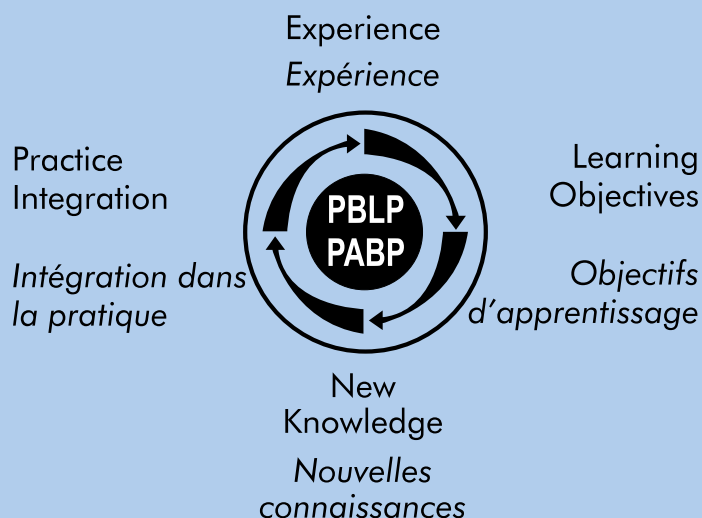


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# N

## NEW IMMIGRANTS AND REFUGEES: SCREENING AND HEALTH CARE

Each year more immigrants, a substantial proportion of whom are refugees, reach Canadian shores bringing with them unique health needs and few or no immunization records. Once here, many find it difficult to access health care. By tailoring screening and preventive measures to the disease patterns of the country of origin and facilitating access to healthcare, primary care practitioners can improve both the short- and long-term outcomes for this vulnerable population.

This module aims to:

- clarify the scope of the Canadian immigration medical examination and the implications of positive screening results
- clarify individual screening for conditions that are more prevalent among refugees, and expand the diagnostic differential to deal with suspicious symptoms
- outline strategies for dealing with immunization
- provide practical suggestions for improving access to healthcare

New immigrants and refugees are a highly diverse population with differing health needs. While this module will explore topics that are common to both groups, it will also highlight important distinctions from a health perspective. All topics included in this module may not be relevant to specific individuals, and it is therefore important to consider other factors such as socioeconomic status, class of immigrant (Info point 1), immigration trajectory, and country of origin.

### CASES

#### Case 1: Josef, male, age 15

Josef recently arrived from Eastern Europe with his parents and siblings. His mother, Svetlana, brings him to you with a letter from public health reporting that his immunizations are not up to date. She tells you that he

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received childhood vaccinations in Slovakia, but she is unable to provide you with any documentation or details.

***How would you proceed with immunization for Josef?***

**Case 2: Emmanuela, female, age 40**

**Part One**

Emmanuela arrived in Canada eight months ago from the Sudan. She is a refugee claimant and is presently living at a family shelter awaiting housing. She has been referred to you because she has a fever and cough. She speaks little English but her 12-year-old son is available for translation.

***What further information would be helpful from Emmanuela?***

**Part Two**

Emmanuela had an immigration physical seven months ago. Upon further questioning, you learn that she has had a cough (which was initially dry) on and off for the past month. The cough resolved for a few weeks, but has now recurred and is productive of yellow phlegm in the morning. She has also recently had night sweats, “fevers” and chills. Emmanuela denies any shortness of breath. She has experienced a four kg weight loss since her arrival in Canada. Her physical exam was normal. There are no known sick contacts in Emanuella’s life.

***How would you manage Emmanuela?***

**Part Three: A month later**

Emmanuela has been doing well, having recovered from her acute bronchitis. She is now trying to enroll in a college course to become a dental hygienist.

***What other screening manoeuvres would you consider for her?***

**INFORMATION SECTION**

1. Foreign-born individuals account for just under 20% of the Canadian population.<sup>1</sup> Those arriving in Canada are classified into two main groups: temporary residents and permanent residents.
  - a. Temporary residents are those “who are visiting, studying or working in Canada but who maintain their own nationality and their ability to return to their place of origin.”<sup>2</sup> They include:
    - migrant workers: 165,000 annually
    - international students: 74,000 annually
    - refugee claimants (those arriving in Canada claiming refugee status at the border): 28,000 annually<sup>2</sup>
  - b. Permanent residents have been granted the right to live in Canada on a permanent basis by immigration authorities.<sup>2</sup> They include:
    - humanitarian class migrants: refugees resettled from abroad (16,000 annually) or selected in Canada from the refugee claimants referred to above (12,000 annually)
    - business and economic migrants: 131,000 annually
    - family class (family reunification) migrants: 66,000 annually<sup>2</sup>

A refugee is a person who meets the refugee definition in the 1951 Geneva Convention relating to the Status of Refugees. “To meet the definition, a person must be outside their country of origin and have a well founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion.”<sup>3</sup>

**CANADIAN IMMIGRATION MEDICAL EXAMINATION (IME)**

2. All children and adults seeking permanent residence in Canada must undergo an IME. This exam must be done within the 12 months preceding arrival in Canada for new immigrants and those seeking refugee status from abroad. Refugee claimants must undergo an IME within 60 days of claiming refugee status at the border.<sup>4</sup> Only those physicians authorized by Citizenship and Immigration Canada (CIC) may perform IMEs.<sup>5</sup>
3. The IME is designed to assess a limited number of public health risks, not to provide preventive screening. It is comprised of:<sup>5</sup>

- a complete physical exam with vision and hearing screen
- chest x-ray (age 11 and older)
- syphilis serology (age 15 and older)
- urinalysis (age five and older): dipstick for protein, glucose, blood and, if positive, microscopy
- HIV testing (age 15 and older, as well as for children who have received blood or blood products, or have a known HIV mother)

Results are not linked with any follow-up except in the case of TB, syphilis and HIV. Patients may not be aware of the need to follow-up other positive results. Results of any testing done during the IME may be difficult for other physicians to access as they are the property of the government.<sup>6</sup>

**Note:** The IME does not include a review of immunization status, routine TB skin testing, or hepatitis B or C serology.<sup>4</sup>

4. An applicant would not generally be denied entrance to Canada on health grounds, unless a CIC medical officer “determines that the applicant’s health condition is likely to be a danger to public health or public safety or might reasonably be expected to cause excessive demand on health or social services.”<sup>7</sup> (example: chronic kidney disease requiring dialysis). Refugees are exempt from the excessive demand clause. Although those who test positive for inactive TB, syphilis, or HIV are not deemed inadmissible to the country, they are linked to ongoing surveillance or notification actions.<sup>2</sup>

## POST-IMMIGRATION CARE

5. The health needs of newly arrived immigrants and refugees differ from those of Canadian-born individuals. Disease prevalence is influenced by exposures (both in the country of origin and in places visited during migration), migration trajectory (e.g., voluntary migration vs. forced migration), genetic predispositions and stressors/exposures when they arrive in Canada (e.g., poor housing, poverty). Certain sub-groups have an increased risk of disease-specific mortality (e.g., stroke in South Asians, and diabetes mellitus in Caribbeans).<sup>8</sup>
6. Upon arrival, many new immigrants are healthier than the Canadian-born population. However, after arrival this ‘healthy immigrant effect’ rapidly declines.<sup>2</sup> Some immigrants, particularly refugees, face health disparities related to lower socioeconomic status, cultural and language barriers, difficulty accessing health services, and a greater burden of infectious diseases.<sup>9</sup>

## History and Physical Exam

7. A full health history includes inquiry about presenting complaints, medications (including the use of traditional and herbal medicines, and practitioners), allergies, medical history (consider illness according to country of origin such as malaria, TB, war-related injuries) and family history.<sup>10,12</sup>
  - a. Elicit factors that increase the risk for chronic illness/diseases/toxin exposures—for example, history of betel nut use (chewed for its effect as a mild stimulant; can cause many health effects including oropharyngeal cancers), hookah/waterpipe smoking (usually tobacco), use of Ayurvedic medications (traditional medicine native to India).<sup>10</sup>
  - b. Obtain a thorough travel history, as many immigrants and refugees travel through several places between their country of origin and Canada.<sup>10</sup>
8. A physical exam includes weight, BP and a focus on key clinical signs that may point to specific infectious or chronic diseases. This would include nutritional status, growth and development in children, fevers, skin conditions (e.g., ulcers, fungal disease, scabies, lice), eye abnormalities and visual acuity, poor dentition, lymphadenopathy, organomegaly, genital abnormalities, and bone or joint deformity.<sup>10,11</sup>
  - a. The exam will often reveal signs of cultural norms and practices—from female genital cutting/mutilation (see below) and scarification to traditional health practices such as coining, cupping and uvulectomy.<sup>10</sup> There may be evidence of old fractures, tendon or nerve damage, injuries from stepping on explosives, or other untreated or poorly managed trauma.
  - b. Female genital mutilation (FGM) involves partial or total removal of the external female genitalia for cultural or other non-medical reasons. The vast majority of FGM (65-90%) has occurred in women from Africa.<sup>13</sup> FGM has an impact on antenatal, obstetric, and gynecological management. The chronic effects of FGM commonly encountered in clinical practice include urinary tract infections and painful menstruation.<sup>14</sup> For more information on FGM, see Appendix 3, Online Resources.

Certain signs and symptoms may indicate diseases not often encountered in Canadian-born populations. As a result, an expanded diagnostic differential is important. Appendix 1 provides a list of significant symptoms and important diagnoses to consider in refugees and, where applicable, new immigrants.

**Screening** (Appendix 2)

9. Evidence-based guidelines for screening immigrant and refugee populations have been scant,<sup>10</sup> although the Canadian Collaboration for Immigrant and Refugee Health (CCIRH) recently developed clinical preventive recommendations for this population using evidence-based methods.<sup>8</sup> For a summary of these recommendations, see Appendix 2.

**Infectious Diseases**

10. Many immigrants and refugees come from regions where parasitic and other infectious diseases are common. Screening for conditions, including TB, hepatitis B and C, HIV and parasites, is important in people from countries with a high prevalence of such diseases (Appendix 2). The impacts of these diseases on individuals and their communities are largely preventable through appropriate screening, treatment and public health follow-up.

*Tuberculosis (TB)*

11. Residents born in a foreign country represent 65% of all active TB cases in Canada.<sup>15</sup> Screening for latent TB with a Mantoux skin test is recommended in children, adolescents < 20 years of age and refugees between 20 and 50 years of age from countries with a high incidence of tuberculosis e.g., sub-Saharan Africa, Asia, and Central and South America.<sup>16</sup>
12. Patients with positive reactions to the Mantoux skin test but a negative chest x-ray and *no* symptoms suggestive of active TB are considered to have latent tuberculosis infection.<sup>17</sup> To interpret skin test results, see the [Canadian Tuberculosis Standards](#), Page 63, Table 1.<sup>A</sup>
- a. Treatment for latent TB infection with daily isoniazid for nine months is generally recommended. It is important to monitor for hepatotoxicity.<sup>16</sup>
- Note:** The classic symptoms of pulmonary TB include chronic cough (of at least three weeks duration that is initially dry but becomes productive after several weeks to months), fever and night-sweats. Hemoptysis, anorexia, weight loss, chest pain and other symptoms generally indicate more advanced disease.<sup>17</sup>
- b. Patients with symptoms suggestive of possible active TB require further assessment (see below). The Mantoux skin test is *not* recommended for

the diagnosis of active pulmonary TB. Results will be falsely negative in 20-30% of patients with active TB at the time of initial diagnosis. False positive results can occur due to infections with nontuberculous mycobacteria and prior BCG vaccination.<sup>17</sup>

- c. Further assessment to diagnose active TB includes:

*Chest x-ray:* As the presence of any abnormality on x-ray has a sensitivity of over 95%, a normal chest x-ray in an otherwise well individual can be used to rule out active pulmonary TB. However, approximately 10% of HIV-positive persons with active TB will have normal x-rays.<sup>17</sup> In patients with symptoms suggestive of active TB, sputum or other investigations, if the clinical presentation suggests involvement of other organs (e.g. kidney, bone), may still be necessary.<sup>18</sup>

*Examination of sputum by microscopy:* Indicated for patients with symptoms of active TB *and/or* a positive chest-x-ray to diagnose suspected active pulmonary TB and to determine infectivity.<sup>17</sup> Although antibody assays are available, the sensitivity and specificity of available tests is not high enough to replace sputum microscopy.<sup>19</sup>

*Vaccine-Preventable Diseases*

13. New immigrants and refugees often have no immunization records or have records that are difficult to interpret. A US study found that the vast majority of refugees lacked documents that confirmed receipt of many recommended immunizations—documentation rates were lowest for adults and those from sub-Saharan Africa.<sup>20</sup> All children lacking appropriate documentation of their immunization history should be started on a primary immunization schedule appropriate for their age, based on the immunization schedule of the province for previously unimmunized individuals.<sup>21</sup> All adults should have one dose of MMR, and a primary series (three injections) against diphtheria, tetanus and polio, the first of which should include acellular pertussis. Susceptible individuals should also be vaccinated against hepatitis B.
14. If the vaccination history is unknown, there may be concerns about over-immunizing individuals.<sup>21</sup>
- a. Recent studies have shown no evidence of harm related to over-immunization with tetanus, diphtheria, polio or acellular pertussis in adolescents and adults.<sup>22</sup>

<sup>A</sup> Canadian Tuberculosis Standards: [http://www.phac-aspc.gc.ca/tbpc-latb/pubs/pdf/tbstand07\\_e.pdf](http://www.phac-aspc.gc.ca/tbpc-latb/pubs/pdf/tbstand07_e.pdf).

- b. Adverse effects of repeat immunization have not been found with the measles, mumps, and rubella, polio, Haemophilus influenzae type b conjugate, pneumococcal conjugate, meningococcal conjugate, hepatitis B and A, varicella and influenza vaccines. These vaccines can be given on the basis of age or risk factors without concern about prior vaccination.<sup>21</sup>
15. Routine serologic testing to determine immunity of children and adults without records is not recommended.<sup>21</sup> Serology is expensive and there are no known antibody levels which correlate with immunity for several of the diseases. With regards to measles, mumps and rubella; a Canadian study of 1480 adult immigrants and refugees supports this recommendation, finding that 36% of participants were susceptible to at least one of these conditions, with the prevalence ranging from 22–54% in subgroups depending on age, sex, and place of origin. Immigrant women are at particular risk.<sup>23</sup>
16. Given that varicella is more prevalent in adults, as opposed to children from tropical countries, serotesting is recommended for antibodies in immigrants from 13 years of age. Vaccination is indicated for those who are found susceptible. All children < age 13 should be vaccinated without prior serotesting.<sup>8</sup>
17. Caution should be exercised when giving live vaccines to people who are immunosuppressed, including those with HIV. The MMR and varicella vaccines may be given to those with mild/moderate immune suppression related to HIV although the Canadian Immunization Guide and an infectious disease specialist/immunologist should be consulted for advice on immunization for HIV-infected people.<sup>21</sup>

### Malaria

18. Malaria is a leading cause of mortality worldwide. In 2008 approximately 243 million cases led to nearly 863,000 deaths.<sup>24</sup> Prompt diagnosis and treatment are essential for preventing severe disease and death, particularly in children who are at increased risk for malaria and its complications.<sup>8;25</sup>
- a. Although routine screening for malaria is *not* recommended, it is important to be vigilant for symptoms of the disease in people who have come from or travelled to malaria-endemic countries in the past three months and up to one year. Always suspect malaria if fever is present or if the patient has migrated from sub-Saharan Africa.

- b. Investigations with the Rapid Diagnostic Test and thick-and-thin malaria smear are recommended. Although they have slightly lower sensitivity (~89–95% for *P. falciparum*, 68% for *P. vivax*), rapid diagnostic tests are becoming widely available and do not rely on an experienced microscopist.<sup>9</sup> It is still important to obtain blood for a smear, even in areas that do not have access to immediate interpretive expertise, as this can be useful to quantify the percent of parasitemia, which is important for prognosis and monitoring in sick cases.<sup>26</sup> A high index of suspicion and repeat testing may be necessary to make the correct diagnosis.

### Chronic and Non-communicable Diseases

19. Newly arrived immigrants and refugees are at greater risk of certain chronic and non-communicable diseases.<sup>8</sup>
- a. Latin Americans, Africans and South Asians have a prevalence of type 2 diabetes that is two-to-four times higher than Caucasians of European extraction. Furthermore, they experience an earlier onset and poor outcomes.<sup>27</sup>
- b. Iron deficiency is the most common nutritional deficiency in the world, particularly among women and children<sup>28</sup> and is the most common cause of anemia in immigrant populations. Typically, it manifests as microcytic anemia.<sup>29</sup>
- c. The prevalence of dental caries is significantly higher among new immigrants (23%) compared to Canadian-born individuals (3.5%).<sup>8</sup>
- d. Refractive error is prevalent in immigrant populations and is the most common cause of visual impairment.<sup>8</sup>

Screening recommendations for these conditions are outlined in Appendix 2.

### Mental Health and Maltreatment

20. Many patients, particularly refugees, may have experienced torture, violence and other traumatic events that can increase the risk for mental health disorders.<sup>10;30;31</sup>
- a. Screening for depression in adults is recommended if you are linked with an “integrated treatment program” (Appendix 2).<sup>8</sup>
- b. Routine screening is not recommended for other mental health issues, including post-traumatic stress disorder (“pushing for disclosure of traumatic events in well functioning individuals could result in more harm than good”), child maltreatment and intimate partner violence. For these issues, it is important to be alert to mental health disorders like depression or panic

disorder, as well as to unexplained somatic symptoms and sleep disorders.

### Women's Health

21. Recent immigrant women have much lower cervical screening rates than Canadian-born women.<sup>32</sup>
  - a. Cultural beliefs may pose a barrier to cervical examinations.<sup>8</sup>
  - b. A pelvic exam may be difficult, painful or impossible to perform. "Information, rapport and access to a female practitioner can improve uptake of screening and follow-up."<sup>8</sup>
22. Other important issues include unmet contraception needs to prevent unwanted pregnancy and HPV vaccination for female patients age 9–45 (in April 2011, Health Canada approved the vaccine for women up to age 45).<sup>8</sup>

### IMPROVING ACCESS TO HEALTHCARE

23. Consulting a healthcare practitioner can be stressful. Newly-arrived immigrants are unfamiliar with the Canadian healthcare system and might worry about deportation if a serious illness is discovered. Refugee patients may distrust authority figures.<sup>33</sup> Consider the following strategies:
  - Allow time to establish a trusting relationship.
  - Explain the structure of our healthcare system, and the role of a family physician. Review confidentiality rules with patient and times where disclosure is legally mandated (e.g. reporting of sexually transmitted infections to public health).
  - Permit some flexibility with appointments as patients may be unfamiliar with appointment systems. An appointment reminder call, especially in the early resettlement period, can be helpful.
  - Consider using a patient-held record, especially for immunizations, as refugee patients typically move often in the resettlement period.
  - Compile a list of community resources/support networks that can meet the specific resettlement needs (e.g., housing, food, language courses).<sup>8;12;33;34</sup>

### Medical Interpreters

24. "The need for clarity and understanding is paramount" in a clinical setting.<sup>35</sup> Whenever possible, use a qualified, professional interpreter to facilitate communication between you and your patients. It is best not to rely on children or other relatives

and friends unless a more qualified professional is unavailable. Systematic reviews<sup>36;37</sup> have found that the use of professional interpreters rather than "ad hoc translators" (e.g., children, friends, staff, etc) significantly enhances communication "and helps reduce disparities in the use of a range of medical services."<sup>34</sup>

25. Tips for working with medical translators:
  - Schedule enough time for the visit – an interpreted conversation requires that every statement and question is repeated twice.
  - Address the patient not the interpreter.
  - Speak in a normal voice – not too loud or too fast.
  - Use words, not gestures, to explain your meaning. Use visual aids where possible (resources, such as Google Images, can be helpful)
  - Avoid using colloquialisms that may mean nothing to other cultures.
  - Ask only one question at a time. Keep statements short and pause to permit translation.
  - Expect that the interpreter may interrupt for clarification. Be prepared to repeat yourself if your message is not understood.
  - If prescribing, ask the interpreter to write the dose and instructions in the patient's own language.<sup>12;35</sup>
26. Information about translation services may be obtained from organizations such as provincial settlement services. The CIC provides an extensive list of all community services for newcomers (see link in Appendix 3 under Settlement Services).

### THE BOTTOM LINE

- When caring for newly-arrived immigrants and refugees, consider country of origin, migration trajectory (forced versus voluntary) and countries visited en route to Canada.
- An expanded differential is important in the presence of certain signs and symptoms.
- Implement evidence-based screening manoeuvres specific to this population as well as those recommended for the general population.
- Working with medical translators and community support networks can improve access to health care.



## CASE COMMENTARIES

### Case 1: Josef, male, age 15

#### How would you proceed with immunization for Josef?

As Josef's mother has no immunization records, Josef would be started on a primary immunization schedule as appropriate for his age (Info point 13). It would not be necessary to check his titres before vaccination (Info point 15).

Although Josef would have been tested for HIV as part of his IME, it would be difficult to access the results as these are the property of the government and not the patient (Info point 3), and contact/surveillance may not be fully reliable. Therefore, it would be important to repeat the HIV test before giving him a live vaccine and, if positive, to consult an infectious disease specialist/immunologist. The Canadian Immunization Guide provides specific advice on immunization for HIV-infected people (Info point 17).

There is no concern with over-vaccinating Josef as recent studies have not shown any increase in adverse reactions with more frequent administration of these vaccines (Info point 14a).

Given Josef's age, he should be sent for serological testing prior to being given the varicella vaccine (Info point 16).

#### THE REAL PATIENT

The patient received his primary series vaccinations for diphtheria, pertussis, tetanus, polio, measles, mumps, rubella and varicella over the course of several visits. He will be entering Grade Nine and vaccinations for meningitis C and Hepatitis B will need to be administered as he will have missed the Ontario school based program immunizations in Grade Seven, although there is variation in provincial programs.

### Case 2: Emmanuela, female, age 40

#### Part One

#### What further information would be helpful from Emmanuela?

It would be helpful to know if Emmanuela has had any previous health issues, including infectious diseases,

the duration of her current symptoms, whether she is experiencing any other symptoms (specifically those related to possible active TB, malaria or HIV ) and if she has had any exposure to active TB (Info points 7, 12, 18). It would also be important to ask about alcohol consumption and smoking.

Be mindful of the pitfalls when a family member translates. It is possible that her son won't provide certain history, will give biased information and/or may not understand your questions. It would not likely be appropriate to have her son translate certain sensitive elements of the history (for example sexual history). It would be preferable to arrange for a medical translator (Info point 24).

#### Part Two

#### How would you manage Emmanuela?

The differential diagnosis would include TB, bronchitis, URI, pneumonia and, although less likely, malaria or HIV.

The assessment of Emmanuela would include a chest x-ray and sputum for AFB to diagnose active TB (Info point 12c). A Mantoux skin test may not help in the acute diagnosis (Info point 12b). A positive test may be helpful in the face of a negative work-up for pulmonary disease however, as this could point to latent or extrapulmonary TB (Info point 12). A negative chest x-ray would not be 100% sensitive in ruling out TB (Info point 12c), thus you might consider contacting an infectious disease specialist for advice and follow-up, while culture results are pending. In the meantime, it would be advisable for Emmanuela to wear a mask when around others.

You might also consider a Rapid Diagnostic Test and a thick-and thin smear to test for malaria and serology for HIV (Info points 9,18).

#### Part Three: A month later

#### What other screening manoeuvres would you consider for her?

Screening for the following conditions is recommended (Appendix 2):

- cervical cancer (Pap smear)
- hepatitis B and C
- serology for strongyloides and schistosoma
- vision and hearing
- oral health
- iron deficiency anemia
- type 2 diabetes

It would also be important to:

- Discuss Emmanuela's contraception needs and provide counselling as necessary (Info point 21, Appendix 2).
- Screen for depression if you are connected to treatment services (Info point 20a, Appendix 2), using a systematic assessment of mood or a validated questionnaire (e.g., PHQ-9) (Appendix 2).

A thorough history would include details of her past medical history, obstetrical history, use of traditional medicines and healing techniques, health beliefs, transfusions, tattoos, smoking (cigarettes, hookah) and chewing betel nuts (Info point 7).

During the physical examination, you may discover that she has been infibulated, otherwise known as female genital mutilation (Info point 8). It is important to not display a judgmental attitude as this is an accepted practice in many parts of the world. Having a small speculum on hand could facilitate the physical exam.

*While every care has been taken in compiling the information contained in this module, the Program cannot guarantee its applicability in specific clinical situations or with individual patients. Physicians and others should exercise their own independent judgement concerning patient care and treatment, based on the special circumstances of each case.*

*Anyone using the information does so at their own risk and releases and agrees to indemnify The Foundation for Medical Practice Education and the Practice Based Small Group Learning Program from any and all injury or damage arising from such use.*

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## APPENDIX 1. SYMPTOM-BASED DIAGNOSES TO CONSIDER WHEN CARING FOR REFUGEES

**Note:** This appendix may also be relevant to newly arrived immigrants, although its use would be guided by the risk factors in this population.

Significant symptoms	Additional Differential Diagnoses to Consider*
Fever	<p><b>Infections non-endemic to Canada</b> Malaria, fiariasis, Salmonella Typhi, rickettsial disease, dengue, yellow fever/hemorrhagic fever, acute schistosomiasis</p> <p><b>Infections endemic but with higher prevalence in this population</b> Hepatitis, PID, osteomyelitis, dental infections, rheumatic fever, TB (pulmonary and extra-pulmonary), HIV</p>
Jaundice	Hepatitis A/B/C/other, malaria, typhoid sepsis, leptospirosis, liver abscess, hemolysis (e.g., drug induced by G6PD deficiency), deficiency, drug-induced (e.g., isoniazid)
Tiredness/weakness	Depression/anxiety/PTSD, HIV, TB
Appetite loss	Intestinal parasites, depression/anxiety/PTSD
Weight loss	TB, HIV, infective endocarditis or other chronic infection, food insecurity, depression/anxiety/PTSD, bereavement, dental problems, intestinal worms/parasites
Diarrhea or abdominal pain	Intestinal worms/parasites (e.g., strongyloides, giardia, amoebiasis), bacterial infection (e.g., salmonella, shigella, cholera, campylobacter)
Hives	Ascaris, hookworm, loiasis/onchocerciasis, parasites
Altered pigmentation	Leprosy
Breathing difficulties and/or cough	TB, other lung disease (e.g., pulmonary eosinophilia), rheumatic and other congenital heart diseases, bronchiectasis, anxiety
Muscular/joint/bone/chronic pain	Vitamin D deficiency, rheumatic fever, TB, typhus, dengue, osteomyelitis, sickle cell disease, cysticercosis, psychosomatic illness, congenital abnormalities, lyme disease
Dysuria/hematuria	Schistosomiasis, TB, STI's-gonorrhoea, chlamydia, herpes
Fits, faints, feeling "funny"	Culture bound syndromes, panic attacks, depression/ anxiety/PTSD
Paraesthesia	Leprosy, syphilis, as causes of peripheral neuropathy
Altered mental state	Cerebral malaria, meningitis, encephalitis, rabies, sickle cell disease (infarction), trypanosomiasis

\* This table is not meant to include all of the usual differential diagnoses that would be considered with these presentations

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## APPENDIX 2. A SUMMARY OF SCREENING RECOMMENDATIONS FOR IMMIGRANTS AND REFUGEES

Screen	Recommendation	Quality of Evidence*
<b>INFECTIOUS DISEASES</b>		
Hepatitis B	Screen adults and children from countries where seroprevalence of chronic hepatitis B virus infection is moderate or high ( $\geq 2\%$ hepatitis BsAg positive – e.g., Africa, Asia Eastern Europe, parts of South America) with HbsAg, anti-HBc & anti-HBs. Refer for treatment if HbsAg is positive. Vaccinate if negative for all three markers (HBsAg, anti-HBc, anti-HBs).	Moderate
TB	Screen children, adolescents (< age 20) and refugees (age 20-50) from countries with high incidence of TB (e.g., Saharan Africa, Asia, Central and South America, some in Eastern Europe) with Mantoux skin test as soon as possible after arrival in Canada. Screen (with Mantoux) all other immigrants with risk factors putting them at increased risk of active TB. See Info point 12 for further diagnostic work-up.	High
HIV	With informed consent, screen all adolescents and adults from countries where HIV has a prevalence > 1% (sub-Saharan Africa [all African countries that are fully or partially located south of the Sahara], parts of Caribbean and Thailand).	Moderate
Hepatitis C	Screen for hepatitis C antibody in all immigrants from regions with a prevalence of disease $\geq 3\%$ —includes Africa (sub-Saharan and Egypt), Pakistan, Eastern Europe (especially Uzbekistan and Tajikistan).	Moderate
Intestinal parasites	Strongyloides: Screen refugees from South East Asia and Africa with serology Schistosoma: Screen refugees from Africa with serology.	Moderate
<b>MENTAL HEALTH</b>		
Depression	If linked to an integrated treatment program and case management or mental health care (where available), screen adults with a “systematic clinical enquiry or validated questionnaire” (PHQ-9 or equivalent).	Moderate
<b>CHRONIC &amp; NON-COMMUNICABLE DISEASES</b>		
Type 2 diabetes	Screen immigrant and refugee adults > age 35 from South Asia, Middle East, Latin American and Africa with fasting blood glucose.	Moderate
Iron deficiency anemia	Screen immigrant and refugee children (ages 1-4) with hemoglobin Screen women (immigrant and refugee) of reproductive age.	Moderate
Dental caries, periodontal diseases	Screen all immigrants for dental pain and obvious caries and oral disease.	Moderate
Vision health	Screen all immigrants and refugees for visual impairment.	Very low
<b>WOMEN'S HEALTH</b>		
Contraception	Screen immigrant women of reproductive age for unmet contraceptive needs soon after arrival in Canada.	Moderate
Cervical Cancer	Screen sexually active women for cervical abnormalities (Pap). Vaccinate 9-26 year-old females against HPV.	Low+ Moderate

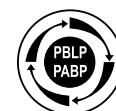
\* Classified as “high”, “moderate”, “low” or “very low” based on methodology of available evidence for a specific clinical action.<sup>38</sup>

+ Despite the lack of high-quality evidence for cervical cancer screening, there is good evidence that immigrants and refugees are under screened (see Info point 21).

Grades of evidence of the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group
<ul style="list-style-type: none"> <li>• High quality: Further research is very unlikely to change our confidence in the estimate of effect.</li> <li>• Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.</li> <li>• Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.</li> <li>• Very low quality: We are very uncertain about the estimate</li> </ul>

**Source:** Pottie K, Greenaway C, Feightner J, Welch V, Swinkels H, Rashid M, Narasiah L, Kirmayer L, Ueffing E, MacDonald N, Hassan G, McNally M, Kahn K, Buhrmann R, Dunn S, Dominic A, McCarthy AE, Gagnon AJ, Rousseau C, Tugwell P and co-authors of the Canadian Collaboration for Immigrant and Refugee Health. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011. DOI:10.1503/cmaj.090313 For guideline summary and clinical considerations go to: <http://www.cmaj.ca/content/suppl/2010/06/07/cmaj.090313.DC1/imm-summary-2-at.pdf>

To access the full guideline, go to [http://www.cmaj.ca/cgi/collection/canadian\\_guidelines\\_for\\_immigrant\\_health](http://www.cmaj.ca/cgi/collection/canadian_guidelines_for_immigrant_health)



## APPENDIX 3. NEW IMMIGRANT AND REFUGEE HEALTH: ONLINE RESOURCES

### General Guides

CCIRH Knowledge Exchange Network: <http://www.ccirhken.ca>

- Collection of resources: evidence reviews and guidelines, podcasts for practitioners, and Refugee and Global Health e-learning Modules for medical students and residents

Health Canada: <http://www.hc-sc.gc.ca/hl-vs/jfy-spv/immigrants-eng.php>

- Basic information on immigrant health issues. Included is information on Canada's health care system, immunization, health promotion, mental health and health reports on new immigrants including immigrant women.

Health Protection Agency's Migrant Health Guide: <http://www.hpa.org.uk/migranthealthguide>

- A UK resource, organized on a country-specific basis, that aims to assist primary health care practitioners to assess and manage migrants.

Victorian Foundation for Survivors of Torture <http://www.foundationhouse.com.au/home/index.htm>

- An Australian site that provides resources to enhance the understanding of the needs of refugees, including *Promoting Refugee Health: A Guide for Doctors and Other Health Care Providers Caring for People from Refugee Backgrounds* and *Caring for Refugee Patients in General Practice: A Desk-top Guide*

### Culture and Customs

Cultural Profiles Project: <http://www.ureachtoronto.com/content/cultural-profiles>

- An overview of life and customs in a profiled country. Over 100 countries profiled.

EthnoMed: <http://ethnomed.org/>

- Information about cultural beliefs, medical issues and related topics pertinent to the health care of immigrants.

Female Genital Mutilation

- Weir, J. Female genital mutilation. CMAJ 2000;162(9). <http://www.cmaj.ca/cgi/reprint/162/9/1344>
- Circumcision Information and Resource Pages: <http://www.cirp.org/pages/female.html>

### Immunization

WHO Vaccine Preventable Diseases Monitoring System

[http://apps.who.int/immunization\\_monitoring/globalsummary/schedules](http://apps.who.int/immunization_monitoring/globalsummary/schedules)

- Immunization schedules by antigen and selected country

### Mental Health

Multicultural Mental Health: <http://www.mmhrc.ca/>

- Resources to improve the delivery of mental health services to Canada's diverse population
- The PHQ-9 is provided in multiple languages at: <http://www.mmhrc.ca/?q=en/node/100000469>

### Statistics

World Health Organization (WHO): [www.who.int/countries/en/](http://www.who.int/countries/en/)

- Country-specific information on health indicators, disease outbreaks, immunization coverage and specific health conditions

### Settlement Services

Citizenship and Immigration Canada: <http://servicesfornewcomers.cic.gc.ca/browse.php>

- Provincial/territorial list all community services for newcomers

### Translation

St Michael's Hospital Translation Guide: <http://www.stmichaelshospital.com/translation.php>

- Practical tool for doctors, nurses and other allied health care professionals when encountering a patient who does not speak English, especially when a translator is not immediately available.

