

CHAPTER 19

Health Screening in Immigrants, Refugees, and International Adoptees

Douglas W. MacPherson and Brian D. Gushulak

It is much more important to know which sort of a patient has a disease than to know what sort of disease a patient has.

William Osler

In an increasingly globalized world, migration and population mobility are important factors in the demographic makeup of national populations. In the United States, for example, recent estimates indicate that the foreign-born cohort comprises some 40 million people, or 13% of the total population. Many foreign-born individuals arrive as immigrants, refugees, or children adopted abroad. As such, and depending on their status, health screening may be a required or recommended component of their migratory process.

Migration-associated health screening is undertaken for two major purposes. First, screening may help identify medical conditions that have implications in terms of personal and community health. Second, foreign nationals seeking residence through organized immigration and refugee programs undergo screening due to legislative, regulatory, or administrative directives and mandates.

Similar epidemiologic principles govern the science and application of both screening processes. However, the rationale underlying these two screening approaches differs in terms of historical basis, operational characteristics, and ultimate goals.

- Screening for medical conditions of personal health significance is intended to improve health parameters or outcomes for the migrant and may not be legally required or mandated.
- Mandatory medical screening for immigration purposes is undertaken for regulatory reasons, such as the determination of admissibility on medical grounds under immigration legislation.

Reflecting the duality of screening related to migrants, this chapter on screening is presented in two parts.

MANDATORY IMMIGRATION SCREENING IN THE UNITED STATES: MEDICAL COMPONENT

The routine examination of travelers and migrants is one of the oldest recorded activities directed at civic administration and protecting the health of the public. The development of European quarantine practices in the mid-14th century was associated with the routine inspection of new arrivals, commercial goods, and conveyances in an attempt to prevent the introduction of epidemic infectious diseases. Those deemed to be at risk following inspection were contained, excluded, or expelled. These early public health activities accompanied the European settlement of the Americas.

Shortly after achieving nationhood, early legislative tools were introduced creating the US Public Health Service, whose initial role was to provide medical care to seafarers and to control the importation of serious diseases epidemic at the time, such as cholera and plague. A linkage to immigration later followed, with the screening of immigrants to exclude those with unwanted medical conditions such as certain loathsome diseases, individuals of suspected low moral behavior, and people with mental deficiencies who were likely to become wards of the state. In the United States, this process began in the late 1800s when the control of immigration was legally recognized as a congressional responsibility. Subsequently, the US Immigration Act of 1882 made specific reference to controlling the admission of immigrants on medical grounds. The routine medical inspection of immigrants was legislatively mandated in the United States in 1891.

Public health programs and policies designed to manage the major medical challenges of the day became linked to the routine medical inspection of immigrants on arrival. By the 1920s, the immigration medical inspection was extended to the European points of origin for the majority of migrants, creating a system of pre-departure immigration medical screening that continues to this day.

The legal basis governing inadmissibility to the United States because of health-related conditions and authorization to undertake medical examination to determine that admissibility is found in the Immigration and Nationality Act (INA) (Title 8 US Code). Under these provisions foreign aliens residing outside of the United States can be denied visas and rendered ineligible to enter the country. These provisions also extend to foreigners already residing in the United States who apply to become permanent residents.

The immigration medical examination provides the opportunity to determine whether the foreign national (known as an “alien” in the legislation) is ineligible for permission to enter the United States (known as Class A conditions) or has an illness or disorder that may interfere with independent self-care, education, or employment or may require future extensive medical treatment or institutional support (known as Class B conditions).

Health-related reasons that exclude admission (Class A conditions) to the United States include:

1. A communicable disease of public health significance
2. A physical or mental disorder or behavior posing a threat to property, safety, or welfare (either currently present or likely to recur)
3. Drug abuse or addiction
4. Failure to present documentation demonstrating having received recommended vaccinations.

The Department of Health and Human Services provides specific regulations (Medical Examination of Aliens 42 CFR, Part 34) to define and implement the health aspects of the INA. These regulations identify those who require medical examination, outline the process, define where and by whom the examinations are performed, and list the specific conditions associated with inadmissibility. The regulations also define conditions or disorders that, while not serious enough for exclusion, are significant enough (Class B conditions) that they must be brought to the attention of consular authorities. The Division of Global Migration and Quarantine at the Centers for Disease Control and Prevention (CDC) administers the regulations.

Currently, the regulations list the following as communicable diseases of public health significance:

- Active tuberculosis
- Infectious syphilis
- Gonorrhea
- Infectious leprosy
- Chancroid
- Lymphogranuloma venereum
- Granuloma inguinale
- Human immunodeficiency virus (HIV) infection

- Quarantinable diseases designated by any Presidential Executive Order
 - Current diseases include cholera, diphtheria, infectious tuberculosis, plague, smallpox, yellow fever, viral hemorrhagic fevers, severe acute respiratory syndrome, and influenza caused by novel or re-emergent influenza (pandemic flu)
- Any communicable disease that is a public health emergency of international concern reported to the World Health Organization (WHO) (under revised International Health Regulations of 2005)
 - For example, smallpox, poliomyelitis due to wild-type poliovirus, cholera, or viral hemorrhagic fevers (including Ebola)

Currently a medical examination is required for all refugees entering the United States and all those applying for an immigrant visa from outside the United States. Foreign residents in the United States applying to become permanent residents also require mandated medical examinations. Panel physicians, designated by consular officers of the US Department of State, perform medical examinations abroad, and civil surgeons, designated by the US Citizenship and Immigration Services, perform medical examinations for aliens who are already present in the United States. Both groups of physicians receive technical instruction and guidance from the CDC's Division of Global Migration and Quarantine.

Detailed medical history and physical examination are required for all individuals (see summary in **Table 19.1**). In addition, applicants who are ≥ 15 years undergo routine chest radiography and serologic testing for HIV and syphilis.

Those between 2 and 14 years of age who reside in a country where tuberculosis incidence rates (based on WHO data) are ≥ 20 per 100,000 have either a tuberculin skin test (TST) or an interferon gamma release assay (IGRA). If either the TST or IGRA are positive, the individual undergoes chest radiography. Depending on the clinical history, TST, IGRA, and radiological findings, supplementary screening requirements for tuberculosis include smears of respiratory secretions for acid-fast bacilli and cultures for tuberculosis. Any positive cultures undergo drug susceptibility testing.

Those rated Class A for tuberculosis (smear-positive infectious) generally must be treated until their sputum smears are negative before they are allowed to transit for immigration. Those rated Class B for tuberculosis are cleared for travel within certain time limits. Failure to journey to the United States within those time limits will require the individual to undergo rescreening.

Since 1996, individuals applying for immigrant visas to entry into the United States have had to demonstrate proof of vaccination for several vaccine-preventable diseases. Initially, these were general, routine vaccinations as recommended by the Advisory Committee for Immunization Practices (ACIP) for the domestic US population. In 2009, however, specific criteria for those requiring an immigration medical exam were adopted by the CDC.

Those criteria are:

1. The vaccine must be age appropriate (as recommended by the ACIP).

and

2. At least of these two conditions must be met:
 - a) The vaccine must offer protection against a disease with the potential to cause an outbreak.
 - b) The vaccine must protect against a disease that has been eliminated or is being eliminated in the United States.

At the time of the preparation of this chapter, required vaccines were:

- Diphtheria
- Tetanus
- Pertussis
- Polio
- Measles
- Mumps
- Rubella
- Rotavirus

TABLE 19.1 Mandatory Immigration Screening: Medical Component

Criteria	Conditions	Screening Tool	Exceptions
Communicable diseases of public health significance	TB Locations with TB incidence <20/100,000	Chest radiograph; ≥15 years of age	
	TB Locations with TB incidence ≥20/100,000	TST or IGRA; ≥2-14 years of age	Applicants who are asymptomatic, contacts of documented infected applicants
Vaccinations	Leprosy, chancroid, gonorrhea, granuloma inguinale, and lymphogranuloma venereum	History and physical examination; laboratory testing only if clinically indicated	Applicants who are contacts of documented infected applicants (e.g., children, spouse)
	Infectious syphilis	Serological tests; ≥15 years of age	
Physical or mental disorder with harmful behavior	Other communicable diseases of public health significance	Determined by HHS/CDC on a risk-based, case-by-case basis, depending on the situation	
	Diphtheria, tetanus, pertussis, polio, measles, mumps, rubella, rotavirus, <i>Haemophilus influenzae</i> type b, hepatitis A, hepatitis B, meningococcal, varicella, pneumococcal, influenza	Review of vaccination records	
Presence of drug abuse or drug addiction	History of ever having caused serious injury to others or major property damage; of trouble with the law because of a medical condition, mental condition, or influence of alcohol or drugs; or having ever attempted suicide	History and physical examination; review of records	
	Drug use: amphetamines, cannabis, cocaine, hallucinogenics, inhalants, opioids, phenylhydrazines, sedative-hypnotics, or anxiolytics		
	Other substance-related disorders, including alcohol addiction and abuse, associated with other harmful behaviors such as driving under the influence of alcohol, domestic violence, or other alcohol-related criminal behavior		

CDC, Centers for Disease Control and Prevention; HHS, Department of Health and Human Services; IGRA, interferon gamma release assay; TB, tuberculosis; TST, tuberculin skin test.

- *Haemophilus influenzae* type b
- Hepatitis A
- Hepatitis B
- Meningococcal
- Varicella
- Pneumococcal
- Influenza

Immunizations recommended and required for US immigration purposes are summarized in the CDC's "Technical Instructions for Panel Physicians for Vaccinations," available at <http://www.cdc.gov/immigrantrefugeehealth/exams/ti/panel/vaccination-panel-technical-instructions.html#status>.

Pre-admission vaccination requirements do not apply for refugees or non-immigrant visa applicants. However, those individuals are required to meet the vaccination standards when they adjust their status in the United States after admission. As a procedural consequence, the immunization status of refugees is recorded during immigration process.

In the case of children adopted abroad, the vaccination requirements do not apply to those 10 years of age or younger. However, the adoptive parents must sign documentation stating that they are aware of US vaccination requirements and will ensure that all required vaccinations will be received within 30 days of the child's arrival in the United States.

The importance and cost-effectiveness of preventative medical interventions in the overseas environment, before transit to the United States, is receiving greater attention as a potential part of the immigration medical process. Currently, some refugee populations being resettled in the United States who are determined to be at increased risk for specific infections receive population-based treatment for malaria and intestinal parasites in addition to the routine immigration medical screening. Additionally, outbreaks of communicable diseases in refugee camps or transit facilities can trigger additional interventions or treatment prior to arrival.

In terms of harmful behavior, immigration medical screening is intended to identify those with neurologic or behavioral conditions associated with the risk of "ever causing serious injury to others, major property damage or having trouble with the law because of a medical condition, mental condition, or influence of alcohol or drugs" or "ever taken actions to end your [the applicant's] life." High-risk conditions in this group may be determined to be Class A (inadmissible) or Class B (admissible) conditions by panel physicians, depending on clinical findings, history, and situation.

Drug abuse or addiction (dependence) presents a Class A (inadmissible) situation. Those barred from admission are those who:

- Use a controlled substance (defined by the Controlled Substances Act)
- and
- Meet the Diagnostic and Statistical Manual of Mental Disorders criteria for a mild, moderate, or severe substance use disorder.

It is sometimes possible for those individuals subject to medical examination who are determined to have a communicable disease of public health significance to still enter the United States. The legislation provides for a waiver process by which those determined to be inadmissible may request entry subject to conditions.

Documents providing further operational descriptions on the immigration medical screening process for both applicants abroad and those applying within the United States, including details on applicants seeking a change in immigration status, the use of Panel Physicians and Civil Surgeons, and reporting requirements, are available at <http://www.cdc.gov/immigrantrefugeehealth/>.

Summary

Mandatory medical screening to determine medical inadmissibility for immigration purposes is an important administrative process for applicants for permanent residency in the United States and may also be applied to certain temporary resident applicants.

Although the immigration medical examination does screen for some important medical conditions, it has clinical limitations. It is not designed to be a tool for identifying personal health risks, and it is procedurally limited to specific disorders and conditions of regulated public health concern. As a consequence, pre-existing medical conditions that do not fall under the immigration medical screening profile and other medical conditions of personal health significance may not be detected or reported during mandatory immigration screening. Those conditions, while not relevant for immigration purposes, can be significant for new arrivals, and their identification and clinical management in the United States is important in some migrant populations.

MEDICAL SCREENING OF NEW ARRIVALS IN THE UNITED STATES

In addition to an absolute increase in immigration, there has been a shift in source countries, with immigrants from Latin American nations other than Mexico, as well as Africa, Asia, and Oceania, increasingly contributing to the immigrant pool. The growing number and increasing diversity of foreign-born residents of the United States is important in numerous areas of clinical practice. Local health environments at their place of origin and relative disparity in health and disease indicators mean that some migrants may have disease exposure and acquisition patterns different from those at their new home.

In some communities, migrants represent rapidly increasing components of the population, and their specific health concerns may be different from those of the receiving community. International adoptions, for example, are now a major component of the adoption process in the United States. Of the approximately 1.5 million adopted children less than 18 years of age in the United States, 13% were foreign born, representing more than 200,000 individuals. Appropriately targeted and applied screening can assist in meeting the differential health challenges of these diverse foreign-born populations.

Increasing cultural and linguistic diversity can pose challenges to health systems and for physician and institutional healthcare service delivery. Health screening of immigrants and refugees can be done as part of primary care assessment in which routine immunizations should be documented and brought up-to-date if necessary; maternal-child health issues can be addressed; and specific health assessments for other defined populations (e.g., children, adolescents, women, and the elderly) can be performed.

In addition to language, some migrant groups experience difficulty accessing and utilizing healthcare services for other reasons. Cultural issues, including fear of interacting with official bureaucracies and concerns about affordability, may limit migrants' use of health prevention and promotional services. Services designed for the general populations often include health counseling and screening programs that may be unfamiliar to or underused by migrant populations.

Medical and health conditions of importance in new arrivals in the United States fall into two groups: those conditions for which existing screening programs are available for the local population that also occur in migrants, and those conditions not common or endemic in the United States affecting particular populations of migrants for which no routine screening programs exist in the United States.

Migrants may need special attention in terms of screening for:

- Risk behaviors, such as smoking, alcohol, and other substance abuse
- Health implications of diet and exercise
- Risks of sexual health practices
- Early recognition of mental and psychosocial health
- Impact of environmental risks presented by toxic substances, including lead in drinking vessels or paint
- Occupational exposures related to safe labor practices.

In addition, there are many targeted health promotion activities for specific groups, such as maternal-child care, which may not have been commonly available for many migrants in their home countries. Programs such as prenatal blood pressure monitoring, screening for gestational diabetes, and thyroid function may be unfamiliar to many migrants. Antenatal

screening for infections such as rubella, syphilis, hepatitis B, and HIV can be important in migrant populations who originate from regions of the world where these diseases are more prevalent than they are in the United States and where screening practices are not uniformly available or are unfamiliar to women.

There are other important targeted screening programs of relevance to migrants. They may not have had access to genetic screening for inborn errors of metabolism or physical conditions such as congenital hip dysplasia and cataracts. Additionally, there are several diseases that may be more prevalent at the migrants' place of origin, such as malaria, thalassemia, and micronutrient deficiencies, for which screening may be indicated.

Finally, it is important to note that many migrants may be unfamiliar with the basis and rationale underlying health-screening programs. Common examples include screening programs for malignant disease such as uterine cervical dysplasia (Pap smear) and skin, bowel, breast, and prostate examinations. Depending on their location and status, many other migrants may have never been screened for common illnesses such as diabetes and hypertension. This is particularly true for vulnerable and disadvantaged migrant groups, such as refugees, asylum seekers, and migrants displaced by conflict.

Healthcare disparities affecting access due to language and culture can occur, but also in some health jurisdictions in the United States there are legislative initiatives that may create barriers to available healthcare services on "right of access" based on citizenship or "willingness to pay" (self-pay or Medicare entitlement). Migrants' use of unregulated medical service providers may be an important component in the subsequent health assessment of this population. Migrant populations may also be using traditional, herbal, alternative, or complementary medicines, some of which will be imported from abroad. Unregulated therapies and agents that do not meet standards of pharmacologic care in United States may not be revealed to attending healthcare professionals unless diligently sought. These alternate therapies may have the potential to complicate clinical presentations and in some cases may themselves be a source of illness.

Many migrants from diverse backgrounds also have significant disparities in health determinants (e.g., socioeconomic, behavior, genetics and biology, environment) directly related to the migration process. The pre-departure component of health determination is carried through the migration process and is affected by the transit conditions, particularly for irregular arrivals, the post-arrival period, and any return travel undertaken by migrants or their offspring.

For the healthcare professional providing services to migrants, this requires an in-depth knowledge of the geographic components of health determination and disease expression that will be carried over to low prevalence or non-endemic countries, such as the United States. The historical focus of immigration and international public health has tended to be on contagious diseases of epidemic potential such as trachoma, syphilis, tuberculosis, and, recently, HIV/acquired immune deficiency syndrome (AIDS). However, there has been a recent shift in attention to the personal health risks associated with immigration and other infectious and non-infectious diseases.

Summary

Table 19.2 presents some of the clinical screening issues for healthcare providers working with defined migrant populations. With globalization of economies and trade, rapidity of interregional transportation, and increasing international population mobility for temporary and permanent relocation, healthcare professionals will increasingly need both to recognize imported clinical syndromes and to be sensitive to quiescent conditions of both personal and public health significance when dealing with migrants.

Screening can be targeted at asymptomatic individuals or can be mass community screening of previously defined at-risk populations; both of these are based on demographic and biometric profiles representing disparity in frequency or severity of outcome. Increasingly in high-health service regions with low prevalence of any poor health indicators and excellent local public health programs, migrants and other mobile populations are becoming the

TABLE 19.2 Examples of Medical Screening of Migrants by Region, Population, Condition, and Intervention

Region	Population	Infectious Disease Conditions	Noninfectious Conditions	Intervention
Latin America	Migrant workers, agricultural Migrant workers, domestic	STD, TB, intestinal parasites, <i>Trypanosoma cruzi</i> TB, intestinal tapeworm (<i>Taenia solium</i> and other parasites) Hansen disease, <i>T. cruzi</i>	Substance use/abuse: alcohol, tobacco, others Diet: caloric balance, micronutrient deficiencies; occupational risks: physical violence, psychological abuse, toxins, or dangerous environmental exposures Physical and mental developmental milestones, educational participation and attainment	Assessment and counseling, safer sex practices, HBV serology (HBsAg) and immunization of at-risk individuals; TST for children. Immunization: routine, hepatitis B; perinatal care and screening for maternal-child health (all at-risk populations); preventative Rx for existing conditions (e.g., syphilis, HIV, hypothyroidism, diabetes, hypertension) Assessment and referral to justice and immigration protection services Local standards of clinical practice need to be observed with a heightened suspicion of imported disease conditions that are of low or zero prevalence in the USA or Europe.
Europe	Children of migrant laborers Women smuggled or trafficked, particularly from Eastern Europe (also Asia and Africa) The elderly Other workers	TB Acquired risk environments and behaviors for STDs TB, tertiary syphilis, <i>Strongyloides</i> (southern Europe)	Occupational risks: forced labor and commercial sex workers, physical and psychological abuse, violence, substance abuse Common diseases of advancing age: renal failure, malignancies, diabetes, hypertension Previous occupational exposures: asbestos, radiation, trauma	
Asia	Migrants from rural environments	Intestinal parasites, including <i>Strongyloides</i> ; tuberculosis Hansen disease, chronic HBV carriage (most populations of Asia, sub-Saharan Africa, parts of Oceania) <i>Note:</i> Pulmonary paragonimiasis can mimic TB. Liver flukes can lead to chronic hepatic scarring.	Dietary deficiencies, acculturation effects on mental status Occupational and environmental health risks	Stools for parasites; serology for <i>Strongyloides</i> , HBV (HBsAg) and immunization of at-risk individuals. TST (children) Clinical assessment for cultural norms: body mass, hematological and biochemical parameters

Continued

TABLE 19.2 Examples of Medical Screening of Migrants by Region, Population, Condition, and Intervention—cont'd

Region	Population	Infectious Disease Conditions	Noninfectious Conditions	Intervention
Africa	Refugees	Note: immigration medical waivers may have been given for screened Class A conditions (e.g., tuberculosis)	Victims of forced relocation, torture, rape, physical and psychological trauma Posttraumatic stress disorders Nutritional deficiencies, particularly in children and women of childbearing potential Negative effects of acculturation	Intestinal, blood, and tissue parasites including <i>Strongyloides</i> (serology), schistosomiasis (urine), malaria TST (children) Iron status HBV serology (HBsAg) and immunization of at-risk individuals
Oceania	Immigrants	Hepatitis B, tuberculosis, Hansen disease		Serological screening: HBV (HBsAg) and immunization of at-risk individuals Skin examination. Heightened clinical suspicion
North America	Long-term expatriates (humanitarian/relief workers, business travelers, "overlanders" or backpackers) Sex tourists VFR: migrant return travel, with or without local-born children or next-generation travel	Communicable diseases endemic in the population and area of work or travel Consider exposures in those VFR, immune status, local access and use of healthcare services	Culture shock and other psychological adaptation disorders; acquired behavioral risks Cultural components of foreign exposures; VFR: female circumcision, scarification, tattooing, or piercing	Clinical assessment and management of post-exposure risks based on geographic environment and activities: tuberculosis, intestinal parasites, serology for <i>Strongyloides</i> . TST for long-term exposure in high-prevalence countries Note: eosinophilia correlates poorly to the presence or absence of invasive helminthic infections

HBV, Hepatitis B virus; HIV, human immunodeficiency virus; Rx, prescription; STD, sexually transmitted disease; TB, tuberculosis; TST, tuberculin skin test; VFR, visiting friends and/or relatives.

“at risk” populations. Many of the factors impacting on adverse health outcomes in migrants are amenable to screening, and there are effective interventions for health promotion or disease prevention.

High-risk populations of migrants, including refugees, workers, adopted children, victims of torture, and trafficked individuals, may require specialized medical care as well as specifically designed screening based on medical and sociological assessment of their needs. Professional healthcare providers, health educational, training, and professional societies, and governments and nongovernmental agencies will be challenged to develop policies and programs to respond to this emerging and dynamic challenge to address the health needs of internationally mobile populations.

FURTHER READING AND SALIENT REFERENCES

Advisory Committee on Immunization Practices. Available at: <<http://www.cdc.gov/vaccines/schedules/hcp/index.html>> (accessed March 23, 2015).

Reference on recommended immunizations.

Ampofo, K., 2013. Infectious disease issues in adoption of young children. *Curr. Opin. Pediatr.* 25, 78–87.

Review of communicable diseases that may be encountered in foreign adoptions.

Centers for Disease Control and Prevention. Technical Instructions for Panel Physicians and Civil Surgeons. Available at: <<http://www.cdc.gov/immigrantrefugeehealth/exams/ti/index.html>> (accessed April 2, 2015).

Detailed background and instructions related to US immigration medical screening practices.

Dallo, F.J., Kindratt T.B., 2015. Disparities in preventive health behaviors among non-Hispanic white men: heterogeneity among foreign-born Arab and European Americans. *Am. J. Mens Health.* 9, 124–131 [Epub April 29, 2014].

Article describing the differential knowledge and practice of preventive health measures by foreign-born and native-born populations.

Dang, K., Tribble, A.C., 2014. Strategies in infectious disease prevention and management among US-bound refugee children. *Curr. Probl. Pediatr. Adolesc. Health Care* 44, 196–207 [Epub 2014 Jun 25].

Recent overview of infectious disease challenges in pediatric refugee populations destined to the United States.

Grieco, E.M., Acosta, Y.D., de la Cruz, G.P., et al., 2012. The Foreign-Born Population in the United States: 2010. American Community Survey Reports, Number ACS 19. Available at: <<http://www.census.gov/content/dam/Census/library/publications/2012/acs/acs-19.pdf>> (accessed February 2, 2015).

Data on the demography of the scope and diversity of the US foreign-born cohort.

Gushulak, B.D., MacPherson, D.W., 2000. Population mobility and infectious diseases: the diminishing impact of classical infectious diseases and new approaches for the 21st century. *Clin. Infect. Dis.* 31, 776–780.

Review article outlining the importance of communicable diseases in migrant populations that are not usually subject to routine immigration medical screening.

Gushulak, B.D., MacPherson, D.W., 2004. Globalization of infectious diseases: the impact of migration. *Clin. Infect. Dis.* 38, 1742–1748.

Article describing and outlining the influence of population mobility on global disease epidemiology.

Lee, D., Philen, R., Wang, Z., et al., 2013. Disease surveillance among newly arriving refugees and immigrants—Electronic Disease Notification System, United States, 2009. *MMWR Surveill. Summ.* 62, 1–20.

Recent review of the scope and status of systems in the United States to identify and notify state health departments of diseases in migrants.

MacPherson, D.W., Gushulak, B.D., 2001. Human mobility and population health. New approaches in a globalizing world. *Perspect. Biol. Med.* 44, 390–401.

Review article that outlines how modern migration challenges traditional disease-control practices.

Passel, Jeffrey S., D'Vera, Cohn, 2014. Unauthorized Immigrant Totals Rise in 7 States, Fall in 14: Decline in Those from Mexico Fuels Most State Decreases. Pew Research Center's Hispanic Trends Project, Washington, DC. November. Available at: <http://www.pewhispanic.org/files/2014/11/2014-11-18_unauthorized-immigration.pdf> (accessed April 1, 2015).

Statistics and demographic analysis of the unauthorized/irregular foreign-born population in the United States.

Perla, M.E., Rue, T., Cheadle, A., et al., 2014. Population-based comparison of biomarker concentrations for chemicals of concern among Latino-American and non-Hispanic white children. *J. Immigr. Minor. Health* [Epub ahead of print].

An example of disparities in environmental health risks present in foreign-born populations.

Stauffer, W.M., Kanat, D., Walker, P.R., 2002. Screening of international immigrants, refugees, and adoptees. *Prim. Care* 29, 879–905.

Review article on recommendations for screening foreign-born migrants after arrival.

Swanson, S.J., Phares, C.R., Mamo, B., et al., 2012. Albendazole therapy and enteric parasites in United States-bound refugees. *N. Engl. J. Med.* 366, 1498–1507.

Article that describes enhanced pre-departure screening and treatment for high-risk migrant populations in certain circumstances.

US Department of Health and Human Services. Office of Minority Health. Minority Population Profiles. Available at: <<http://minorityhealth.hhs.gov/omh/browse.aspx?lvl=2&lvlID=26>> (accessed March 29, 2015).

Series of studies exploring diversity in health profiles among populations of differing ethnicity.

Walker, P.F., Barnett, E.D. (Eds.), 2007. *Immigrant Medicine*. Elsevier, Philadelphia.

Reference text on the health aspects of migration, with a US focus.