Screening for Infectious Diseases in Immigrant Populations

Grace Tidwell, MD
Why is this so important?

http://itg.author-e.eu/Generated/pubx/173/mm_files/do_3052/co_68157/Cd_1003_095c.jpg
Objectives

Identify immigrant and refugee patients who need additional screening or empiric treatment for chronic infections

Review common chronic infectious diseases in immigrant populations

Select appropriate empiric treatments or screening tests
What should we screen for?

Treatable chronic infections that can cause long term complications

Clear CDC recommendations for screening for refugees

No specific recommendations for other immigrants
Overview of Types of Immigration

Temporary visas

Visitors

Longer term visas

U-Visa: crime victims or witnesses

T-Visa: victims of trafficking

Family sponsored visas

Asylum seeker

Asylee
### Who was already screened?

<table>
<thead>
<tr>
<th>Category</th>
<th>Medical Examination</th>
<th>Examination Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immigrants</td>
<td>Yes</td>
<td>Overseas</td>
</tr>
<tr>
<td>Refugees</td>
<td>Yes</td>
<td>Overseas and US</td>
</tr>
<tr>
<td>Status adjusters</td>
<td>Yes</td>
<td>U.S.</td>
</tr>
<tr>
<td>Visitors</td>
<td>No</td>
<td>--</td>
</tr>
<tr>
<td>Asylum Seekers</td>
<td>No</td>
<td>--</td>
</tr>
<tr>
<td>Asylees</td>
<td>No</td>
<td>--</td>
</tr>
<tr>
<td>Undocumented</td>
<td>No</td>
<td>--</td>
</tr>
</tbody>
</table>
Who was already screened? CDC overseas guidelines

Active TB
Syphilis
Gonorrhea
Malaria
Parasites
Exam for signs of leprosy

...What's missing?
### Empiric Parasite Treatment

<table>
<thead>
<tr>
<th>Refugee Population</th>
<th>Regimens by Pathogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil-transmitted helminths: Albendazole</td>
<td>Strongyloidiasis: Ivermectin, 200 μg/kg/day orally once a day for 2 days</td>
</tr>
<tr>
<td>Adults</td>
<td></td>
</tr>
<tr>
<td>Asia, Middle East, North Africa, Latin America, &amp; Caribbean</td>
<td>400 mg orally for 1 day</td>
</tr>
<tr>
<td>Sub-Saharan Africa, non-Loa loa-endemic area</td>
<td>400 mg orally for 1 day</td>
</tr>
<tr>
<td>Sub-Saharan Africa, Loa loa-endemic area</td>
<td>400 mg orally for 1 day</td>
</tr>
<tr>
<td>Pregnant women</td>
<td></td>
</tr>
<tr>
<td>Asia, Middle East, North Africa, Latin America &amp; Caribbean</td>
<td>Not recommended</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Not recommended</td>
</tr>
</tbody>
</table>
Refugees

All the same things as immigrants PLUS (per CDC):

- CBC with diff
- UA
- Latent TB (age > 5)
- HIV
- +/- Hep B: If from country with $\geq 2\%$ prevalence (HBsAg, anti-HBc, anti-HBs)
- +/- Hep C: same as US guidelines

Pediatrics:
# Refugees: King County Screening

<table>
<thead>
<tr>
<th>Tests / Vaccinations</th>
<th>Age Range (<em>See below for information on clients &lt;6 months of age</em>)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6-23 months</td>
</tr>
<tr>
<td>CBC with differential</td>
<td>✔</td>
</tr>
<tr>
<td>Serum Lead Level</td>
<td>✔</td>
</tr>
<tr>
<td>(children and all pregnant women)</td>
<td></td>
</tr>
<tr>
<td>Tuberculin Skin Testing / PPD</td>
<td>✔</td>
</tr>
<tr>
<td>Quantiferon Gold (QFT-G)</td>
<td></td>
</tr>
<tr>
<td>Varicella titer</td>
<td>✔</td>
</tr>
<tr>
<td>HIV-1/HIV-2 AG/AB EIA</td>
<td>✔</td>
</tr>
<tr>
<td>Hepatitis A virus total antibody</td>
<td>✔</td>
</tr>
<tr>
<td>Hepatitis B virus surface antigen (HBsAg)</td>
<td>✔</td>
</tr>
<tr>
<td>Hepatitis B virus core antibody (anti-HBc)</td>
<td>✔</td>
</tr>
<tr>
<td>Hepatitis B virus surface antibody (anti-HBs)</td>
<td>✔</td>
</tr>
<tr>
<td>Hepatitis C virus surface antibody (anti-HCs)</td>
<td>✔</td>
</tr>
<tr>
<td>RPR-Qualitative with reflex confirmatory testing (if no documented RPR/VDRL at overseas exam)</td>
<td>✔</td>
</tr>
<tr>
<td>Vitamin B12 level (Bhutanese refugees)</td>
<td>✔</td>
</tr>
<tr>
<td>Measles, Mumps, Rubella immunity profile (if indicated, e.g., pregnant women)</td>
<td>✔</td>
</tr>
<tr>
<td>Urine Pregnancy test (if indicated, for women of childbearing age)</td>
<td>✔</td>
</tr>
</tbody>
</table>

*See below for information on clients <6 months of age*:

- If clinically indicated
Non-refugees

Are they are similar risk for endemic diseases as their refugee counterparts?

- Urban vs rural
- Countries traveled through
- Methods of travel
- Prior occupation
- Time in the US
Screening to Consider

CBC with diff
UA
Latent TB
HIV
Hep B
Hep C
Syphilis
Gonorrhea

Pediatrics:

Infants: newborn metabolic screen

Ages 6 mo-16 years: lead; repeat in 3-6 mo if ages 6 mo to 6 years

History and exam for signs of leprosy, active TB
Disease Specific Recommendations

Parasites
TB
Malaria
Leprosy
Hepatitis B
Hepatitis C
STIs
Soil Transmitted Helminths
Ascaris, whipworm, hookworm

What: Intestinal worms in soil found mainly in warm, moist climates where sanitation and hygiene are poor.

Look for: usually asymptomatic, but may have systemic signs and symptoms, anemia, abdominal pain, diarrhea.

https://www.cdc.gov/parasites/sth/
Soil Transmitted Helminths
Ascaris, whipworm, hookworm

Who?
Recent immigrants (within 2 years) from the Middle East, Asia, Africa, Latin America, Caribbean
Also, regions of Southern Europe, Southern US

How?
Treat with empiric albendazole
Alternative: Stool ova/ parasites x 3

https://www.cdc.gov/parasites/sth/
**Strongyloides**

What: helminths found in soil & feces, endemic in tropical & subtropical climates

Look for: usually asymptomatic. May have eosinophilia; waxing and waning GI, skin or pulmonary symptoms, urticarial or serpiginous skin lesions

https://www.cdc.gov/parasites/strongyloides/biology.html
Strongyloides

Who? Immigrants from Asia, Africa, Latin America & Caribbean

How?

Screen with strongyloides IgG

If positive, treat with Ivermectin 200 mcg/kg PO- two doses two weeks apart
Strongyloides: caution!

Immunosuppression & Disseminated Strongyloidiasis

Hyperinfection syndrome with high mortality

Often seen after patients are started on immunosuppressive medications, including steroids for asthma or COPD

Always check to see if this has been tested/treated prior to immunosuppressive therapies!

https://sites.ualberta.ca/~rmclean/wormst.htm
Strongyloides: caution!

Loa loa

Caution for risk of encephalopathy when treating with ivermectin if also have high loads of Loa Loa

Rule out with a day time (10-2) blood smear or treat with high dose albendazole instead (400 mg BID x 7 days)

http://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0001210
Schistosomiasis (bilharzia)

What: worms transmitted through skin, in water with freshwater snails

Look for: asymptomatic; may have a rash within days of water contact, may develop Katayama fever

Presentations of chronic infections depend on the species but can include hematuria, abdominal pain, melena, bladder cancer, neurologic complications
Schistosomiasis

Who? Immigrants from Sub-Saharan Africa

How?

Screen: Schistosomiasis IgG serology

Treat: Praziquantel 40 mg/kg, divided and given in two doses

https://www.cdc.gov/parasites/schistosomiasis/
Caveat: timing of treatment

Never been treated:

Give praziquantel first; albendazole and Ivermectin one day or more later

Previously treated:

Ok to to give all three at once
Tuberculosis

Test if symptoms or recent close contacts with pulmonary TB

Screen for latent infection in patients from high-prevalence countries if you would treat.

http://gamapserver.who.int/mapLibrary/Files/Maps/Global_TBincidence_2015.png
Malaria: *M. falciparum*

Treat presumptively if coming from endemic areas in the past 3 months

Treat: Atovaquone-proguanil or artemether-lumefantrine

Malaria

Think about malaria with febrile illnesses after immigration

Don’t forget *P. vivax* and *P. ovale*’s dormant liver stages

| Somalia | All | High | Chloroquine | P. falciparum 90%  
P. vivax 5%-10%  
P. malariae, and *P. ovale* rare | Atovaquone-proguanil, doxycycline, or mefloquine |

Leprosy (Hansen’s Disease)

What: Infectious, chronic bacterial disease that primarily affects the skin and peripheral nerves

Test: Lesion biopsy of active margin- will have acid-fast bacilli in lesion
Hepatitis B

Screen patients from intermediate to high prevalence countries (>/= 2%)

Test HBsAg and HbsAb and/or anti-HBc
Hepatitis C

Screen if from areas with 3% or greater seroprevalence
STIs

HIV: test everyone (CDC/ USPTF)

Syphilis: test everyone > age 15 (CDC)

Gonorrhea: if symptoms or LE in UA (CDC)

Chlamydia: test women 24 and younger or if RF (CDC/ USPTF)
Wrapping up

Identify immigrant and refugee patients who need additional screening or empiric treatment for chronic infections

Review common chronic infectious diseases in immigrant populations

Select appropriate empiric treatments or screening tests

- Parasites
- TB
- Malaria
- Leprosy
- Hepatitis B
- Hepatitis C
- STI
References


US Department of Health and Human Services, Division of Global Migration and Quarantine. SUMMARY CHECKLIST FOR THE DOMESTIC MEDICAL EXAMINATION FOR NEWLY ARRIVING REFUGEES; July 16, 2012.

US Department of Health and Human Services, Division of Global Migration and Quarantine. GUIDELINES FOR OVERSEAS PRESUMPTIVE TREATMENT OF STRONGYLOIDIASIS, SCHISTOSOMIASIS, AND SOIL-TRANSMITTED HELMINTH INFECTIONS FOR REFUGEES RESETTLING TO THE UNITED STATES; September 17, 2013.
References

US Department of Health and Human Services, Division of Global Migration and Quarantine. *CDC IMMIGRATION REQUIREMENTS: TECHNICAL INSTRUCTIONS FOR TUBERCULOSIS SCREENING AND TREATMENT USING CULTURES AND DIRECTLY OBSERVED THERAPY;* October 1, 2009

Public Health Seattle and King County. *New Arrival Refugees - Guidelines for Primary Care Providers.*


US Department of Health and Human Services, Division of Global Migration and Quarantine. SCREENING FOR SEXUALLY TRANSMITTED DISEASES DURING THE DOMESTIC MEDICAL EXAMINATION FOR NEWLY ARRIVED REFUGEES; April 16, 2012.

Special Thanks

Dr Maureen Brown

Harborview International Medicine Clinic
25 min talk - Identify immigrant and refugee patients who need additional screening for chronic infections and select appropriate tests

http://www.cmaj.ca/content/183/12/E824.full

https://www.cdc.gov/immigrantrefugeehealth/guidelines/refugee-guidelines.html


http://www.astho.org/Infectious-Disease/Global-Health/ARHC-Medical-Screening-Recommendations/

http://refugeehealthta.org/
Refugees: CDC Domestic Evaluation

Exam: including exam for signs of leprosy (Hansen’s disease)

CBC with diff, UA, latent TB (age > 5), RPR (age > 15 or RF), HIV

If did not have pre-departure presumptive treatment, incomplete treatment or had contraindications = test or treat for soil-transmitted helminths (albendazole), strongyloides (ivermectin), schistosomiasis (praziquantel), malaria (pregnant women, kids < 5 kg at the time of departure)

Hep B: If from country with >= 2% prevalence, HBsAg, anti-HBc, anti-HBs

Hep C: same as US guidelines

Pediatrics:

Infants: metabolic screen
Immigrants: Overseas Evaluation

Active TB:

Everyone screened for signs/symptoms

Countries with $\geq 20$ cases per 100,000

Ages 2-14 get TST/IGRA

Ages > 14 get chest X ray then sputum smear/culture x3 if any suspicion

Countries with $\leq 20$ cases per 100,000

Ages > 14 get chest X ray then sputum smear/culture x3 if any suspicion

Syphilis, Gonorrhea: > age 14

Malaria: endemic countries in Sub-Saharan Africa (SSA), get presumptively treated.
# Services and Coverages

<table>
<thead>
<tr>
<th>Services and Coverages</th>
<th>Marketplace</th>
<th>Medicaid</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Card Holders</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>After 5 years</td>
<td></td>
</tr>
<tr>
<td>Refugees</td>
<td>X</td>
<td>X</td>
<td>First 8 months automatic coverage</td>
</tr>
<tr>
<td>Asylum Seekers</td>
<td>If granted employment authorization</td>
<td></td>
<td>Application process alone can take 6-9 mo</td>
</tr>
<tr>
<td>Asylees</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Current Visas</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undocumented</td>
<td>X</td>
<td></td>
<td>Including DACA</td>
</tr>
</tbody>
</table>