessary.

Although the initial treatment and management of immigrants to Australia may involve multiple visits to healthcare services, it is expected these refugees will achieve long-term health outcomes similar to those of the general Australian population. MT

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A list of references is available on request to the editorial office.

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# Refugee health update

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