

Refugee Health Care

An Essential Medical Guide

Aniyizhai Annamalai
Editor

Second Edition

 Springer

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*Dedicated to all those who suffer persecution
in any form*

AND

*To my family who taught me to be sensitive
to those who suffer injustice*

Preface

Refugees have always been a part of human existence for as long as we've had wars and political instability. Refugee health as a medical discipline has only advanced in the last few decades. Refugees are found all around the world and consequently, clinical care occurs in a multitude of settings. However, much of the research in refugee health has tended to be in resettled refugees. Consequently, evidence based guidelines for treating refugees have been developed in the USA and other countries that resettle the majority of refugees. Refugee health as a field is growing rapidly as evidenced by the formation of the Society of Refugee Healthcare Providers and the large attendance at the annual North American Refugee Health Conference (NARHC).

Political changes affect refugee migration and resettlement, and refugee numbers may be high or low at any given time. But numbers change quickly and clinical providers more likely than not will encounter people who have migrated from regions of conflict and experienced persecution. Refugees are a heterogeneous group as they originate from different parts of the world and each refugee's path to resettlement is different. Risk factors for illness are not uniform among all refugee populations, but there are some shared features among those who have experienced being a refugee.

Refugees come from parts of the world where illness demographics are often different from those of the countries they resettle in. Certain infectious diseases and nutritional deficiencies are more common in some countries of origin. Increasingly, we are also seeing refugee populations with a cardiovascular risk profile comparable to that of the western world. Chronic pain is a common condition in many refugees. By nature of the refugee experience, they acquire many risk factors for mental illness. Regardless of the particular health conditions they experience, provision of culturally sensitive care is of paramount importance for this culturally heterogeneous population.

Primary care providers are usually the first point of contact for refugees within the US health care system when they are seen for a screening medical examination soon after arrival in the country. The book is intended as a reference book for these primary care practitioners as well as mental health professionals who treat refugees.

As in any area of medicine, knowledge base is expanding rapidly and recommendations are constantly updated. Senior experts in the field have gathered together the latest evidence based information for busy clinicians to use when seeing refugee patients. In this edition, we have split the section on chronic pain as a separate chapter from chronic disease management, reflecting the vast amount of material in these areas. We have also added an additional chapter on care at the end of life for refugees.

In addition to clinical use, this book can also be a reference text for refugee and immigrant health curricula in health professional schools including medical schools, residency programs, and public health schools.

Refugees are a uniquely vulnerable population. With appropriate support, many refugees can and do succeed in their new society. Providing appropriate physical and mental health care can go a long way in helping refugees in their journey to a healthy and productive life. My hope is this book will contain the necessary information for professionals who provide health care for refugees.

New Haven, CT, USA

Aniyizhai Annamalai

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I want to thank Springer Science + Business Media for inviting me to update the first edition of this book and for patiently waiting for me to complete the work. I am very grateful to all the experts who have contributed to this book and been gracious with their time. I thank them and the community of refugee health care providers from whom I have learned much. I appreciate all the hard work of the Yale residents without whom I could not sustain a clinic for refugees. Finally, I thank my family – my mother, father, sister, and husband – for their support and encouragement not only in my work with refugees but in everything I do.

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Part I
Introduction

Chapter 1

Introduction to Refugees



Kelly Hebrank and Alexine Casanova

Who Are Refugees?

Every year, thousands of refugees enter the United States as documented immigrants. They have fled horrible persecution, repressive governments, or death threats. They are invited to the United States to start their lives over, continuing the country's long-standing tradition of welcoming persecuted people.

Refugees did not always get a lot of attention, but especially over the past few years, they have become a recurring and often controversial topic of political discourse in the United States and around the world.

In September 2015, as refugee numbers reached their highest levels ever [1], the crisis was brought into particular focus by a now famous image of a young Syrian boy who had drowned and washed up on a Turkish beach after he and his family had fled civil war in their country and attempted to reach safety in Europe in a small boat that capsized [2]. The huge numbers of refugees and other migrants arriving in Europe during that year, over 1.1 million according to the International Organization for Migration [3], created a major international political issue. This attention led to heightened interest in refugee issues and an outpouring of support in many places. But at the same time and for many reasons, nationalistic and xenophobic movements were gaining increasing political power in many countries eventually leading to fewer opportunities for resettlement and backlash in some places like Germany who had welcomed large numbers [4].

Refugees have gotten caught up in debates about immigration policy and national security. Yet they are still little understood by the general public. Often, their stories are lost among the statistics of the nearly 44 million foreign-born people who live in the United States [5].

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Historical Context

As long as there have been wars, persecution, and political instability, there have been refugees. However, the two World Wars in the first half of the twentieth century left millions of people forcibly displaced or deported from their homes, necessitating the collaboration of the international community in drafting guidelines and laws related to their status, treatment, and protection. The United Nations High Commissioner for Refugees (UNHCR) was established in 1950 to lead and coordinate international action to protect refugees. In July 1951, the United Nations convened a diplomatic conference in Geneva to “revise and consolidate previous international agreements” related to refugee travel and protection, and the legal obligations of states, based on principles affirmed in the Universal Declaration of Human Rights. This 1951 Convention Related to the Status of Refugees defined a refugee as someone who, “owing to 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 nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country” [6].

This definition initially applied only to people displaced “as a result of events occurring before 1 January 1951,” and some signatories further limited the scope of the definition to refugees from Europe. In 1967, acknowledging that “new refugee situations have arisen since the Convention was adopted,” a Protocol Relating to the Status of Refugees was signed, which removes the geographical and time limits of the original 1951 Convention.

Refugee assistance has changed dramatically since it was first organized over 60 years ago, with the mission of aiding European refugees from World War II. Today’s refugees originate *from* countries throughout the world and seek asylum—temporary or permanent—in countries throughout the world.

Recent debates have brought the limits of existing definitions and treaties into light as more and more people leave their countries seeking safety from various forms of violence and persecution.

Other People Seeking Refuge

It is not simple to define and classify the status of people seeking refuge, but here are a few more categories of note:

Palestinian refugees are a specific category of refugees. They are descendants of those people who resided in Palestine prior to the 1948 conflict and lost both home and livelihood as a result of it [7]. Another UN agency, the United Nations Relief and Works Agency for Palestine Refugees (UNRWA), was created in 1949 specifically to support them.

Internally displaced people have been forced to flee their homes but remain within the borders of their countries of origin [8]. Because of this, there is often little specific support available to them.

Asylum seekers, like refugees, leave their homeland and seek safety in another country. The difference between asylum and refugee status is linked to the different ways that countries deal with immigration. In some countries, the UNCHR is authorized to screen immigrants and grant refugee status to those deemed eligible. This status may give the refugees rights or access to services in that host country. In other countries, including the United States, Canada, and some in Europe, the UNHCR does not play the same role. These countries have their own national authorities to whom immigrants can apply for asylum, and each has its own criteria and process for determining who qualifies. The UNHCR likens asylees, people who have been granted asylum, to refugees and includes them as such in their reports and statistics but is not able to count people awaiting asylum decisions (asylum seekers) as refugees. In the United States, asylees are eligible for many of the same public services as refugees, but no public assistance is provided to people during the period when their asylum applications are pending, even if they meet the international definition of a refugee.

Global Burden

It is staggering to consider the number of refugees and displaced people in the world today. The United Nations reports that at the end of 2018, there were over 70 million people in the world uprooted because of conflict or persecution. Of these, over 25.9 million are refugees, including 5.5 million Palestinians; 3.5 million are awaiting a decision on their application for asylum, and 41.3 million people have been internally displaced [9].

According to estimates, in 2019, refugees from Syria represented 32.8% of the global refugee population, or 6.7 million of the 20.4 million persons under UNHCR's responsibility. Afghanistan was the second largest country of origin of refugees (2.7 million), followed by South Sudan (2.3 million); Myanmar, formerly Burma (1.1 million); and Somalia (0.9 million) [9].

Turkey hosted the highest number of refugees at the end of 2018, totaling 3.7 million. Other major countries of asylum included Pakistan (1.4 million), Uganda (1.2 million), Sudan (1.1 million), and Germany (1.1 million) [9]. Lebanon continued to host the largest number of refugees relative to its national population, where one in six was a refugee. The movement of Venezuelans across the region has resulted in a refugee situation with 3.4 million of them outside the country by the end of 2018. With each new conflict, these numbers can change dramatically. Before its civil war began in 2011, Syria was among the countries hosting the largest numbers of refugees [10].

Of the 2.1 million new asylum claims submitted to individual countries in 2018, the highest number (254,300) was submitted in the United States though this represents a decline from 2017. As a result of the crisis in Venezuela, Peru became the second largest recipient of asylum applications globally with 192,500. Germany was the third largest recipient with 161,900 followed by France (114,500), Turkey (83,800), and Brazil (80,000) [9].

Long-Term Solutions

People who work in refugee resettlement are often asked, “Are you resettling refugees from [insert here the political crisis currently in the media]?”

And the answer, sadly, is usually, “No.”

Resettlement—a nation’s government inviting refugees to move to its country, access rights given to nationals, and obtain permanent residency leading to citizenship [11]—is usually a last resort and an option for very few. Each year, less than 1% of the world’s refugees will be offered resettlement in a third country [12]. For a comprehensive look at the history, challenges, and benefits of resettlement on a global scale, see UNHCR report by Piper et al. [13].

Before resettlement, other durable solutions are considered. UNHCR first pursues the possibility of voluntary repatriation, a refugee returning to his or her country of origin if it became safe. Another option is local integration, a refugee remaining in the country to which he or she has fled and integrating into the local community.

For a small percentage of the world’s refugees for whom the above options are not viable, resettlement becomes a possibility. In 2018, the UNHCR estimated that 1.4 million refugees were in need of resettlement [9].

Currently, 29 countries participate in the UNHCR’s resettlement efforts [9]. Though some programs are limited in scope, this increase from 26 participating countries in 2010 reflects an overall increased diversity of global resettlement actors [9].

Three countries—Canada, the United States, and Australia—continue to resettle a significant percentage of refugees though the numbers are down from over 90% just a few years ago [14, 15]. The United States previously resettled more refugees than all other countries combined, but in 2018, the 22,900 refugees resettled in the United States represented only 24.7% of the 92,400 refugees resettled around the world [9]. This total number marked a 51% drop in the record 189,300 refugees resettled globally in 2016 [9], a result of declining resettlement quotas globally.

US Resettlement Process

Referral Process

Oftentimes, the decision of which refugees to admit is heavily influenced by political, economic, and social factors [16]. Unlike many other countries, the United States does not discriminate in its acceptance of cases based on a refugee’s likely ability to integrate. While other nations may reserve resettlement for refugees deemed to have high “integration potential”—based on their age, education, work experience, and language skills—the United States accepts refugees regardless of their socioeconomic status, employment history, medical history, or family composition [16].

Therefore, a refugee resettlement agency in the United States is as likely to serve a single mother from Somalia with five children as it is to serve a highly skilled engineer from Iraq and his schoolteacher wife. It may welcome as many refugees with chronic or serious health problems as it does healthy refugees. Cases may be a single individual or a family of ten. This practice ensures that the most vulnerable refugees have access to protection and resettlement in the United States.

Most refugees who are considered for resettlement in the United States are referred to the federal government by UNHCR, but in some cases, a US Embassy or a trained nongovernmental organization makes the referral. The Department of State's Bureau of Population, Refugees, and Migration (PRM) oversees refugee assistance, including resettlement. PRM funds and manages nine Resettlement Support Centers (RSCs) throughout the world, which process refugee applications for resettlement in the United States. In some regions, refugees must physically present themselves to an RSC in order to receive assistance, but in other areas, RSC staff conduct "circuit rides" through vast territories to serve refugees in remote locations. After meeting with RSC staff, refugees are interviewed by officers from United States Citizenship and Immigration Services (USCIS, within the Department of Homeland Security) to determine if they will be granted resettlement. The Department of Homeland Security conducts thorough background checks to ensure the refugees will not pose a threat to security. Refugees receive a health screening (known as the overseas health assessment) to identify conditions that might make them a public health risk; refugees with active infectious diseases would need to complete treatment prior to gaining admission to the United States. Approved refugees are then ready to travel to the United States—at their own expense, thanks to an interest-free loan from the International Organization for Migration. Figure 1.1 shows the different steps in the US refugee resettlement program.

The length of this process varies based on a refugee's location and other factors. In early 2017, it was taking up to 2 years for people to be referred, screened, and admitted [16], but the process is taking even longer, and fewer refugees have been able to come in 2018 and 2019 since the current administration reduced the number of overseas interviews taking place [17]. Moreover, most refugees have already waited years—and some for more than a decade—just to access the resettlement process and reach the point of a UNHCR referral. UNHCR estimates that at the end of 2018, 15.9 million refugees were in a "protracted refugee situation"—defined as 25,000 or more refugees of the same nationality living in exile for 5 years or longer in a given asylum country [9].

Refugee Numbers

Each year, the president, in consultation with Congress, sets the numerical goals for refugee admissions during the upcoming fiscal year. This Presidential Determination is a ceiling rather than a floor and includes the total maximum number of refugees

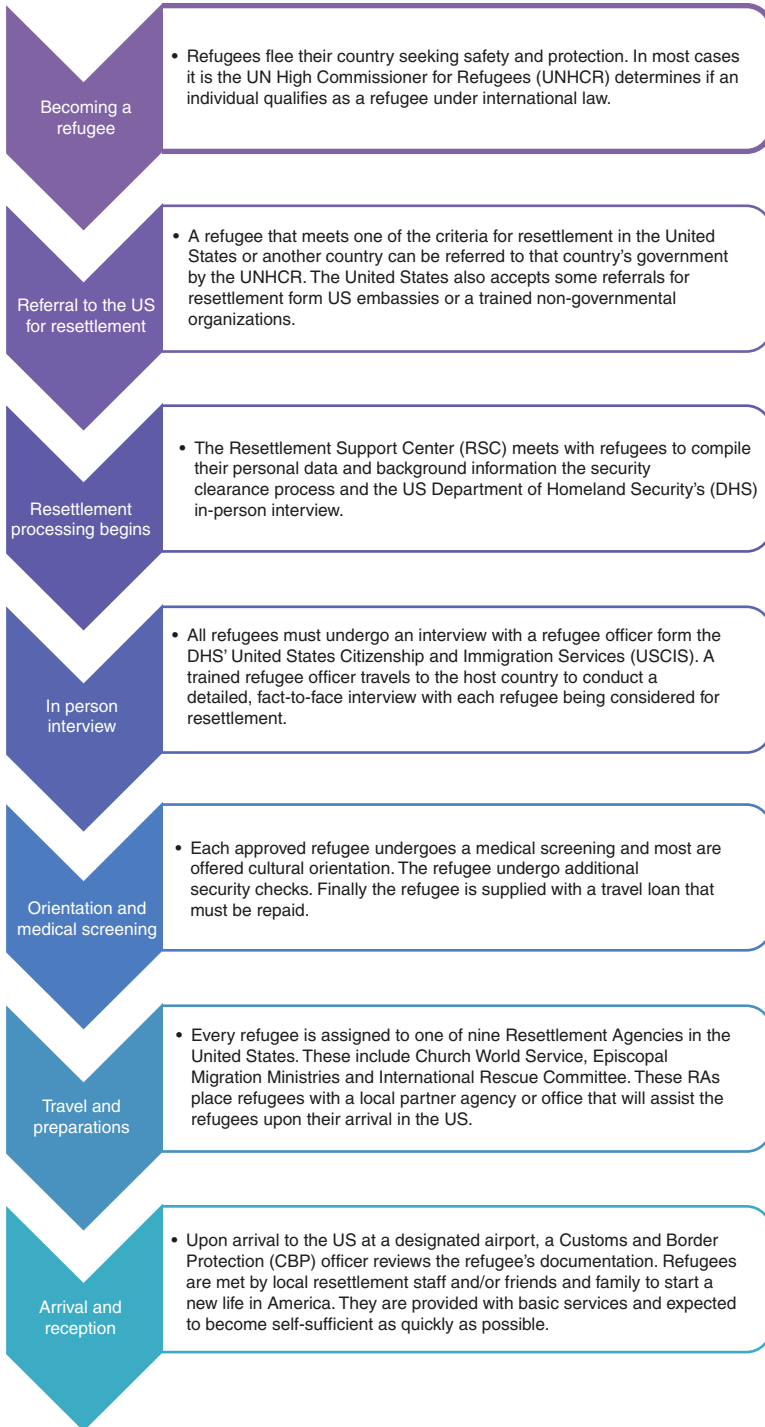


Fig. 1.1 How refugees get to the United States

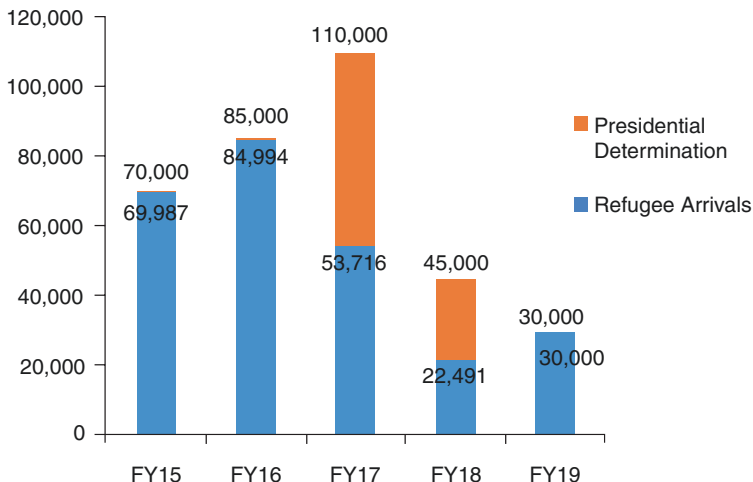


Fig. 1.2 Refugee admissions in last 5 years (28)

the United States will resettle in the coming year (18,000 in FY20), as well as a breakdown by geographic region.

Over the past 5 years, refugee admissions have averaged 60,224 individuals but have ranged from a high in FY2016 of 84,994 to a low in FY2018 of 22,491 [18]. In FY2017, although the ceiling was set at 110,000, just 53,716 refugees were admitted to the United States. In FY19, the ceiling had been reduced to 30,000 (see Fig. 1.2). The states that resettled the most refugees in FY2019 were Texas (2227 individuals), Washington (1930), Ohio (1288), California (1802), and New York (1617) (18). Figure 1.3 shows refugee admissions across states in FY19.

In FY19, the top countries, three nationalities, accounted for over 65% of all refugee admissions: Democratic Republic of Congo (11,152 individuals), Myanmar (4681), and Ukraine (4013). The remaining 35% came from a total of 66 countries [18].

Special Immigrant Visa Program

The Special Immigrant Visa (SIV) program was created in 2006 to enable certain Iraqi and Afghan nationals to resettle in the United States as permanent residents after having been employed by or on behalf of the US government in Iraq or Afghanistan [14]. They apply for the visa through the US Embassy in their country. Once they obtain the visa, they can choose whether to make their own travel arrangements and request resettlement services after arriving in the United States. Or they can enter the refugee resettlement program so that travel and placement with a resettlement agency can be arranged as it is for refugees.

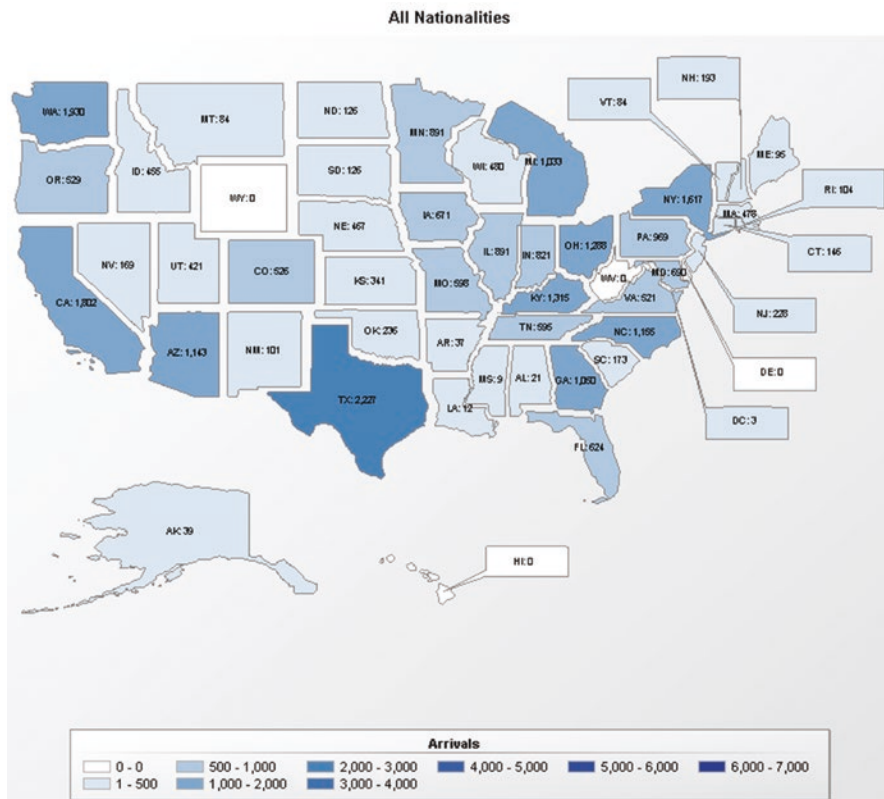


Fig. 1.3 FY19 refugee arrivals by state (28)

The maximum number of Special Immigrant Visas that can be issued is determined by law each year. SIV arrivals are separate from and do not count toward the numbers of refugee arrivals set by the president. By the end of FY2019, 79,347 individuals had been resettled through the program including 18,582 Iraqis and 60,765 Afghans. Over the past 5 years, SIV arrivals have averaged 11,862 with a low of 7226 in FY2015 and high of 19,321 in FY2017 (see Fig. 1.4). While they have resettled across the country, SIVs have been especially concentrated in just three states—California, Texas, and Virginia—which have welcomed 30.0%, 17.5%, and 11.6% of the total number, respectively (28).

Domestic Resettlement Pathway

In the United States, refugees and SIVs are similarly assisted through a unique public-private partnership. At the federal level, the Department of State and the Department of Health and Human Services (HHS) work together to welcome

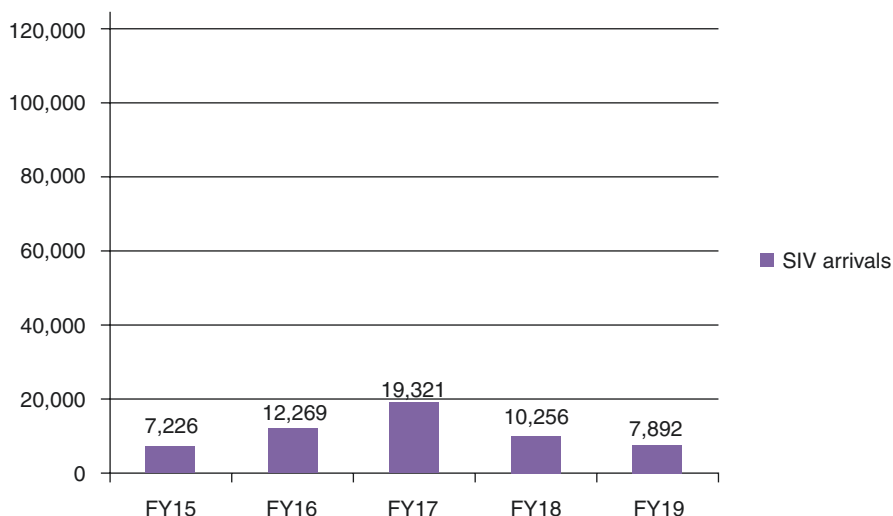


Fig. 1.4 SIV admissions in the last 5 years (28)

refugees, by providing basic needs support and services to help them integrate into their new communities and become economically self-sufficient. The federal government contracts with nine national nongovernmental agencies; each has a network of affiliates (not-for-profit organizations) across the country that carry out the work of resettlement. The number of affiliates has decreased from about 350 in 2016 to less than 225 in April 2019 [19]. There are resettlement agencies in nearly all 50 states. Large metropolitan areas, such as Houston, Chicago, and Atlanta, are often home to multiple resettlement agencies. If a refugee approved for resettlement in the United States knows someone already in the country—a relative or close friend—they can often be resettled in the same city. Without this connection, called a US tie, the refugee would be randomly assigned to a city and resettlement organization that has the capability to serve refugees of their nationality and language group.

Because they have already had to share their persecution story numerous times—first to be granted refugee status by UNHCR and then to US government officials—once refugees arrive in the United States, the resettlement agency focuses on helping them move forward and start life over.

Each affiliate organization adheres to the same federal regulations and must provide the same basic services delineated in a Cooperative Agreement signed yearly with PRM. The initial resettlement period, called the Reception and Placement (R&P) program, is for 90 days after arrival, during which the agency must provide housing, food, clothing, and other basic needs; enrollment in benefits such as food stamps, medical insurance, and social security cards; help accessing health care, English class, and employment services; and cultural orientation including instruction on US laws and customs.

Funding and Financial Assistance

Funding to affiliate agencies is on a per capita basis; for each refugee resettled, the affiliate receives \$2125 (as of FY19), \$975 of which is to be given to or spent on behalf of the refugee for basic needs, \$200 of which goes into a pool to be spent on any refugee arriving within the same fiscal year, and \$1050 of which is for the agency's expenses including program staff and operating expenses. This government funding is not meant to cover the total cost of resettlement; each affiliate must raise private funds to supplement and relies heavily on community members who volunteer their time and donate in-kind goods.

Many organizations operate additional programs and services funded by the Office of Refugee Resettlement (ORR, an office within HHS) and other government and private sources. Overall, financial assistance to refugees usually lasts no more than 6 months after arrival, although more limited services might be available for years after arrival. Regardless of the city in which a refugee resettles, an urgent priority is that he or she find work quickly after arrival and become economically self-sufficient. Refugees are expected to apply for legal permanent residency after 1 year in the United States (commonly known as receiving a green card) and for citizenship after 5 years in the United States.

When they arrive, refugees are eligible for many of the safety net programs available to low-income US citizens, including the Supplemental Nutrition Assistance Program (SNAP, commonly referred to as "food stamps"). A refugee family with children will likely be eligible for cash assistance through the Temporary Family Assistance (TFA) program and for medical insurance through Medicaid. Refugees determined ineligible for TFA and Medicaid may be eligible for Refugee Cash Assistance (RCA) and Refugee Medical Assistance (RMA) for up to 8 months from the date of arrival in the United States [20]. The Refugee Act of 1980 (which created the Office of Refugee Resettlement and formalized the federal refugee resettlement program) allows for the federal government to reimburse states for RCA and RMA for up to 3 years after a refugee's arrival in the United States [21]; unfortunately, over the years, funding for this program has reduced steadily, to the current provision of only 8 months of benefits.

Asylum Seekers in the United States

There are two ways that foreign nationals can seek asylum in the United States: affirmatively through a USCIS asylum officer and defensively in removal proceedings before an immigration judge. In both instances, the individual must prove that they meet the definition of a refugee and cannot return to their country of origin because of the threat of persecution. Once granted asylum, an asylee can petition for certain family members to "follow-to-join," and if granted, they will enter the country as an asylee.

The total numbers of people claiming asylum in the United States have increased dramatically in the past few years. According to the Department of Homeland Security, they increased from about 129,000 in 2015 and 180,617 in 2016 to 264,973 in 2018 [22]. These numbers include only principal applications and do not include other family members. The UNHCR estimates the number of asylum claims submitted in the United States at 172,700 in 2015, 262,000 in 2016, 331,700 in 2017, and 254,300 in 2018 [9]. They arrive at their figures by multiplying the number of cases by the average number of persons per case.

In 2018, Venezuelan applications continued to rise and total claims were 33,444. While prior to 2017, China had been the top country of origin for asylum seekers in the United States, in 2018, the total number had declined to 16,129. The Northern Triangle Countries (El Salvador, Guatemala, and Honduras) accounted for a total of 104,088 claims. The largest numbers of defensive applications came from citizens from Northern Triangle Countries (total of 78,762), Mexico (24,412), and China (8028) [22].

The number of people being granted asylum decreased between 2015 and 2016 (see Fig. 1.5) because a large number of asylum officers were diverted from the affirmative interview process to conduct “credible and reasonable fear” interviews with people apprehended at a US international border (if fear is found, the individuals are referred to an immigration judge for a full hearing). Subsequently, the number increased to 26,509 in 2017 and 38,687 in 2018 (these totals do not include follow-to-join numbers, only those granted asylum).

Once they have been granted asylum in the United States, asylees are eligible for many of the same public benefits such as TFA, SNAP, and Medicaid. But during the

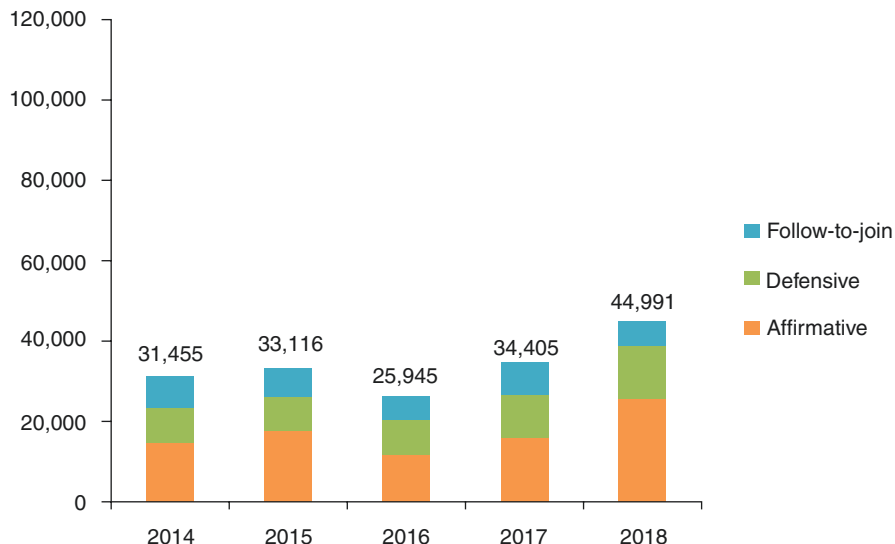


Fig. 1.5 Total individuals granted asylum in the United States, 2014–2016 (41)

time they wait for the application to be adjudicated, they are not eligible for any public assistance, and most are not eligible to work. US law says that a decision should be made on the asylum application within 180 days of filing [23]; however, the current backlog of cases is such that it is often taking years [24].

Refugees and the Health-Care System

Having Medicaid coverage does not necessarily make it easy for refugees to access medical care. Refugees face many barriers in accessing care, including lack of English language ability, cultural differences in approaches to health, and unfamiliarity with the American health-care system. The federal government recognizes the importance of caring for the health needs of refugees and mandates that refugee resettlement agencies help clients receive a comprehensive health exam, initiated within 30 days of arrival. The purpose of this domestic health assessment is to ensure follow-up of any serious conditions identified during the overseas medical examination, identify conditions of public health importance, and diagnose and treat health conditions that may adversely affect resettlement. Each state, however, implements these guidelines differently—often based on the public health capacity of the state—so the scope and organization of health assessments vary widely from state to state [25]. Some states have public health departments that provide this initial screening; in states that do not, the resettlement agency must find a community health center or other health-care provider who will screen and treat refugees.

In many states, it is difficult to find appointments for refugees at health clinics that accept Medicaid and consistently provide interpretation services. In these situations, the resettlement agency might need to make special arrangements with a health-care provider. Since refugees may lose their Medicaid coverage after just 8 months in the United States, it is essential for them to receive not only primary care but also specialty care and any procedures or surgeries they need within this time frame.

Asylum seekers are not eligible for public- or government-funded health assessments until the time that they receive asylum, at which point they become asylees and can apply for services.

Resettlement and Integration

A refugee's ability to access health care and address their health needs is one factor in his or her ability to successfully become self-sufficient in their new homes. The work of refugee resettlement is both big (helping a refugee learn English, find work, and support themselves in a new country) and nuanced (teaching someone the difference between prescription and over-the-counter medication, how to discern between official mail and junk solicitations, and why they should not pick flowers from their neighbor's front yards).

Though the United States currently resettles far fewer refugees than it has in decades past, in 2017, it still resettled more refugees through the UNHCR refugee resettlement program than any other country. Assisting these refugees in their path to self-sufficiency and citizenship requires the commitment of federal, state, and local governments, as well as the contributions of money, volunteer time, professional skills, and friendship of thousands of residents across the country.

Summary

The global burden of people displaced due to war and persecution is staggeringly high at the present time. Of the millions of refugees across the world, only a small percentage is offered resettlement when other options are not feasible. The United States is among several countries that resettle refugees identified by the UNHCR as being among the most vulnerable. The United States also grants asylum to foreign nationals who have fled persecution. The numbers of refugees allowed into the United States vary year to year depending on the political climate at the time. As of the time of this publication, these numbers have been decreasing. The number of asylum applications has been increasing, but overall, the number of asylum seekers granted asylum is relatively unchanged. Upon arrival, refugees are assisted by resettlement agencies to become self-sufficient as quickly as possible. Asylum seekers and asylees do not benefit from the same public support systems as refugees. Access to health care is one goal of resettlement and, along with other factors, promotes successful integration into the host country. Optimizing chances of successful resettlement involves commitment of government bodies as well as contributions of thousands of community members.

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Chapter 2

Culturally Appropriate Care



Aniyizhai Annamalai and Genji Terasaki

Introduction

Health-care providers around the world are seeing an increasingly diverse patient population due to increased movement of people. Consequently, effective cross-cultural health-care delivery becomes an important part of a health system. The Institute of Medicine (IOM) report in 2002 concluded that minority communities are less likely to receive care even after controlling for demographic variables and health-care access issues and that health-care provider factors contribute to the disparity [1]. Cross-cultural differences exist in all encounters but are more obvious in the presence of language differences. Heterogeneity in immigrant and refugee populations presents challenges. IOM calls for education of providers in cross-cultural health care.

Concept of Cultural Appropriateness

Many terms have been used to describe the ability of providers and systems to provide effective health care across diverse populations. While cultural competence was the initial and most commonly used concept, in recent years, alternate approaches, such as cultural humility, cultural responsiveness, and cultural safety,

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have been proposed to stress respect for and engagement in another person's life-world rather than claim competence in another's culture [2].

Culture broadly refers to integrated patterns of human behavior that include language, communications, actions, beliefs, and values. Early seminal work by Cross et al. in 1989 defined cultural competence as a set of congruent behaviors, attitudes, and policies that come together in a system to work effectively in cross-cultural situations [3]. Betancourt et al. in 2003 defined cultural competence as the ability of systems to provide care tailored to meet patients' social, cultural, and linguistic needs [4]. Lavizzo-Mourey also described it as "the demonstrated awareness and integration of three population-specific issues: health-related beliefs and cultural values, disease incidence and prevalence, and treatment efficacy. But perhaps the most significant aspect of this concept is the inclusion and integration of three areas that are usually considered separately when they are considered at all [5]."

In clinical practice, approach to cultural "competence" has tended to focus on sensitizing clinicians to major ethnoracial groups (e.g., African Americans, Latino). But this assumes that members of these ethnoracial groups share similar cultural characteristics. Problematically, this approach essentializes cultures as consisting of fixed traits that are independent of an individual's background and life story and do not capture the diversity of values and beliefs people come with. While it can be helpful to learn some general characteristics of different immigrant groups, an attitude of openness and curiosity is more relevant in providing effective health care.

Cross-Cultural Care for Refugees

Refugees come from around the world, and while they all experience some degree of trauma, loss, migration difficulties, and resettlement stressors, response to forced migration varies considerably depending on personal characteristics and cultural background. Treatment approaches are likely to be shaped by prior experiences in the country of origin.

Cultural beliefs and expectations can influence many aspects of health:

- (a) Symptom manifestation: Psychological distress can manifest as somatic symptoms in many cultures [6]. Physician awareness of this can help reduce unnecessary testing and encourage exploration of psychosocial factors. There are specific cultural syndromes described in certain ethnic groups [7] though they also reflect a tendency to somatize emotional distress.
- (b) Explanations of illness: In some explanatory models, mental illness is caused by spiritual factors such as demonic possession [8]. While this is one specific example, more commonly, patients attribute depression or anxiety to social factors or poor lifestyle and diets [9].
- (c) Beliefs about treatment: This can be positive, for example, faith in religious healers or other traditional healers [8], but may also adversely influence engagement in Western treatments. Ideally, treatment should include both patient-preferred modalities and evidence-based allopathic treatments.

- (d) Role of family: Frequently, refugees request for families to be engaged in treatment decisions, and confidentiality should be applied within the cultural context. In fact, they may wish for family members to be notified of a terminal illness diagnosis before they are. Family support can be extremely helpful, but providers should be mindful of patient preferences and avoid aggravating domestic and intergenerational conflicts.
- (e) Attitudes toward physicians: Refugees may be less likely to ask probing questions if they come from cultures where physicians are viewed as the authority on health decisions. This deference does not necessarily translate into adherence to treatments, and so acceptance of recommendations should be explored.

Levels of Cross-Cultural Care

Immigrants tend to receive less care, especially preventive, when compared to their American-born counterparts [10–13]. These disparities originate from system-level barriers, provider factors, patient factors, or a combination of these [1]. System-level barriers, which disproportionately affect those who are poor, with low literacy, non-English speakers, or with mental health conditions, relate to a wide range of factors. For example, the geographic location of services, transportation, complexities of applying for insurance, process of scheduling appointments, or the availability of language interpretation services may affect one's ability to access health care. Provider factors include conscious or subconscious biases about the patient's likelihood of having a condition and accepting treatment. It also includes their skills in navigating a cross-cultural encounter as well as the awareness of common health beliefs and practices among certain ethnic groups. Moreover, patients may not seek or accept recommended services due to misconceptions of their vulnerability to a condition, a misunderstanding of the diagnosis and treatment, or other competing priorities in their lives.

Systems Level

Institutions delivering health care should tailor services to the needs of their patients. Language barriers affect all stages of health-care access from patient-provider communication to practical issues like scheduling appointments [14]. Funding for interpreter services is required when treating patients across multiple languages. Title VI of the Civil Rights Act of 1964 mandates that any health-care agency that receives federal assistance must provide adequate interpreter services [15]. However, in clinical practice, this is not uniformly implemented. Inadequate interpreter services affect health outcomes, and more mistakes are made when untrained ad hoc interpreters such as family and friends are used [16].

Use of cultural mediators for health system navigation and case management has the potential for improving access to care [17]. Barriers to accessing services relate to complexities of the health system, including knowing how to follow up on referrals, understanding how pharmacies work, and addressing medical insurance problems. Provision of enhanced social work services in primary care settings can address some of the social and systemic challenges new immigrants and refugees face in the health-care system. Improved flow of health information between providers, health coordinators at refugee resettlement agencies, and Department of Public Health could improve care coordination. For an effective “hand-off” to occur, there have to be mechanisms to share health information across these different entities.

Institutions committed to cross-cultural health should invest in educational programs directed at service providers as well as other staff in the health system. There are several different pedagogic methods to train providers in culturally responsive care including prescribed readings, didactic presentations, case studies, individual and group reflective exercises, observed interviews, role-plays, and direct patient care.

Provider Level

A review of the challenges of providing primary health care to refugees in high-income countries indicated that trust, communication, and cultural understanding were key factors in the health-care encounter [18].

Provider training in cross-cultural care can be divided into the following domains of attitude, knowledge, and skills.

Attitude

In line with the concept of cultural humility, providers with an attitude of openness, willingness to listen, and a curiosity about others will be more likely to effectively communicate with patients.

Cultural Self-Awareness

A provider needs to be aware of her own belief systems, values, identity, and relation to others in the community. An exercise adapted from Peter Senge’s five principles of learning organizations is helpful in uncovering tacit assumptions the provider may have [19]. The steps of this exercise in the context of a cross-cultural health encounter are outlined in Fig. 2.1.

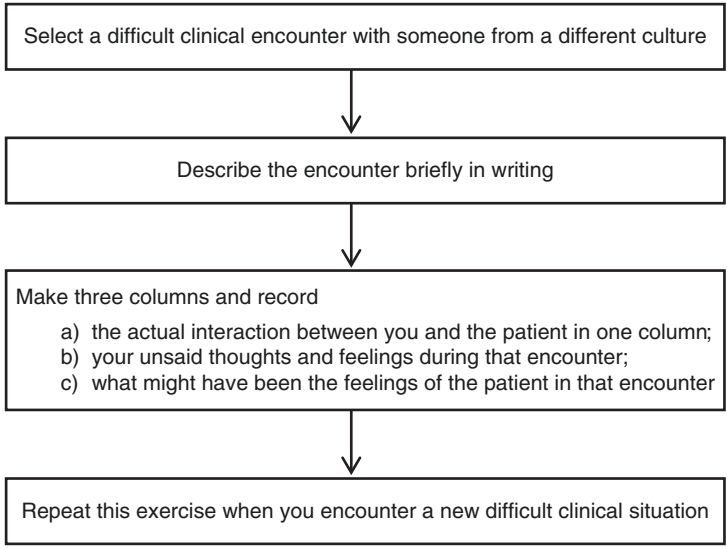


Fig. 2.1 Self-learning tool for cross-cultural communication. (Adapted from Senge et al. [19])

Table 2.1 Kleinman questions for cultural understanding

What do you call this problem?
What do you believe is the cause of this problem?
What course do you expect it to take? How serious is it?
What do you think this problem does inside your body?
How does it affect your body and your mind?
What do you most fear about this condition?
What do you most fear about the treatment?

Awareness of Patients’ Explanatory Models

It is useful to think of provider-patient interactions as transactions between individuals with different explanatory models, leading to discrepancies in cognitive content, values, expectations, and goals. To understand the derived meaning behind patient narratives, Arthur Kleinman, psychiatrist and anthropologist, proposes the questions listed in Table 2.1 [20].

Knowledge

As mentioned previously, people from the same country or region will not necessarily share the same beliefs or values. Stereotyping people should be avoided (e.g., while traditional Muslim cultures are often patriarchal, the authors have seen examples of women in these families assuming a more independent role and sometimes

Table 2.2 Resources for cultural profiles of refugee groups

Health Resources and Services Administration. Culture, Language and Health Literacy [22]
Centers for Disease Control. Refugee health Profiles [23]
Cultural orientation Center. Refugee Backgrounders [24]
EthnoMed. Cross-Cultural Health [25]
Georgetown University. National Center for Cultural Competence [26]

even serving as the family's primary caretakers). However, if the provider encounters many people from a particular region or religion, it is useful to learn their ethnic groups, education and literacy, basic history of the country, family and kinship, and religious beliefs while expecting variations within groups. Providers will also benefit from knowing local dietary practices (e.g., fasting during Ramadan) [21], use of traditional healing practices (e.g., scarification causing permanent skin changes), and cultural practices (e.g., female genital cutting) that have a direct bearing on clinical care. Some resources that publish cultural profiles for different refugee groups are listed in Table 2.2.

Skills

Ethnic matching between patient and provider is not required for successful relationship building and effective care. While a match could potentially result in better communication, there may also be biases that project into the clinical encounter. In the authors' experience, patient preferences for provider genders and cultural backgrounds are mixed. Some patients deliberately choose to avoid providers from the same cultural background as they do not wish to share private information with someone who might prejudge their behaviors. As emphasized before, cultural responsiveness and showing respect and engagement in another's lifeworld are more important than ethnic matching. It is also more practical in a health system where ethnic matching is frequently not possible.

Effective Communication

Two tools commonly used to guide cross-cultural encounters are ETHNIC [27] and LEARN [28]. Both are based on the need to understand patient's understanding of illness and treatment, discussion of differences between provider and patient, and arriving at a plan in a collaborative manner. Table 2.3 lists both tools.

Nonverbal communication is equally important in a clinical encounter. While there are hundreds of different human gestures used around the world [29], the skill is not in knowing all of them but to pay attention and follow the patient's lead. Comfort levels for eye contact, touching, and personal space can vary across cultures. Facial expressions and other body gestures as expressions of symptoms can also vary between people and cultures and should be used only in conjunction with other clinical information for making treatment decisions.

Table 2.3 Tools for guiding cross-cultural communication

ETHNIC	LEARN
<i>Explanation</i> (how does the patient explain the symptoms or illness)	<i>Listen</i> with understanding to the patient’s perception of the problem
<i>Treatment</i> (what treatments have been tried and what is expected now)	<i>Explain</i> provider’s perspective of the problem
<i>Healers</i> (have traditional healers been consulted before)	<i>Acknowledge</i> differences and similarities between the perspectives
<i>Negotiate</i> (for a safe and acceptable plan in the event of disagreement)	<i>Recommend</i> a treatment plan
<i>Intervention</i> (this is derived with active patient involvement)	<i>Negotiate</i> a mutually acceptable plan
<i>Collaboration</i> (with family and other supports to set realistic goals)	

Working with Interpreters

Knowing how to work effectively using interpreters is a critically important skill for providers working with patients across language and cultural boundaries. Even if the refugee has some English language proficiency, it may not be sufficient to express medical concerns, describe symptoms, and discuss treatment. Professional interpreters have been shown to improve outcomes [16]. Families should be used only when there is absolutely no alternative. On the other hand, if patients refuse professional interpreters, providers should be flexible and patients may become comfortable using them over time. While it may be tempting to use online machine translation programs, such as Google Translate, providers should be wary of the accuracy of the outputted message. Without the clinical, personal, or emotive context, machine translation may lead to unintended miscommunications.

Bilingual clinic staff and untrained volunteers are also not recommended unless professional interpreters are inaccessible. Qualified medical interpreters know basics of human anatomy and physiology and meaning of medical terms and should be able to translate complex medical terminology to simple language. Ideally, they are familiar with common health beliefs of both cultures and can translate not only language but also cultural concepts. They are taught to appropriately handle their role in the clinical encounter as a third person so that a triadic relationship is not promoted.

Time in a primary care visit is often limited, and using interpreters, at a minimum, doubles the time required for the interview. However, effective communication early on could well save time down the road. Providers should attempt to adhere to standard guidelines for using interpreters. Some guidelines are provided below in Table 2.4.

Professional interpreter service can be either in person or via the telephone. The type of interpreter service used is dependent on local availability and provider and patient preferences. Video remote interpreting services are also becoming more widespread. In addition to limited English speakers, institutions can use the same technology for deaf and hard of hearing patients who use sign language. Advantages and disadvantages of in-person, telephonic, and video interpreters are outlined in Table 2.5.

Table 2.4 Guidelines for working with interpreters [25, 30, 31]

Explain goals of the interview to the interpreter and review his role.
 Ascertain if the interpreter’s social position is likely to interfere with his professional relationship with the refugee.
 Explain any special elements such as a mental health assessment, if planned.
 As much as possible, arrange for provider and patient to face each other.
 Allow interpreter to introduce his role to the patient and ascertain patient’s consent.
 Address the patient directly during the interview, and observe the patient’s expressions when he/she talks rather than looking at the interpreter.
 Speak only a few sentences at a time so the interpreter is able to translate.
 If responses are ambiguous, clarify the meaning with the interpreter, and if necessary, repeat to patient to determine if information was communicated correctly.
 It is highly recommended that the patient repeat the treatment plan to verify understanding; if feasible, written instructions should be provided via the interpreter.
 After the interview, ask the interpreter for feedback on the interview process.

Table 2.5 In-person versus telephonic interpretation

Type of interpreter service	Advantages	Disadvantages
In-person interpreter	The interpreter is able to assist with nonverbal cues of the patient Communication is not dependent on technology and not disrupted by external noises Written translation of instructions for the patient can be requested if the interpreter is present	The patient may not want to discuss sensitive information with a third person present The patient may not want an interpreter of the opposite gender In a small community, the interpreter may even be someone familiar to the patient raising confidentiality issues
Telephone interpreter	The patient might be more comfortable talking about sensitive information The gender of the interpreter is less important when he/she is not in the room There is less potential for a triadic relationship with a remote interpreter	Nonverbal responses are not communicated to the interpreter Quality of the communication is heavily dependent on quality of the telephone connection
Video remote interpreter	Nonvisual clues such as facial expressions and body language are evident The visual connection with the interpreter may help personalize and enhance the building of rapport Less costly over the long term compared to in-person interpretation	Requires upfront investment in special equipment Prone to technical problems and connectivity issues Limited availability of interpreters

Patient Level

The questions proposed by Kleinman, outlined above, are a good guide to exploring patients’ understanding of illness and its treatment. It is quite common in clinical encounters for the provider and patient to have differing perspectives on the same condition, leading to very different expectations of the outcomes. For instance, in the authors’ experience, refugees with chronic pain frequently are more interested

in the etiology of pain and potential for serious consequences rather than trying an array of medications and other treatments to control the pain. Another common instance of differing perceptions is when refugees with silent medical conditions like hypertension believe it only causes problems when they experience symptoms of dizziness or headache while providers recommend chronic treatment for prevention of complications [21].

EthnoMed, an online resource for cultural issues in medical care of immigrants and refugees, describes the linguistic and cultural aspects of medical care using tuberculosis as an example [32]. The author of this document differentiates cross-cultural misunderstandings into four areas; when a provider feels the patient is not adhering to recommendations, the possible scenarios could be (using hepatitis B here as an example):

- The diagnosis is unheard of (e.g., no knowledge of hepatitis B as a disease condition).
- The diagnosis is heard of but has been reinterpreted (e.g., hepatitis B is known as a liver disease, but its transmission and chronicity are not understood).
- The diagnosis is known, but the management is not agreed upon (e.g., surveillance and treatment for clinically silent hepatitis B is thought unnecessary and may be leading to complications).
- The diagnosis and management are agreed upon, but the relative social or financial costs of the diagnosis are too great (e.g., stigma of mode of transmission of hepatitis B causes fear of familial or social isolation).

Symptoms related to emotional health can be even harder to express, and diagnosis and management are more complicated to explain. As an example, the word “depression” does not have a linguistic equivalent in many languages. And “psychotherapy” is a linguistically and conceptually alien term for many refugees.

While these examples of patient-related cross-cultural issues can be prominent in refugee patients coming from linguistically and culturally dissimilar backgrounds, these concepts are applicable to any patient-provider interaction.

Summary

Refugees come from linguistic and cultural backgrounds that are frequently different from that of their providers. In addition, their past traumatic experiences and difficulties of displacement and adjusting to a new country add to the complexity of delivering health services. Providers who are flexible, curious, and responsive to cross-cultural needs will be most effective with this population. The concept of cultural competence has been replaced in recent years by the concept of cultural humility, which emphasizes an attitude of openness rather than knowledge of other cultures. Providers who treat immigrants and refugees are encouraged to be culturally self-aware and learn some specific skills such as working with interpreters. Culturally appropriate care has to occur not only at the provider level but also at the systems level, with allocation of necessary resources.

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Chapter 3

Domestic Health Assessment



Aniyizhai Annamalai and Paul L. Geltman

Introduction

Refugee health is complex due to the complicated migration paths of most refugees, past traumatic experiences, linguistic and cultural differences from providers in the host country, and differential risk for certain diseases based on country of origin and countries of transit. Education and research in refugee health has focused on health of newly arrived refugees and on communicable diseases that resettled refugees might bring with them. More recently, there is recognition of chronic noncommunicable health conditions that are highly prevalent in refugees. Both communicable and chronic disease conditions of relevance to refugees will be discussed in the chapters that follow. This chapter will review general recommendations for domestic health screening for refugees soon after resettlement.

There is very little data on health problems prevalent in recipients of asylum (asylees), but the same screening recommendations can be applied to them as their persecution history and migration experiences are similar to refugees. Also, they originate from and transit through many of the same countries that refugees come from. As noted in Chap. 1, political asylum seekers in the United States are not eligible for government-funded refugee health assessment.

Some countries that resettle refugees have developed practice guidelines for refugee health screening [1, 2]. In the United States, the Centers for Disease Control and Prevention (CDC) provides these guidelines [3]. While these are clinical

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recommendations, they are not mandates. The CDC also provides technical instructions for overseas screening for diseases of public health significance, in accordance with the US immigration law. Similar technical instructions are published for use by civil surgeons in the United States who conduct medical exams for refugees at the time of adjustment of visa status [4].

Overseas Medical Examination

Background

The Division of Global Migration and Quarantine (DGMQ) of the CDC provides the Department of State (DOS) and the US Citizenship and Immigration Services (USCIS) instructions for medical examinations of immigrants, including refugees, before departure for the United States. These instructions are developed in accordance with Section 212(a)(1)(A) of the Immigration and Nationality Act (INA). Designated physicians (panel physicians) selected by DOS perform this examination. These guidelines follow regulations outlined by the Secretary of Health and Human Services under the Immigration and Nationality Act and the Public Health Service Act. The purpose of the medical examination is to ensure that refugee applicants entering the United States do not pose a public health threat and also to identify health conditions that may need medical treatment upon arrival in the United States [4].

Major health conditions identified on the overseas examination may be classified as in Table 3.1. Minor health conditions may not receive any classification.

Class A conditions can be reclassified as Class B if the person has been treated and the condition is no longer a disease of public health significance.

Current Disease Conditions of Significance

In 2016, the Department of Health and Human Services (HHS)/CDC, which has the authority to establish requirements for medical examination of aliens prior to entry into the United States, revised the list of conditions considered to be of public health significance [4].

Table 3.1 Classification of health conditions on overseas examination

Class A conditions are those that render the refugee ineligible to enter the United States. These include communicable diseases of public health significance, drug abuse or addiction, and mental health disorders associated with harmful behaviors.

Class B conditions are those that do not interfere with eligibility to enter the United States but are considered significant and may require immediate and extensive treatment after arrival.

Major updates to the technical instructions to panel physicians include the following:

- (a) Removal of chancroid, granuloma inguinale, and lymphogranuloma venereum as health conditions that prevent entry into the United States
- (b) Revision of evaluation criteria for mental disorders, drug abuse, and drug addiction
- (c) Revision of the evaluation requirements for tuberculosis
- (d) Requirement of proof of vaccinations in overseas health examinations and addition of vaccine refusal as a Class A inadmissible condition during declared vaccine-preventable disease emergencies

Communicable diseases of public health significance currently include active, infectious tuberculosis, syphilis, gonorrhea, and Hansen's disease (leprosy). People with Hansen's disease must receive treatment consistent with international guidelines for 7 days before they can be reclassified as Class B. The other communicable diseases as well as mental disorders and drug abuse and dependence will be reviewed in later chapters.

In addition, to allow for flexibility to respond to unanticipated disease outbreaks, two disease categories were added:

- (a) Any quarantinable, communicable diseases designated by any presidential executive order
- (b) Any communicable disease that constitutes a public health emergency of international concern

The HHS/CDC determines need for additional testing based on risk of spread of disease to the United States. The most current list of diseases included in these categories can be found in the technical instructions for medical examination of immigrants and refugees [4].

Presumptive Predeparture Treatment

The CDC also provides guidelines for overseas predeparture presumptive treatments for malaria and intestinal parasites. These guidelines are reviewed in later chapters. The predeparture visit for screening and administration of presumptive therapy is typically completed 2–3 days before travel by the International Office for Migration (IOM). Refugee health profiles published by the CDC includes information on timing of the overseas medical examination and predeparture medical screening for specific refugee groups [5].

Transmission of Health Information

The Electronic Disease Notification system (EDN) is a centralized electronic reporting system that notifies the US state and local health departments and screening clinics of the arrival of refugees and immigrants with health conditions requiring medical follow-up. EDN was developed by the CDC in 2006 and is used under the

authority of the Immigration and Nationality Act. The US public health departments and other authorized health-care providers use this information during post-arrival medical examinations of refugees. The information generally includes documentation of medical history and physical examination, tuberculosis and vaccination worksheets, and presumptive treatments [6].

Domestic Medical Examination

Background

The DGMQ division of the CDC has developed guidelines to assist health-care providers performing domestic health examinations. These guidelines are based on available evidence and a consensus process that includes input from subject-matter experts. These guidelines are intended as recommendations and not mandates. The Office of Refugee Resettlement (ORR), part of Department of Health and Human Services, endorses the CDC guidelines for domestic refugee health screening activities. ORR encourages states to complete this health examination within 90 days, preferably within 30 days of arrival in the United States, during the resettlement and placement period [7].

The domestic medical screening serves many purposes:

- (a) Identify adults and children with previously undetected diseases of public health significance
- (b) Follow-up of medical issues identified in overseas health screening
- (c) Establish refugees within the health system for ongoing primary care
- (d) Optimize health for refugees to enable successful integration and resettlement

Refugees coming from places of conflict may have had poor access to health care prior to and during migration. So the initial visit may uncover health conditions not previously detected. It also serves as an opportunity to educate the refugee on importance of preventive health care, which for many refugees is a new concept. This visit also is the beginning of an education in learning how to navigate services within the health system.

The CDC also publishes technical instructions for civil surgeons evaluating applicants applying for adjustment of status to that of a permanent resident. Refugees are required to apply for permanent resident status 1 year after arrival in the United States, and this examination is a required part of the process. In contrast to the domestic health examination, the primary purpose of this screening is to identify any condition of public health significance and is similar to the examination performed by panel physicians overseas [4].

Models of Post-Arrival Care Delivery

There is no uniform model for health screening implemented across states. Care coordination for a newly arrived refugee can be complex and challenging. As mentioned above, the results of the overseas medical exam are transmitted through the

CDC's Electronic Disease Notification (EDN) system; refugees may bring the completed paper documentation with them. When refugees with complex medical problems are anticipated, active communication between local medical providers, local resettlement agencies, and public health departments before the refugee's arrival is important to plan for appropriate care.

Refugee resettlement agencies help the refugee enter the system after arrival in the United States along with other resettlement activities. States may contract with a network of community providers. In most cases, state programs utilize clinics at county and local health departments or private, not-for-profit clinics such as those at federally qualified community health centers and academic medical centers. Each state's system for domestic screening usually depends on the funding stream utilized to support it [8].

Funding for the domestic refugee exam comes from different sources. ORR provides refugee medical assistance (RMA) and other public health discretionary grants that may also be used to support medical screening and preventive services. By regulation, all refugees are eligible for cash and medical assistance (Medicaid) for up to 8 months after arrival in the United States. For those not categorically eligible for Medicaid, the RMA funding stream supports their coverage. Some states rely on their Medicaid programs to reimburse medical practitioners who perform the domestic health assessment. Other states, through agreements negotiated with ORR, will instead use RMA funding to reimburse directly for all components of their domestic health screening through special programs administered by their public health departments. After the 8 months of RMA, if they are not eligible for Medicaid, refugees may be able to get ongoing health insurance through the Affordable Care Act (ACA) Marketplace. ORR has published online resources about ACA and the Healthcare Marketplace in different languages [9]. With the ACA in place, increasingly, ORR is encouraging states to move toward use of Medicaid exclusively to reimburse for the domestic health assessment.

Resources and infrastructure for ongoing care after screening vary across states and regions in the United States. If the screening and follow-up visits are in the same institution, it eases the transition into long-term primary care and facilitates early familiarity and trust in the provider and the health system.

General Principles for Domestic Medical Screening

Providers should review all available overseas documentation. The overseas health examinations records contain information on health status, required follow-up testing, vaccinations, and presumptive treatment received before departure to the United States. It should be noted that the government designates holders of other visa categories also as eligible for domestic refugee program benefits. Either these people frequently will not have received overseas health screening or overseas health documentation is not transmitted through EDN. Examples include Iraqi and Afghan Special Immigrant Visa holders (SIVs), asylees, Cuban and Haitian entrants, and certified victims of human trafficking.

Refugees have typically undergone required health screenings before arrival that focus on identifying Class A conditions, and so it is helpful to tell them the domestic exam is for health reasons and will not affect their legal status or residency in the United States. In addition, it is important for them to know that the health assessment will start them on the process of meeting immunization requirements for school enrollment or, in some cases, employment. It also goes toward fulfilling health screening that is required at the time of adjustment of legal status (i.e., the civil surgeon exam when applying for legal permanent residence, a.k.a. a “green card”), which for refugees usually happens a year after arrival.

We summarize below some of the core components of the evidence-based guidelines for refugee health screening. A summary checklist of all the recommendations for the domestic health screening is available through the CDC and other reviews [3, 10].

History and Physical

Refugee providers often have to be flexible with accommodating special requests from patients; commonly, refugees ask for examiners and interpreters to be of the same gender as them and for family members to be present for the examination. This may mean that sensitive questions (e.g., screening for domestic abuse, sexual history) will be deferred to a follow-up visit or the family member can be asked to leave the room briefly for a portion of the evaluation. Questions on sexual practices have to be broached with sensitivity as many refugees will consider this private information.

As with any new patient evaluation, the history and physical exam should be comprehensive and assess current symptoms and known chronic medical conditions. In addition, providers should pay attention to health problems that are known to be prevalent in refugees. Historically, infectious diseases have been the focus of domestic refugee health examination and include screening for latent and active tuberculosis, intestinal parasites, malaria, infectious hepatitis, and sexually transmitted diseases. However, with changes in refugee demographics and disease epidemiology worldwide, chronic disease has become increasingly prevalent [11, 12]. Similarly, oral health issues are highly prevalent in refugee populations. Hence, the initial visit also serves as an opportunity to begin to address chronic conditions such as diabetes, hypertension, and somatic complaints such as low back pain and headache and to initiate engagement around oral hygiene practices and preventive health care. Health education has the potential to improve vaccine uptake and cancer screening [13, 14].

A refugee’s path may range from fairly direct travel to the United States or living in a country of asylum for one or two decades before resettlement. It is important to understand the path of migration for multiple reasons. The countries of origin and transit and disease epidemiology in those regions determine risk factors for certain diseases. It is also informative of environmental exposures, nutritional deficiencies,

and direct or indirect exposures to violence. The upheavals and losses refugees may have endured along the way provide clues to potential psychological distress.

It is extremely important to assess current social situation as mental health problems can be compounded or even newly occur from resettlement stressors. Educational level, work history, language fluency, current support network, family structure, and employment potential are all factors in determining risk of poor adjustment to a new society.

Knowledge of prevalence of disease conditions among refugees helps ask the right questions. For instance, cultural practices causing lead exposure is important to assess since high lead levels are seen in refugee children before and after resettlement [15]. Vaccination history is important to obtain, both from records brought from home country and the overseas predeparture health visit. Please see Chap. 4 for further discussion on vaccinations.

Prevalence of substance use is not well characterized among refugee populations, but a systematic review of forced migrants identified alcohol followed by khat and betel nut as commonly used substances [16]. Tobacco use is commonly seen though patterns of use may be different from that of the local populations and cessation rates may be higher with educational programs [17].

The physical exam should be complete and thorough but adjusted to the comfort level of the patient. For instance, a genital or pelvic exam is not necessary in the first screening visit in the absence of immediate clinical need. It may even be traumatizing for victims of sexual abuse.

While the physical exam for refugees is similar to a comprehensive exam for any other group, particular areas to focus include the following:

- (a) Skin exam to identify environmental exposures, dermatologic signs of vector-borne diseases arising from crowded conditions (e.g., scabies), signs of traditional healing practices (e.g., cupping), and burn injuries from trauma [18].
- (b) Abdominal exam to assess for splenomegaly that has been noted in certain refugee groups [19] and may indicate subclinical malaria.
- (c) Neurologic and musculoskeletal exam to look for sequelae of traumatic brain injury [20].
- (d) Oral exam to identify and treat oral disorders and dental problems prevalent in refugees [21] and start to engage in preventive care [22].
- (e) Eye exam to detect visual problems, which are as yet understudied in refugees [23].
- (f) Cardiac exam to listen for heart murmurs indicating rheumatic heart disease, especially in refugees coming from endemic regions [24].
- (g) Genital exam to look for signs of female genital cutting in females coming from certain regions of Africa with high prevalence of this practice [25]. While refugees face several risks for sexually transmitted diseases (STDs) [26], the prevalence in resettled refugees appears to be low [27].

A history and physical examination can not only identify health issues to be triaged at the initial medical visit, but when performed thoroughly and with cultural humility, it can engender the development of trust and comfort with the provider

Table 3.2 Screening examination*General*

Review overseas medical exam information.

Check vaccine-preventable disease immunity (e.g., review overseas records, check lab serologies).

Obtain information on past and current social circumstances (e.g., path of migration, being a torture victim).

Look for physical injuries from past violence (e.g., scars from burns, joint dislocations, head injury).

Screen for symptoms and signs of infectious diseases (e.g., cough, fever, hepatosplenomegaly, lymphadenopathy) as well as undetected chronic disease (e.g., high blood pressure and blood glucose).

Obtain dietary information (e.g., commonly consumed foods, history of food deficit in refugee camp, anthropometric indices for young children).

Look for current and past use of traditional treatments (e.g., use of herbal remedies, skin lesions from traditional treatments, environmental exposures).

Ask about use of substances prevalent in region of origin (e.g., betel nut in Asians, khat in African region).

Screen for cultural practices affecting health (e.g., using lead containing “kohl” as eyeliner and heavy metal utensils in cooking, signs of female genital cutting).

Pay special attention to oral and vision exam.

Mental health

Ask about past trauma (e.g., reasons for being a refugee, assaults sustained during migration, torture experience).

Assess factors impacting adjustment (family and other social support, language literacy, education and employment, magnitude of cultural dissonance with host country).

Assess for symptoms of prevalent psychiatric illnesses (e.g., sleep problems indicating depression or post-traumatic stress), whenever possible with a validated screening instrument. Screening instruments including the 15-item Refugee Health Screening (RHS-15), which is unlicensed and available in multiple common refugee languages, are described in Chap. 14.

Assess functional impact of any identified psychiatric problems.

Ask about willingness for mental health treatment if indicated.

and the local health-care delivery services. Development of trust is perhaps the most important role of the health assessment.

Table 3.2 summarizes key elements of a comprehensive health assessment.

Laboratory Testing

General laboratory testing recommended for refugees include the following:

- (a) Complete blood count (CBC) with five-cell differential to evaluate for presence of anemia, which is seen at higher rates in female and older refugees [28]. The etiology is multifactorial including nutritional deficiency, infections, and higher prevalence of hemoglobinopathies and red blood cell (RBC) enzyme defects in some regions refugees originate from [29–31]. Eosinophilia may indicate current or recent parasitic infection and is useful to guide decisions on screening

for parasites in asymptomatic refugees. Thrombocytopenia may be seen with conditions causing splenomegaly or schistosomiasis, both of which are endemic in sub-Saharan Africa [32, 33].

- (b) Urinalysis is recommended by the CDC for all refugees [3]; however, there is no evidence that routine urinalysis is cost-effective or improves disease detection. It can be considered in refugees coming from areas endemic for schistosomiasis. It can also detect glucosuria, but serum glucose testing or glycosylated hemoglobin (HbA1c) is recommended for diabetes detection.
- (c) Serum chemistries also do not have evidence for cost-effectiveness of routine screening and are optional. While it is rare for renal and hepatic disease to be the first sign of complications from infectious or metabolic diseases, providers may consider ordering these tests, especially if there is no record of prior testing. There is some evidence that Nonalcoholic Fatty Liver Disease (NAFLD) occurs at higher rates in some immigrant populations [34]. Similarly, they are useful as secondary tests for refugees identified to have conditions such as diabetes that may affect renal or hepatic function.
- (d) Serum testing for nutritional deficiencies is optional, but given the high prevalence of vitamin B12 and vitamin D deficiency in refugee populations [35], the authors recommend screening. Vitamin D deficiency and insufficiency is extremely common among refugees [36], and routine repletion may be warranted for a period of 8–12 weeks before checking a 25-OH vitamin D level. Vitamin B12 deficiency has been documented in many refugee populations [37, 38] and can cause important neuropsychiatric and other symptoms without evidence of macrocytosis or anemia [39].
- (e) Serum lipids and glycosylated hemoglobin (HbA1c) should be tested, at a minimum, according to the United States Preventive Services Task Force guidelines. Due to the increasing prevalence of diabetes, hypertension, and lipid disorders [11, 12] as well as worsening of these risk factors in resettled refugees [40], many providers perform metabolic screening even at younger ages than recommended by USPSTF.
- (f) Pregnancy testing is recommended for all reproductive age females especially prior to administration of live viral vaccines and if any pharmacological treatment is planned.
- (g) Serum lead levels should be checked for all refugee children aged 6 months to 16 years due to high blood lead levels seen in refugee children [15].
- (h) Table 3.3 summarizes general laboratory testing for newly arrived refugees.

Disease-specific laboratory testing is discussed further in later chapters in this book. Table 3.4 summarizes these tests.

Ongoing Care

Some screenings done upon arrival may need repeat testing and evaluation in the initial months of resettlement [10, 42]. See Table 3.5 for additional tests and follow-up treatments to be considered after the domestic screening exam.

Table 3.3 Routine laboratory screening in refugees

Test	Recommendations
CBC with differential	All refugees: anemias, eosinophilia, and possibly thrombocytopenia
Urinalysis	Optional; consider if any risk factors for schistosoma haematobium
Serum chemistries	Optional; consider in all refugees without prior lab testing
Vitamin B12, vitamin D	Optional; consider vitamin D supplementation without testing
Serum lipids, HbA1c	Adult refugees; consider high-risk screening for men and women even if below USPSTF-recommended ages
Urine pregnancy test	Reproductive age women prior to live virus administration
Serum lead levels	All children 6 m to 16 y of age

Table 3.4 Disease specific laboratory testing*

Test	Comment
<i>Tuberculosis</i> : Interferon gamma release assay (IGRA) or tuberculin skin test (TST)	IGRA preferred except in refugee children <2 years of age
<i>Hepatitis B</i> : Surface antigen, surface antibody, core antibody <i>Hepatitis C</i> : Antibody	All refugees coming from regions of >2% prevalence All age appropriate refugees per USPSTF guidelines
<i>STDs</i> : <i>Syphilis</i> : Fluorescent treponemal antibody (FTA), treponema pallidum particle agglutination (TPPA), venereal disease research lab (VDRL), or rapid plasma reagin (RPR) (see Chap. 9) <i>Gonorrhea and chlamydia</i> : Urine nucleic acid testing	All adult refugees without prior testing and children <15 years at risk All women and children/adolescents at risk
<i>HIV</i> : HIV1/2 antibody assay	All refugees
<i>Malaria</i> : Blood smears, rapid antigen testing, or polymerase chain reaction (PCR)	All refugees with symptoms; asymptomatic refugees from sub-Saharan Africa may be candidates for presumptive treatment
<i>Intestinal parasites</i> : Eosinophil count, stool ova and parasites, or serologies for schistosoma and Strongyloides	All refugees; choice of testing depends on receipt of predeparture prophylaxis and region of origin as well as presence of intestinal symptoms; some refugees may be candidates for presumptive treatment (see Chap. 6)

*Please refer to relevant chapters for details of testing for each disease condition

Table 3.5 Ongoing care

Completion of evaluation and treatment for any positive communicable disease screen
Completion of immunizations
Repeat serum lead testing in children at 3–6 m regardless of initial level
Chronic disease management for chronic conditions identified on initial screening
Counseling on nutrition, maintenance of physical activity, and avoiding tobacco or other substance use
Blood pressure, HbA1c, and lipids monitoring
Cancer screening based on risk factors
Follow-up on mental health needs and referrals

There is increasing recognition now that refugees need screening for chronic diseases [3, 41]. Cardiovascular risk screening including HbA1c and lipids should be done 3–6 months after resettlement as a follow-up or initial testing if not done at the first visit. Refugees and other immigrant groups are at risk for weight gain and accompanying cardiovascular risk after resettlement [40]. Cancer screening is recommended according to USPSTF guidelines for the US populations until more evidence is available on epidemiology of cancers in refugees. Providers should note, however, that some cancers like gastric carcinoma and hepatic carcinoma are more prevalent in populations with high prevalence of *Helicobacter pylori* and hepatitis B, respectively. Work is ongoing to characterize cancer screening and associated factors among refugees [43].

Summary

Refugees represent a unique population even among immigrants due to health-related risk factors particular to them. Refugees receive overseas predeparture screening, and a domestic health assessment is recommended soon after resettlement. In the United States, the CDC publishes guidelines for this assessment. Historically, this assessment has focused on communicable diseases of public health significance; however, newer recommendations include additional evaluation for chronic diseases. It is optimal for refugees to receive initial examination and follow-up care within the same system. The initial and subsequent visits should be used to introduce refugees to the local health system and facilitate development of trust in providers.

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Part II
Infectious Diseases

Chapter 4

Immizations



Julia Rosenberg, Erika Schumacher, and Camille Brown

Introduction

Clinicians have an important role to accurately interpret refugees' immunization histories and to administer needed vaccinations per the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) guidelines [1].

Timely, accurate administration of immunizations protects the health of individual refugees and prevents importation of vaccine-preventable illnesses [2]. Additionally, children may enter school only after vaccination catch-up series have been initiated, and documentation of immunity or immunization to vaccine-preventable illnesses is required to apply for adjustment in legal permanent residency status (green card application) [3].

Overseas Vaccinations

Although overseas refugee medical evaluations are mandatory, refugees are one of the few groups of immigrants who are not legally required to receive any vaccinations prior to arrival in the United States. However, routine vaccinations are strongly recommended and offered overseas as part of a vaccination program to protect health, prevent travel delays due to disease outbreaks, and, for children, allow more rapid integration into schools after arrival in the United States. The CDC and US

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Department of State collaborated in 2013 to develop the Vaccination Program for US-Bound Refugees, which was expanded in 2016 [4, 5]. This US-specific program complements the World Health Organization's (WHO's) Expanded Program on Immunization, which has been in existence since 1974 [6]. In part because of these programs, many US-bound refugees have received at least one dose of many of the vaccines recommended by ACIP by the time they arrive in the United States.

School Entry Requirements

It is important for clinicians to be aware of state-specific vaccination requirements for entrance into public school. The child may be denied entrance until one dose of each vaccine has been given or immunity demonstrated. Titer serologies, if checked, should also be provided to the school. Children may enter school without delay after a catch-up vaccine series has been started.

There are no limits to the number of vaccines that may be administered at one visit. Because school admittance is a priority, it is reasonable, in conjunction with family preference, to administer all school-required vaccines in one visit, with close follow-up to provide catch-up vaccines [3].

Change in Legal Residency Status Requirement

Vaccinations in accordance with ACIP recommendations are mandatory for refugees who are applying for adjustment of status from legal temporary resident to legal permanent resident (green card application). Refugees may apply 1 year or more after arrival. This application includes Form I-693, which requires a vaccination assessment by a civil surgeon or designated US health department. For multiple vaccine-preventable illnesses (Box 4.1), documentation of at least one dose of vaccination or proof of immunity must be provided [7].

Box 4.1 Vaccine-preventable diseases for which age-appropriate vaccination or proof of immunity is required for adjustment in residency status

Tetanus	Measles ^a	Pneumococcal disease ^b	Hepatitis A ^{a,b}
Diphtheria	Mumps ^a	<i>Haemophilus influenzae type B</i> (Hib) ^b	Hepatitis B ^{a,b}
Meningococcal disease	Rubella ^a	Rotavirus ^b	Polio ^{a,b}
Pertussis	Varicella ^a		
Influenza			

^aLaboratory evidence of immunity is acceptable if the applicant lacks appropriate documented history of vaccination for these diseases [7]

^bAge-specific. Hib, hepatitis A, hepatitis B, polio, and rotavirus have pediatric requirements. Pneumococcal protection is required for children ≤ 6 years of age and adults ≥ 65 years of age [7]

Assessment of Immunity and Determination of Needed Vaccinations

Review of Immunization Documentation

As part of the Vaccination Program for US-Bound Refugees, Department of State panel physicians review and document vaccine records and immunizations. Overseas vaccines and immunization histories are recorded on the DS-3025, the Vaccine Documentation Worksheet, which refugees should present to providers at their first Refugee Health Assessment (RHA) visit [5]. Records are also available on the CDC Electronic Disease Notification system.

Additionally, families often bring records from their native or host country. Unlike in other situations—such as international adoptions or certain asylee cases—in which immunizations are not considered valid, refugees' written vaccination records may be accepted. Clinicians can use local language services as well as CDC/ACIP resources to interpret foreign records or unfamiliar nomenclature [3]. There are also several online resources to help decode such records, including the Immunization Action Coalition, a nonprofit organization funded in part by the CDC [8].

Written documentation of vaccines should generally be considered sufficient if immunizations were received in a manner that corresponds to the intervals and age restrictions of the current ACIP schedule. Unlike written records, verbal reports cannot be relied upon and should be cross-checked with serologic testing as appropriate.

Limitations of Overseas Vaccinations

Clinicians should note several caveats when interpreting vaccine records. Refugees who experienced malnutrition or comorbid diseases may not have had a robust immune response to vaccination. Failed immunization may also occur if vaccines were transported or stored at incorrect temperatures or if vaccines were not administered properly. If there is doubt or concern about prior vaccination, clinicians may consider revaccinating or checking serologies.

Laboratory Assessment of Serologies

Laboratory assessment of antibody levels (also known as titers or serologies) is appropriate when determining need for vaccination or if questioning immunity. If a vaccine series is in process, it is advisable to complete the series in accordance with ACIP standards without checking serologies.

A cost-benefit analysis should be undertaken before deciding to draw serologies or immunize empirically. Considerations include the pretest probability of immunity, the direct costs to the medical system, the number of follow-up visits required, the likelihood of patient return to clinic for appropriate follow-up, and the patient's age group. For example, it is often cost-effective to immunize without checking titers in children under 5 years of age, as they may be less likely to have immunity to illnesses such as varicella [9].

To assist with this cost-benefit determination, the Office of Refugee Resettlement (ORR) offers data on cost [10]. The CDC offers guidance on vaccination versus serologic testing [11] and provides certain country-specific guidance on their Immigrant and Refugee Health site [12]. These resources can serve as a point of reference for clinicians during the process of evaluating overseas immunization records and determining appropriate screening.

Vaccine Indications and Contraindications

Absolute and relative contraindications to routine immunizations should be reviewed prior to vaccination and can be found on the package inserts. The following conditions are not contraindications for the administration of a vaccine: mild to moderate local reactions to a previous dose of vaccine, mild acute illness (e.g., upper respiratory infection, diarrhea, fever), breastfeeding, antimicrobial therapy, or coincident tuberculin skin testing [7].

Pregnancy is not a contraindication to the administration of Td/Tdap, inactivated influenza, or hepatitis B vaccine but should be considered a contraindication to live vaccine administration [13].

Live Attenuated Vaccine Considerations

Special consideration must be given when assessing live attenuated vaccines, which include the measles, mumps, rubella (MMR), rotavirus, varicella, oral polio (OPV), and live attenuated influenza (LAIV) vaccines.

Severely immunocompromised and pregnant individuals should not receive these vaccines. Since 2010, refugees have not been tested for HIV prior to entry in the United States, so it is highly encouraged that practitioners complete HIV testing prior to administering any live virus vaccines during the post-arrival health assessment.

Certain live parenteral or intranasal vaccines (MMR, varicella, LAIV) must be administered either on the same day *or* 28 days apart from one another and from tuberculosis testing (tuberculin skin test (TST) or the interferon gamma release assay (IGRA)). These restrictions are due to a theoretical temporary interference and suppression of immune response and, in the case of TST or IGRA, can lead to a false-negative tuberculosis test [14].

Of note, if vaccines such as OPV and varicella are administered during outbreaks of disease prior to travel overseas, they may not be documented on the DS-3025 vaccine record. It is therefore important to check for separate documentation of live vaccine administration in recently arrived refugees. Notifications of vaccine campaigns from a given area will also be made known to State Refugee Health Coordinators by the CDC.

Vaccine Information Sheets

Clinicians are required to provide Vaccine Information Sheets (VIS) to all patients receiving vaccines, in their own language if possible. VIS can be found in over 40 different languages on the CDC/ACIP website [15].

Specific Vaccines

Table 4.1 lists the vaccines required for adjustment in legal residency status to be considered by panel physicians. Many of these vaccines may be given to refugees overseas as part of the Vaccination Program for US-Bound Refugees if age-appropriate and available in country of departure. An overview of vaccines to consider for refugees is listed in Table 4.1, and each is discussed in more detail below. It is critically important that providers reference the up-to-date catch-up vaccination guidance provided by the CDC and ACIP. A copy of the catch-up schedule at the time of publication is reprinted in the Appendix, but providers should refer to CDC/ACIP website for the most up-to-date information [5].

Tetanus, Diphtheria, and Acellular Pertussis Vaccines

State of Immunity

Tetanus, diphtheria, and pertussis vaccines are effective, with about 95% of people who receive the primary series having evidence of protective antibody levels [16]. However, there is concern for waning immunity over time, especially to the pertussis component of the vaccine [16–19].

Testing

While some laboratories do offer serology testing for antibodies to tetanus, diphtheria, and pertussis, there are not well-accepted laboratory correlates of protection against pertussis [20]. Laboratory evidence of immunity is *not* considered as

Table 4.1 Summary of immunization considerations for refugees

	Recommended approach if no documentation of prior vaccination	Overview of vaccine series	
		Adults	Children
Diphtheria, pertussis, tetanus	Vaccinate	Tdap once and then Td or Tdap boosters	Age-appropriate DTaP/Tdap/Td series
Hepatitis A	Serotest ^a	Two-dose series	Two-dose series
Hepatitis B	Serotest ^a if from endemic area; vaccinate otherwise	Two- to three-dose series	Three-dose series
Polio ^c	Vaccinate or Serotest ^a	Three-dose series If medically indicated	Three- to four-dose series
Measles, mumps, rubella ^b	Vaccinate or Serotest ^a	At least one dose	Two-dose series
Varicella ^b	Serotest ^a	Two-dose series	Two-dose series
Influenza ^c	Vaccinate	Yearly	Yearly if ≥6 months
Meningococcus	Vaccinate	If medically indicated	Age-appropriate one to two-dose series
Pneumococcus	Vaccinate if indicated	If medically indicated	Age-appropriate series
Rotavirus ^b	Vaccinate if indicated	N/A	Two- or three-dose series if <8 months
<i>Haemophilus influenza</i>	Vaccinate if indicated	If medically indicated	Age-appropriate series

^aOr complete series if started

^bLive attenuated vaccine

^cMay be live attenuated vaccine formulation

meeting the criteria for those seeking to fill out Form I-693 to adjust residency status [7]. It is therefore recommended that all patients be vaccinated upon arrival without serologic testing if there are no vaccine records available.

Recommended Vaccination Administration

Tetanus, diphtheria, and pertussis vaccines are part of the Vaccination Program for US-Bound Refugees; up to two doses of tetanus-diphtheria (Td) vaccine may be administered via two doses to individuals ≥7 years of age, and one dose of diphtheria-tetanus toxoid and acellular pertussis (DTaP) administered to children 6 weeks to 6 years of age [5].

In the United States, for children under seven, ACIP recommends administration of a primary series of three doses of DTaP vaccine in the first year of life, followed by two booster doses of these vaccines at 15–18 months of age and 4–6 years of age.

For children over seven and adults, ACIP recommends use of the tetanus-diphtheria-pertussis (Tdap) and/or Td vaccine formulations. It is recommended that

adult refugees without documentation of prior vaccination receive a primary dose of Tdap, followed by two doses of tetanus-diphtheria (Td) [5]. In situations of Td shortages, Tdap is an acceptable replacement. A booster of Tdap or Td should be administered beginning at 11 years of age and every 10 years thereafter. Pediatric patients should be caught up per the standard catch-up schedule. Please refer to the combination vaccine section of this chapter for information about combination forms of DTaP. The CDC also provides job aids to assist with determining the intervals of Tdap and DTaP administration [21].

Tdap, along with the influenza vaccine, should be routinely administered to pregnant women during each pregnancy.

Polio Vaccine

State of Immunity

Since 1988, when the World Health Assembly set out the plan to eradicate polio, poliomyelitis from wild poliovirus (WPV) has declined by >99.9%, with WPV type 2 declared eradicated worldwide in 2015 [22]. Despite dramatic improvements, polio cases still occur and are tracked by country via the Polio Global Eradication Initiative [23]. Seroprevalence of immunity varies by country of origin but was reported to be lower than 60% in one study of recently resettled refugees [24].

Testing

Because of limited availability of assays to detect poliovirus type 2, serologic testing is no longer recommended to assess for immunity in pediatric patients [22], while adults may have serologic testing, if available, to aid in the immunization decision.

Recommended Vaccination Administration

A two-dose series of the polio vaccine is part of the Vaccination Program for US-Bound Refugees for children 6 weeks to <11 years of age [5].

Inactivated polio vaccine (IPV) is recommended for all refugees without record of an immunization series.

In addition to IPV, there are three types of live oral poliovirus (OPV): trivalent (tOPV), bivalent (bOPV), and monovalent (mOPV). The vaccines IPV and tOPV protect against poliovirus types 1, 2, and 3. Monovalent OPV (mOPV) is administered in type-specific outbreaks and may not be documented on form DS-3025. After poliovirus type 2 was declared eradicated—and in an effort to minimize vaccine-derived polio cases—countries using OPV switched from tOPV to bOPV

(which covers polioviruses types 1 and 3 only) in April 2016. For children living in the United States, ACIP requires vaccination against all three poliovirus types with age-appropriate vaccination with IPV or tOPV. Therefore, unless documented as tOPV, OPV vaccinations administered after April 2016 are not accepted as part of the vaccine series [22].

In the United States, for children under seven, IPV should be administered in a four-dose series—at 2, 4, and 6–18 months and 4–6 years of age. For those over 7 years of age, and, when indicated, for adults, a three-dose series is recommended—with 1- to 2-month separation between the first and second doses and a 6-month separation between the second and third. For all ages, the minimal interval between the last doses is 6 months. Overseas, the vaccine may be given at an accelerated schedule. If both IPV and tOPV are given, the number of doses to complete the series is the same as an all IPV series. As noted above, only OPV administered before April 2016 can be accepted as part of the vaccine series (unless documented as tOPV).

IPV is not recommended during pregnancy [13], and OPV is a live virus for which certain caveats should be applied, as discussed in the live virus section of this chapter.

Hepatitis A Vaccine

The hepatitis A vaccine is not part of the Vaccination Program for US-Bound Refugees. If an individual is unvaccinated, a cost-benefit analysis should be performed to determine whether to check serologies or empirically administer the vaccine. Refugees have often contracted and recovered from hepatitis A prior to arrival (and may have been asymptomatic). Thus, it is often worthwhile to assess serologies prior to vaccination [25]. Please refer to Chap. 7 for information about hepatitis A endemicity worldwide.

In the United States, the hepatitis A vaccine is provided as a two-dose series, with 6 months between doses. A three-dose series may be administered to adults when using a combination formulation; please refer to the section on combination vaccines for more information.

Hepatitis B Vaccine

State of Immunity

The prevalence of hepatitis B infection in US migrant populations is about 7% [26]. Approximately 95% of chronic hepatitis-B-related deaths in the United States occur among immigrants [26]. A map showing geographic distribution of chronic hepatitis B infection can be found on the CDC website [27] (p. 3).

Testing

The CDC recommends testing serologies in anyone from regions where hepatitis B surface antigen (HBsAg) prevalence is $\geq 2\%$ or in anyone from the United States who is born to a parent from such regions or who is unvaccinated [3]. Most refugees have been tested for HBsAg as part of the Vaccination Program for US-Bound Refugees prior to arrival, and this information is documented on their DS-3025 form. Refer to Chap. 7 for information about interpretation of hepatitis B serologies.

Recommended Vaccination Administration

For those who are found to be hepatitis B surface antigen negative abroad and for whom doses are due, a two-dose hepatitis B vaccination series is part of the Vaccination Program for US-Bound Refugees [5].

In the United States, the current ACIP recommendation is to vaccinate any uninfected individual without immunity according to the ACIP schedule. Additionally, incomplete vaccine series should be completed even in setting of a positive hepatitis B surface antibody, as it may not be a good predictor of long-term immunity if the series is incomplete [3]. ACIP recommends that children receive a three-dose series, at birth, 2 months, and 6 months of age. For patients over 18, two- and three-dose series are available depending on the formulation of the vaccine; refer to the package insert for guidelines. Additionally, seropositivity may wane in adolescence. Although titers are not routinely tested after the complete vaccine series, if they are found to be negative (such as in a complete hepatitis panel) after completion of a full series, additional vaccinations and serology checks are required [28].

Measles, Mumps, and Rubella (MMR) Vaccine

State of Immunity

The MMR vaccine is $>95\%$ effective against both measles [29] and rubella [30], with antibodies persisting for at least 15 years [31]. The vaccine is approximately 66–95% effective for mumps [32]. Studies of refugees and migrants have shown that 15–25% of adults do not have evidence of rubella seroconversion and that about 18% of children did not have evidence of rubella or measles seroconversion [33]. In the Americas, where congenital rubella has been otherwise eliminated, immigrant and refugee families account for the majority of cases of congenital rubella syndrome [34].

Testing

Serologic testing or empiric immunization are both acceptable, and a cost-benefit analysis can be performed on a case-by-case basis.

Recommended Vaccination Administration

For refugees born on or after 1957 and who are at least 1 year of age, a two-dose vaccination series is part of the Vaccination Program for US-Bound Refugees [5].

In the United States, it is recommended that adult refugees born after 1957 without clear documentation or evidence of immunization receive at least one dose of MMR [35]. Women of childbearing age should be assessed for immunity to rubella and vaccinated appropriately when not pregnant. Children should receive a two-dose series of MMR in accordance with the ACIP-recommended schedule, with one dose administered between 12 and 15 months and the second between 4 and 6 years. In endemic areas, the MMR vaccine may be given before 12 months of age; any such MMR vaccination under 12 months of age cannot count toward the ACIP vaccine series. Catch-up vaccination should be performed on all school-aged and teenage children, allowing for a minimum 28-day interval between the first and second dose. A combination MMR-varicella vaccine may be administered to children 12 months to 13 years of age; please refer to the combination vaccination section of this chapter for more information. Because MMR is a live attenuated vaccine, certain caveats should be considered, which are discussed in the live vaccine section of this chapter.

Varicella Vaccine

State of Immunity

Approximately 10–50% of refugees do not have serological evidence of varicella immunity, with younger children less likely to be immune [16, 36].

Testing

Cost-effectiveness studies have demonstrated that performing serologies on newly arrived refugees is cost-saving compared to universal vaccination for those who have not received prior varicella immunizations and who are over 5 years of age [9, 36]. If a vaccine series was started overseas, it is recommended to complete the series without testing serologies.

It is important to note that commercially available enzyme immunoassay tests are generally >95% specific for varicella, although only 60–92% sensitive in detecting antibodies after natural infection and even less so for vaccine-induced immunity [37].

Given the greater risk of severe, complicated disease in older individuals and pregnant women, proper screening and vaccine administration for nonimmune, nonpregnant individuals are critical.

Recommended Vaccination Administration

Although varicella vaccination is neither part of the WHO Extended Program on Immunization nor the Vaccination Program for US-Bound Refugees, some refugees may have received a single varicella immunization prior to arrival, as it is often administered during outbreaks.

In the United States, ACIP recommends a two-dose series for children and adults ≥ 12 months without evidence of immunity and without contraindications to the vaccination. For children, the first dose should be administered at 12–15 months and the second dose at 4–6 years of age. For catch-up administration, minimum interval between doses is 3 months for children under 13 years and 4 weeks for those 13 years of age and older.

A combination MMRV vaccine is available for those under 13 years of age; please refer to the combination vaccine section for more information. The varicella vaccine is a live attenuated virus; please refer to live vaccine section of this chapter for recommended precautions.

Influenza Vaccine

While the influenza vaccine is not part of the Vaccination Program for US-Bound Refugees due to price of the vaccine, it may be given if age-appropriate and country-available. In the United States, an annual influenza vaccine is required for adjustment in residency status for applicants ≥ 6 months of age [7]. For children under 9 years of age, a two-dose series is recommended for their first flu season; current recommendations are available from the ACIP [38].

Vaccines for Children and Specific Adult Subgroups

Since the expansion of the Vaccine Program for US-Bound Refugees in 2016, children and certain immunocompromised refugees may have received age- or disease-specific vaccines overseas prior to travel. These include vaccines against *Haemophilus influenzae* type b (Hib), pneumococcus, meningococcus, and rotavirus. The Hib, pneumococcal, and meningococcal vaccines protect against severe bacterial illness such as bacteremia, meningitis, and pneumonia in children and immunocompromised adults. Rotavirus enteritis is a major cause of childhood mortality, especially in developing countries, that can be prevented through immunization [39]. If indicated, these vaccines are also required for successful completion of Form I-693 for refugees seeking adjustment in residency status [7].

Haemophilus Influenzae Type b (Hib)

Overseas, Hib may be administered to refugee children aged 6 weeks through 5 years by the Vaccination Program for US-Bound Refugees. Prior to travel, it is recommended to give two doses of Hib if <15 months and one dose of Hib if 15 months to <5 years of age. In addition, one dose of Hib vaccine is recommended for unimmunized asplenic persons regardless of age and for unimmunized HIV-positive patients up to 18 years [5].

In the United States, as part of the ACIP vaccine guidelines, Hib is administered in a three- or four-dose series at 2, 4, (6), and 12–15 months for children under 5 years of age. A catch-up vaccine schedule and indications for vaccinating immunocompromised individuals over 5 years of age can be found on the CDC/ACIP website [40].

Meningococcal Serogroup A, C, W, Y (MenACWY) Vaccines

While meningococcal vaccination is not part of the Vaccination Program for US-Bound Refugees, MenACWY may be given to refugees overseas if age-appropriate and country-available. Vaccination is required for the I-693 form to apply for change in residency status for children 11–18 years of age [7].

In the United States, as part of the ACIP vaccine guidelines, MenACWY vaccine is recommended in a two-dose series at 11–12 years and at 16 years of age or as a single dose if over 16 years. A catch-up vaccine schedule and indications for vaccinating immunocompromised individuals (including anatomic or functional asplenia, HIV, complement component deficiency, or eculizumab use) can be found in the CDC/ACIP guidelines [41].

Pneumococcal (PCV-13 or PPSV-23) Vaccines

Overseas, PCV-13 is recommended for refugee children aged 6 weeks through <5 years by the Vaccination Program for US-Bound Refugees. When available in country of origin, two doses can be administered to children under 2 years of age and one dose for children 2–5 years of age. In addition, one dose of PCV-13 is recommended for all immunocompromised persons, regardless of age [5].

For those applying for adjustment in residency status, the I-693 form requires proof of immunization for children 2–59 months of age and for adults 65 years or older [7].

In the United States, as part of the ACIP vaccine guidelines, PCV-13 is given in a four-dose series 2, 4, 6, and 12–15 months for children under 5 years of age and is administered as a single dose for individuals over 65 years of age. PPSV-23 is administered in a one- to two-dose series, depending on indication, for people over 65 years of age and those with certain high-risk conditions (including for those with cochlear implants, diabetes mellitus, or heart, lung, and liver disease). While some individuals require both vaccine formulations, PCV-13 and PPSV-23 should not be administered at the same visit. Please refer to CDC/ACIP guidelines for guidelines and indications for vaccinating immunocompromised individuals [42].

Rotavirus Vaccines

Per the Vaccination Program for US-Bound Refugees, children aged 6 weeks through <15 weeks can receive two doses of rotavirus with a maximum age for second dose at 8 months.

In the United States, as part of the ACIP vaccine guidelines, the rotavirus vaccine is given in a two- or three-dose series to children at 2, 4, and 6 months. The series must start before 15 weeks of age, and the maximum age for final dose is 8 months.

Use of Combination Vaccines

Combination vaccines can be considered, when available, to limit the number of separate vaccines administered. Providers should familiarize themselves with the licensure and restrictions of these combination vaccines by checking the ACIP and vaccine package information. Combination vaccines to consider are listed in Table 4.2.

Summary

Worldwide, immense strides have been made in prevention of vaccine-preventable diseases. While refugees typically have received vaccines prior to arrival through programs including the WHO Immunization Program and the Vaccination Program for US-Bound Refugees, they often require series completion and/or additional ACIP-recommended vaccine upon arrival to the United States. With timely, accurate administration of vaccines, the health of refugees and their surrounding communities can be protected. Appropriate vaccination is also necessary for timely school entrance for children and for adjustment of legal residency status. Vaccine recommendations change frequently, so it is advisable to refer to the most recent CDC/ACIP schedules, which are published annually.

Table 4.2 Combination vaccine administration

Vaccine	Age restriction	Administration notes
ProQuad (MMRV)	≥12 months to <13 years	Increased risk of fever and febrile seizure in children 12–23 months of age and not previously vaccinated [43]
Pentacel (DTaP-Hib-IPV)	≥6 weeks to <5 years	Can be used for first three primary doses Can be used for the fourth booster dose
Pediarix (DTaP-Hep B-IPV)	≥6 weeks to <7 years	Only for first three primary doses Cannot be used for the fourth booster dose
Kinrix/Quadracel (DTaP-IPV)	≥4 years to <7 years	Only for booster dose (DTaP #5 and IPV #4) Cannot be used for primary series
Twinrix (Hep A-Hep B)	≥18 years old	Three-dose series for adults

Appendix A and B – CDC/ACIP Immunization Schedules as of 2019

Appendix A

Table 1 Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2020

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2). School entry and adolescent vaccine age groups are shaded in gray.

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19-23 mos	2-3 yrs	4-6 yrs	7-10 yrs	11-12 yrs	13-15 yrs	16 yrs	17-18 yrs
Hepatitis B (HepB)	1 st dose	2 nd dose				3 rd dose											
Rotavirus (RV): (RV1 (2-dose series), RV5 (3-dose series))			1 st dose	2 nd dose	See Notes												
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 st dose	2 nd dose	3 rd dose		4 th dose				5 th dose						
Haemophilus influenzae type b (Hib)			1 st dose	2 nd dose	See Notes		3 rd or 4 th dose	See Notes									
Pneumococcal conjugate (PCV13)			1 st dose	2 nd dose	3 rd dose		4 th dose										
Inactivated poliovirus (IPV <18 yrs)			1 st dose	2 nd dose	3 rd dose		4 th dose										
Influenza (IV)													Annual vaccination 1 dose only				
Influenza (LAIV)													Annual vaccination 1 or 2 doses				
Measles, mumps, rubella (MMR)					See Notes		1 st dose					2 nd dose					
Varicella (VAR)					See Notes		1 st dose					2 nd dose					
Hepatitis A (HepA)					See Notes												
Tetanus, diphtheria, acellular pertussis (Tdap >7 yrs)													Tdap				
Human papillomavirus (HPV)														See Notes			
Meningococcal (MenACWY D, >9 mos, MenACVYCRM >2 mos)															1 st dose	2 nd dose	
Meningococcal B																	See Notes
Pneumococcal polysaccharide (PPSV23)																	See Notes

Range of recommended ages for catch-up immunization

Range of recommended ages for certain high-risk groups

Recommended based on shared clinical decision-making or *can be used in this age group

No recommendation/ not applicable

Appendix B

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2020

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Influenza inactivated (IIV) or influenza recombinant (RIV) or Influenza live, attenuated (LAIV)		1 dose annually or 1 dose annually		
Tetanus, diphtheria, pertussis (Tdap or Td)		1 dose Tdap, then Td or Tdap booster every 10 years		
Measles, mumps, rubella (MMR)		1 or 2 doses depending on indication (if born in 1957 or later)		
Varicella (VAR)		2 doses (if born in 1980 or later)	2 doses	
Zoster recombinant (RZV) (preferred) or Zoster live (ZVL)			2 doses or 1 dose	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal conjugate (PCV13)		1 dose		65 years and older
Pneumococcal polysaccharide (PPSV23)		1 or 2 doses depending on indication		1 dose
Hepatitis A (HepA)		2 or 3 doses depending on vaccine		
Hepatitis B (HepB)		2 or 3 doses depending on vaccine		
Meningococcal A, C, W, Y (MenACWY)		1 or 2 doses depending on indication, see notes for booster recommendations		
Meningococcal B (MenB)	19 through 23 years	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations		
Haemophilus influenzae type b (Hib)		1 or 3 doses depending on indication		

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection

Recommended vaccination for adults with an additional risk factor or another indication

Recommended vaccination based on shared clinical decision-making

No recommendation/Not applicable

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Chapter 5

Tuberculosis



Andrew T. Boyd

Introduction

Tuberculosis (TB) remains a major cause of morbidity and mortality worldwide. The World Health Organization (WHO) estimated that in 2017, there were 10 million new cases of TB disease and 1.6 million deaths from the disease [1]. Although the global TB disease treatment success rate among those diagnosed was an estimated 82% in 2016, only 64% of total estimated cases in 2017 were diagnosed and reported to the WHO [1]. Elimination of TB is further complicated by the fact that most people infected with TB do not develop active disease but instead have latent tuberculosis infection (LTBI). Diagnosis and treatment of LTBI is important because reactivation of latent infection leads to TB disease and onward transmission of the bacteria.

WHO declared TB a global health emergency in 1993, and since then, progress toward reducing TB incidence has been incremental and uneven. The incidence rate of TB disease worldwide has decreased from 173 cases per 100,000 people in 2000 to 133 cases (95% confidence interval [CI] 120–148) per 100,000 people in 2017, but this global burden of TB is not distributed equally. The incidence rate across WHO regions varies from 28 cases (95% CI 26–30) per 100,000 in the WHO Americas Region to 237 cases (95% CI 211–263) per 100,000 in the WHO Africa Region in 2017, and 87% of TB cases in 2017 were in 30 high-burden countries [1]. One encouraging fact is the global TB mortality rate among HIV-negative people has fallen 42% during 2000 to 2017 [1]. To advocate and organize for immediate global action to more effectively reduce TB incidence, the United Nations held its first high-level meeting on TB in September 2018.

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TB control in the United States has been more successful. Active TB case incidence was 2.8 cases per 100,000 people in 2017, which represented a 2.5% drop from 2016 incidence [2]. It should be noted, however, that the incidence of TB disease (both new infections and reactivation of LTBI) among foreign-born people, which includes resettled refugees, in the United States was 15 times that of native-born people [2]. Thus, for health-care providers and public health policymakers in the United States and other low TB-burden countries, awareness of TB epidemiology, screening, diagnosis, and treatment among foreign-born persons, including refugees, is important.

TB Pathogenesis, Active Disease, and Latent TB Infection

An infectious disease, TB is caused by the bacillus *Mycobacterium tuberculosis*, which is transmitted by inhalation of aerosolized droplets containing the bacillus, and can affect the lungs or migrate to and affect other sites in the body. Primary TB infection occurs when inhaled bacilli enter the lungs, where they are ingested by alveolar macrophages. The mycobacteria-laden macrophages can then penetrate the alveolar wall to enter the circulation and the lymphatic system, allowing lymphocytic sensitization to mycobacterial antigens. At that point, in most people, the lymphocytes and macrophages form granulomas around the mycobacteria in sites where it has settled, effectively “walling off” the mycobacteria. The mycobacteria, though still viable, enter into a quiescent or latent phase in order to survive in these sites, which usually consist of lung tissue but can also include lymph nodes, bone, and other organs. In people with absolute or relative immunosuppression, this containment may not occur, and the mycobacteria circulate further, even leading in some cases to multi-organ system failure and death [3].

Generally, in the setting of a normal immune system, the mycobacteria remain in a latent phase, and the patient is said to have LTBI. In up to 10% of cases of LTBI, however, the latency of the mycobacteria is disturbed and the infection again becomes active, resulting in a clinical entity known as reactivation TB. Those cases in which reactivation occurs are difficult to predict, though risk factors include several medical conditions, including HIV/AIDS, chronic steroid use, chemotherapy, post-organ transplant, use of tumor necrosis factor (TNF)-alpha inhibitors, diabetes mellitus, lymphoma/leukemia, and end-stage renal disease [4]. Because a prior latent state is required for reactivation, and because reactivation is required for infectious transmission of the bacteria, diagnosing and treating LTBI, including and especially among persons born in countries with high TB incidence, as a means to prevent development and transmission of active TB disease is a priority for US public health officials [2].

Overseas Screening of US-Bound Refugees for TB

Federal law requires that anyone applying for refugee status in the United States receive a predeparture, overseas medical evaluation. The content of the medical evaluation is overseen by the Centers for Disease Control and Prevention (CDC)

Division of Global Migration and Quarantine. In general, the purpose of the medical evaluation is to identify applicants with diseases or conditions that, by federal regulation, either exclude them from entering the United States or require documented treatment before entering the United States [5]. In the specific case of TB, the purpose of the evaluation is to identify people with infectious TB [6].

The overseas medical evaluation is performed by one of over 600 panel physicians, appointed by the US Department of State. The CDC provides technical instructions to these panel physicians on how to conduct the examination. Tuberculosis Technical Instructions were updated in 2007, 2009, and 2018 and are available online [7]. The steps for TB screening and diagnosis vary by the age of the applicant and the TB incidence in the country where the applicant lives. Essentially, each evaluation of an applicant 15 years old or older should include documented medical history, focused on symptoms of TB disease, including cough of greater than 3 weeks' duration, dyspnea, fever, weight loss, or hemoptysis, as well as a physical examination and a chest X-ray [7]. If the individual has symptoms, physical examination, or chest X-ray suggestive of TB or is known to have HIV, three sputum specimens are examined by microscopy for acid-fast bacilli (AFB) and by culture for mycobacteria [5, 7].

Applicants ages 2–14 from countries with a WHO-estimated TB incidence rate of ≥ 20 cases per 100,000 population should be screened for exposure to *M. tuberculosis* antigens by interferon gamma release assay (IGRA) in addition to symptom screen and physical examination. (A list of countries' TB incidence rates can be found in the WHO Global TB Report 2018, Annex 4.) If the IGRA is positive, or if the applicant has signs or symptoms of TB disease, then a chest X-ray should be obtained. Again if symptoms, physical examination, or chest X-ray are suggestive of TB or if the applicant is known to have HIV, three sputum specimens are examined by microscopy for AFB and by culture for mycobacteria [5].

Evaluation of applicants less than 2 years of age from countries with a WHO-estimated TB incidence rate of ≥ 20 cases per 100,000 population, or of any child of age less than 15 years from countries with a TB incidence of < 20 cases per 100,000 population, should include a physical examination and have a history provided by a responsible adult. Those applicants with signs or symptoms of TB or known to have HIV should receive an IGRA (except in children less than 2 years of age, in whom exposure to *M. tuberculosis* antigens is instead done by tuberculin skin test (TST)) and a chest X-ray and have three sputum specimens examined by microscopy for AFB and by culture for mycobacteria [7]. A summary of these overseas TB screening recommendations is included in Table 5.1.

Based on the results of these tests, each applicant is assigned a *class*. Each class and its description are documented in Table 5.2 [5].

Anyone designated *Class A* cannot enter the United States until either (a) he/she has completed a course of directly observed therapy (DOT) under the supervision of a panel physician, his/her sputum smear and culture are negative, and he/she is reclassified to a class permitted entry, or (b) initiate treatment overseas and obtain a Class A waiver to enter the United States, provided a US-based provider agrees to assume responsibility for the patient's completion of the full treatment course, the US local and state health departments with jurisdiction approve, and the waiver is granted by Department of Homeland Security [7]. Anyone designated in any other class is permitted entry.

Table 5.1 Summary of overseas TB screening recommendations

Age of applicant	WHO-estimated TB incidence in the country where the applicant lives	Screening	Further testing
Age ≥15 years	Any TB incidence	TB symptom screen, physical examination, and chest X-ray	If positive screen or known HIV: Three sputum specimens examined by microscopy for AFB and by culture for mycobacteria
Age 2–14 years	TB incidence ≥20 cases per 100,000 population	TB symptom screen, physical examination, and IGRA (with chest X-ray if IGRA positive)	If positive screen or known HIV: Three sputum specimens examined by microscopy for AFB and by culture for mycobacteria
Age <2 years	TB incidence ≥20 cases per 100,000 population	TB symptom screen and physical examination	If positive screen or known HIV: TST, chest X-ray, and three sputum specimens examined by microscopy for AFB and by culture for mycobacteria
Age <15 years	TB incidence <20 cases per 100,000 population	TB symptom screen and physical examination	If positive screen or known HIV: IGRA, chest X-ray, and three sputum specimens examined by microscopy for AFB and by culture for mycobacteria

Table 5.2 Classification based on overseas TB evaluation

Class name	Classification description
No TB classification	Normal TB screening examinations with no findings of TB disease
Class A: TB disease	Diagnosed with TB disease, including those with extrapulmonary disease with a chest X-ray suggestive of pulmonary disease, regardless of sputum smear or culture results
Class B0: TB, pulmonary	Diagnosed with TB disease by panel physician or presented to panel physician on treatment and successfully completed directly observed therapy (DOT) under the supervision of the panel physician
Class B1: TB, pulmonary	History, physical exam, or chest X-ray suggestive of TB disease but smears and culture are negative and applicant is not diagnosed with TB disease
Class B1: Extrapulmonary	Diagnosis of extrapulmonary TB with a normal chest X-ray and negative smears and culture
Class B2: TB, LTBI	Positive screening test of <i>M. tuberculosis</i> exposure (interferon gamma release assay [IGRA] or tuberculin skin test [TST]) but negative evaluation for TB disease
Class B3: TB, contact evaluation	Recent contact of a known TB disease case

Epidemiology of TB and LTBI in Arriving Refugees

Although the WHO notes incremental declining incidence of TB worldwide, many countries, including those producing or sheltering refugees, still have very poor control of TB. In 2017, 26 of the 30 WHO high TB-burden countries had TB disease

incidences between 150 and 665 per 100,000 people, with the incidence above 500 per 100,000 people in five of those countries (Democratic People's Republic of Korea, Mozambique, the Philippines, South Africa, and Lesotho) [1]. In 2015, 28 (93%) of the 30 WHO high TB-burden countries were either a country of origin or a country of settlement for at least 1000 refugees. Additionally, among the world's refugees in 2015, almost 20% originated from a WHO high TB-burden country, and 30% sought refuge in a WHO high TB-burden country [8].

Exposure to TB in home or refuge countries with high TB incidence leads to higher proportions of LTBI among these refugees compared with people living in low TB incidence countries. In a low-incidence setting and without risk factors for reactivation, persons with LTBI, including among immigrants, have a 5–10% lifetime risk of developing TB disease [9]. However, the risk of developing active TB disease in refugee populations is two times higher than that of other immigrant populations [10]. This doubling of risk is thought to be because of an overall higher prevalence of LTBI in historic countries of origin among refugees and an increased rate of recent acquisition of exposure to TB [10, 11].

Finally, though the overall incidence of TB disease in the United States reached its lowest documented level in 2017, 70% of all incident cases in the United States in 2017 were found in foreign-born persons [2]. Moreover, a retrospective review of the demographics of incident TB disease diagnoses in the United States in 2015 found that of the diagnoses among foreign-born persons, 51% were diagnosed in persons ≥ 10 years after US arrival [9]. This potential for later development of TB disease speaks to the need for screening refugees for LTBI, especially those coming from countries with high TB incidence, regardless of time since arrival, as well as the need to treat LTBI in this population.

Screening and Diagnosis of LTBI Among Arriving Refugees

Because of the higher risk of reactivation of LTBI in the refugee population, domestic TB screening of settled refugees largely focuses on identification and treatment of LTBI with the goal of prevention of reactivation of TB disease. LTBI is diagnosed by screening for exposure to *Mycobacterium tuberculosis* antigens using one of two screening tests: the IGRA or the TST [5, 12].

The preferred screening test is the IGRA. Three proprietary IGRA assays (the Quantiferon® [QFT)-TB Gold, QFT-TB Gold Plus, and T-Spot®.TB) are US Food and Drug Administration-approved for use as an initial screening test for LTBI diagnosis. In the United States, though the IGRA test can be used in children aged 2 years or older, its use is not recommended for children under 2 years, due in part to poorer sensitivity of the test in that age group [13]. Thus, in children 3 months to 2 years of age, the TST should be used [13]. The IGRA quantifies the amount of interferon gamma formation or the number of T lymphocytes recruited in the patient's serum when combined with surface antigens found in *M. tuberculosis* and a small number of other rare mycobacteria. Importantly, the IGRA does not cross-react with antigens found in common environmental mycobacteria or in bacilli

Calmette-Guerin (BCG), which is used in a vaccine often administered to infants in high TB-burden countries. Thus, the IGRA has improved specificity for LTBI compared with the TST [14]. However, a positive result of the IGRA requires, just as that of the TST requires, active cellular immunity in the patient, so the sensitivities of the two tests are equivalent.

The older of the two screening tests is the TST. The test requires that 5 units (0.1 ml) of purified protein derivative of *M. tuberculosis* be injected intradermally, usually in the forearm, to create a wheal [15]. This test is a universal screen, and it can be performed in children and pregnant women. The test is considered positive, and therefore represents the presence of *M. tuberculosis* antigen in the patient, if the radius of the indurated area at the injection site is larger than a predetermined size, which varies depending on a patient's medical risk factors (Table 5.3) [16].

Though the TST has good sensitivity for LTBI, with a pooled estimate of 77% in a meta-analysis [17], its specificity is rather poor, with false positives possible if a patient has had exposure to other nontuberculous mycobacteria or to BCG vaccination. It should be noted, however, that a cross-reaction between BCG vaccination and a positive TST rapidly wanes with time. It has been found that in those people

Table 5.3 Interpretation of TB induration of tuberculin skin test (TST) based on medical risk factors

Induration of 5 or more millimeters is positive among:	Induration of 10 or more millimeters is positive among:	Induration of 15 or more millimeters is positive among:
HIV-infected persons	People who have come to the United States within the last 5 years from areas of the world where TB is common (e.g., Asia, Africa, Eastern Europe, Russia, or Latin America)	People with no known risk factors for TB
Recent contacts of persons with TB disease	Injection drug users	
People who have fibrotic changes on a chest radiograph	Mycobacteriology lab workers	
People with organ transplants and other immunosuppressed patients (including patients taking a prolonged course of corticosteroids or TNF- α antagonists)	People who live or work in high-risk congregate settings	
	People with certain medical conditions that place them at high risk for TB (silicosis, diabetes mellitus, severe kidney disease, certain types of cancer, and certain intestinal conditions)	
	Children younger than 4 years	
	Infants, children, and adolescents exposed to adults in high-risk categories	

vaccinated as infants, a TST done 10 years later will be positive in only 1–2% of cases [10]. In addition, because those patients vaccinated with BCG come from high-burden countries, there is likely a high prevalence of LTBI among them. For these reasons, according to CDC domestic screening guidelines, a positive TST in a patient immunized with BCG, regardless of the age of the patient, is treated as a case of true LTBI [5]. Of note, neither the IGRA nor the TST is able to predict which patients with LTBI will go on to develop active TB disease [3].

If results of the overseas medical evaluation indicate a refugee had a negative IGRA or TST, or did not receive an IGRA or TST, CDC and the US Preventive Services Task Force recommend performing an IGRA or TST to screen for LTBI [5, 18]. Performing the screening test, however, necessitates a willingness of the medical establishment to treat that patient for LTBI if the test is positive. Since LTBI treatment has historically been time-consuming and costly, cost-effectiveness analyses have called the policy of screening all refugees for LTBI into question. Specifically, one cost-effectiveness analysis found that doing the screening test could be limited to those refugees coming from countries with high burden of incident TB cases (150 incident cases/100,000 population) [19], and another analysis indicated that screening should focus on identifying only active TB disease cases and the intensive tracking of, and treatment of LTBI or TB disease among, their close contacts [20]. A recent modeling study demonstrated that among foreign-born US residents, screening for LTBI with IGRA and treatment of LTBI with self-administered once-weekly isoniazid and rifapentine for 3 months were cost-effective, compared with not screening this population [21].

Treatment of LTBI Among Arriving Refugees

If a refugee has a positive screening TST or IGRA but does not have symptoms or a chest X-ray concerning for active TB, CDC and the US Preventive Services Task Force recommend that he or she be treated for LTBI [5, 18]. Treating LTBI in this population serves to prevent reactivation to TB disease.

Treatment of LTBI has historically consisted of 9 months of daily oral INH for all ages. The efficacy of INH as compared with no treatment in reducing rate of incident active TB disease was established in a Cochrane review of 11 randomized controlled trials [22].

However, a barrier to initiating and completing 9 months of INH as LTBI treatment is its relatively long duration, so newer, shorter LTBI treatment regimens with greater adherence and with efficacy in preventing TB disease similar to that of 9 months of daily INH are now preferred. These include a regimen of once-weekly INH and rifapentine for 3 months, whether under DOT or self-administered therapy (SAT) [23, 24], as is a regimen of rifampin, taken daily for 4 months. A regimen of daily INH for 6 months is considered acceptable, though perhaps less efficacious than a 9-month regimen, and is not recommended in children [23]. Another variation in the INH regimen is the reduction of frequency of INH dosing to twice weekly,

Table 5.4 Latent TB infection (LTBI) treatment regimens

Drugs	Duration	Dosing	Interval	Minimum doses
Isoniazid (INH) and rifapentine (RPT)	3 months	Adults and children ≥ 12 years: INH: 15 mg/kg rounded up to the nearest 50 or 100 mg; 900 mg maximum RPT: 10–14 kg: 300 mg 14.1–25 kg: 450 mg 25.1–32 kg: 600 mg 32.1–49.9 kg: 750 mg ≥ 50 kg: 900 mg (maximum dose) Children age 2–11 years: INH: 25 mg/kg; 900 mg maximum RPT: Same as above	Once weekly*	12
Rifampin (RIF)	4 months	Adults: 10 mg/kg Children: 15–20 mg/kg Maximum dose 600 mg	Daily	120
Isoniazid (INH)	9 months	Adults: 5 mg/kg Children: 10–20 mg/kg Maximum dose 300 mg	Daily	270
		Adults: 15 mg/kg Children: 20–40 mg/kg Maximum dose 900 mg	Twice weekly**	76
Isoniazid (INH)	6 months	Adults: 5 mg/kg Children: Not recommended Maximum dose 300 mg	Daily	180
		Adults: 15 mg/kg Children: Not recommended Maximum dose 900 mg	Twice weekly**	52

*Use directly observed therapy (DOT) or self-administered therapy (SAT); for children, SAT entails parental administration of medication

**Use directly observed therapy (DOT)

though CDC recommends this regimen be administered under DOT [23]. The current CDC recommendations for treatment for LTBI include each of these regimens [23] (Table 5.4). The decision of which regimen to use depends on the individual clinical picture, including the presence of other chronic conditions, as well as patients' preference for treatment dosing frequency.

CDC guidelines state that clinical monitoring while treating LTBI should be done monthly and consist of monitoring for development of TB disease and for development of adverse reactions. One known complication of LTBI treatment, particularly INH, is hepatotoxicity, and while current CDC guidelines do not require checking baseline liver function tests (LFTs) in all patients initiating LTBI treatment, they suggest checking LFTs prior to initiation of LTBI treatment in those with baseline liver disease, those who are pregnant, those with HIV, and those with regular alcohol use [23]. After initiation of treatment in such patients, LFTs should be periodically retested, and treatment should be withheld if LFTs rise to three times the upper limit of normal with signs and symptoms of hepatitis, or if LFTs rise to five times the upper limit of normal regardless of signs and symptoms of hepatitis [23].

Screening for and Treatment of TB Disease Among Arriving Refugees

Though the overseas screening for refugees focuses on identifying TB disease, TB disease can be missed on overseas screening or can develop by the time a domestic medical evaluation occurs. Thus, domestic screening also focuses on identification of presumptive TB disease. A clinical evaluation of a refugee should include a symptom screen for TB disease, especially if the refugee has a positive screening TST or IGRA. This screening should be similar to that done in the overseas medical evaluation and should again focus on symptoms of TB disease, such as cough of greater than 3 weeks' duration, dyspnea, fever, weight loss, or hemoptysis. In children, symptoms may be more nonspecific and may include recurrent fevers or pneumonias or simply failure to thrive [5]. The screening should also include a physical examination, focused on detecting forceful or productive cough or palpable lymph nodes, and a chest X-ray, with attention paid to cavitory or extensive lesions in the upper lobes [7]. Health providers should be aware that children are more likely than adults to have extrapulmonary TB disease, including meningitis, mastoiditis, or involvement of lymph nodes or bone [7]. If symptoms, physical examination, or chest X-ray are suggestive of TB disease, specimens should be obtained and examined for AFB and mycobacterial culture. If pulmonary disease is suspected, the samples should be three sputum samples taken at least 8–24 hours apart, and one sample should be sent for nucleic acid amplification testing. Production of sputum can be difficult for very young children, so collection of early morning gastric aspirate or induced sputum using hypertonic saline, which may require hospitalization, can substitute for expectorated sputum collection [7].

If, based on suggestive symptoms, chest X-ray findings, tissue or sputum positivity for AFB, or positive culture, a refugee is presumed or confirmed to have TB disease, he or she should be started on treatment immediately. Because of the slow growth of mycobacteria, and its ability to develop resistance to drugs, treatment is for at least 6 months and requires treatment with multiple drugs. If no drug resistance is suspected, treatment entails an intensive phase of an initial regimen of rifampin (RIF), isoniazid (INH), pyrazinamide (PZA), and ethambutol (EMB) (though EMB can be discontinued if drug susceptibility studies confirm susceptibility to the INH and RIF) for 8 weeks, followed by modification of the drug regimen in a continuation phase for 18 weeks, based on drug susceptibility of the patient's isolate [25, 26]. Frequency of dosing of medication during the intensive phase is daily, while in the continuation phase, daily or three times-weekly dosing is acceptable, although daily dosing throughout treatment is preferred [26]. Recent data suggest that three times-weekly dosing in the continuation phase may be associated with increased disease relapse [27] and, among people living with HIV, lower rates of sputum smear conversion [28]. Completion of each phase of treatment is determined by number of doses taken (Table 5.5) [25, 26]. The drugs in this regimen can also be used by children <15 years of age, with dosing adjustments based on weight [26]. Modifications can be made to drugs and duration of treatment, based on the

Table 5.5 Basic TB disease treatment regimens for drug-susceptible organisms

<i>Preferred regimen</i>
Intensive phase
Daily INH, RIF, PZA, and EMB* for 56 doses (8 weeks)
Continuation phase
Daily INH and RIF for 126 doses (18 weeks)
or
Three times-weekly INH and RIF for 54 doses (18 weeks)

*EMB can be discontinued if drug susceptibility studies demonstrate susceptibility to the other first-line drugs

individual bacteriological picture, and review of all options for treating drug-susceptible TB is recommended when planning TB treatment [26].

Providing TB treatment, including in refugees, necessitates ensuring adherence and continued monitoring throughout the treatment course. TB treatment should be provided in conjunction with input of public health department personnel or a TB specialist, including and especially when drug resistance is suspected or confirmed [5].

In both cases of LTBI and TB disease identified among refugees during domestic clinical evaluations, case management is very important. In TB disease cases, a contact investigation of close contacts to the index case should be initiated to screen and offer treatment, whether for TB disease or LTBI [29]. Guidelines for conducting a contact investigation are available online from the CDC [29]. DOT for treatment of TB disease and LTBI is important for those patients with drug-resistant TB and for those treated for LTBI with intermittent, as opposed to daily, INH dosing. Case management also allows monitoring for adverse effects of medication [4]. Finally, thorough case management, including ensuring adherence to a full course of treatment, greatly improves the chance of clearing the TB infection, either active or latent, in that patient, lessens the chance of inducing secondary drug resistance, and interrupts onward transmission of TB in the community [30, 31].

Summary

Because of the high rates of TB incidence in some countries from which refugees come, refugees from these countries may be at increased risk of LTBI and active TB disease compared with populations in the countries in which they ultimately settle. Prior to arrival in the United States, refugee applicants are required to undergo a medical evaluation that is intended to identify people with active TB disease, and the components of this evaluation differ based on TB incidence in the applicant's country of residence. Domestic clinical evaluation of settled refugees should focus on risk-based screening for and treatment of LTBI, as well as on identifying presumptive TB disease, necessitating follow-up testing and perhaps treatment. There now exist multiple regimens, with varying dosing schedules and durations, for LTBI treatment, allowing providers and their refugee patients more flexibility in choosing an LTBI regimen to

maximize the chances for LTBI treatment completion. In this way, the burden of TB in refugees arriving to the United States, a very vulnerable and medically underserved population, can be promptly and effectively identified and eliminated.

Disclaimer The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the US Centers for Disease Control and Prevention (CDC).

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Chapter 6

Parasitic Infections



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Parasitic Infections Encountered in Refugees (Section I)

Parasitic infections are one of the most common infections encountered in refugees, with prevalence estimates for intestinal parasites among North American refugees ranging from 8.4% to 84% [1, 2]. One such study on intestinal parasites burden is shown in Fig. 6.1 [3]. Quantifying the burden of individual parasitic infections can be difficult, and the variance in rates reported in studies results from many factors such as different populations/risks and variance in diagnostic/screening tests employed. For example, diagnostic tests vary in sensitivity and specificity (e.g., direct stool examination versus serology) as well as differing characteristics of refugees (e.g., country of origin, age, education level). In addition, for US-bound refugees, pre-departure presumptive treatment programs including albendazole, ivermectin, and, in some populations, praziquantel are standard and must be considered during the refugee's new arrival and ongoing care after arrival to the United States. Therefore, the risk of each refugee population, and individual, must be considered by the clinician when deciding when to presumptively treat, to screen and treat, or to only perform diagnostic testing in symptomatic people.

The number of parasites that have the potential for human infection can be overwhelming, so this chapter will focus on those that have particular relevance in refugee populations. Broadly, classification of parasites is clinically referred to by phylum

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Parasite*	Total (N = 26,956)	Somalia (N = 11,602)	Ethiopia (N = 3278)	Liberia (N = 2723)	Other African Countries (N = 1063)†	Laos (N = 5959)	Vietnam (N = 1215)	Burma (N = 1116)
number of refugees (percent)								
Any	4897 (18.2)	1775 (15.3)	423 (12.9)	565 (20.7)	242 (22.8)	1412 (23.7)	296 (24.4)	184 (16.5)
Multiple	436 (1.6)	138 (1.2)	41 (1.3)	85 (3.1)	34 (3.2)	75 (1.3)	55 (4.5)	8 (0.7)
Protozoans								
Any	2763 (10.3)	904 (7.8)	198 (6.0)	221 (8.1)	109 (10.3)	1119 (18.8)	57 (4.7)	155 (13.9)
Multiple	52 (0.2)	25 (0.2)	5 (0.2)	2 (0.1)	7 (0.7)	12 (0.2)	0	1 (0.1)
<i>Giardia intestinalis</i>	2368 (8.8)	629 (5.4)	179 (5.5)	204 (7.5)	80 (7.5)	1089 (18.3)	49 (4.0)	138 (12.4)
Entamoeba‡	447 (1.7)	300 (2.6)	24 (0.7)	19 (0.7)	36 (3.4)	42 (0.7)	8 (0.7)	18 (1.6)
Nematodes								
Any	1975 (7.3)	940 (8.1)	106 (3.2)	237 (8.7)	86 (8.1)	327 (5.5)	250 (20.6)	29 (2.6)
Multiple	172 (0.6)	27 (0.2)	12 (0.4)	37 (1.4)	10 (0.9)	34 (0.6)	45 (3.7)	7 (0.6)
<i>Trichuris trichiura</i>	1243 (4.6)	900 (7.8)	68 (2.1)	136 (5.0)	33 (3.1)	21 (0.4)	70 (5.8)	15 (1.3)
Hookworm	494 (1.8)	21 (0.2)	21 (0.6)	88 (3.2)	35 (3.3)	193 (3.2)	121 (10.0)	15 (1.3)
<i>Ascaris lumbricoides</i>	237 (0.9)	46 (0.4)	17 (0.5)	34 (1.2)	14 (1.3)	16 (0.3)	107 (8.8)	3 (0.3)
<i>Strongyloides stercoralis</i>	205 (0.8)	3 (<0.1)	13 (0.4)	23 (0.8)	15 (1.4)	132 (2.2)	13 (1.1)	6 (0.5)
Trematodes								
Schistosoma species	406 (1.5)	26 (0.2)	147 (4.5)	164 (6.0)	69 (6.5)	0	0	0

* A revised form for refugee screening data permitted reporting of additional infections to the Minnesota Department of Health beginning in 1998. The following intestinal parasites detected among newly arrived refugees were excluded from the analysis of the effect of albendazole treatment. *Blastocystis hominis* (1529 cases), *Hymenolepis nana* (360), *Dientamoeba fragilis* (100), *Clonorchis sinensis* (11), fasciola species (4), taenia species (17), *H. diminuta* (2), and diphyllbothrium species (1).
 † Other countries included Benin, Burundi, Cameroon, Ivory Coast, Democratic Republic of Congo, Eritrea, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Sudan, Togo, and Uganda.
 ‡ This category includes pathogenic *Entamoeba histolytica* and nonpathogenic *E. moshkovskii* and *E. dispar*, which cannot be morphologically differentiated by means of standard light microscopy.

Fig. 6.1 Prevalence of intestinal parasites in a large refugee sample in Minnesota. (Figure from Swanson et al. [3])

(Fig. 6.2), starting with endoparasitic protozoans (single-celled organisms), multicellular helminths (worms), and ectoparasites. Helminths are often also referred to by the following groups: nematodes (round worms), trematodes (flat worms, specifically flukes), and cestodes (flat worms, specifically tapeworms). Geographic origin plays a very important role in generating the initial differential formed when seeing a refugee patient (see Table 6.1), especially with certain less common parasites such as the non-schistosome flukes (e.g., *Paragonimus*) and the cestodes (e.g., *Hymenolepis*). Common parasites are reviewed below, with recommended treatments.

Protozoa

The protozoa are single-celled organisms that are further characterized by their adult mobility or lack thereof, including amoeba, flagellates, ciliates, and the non-motile sporozoa. Malaria (*Plasmodia*) is the most clinically important protozoal infection internationally due to the sheer morbidity and mortality burden, and because of this they will be discussed in a separate chapter (Chap. 8).

The intestinal protozoa cause a range of clinical presentations from no symptoms to mild-moderate symptoms of abdominal discomfort, nausea, diarrhea (bloody or

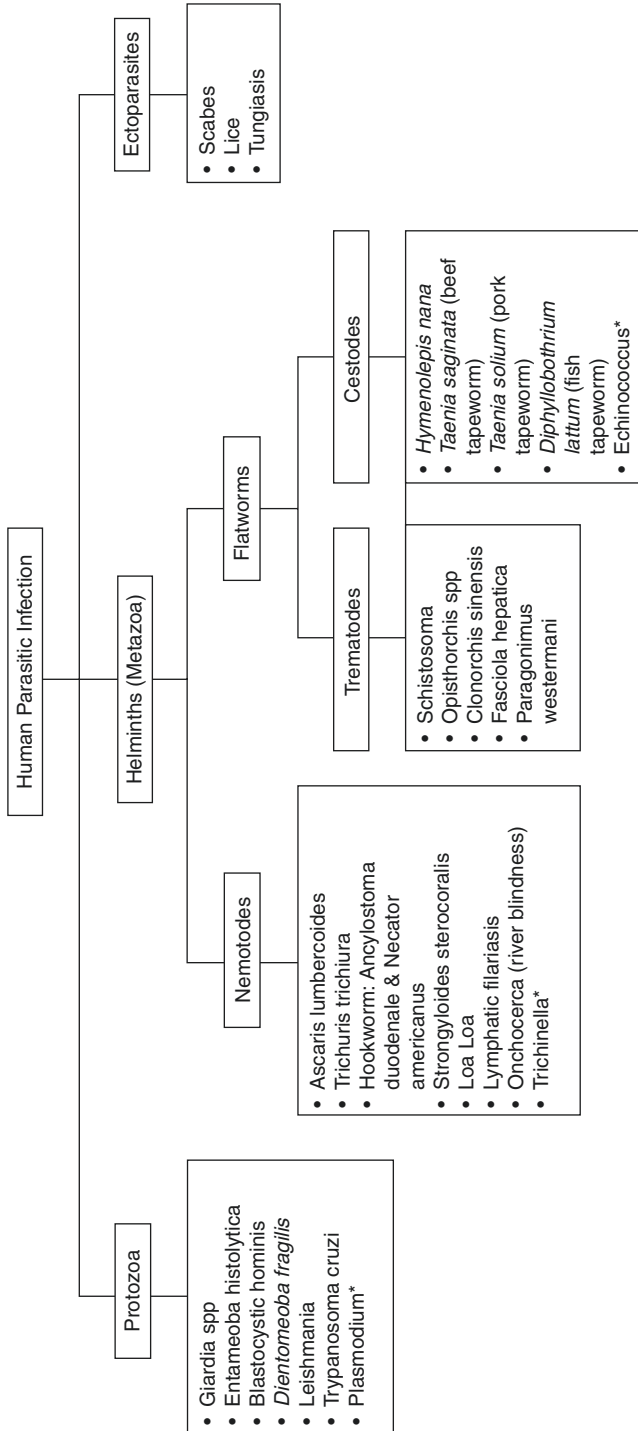


Fig. 6.2 Classification of high-risk parasitic infection in refugees

Table 6.1 Predominant geographic distribution of intestinal parasites found in refugee populations

Global	Africa	Asia	Latin America	Middle East	Eastern Europe
<i>Ascaris lumbricoides</i>	<i>Schistosoma</i> sp.	<i>Fasciolopsis buski</i>	<i>Taenia solium</i>	<i>Echinococcus</i>	<i>Diphyllobothrium latum</i>
<i>Trichuris trichiura</i>	(<i>mansoni</i> , <i>haematobium</i> , <i>intercalatum</i>)	<u>Southeast Asia:</u> <i>Opisthorchis viverrini</i>	<i>Schistosoma mansoni</i>		<i>Opisthorchis felineus</i>
Hookworm (<i>Ancylostoma duodenale</i> , <i>Necator americanus</i>)	<i>Taenia saginata</i>	<i>Clonorchis sinensis</i>	<i>Opisthorchis guayaquilensis</i>		
<i>Strongyloides stercoralis</i>		<i>Schistosoma</i> sp.			
<i>Enterobius vermicularis</i> (pinworm)		(<i>japonicum</i> , <i>mekongi</i>)			
<i>Fasciola hepatica</i>		<u>South Asia:</u> <i>Taenia solium</i>			
<i>Hymenolepis</i>					
Most protozoa, especially <i>Giardia intestinalis</i> (<i>lamblia</i>)					

Adapted from CDC Domestic Guidelines [4]. Organisms listed by region are either unique to the location or particularly common or overrepresented

non-bloody), or more serious systemic symptoms including fever. The intestinal protozoans are transmitted by the fecal-oral route. Intestinal protozoa of note are as follows. Table 6.2 outlines treatment regimens for some intestinal protozoan infections.

Entamoeba histolytica Like most protozoa, *E. histolytica* is usually asymptomatic [5]. The most common clinical manifestations include mild gastrointestinal symptoms of abdominal discomfort and loose, non-bloody stools. However, it can cause more severe disease including bloody diarrhea (dysentery) and abscesses [6]. The most common site of metastatic infection is the liver (referred to as amoebic liver abscess (ALA)), although it rarely may also infect the lungs, brain, or other abdominal sites. In refugees, *E. histolytica* causing clinical disease after arrival to the United States is rare. Although *Entamoeba* cysts are commonly reported in stool ova and parasite examination, these cysts are more likely to be the indistinguishable, nonpathogenic species *E. dispar*. When reported in an asymptomatic person, the diagnosis of *E. histolytica* should be confirmed with a stool antigen or PCR testing prior to treating.

Giardia spp. *Giardia* is the most common parasitic cause of infectious diarrhea in both developed and developing countries and is one of the most commonly encountered infections in refugee populations who are screened for intestinal parasites. It preferentially affects those in poorer socioeconomic areas due to sanitation issues and can be found in large proportions of the population. A vast majority of infections are asymptomatic [7]. Common symptoms include bloating, burping, abdominal

Table 6.2 Adult treatment regimens of select intestinal protozoan infections

Parasite	Treatment
<i>Entamoeba histolytica</i> [‡] [6, 9, 10]	Metronidazole 500–750 mg orally 3 times daily for 7–10 days <i>FOLLOWED BY</i> Paromomycin 25–30 mg/kg per day in 3 divided doses for 5–10 days
<i>Giardia</i> spp. ^{*‡} [11–14]	Tinidazole 2 g orally as a single dose <i>OR</i> Nitazoxanide 500 mg orally twice a day for 3 days <i>OR</i> Metronidazole 250 mg orally three times a day for 5–7 days
<i>Blastocystis hominis</i> ^{*‡} [15]	Metronidazole [†] , 250 mg to 750 mg orally 3 times daily for 10 days <i>OR</i> Nitazoxanide [†] , 500 mg orally twice daily for 3 days <i>OR</i> TMP-SMX [†] , (6 mg/kg TMP [max 320 mg] and 30 mg/kg SMX [max 1600 mg] daily for 7 days <i>OR</i> Tinidazole 2 g orally as a single dose
<i>Dientamoeba fragilis</i> [‡] [9, 10]	Iodoquinol [†] 650 mg orally three times daily for 20 days <i>OR</i> Paromomycin [†] 25–35 mg per kg per day orally, in three divided doses, for 7 days <i>OR</i> Metronidazole [†] 500–750 mg 3 times daily for 10 days

^{*}First-line therapy listed; alternative therapies can be reviewed at CDC’s Parasite Home for Medical Professionals [9]

[†]Not an FDA-approved medication for this infection

[‡]Review alternatives for special hosts (children, pregnant and breastfeeding mothers, immunocompromised)

discomfort, non-bloody foul-smelling diarrhea, weight loss, or failure to thrive in small children. Symptoms, particularly in children, can be subtle. There is lack of data and therefore no consensus regarding benefit versus risk (cost, drug side effects, etc.) of treating asymptomatic persons. In addition, the organism frequently fails to respond to treatment and if repeatedly treated for asymptomatic infection, the risk of adverse effects of the medication may outweigh the benefit. Routine screening of asymptomatic persons is not recommended. Some experts would screen children <5 years of age since it can be difficult to determine if young children are experiencing symptoms. When giardia is identified in an asymptomatic individual, we recommend treating with a first-line medication and not repeating diagnostic treating (doing a “test of cure”) unless the individual develops symptoms.

Blastocystis hominis This organism is ubiquitous throughout the world, making *Blastocystis* one of the most commonly encountered organisms in screening fecal samples in new refugee arrivals. One study has identified *Blastocystis* in the gastrointestinal (GI) tract of over 50% of healthy adults [8]. In most individuals, this protozoan, like *Giardia*, does not cause symptoms. In fact, some argue it should not be considered a pathogen. However, it has been associated with disease in certain individuals, particularly those with underlying immunodeficiency (e.g., HIV) and in

travelers. If a person has gastrointestinal symptoms and no other etiology is found, it is reasonable to consider treatment.

Dientameoba fragilis A common parasite, *D. fragilis* can cause acute or chronic abdominal pain, persistent diarrhea, and flatulence and has been associated with eosinophilia, although many who are infected have no signs or symptoms. When symptomatic, the patient may benefit from treatment.

Protozoan parasites can also infect blood and tissues with minimal to no intestinal involvement. Unlike intestinal protozoan parasites, which cause similar symptoms, the clinical presentations of blood/tissue protozoan infections can vary widely. Blood and tissue protozoa encountered in refugees are described below. Treatment for these infections is complex and should involve subspecialists and often the consultation with the CDC, so it will not be covered here.

Leishmania spp. *Leishmania* is an intracellular protozoan parasite that is transmitted by the bite of an infected phlebotomine sandfly. Leishmaniasis is caused by a variety of different *Leishmania* species and has several different clinical presentations, including cutaneous, mucocutaneous, and visceral disease. It is estimated that *Leishmania* species are present in at least 88 different countries, and as a result this parasitic infection can be found in refugees from Central and South Asia, Africa, the Middle East, the Mediterranean, Mexico, and Central and South America. The cutaneous form can present either as acute or chronic disease, which typically starts as a red papule found on exposed skin that steadily enlarges and ulcerates. The lesions are typically painless unless secondarily infected, and diagnosis can be made with biopsy of leading edge of the ulcer for histopathology and culture. Molecular PCR techniques are also available to confirm specific species, as they are visually indistinguishable. The mucocutaneous form is typically seen in patients from Latin America and presents as ulcerative and potentially highly destructive lesions of the mucus membranes of the nose, mouth, and pharynx. Visceral leishmaniasis presents as a chronic illness with symptoms of fever, weight loss, splenomegaly, lymphadenopathy, and pancytopenia. This form is most common in patients from Central Asia, Sudan, and Brazil. Treatment of leishmaniasis depends on specific species and also presenting form of the disease and varies widely from topical therapies alone for mild cutaneous disease to prolonged systemic therapies with antimonials or antifungals. The species causing infection is important since treatment may vary; specific treatment will not be discussed further here [9]. Since geographic exposure is paramount in determining species and treatment, a specific issue with refugees that should be kept in mind is their geographic route of migration. For example, anecdotally, many Somali refugees have been diagnosed with cutaneous leishmaniasis species of Central American origin—this is due to them migrating through Central America en route to the United States. When considering the diagnosis, a thorough history of areas/countries of exposure is crucial.

Trypanosoma cruzi *T. cruzi* causes an infection known as Chagas disease or American trypanosomiasis. African trypanosomiasis is caused by different *Trypanosoma* species and is extremely rare in refugees and therefore will not be reviewed further here. *T. cruzi*, although common in some areas of Latin America, is not often encountered in refugees to the United States since in the past, and cur-

rently, the United States has not received large numbers of refugees from highly endemic areas. In Europe, such as Spain, that receives many refugees/immigrants from areas such as Bolivia, it is much more frequently encountered. It is transmitted by the bite of an infected triatomine insect (aka “kissing bug”) and is present in rural areas of Latin America. Infected patients are typically asymptomatic but may present with acute disease with symptoms including fever, malaise, lymphadenopathy, hepatosplenomegaly, and rarely myocarditis. During the acute stage, parasites can be detected in the blood via PCR. Patients then develop chronic disease, with most patients never manifesting any symptoms of chronic infection. It is currently estimated that up to 300,000 people in the United States are chronic carriers of *T. cruzi*, largely due to migration but also rare cases of transmission in parts of the United States where the triatomine vector is present or from blood and organ donation; 10–30% of chronic carriers can later develop cardiac and/or GI disease including cardiomyopathy, cardiac arrhythmias, megaesophagus, and/or megacolon. Treatment of Chagas disease includes either benznidazole or nifurtimox, which are only available through consultation with the CDC and may be of questionable to no benefit in patients with late stages of chronic symptomatic cardiac or GI disease [9].

Helminths

Helminths are transmitted to humans by a variety of methods, including fecal-oral contamination, direct skin penetration, and vector-borne transmission. Infections frequently involve the GI tract but also can be found in many other areas of the body, depending on the specific parasite and characteristics of the human host.

Nematodes

Nematodes (roundworms) are among the most common cause of infection and disease in the developing world. Infection can be both acute and chronic. Chronic infection in children can cause significant morbidity through stunting and impaired cognitive development [16]. Treatment of nematode infections is reviewed in Table 6.3.

Soil transmitted helminths (STH) are a group of nematodes which includes *Ascaris lumbricoides*, *Trichuris trichiura*, and hookworms. They are commonly referred to together because of their very high prevalence, similarity in life cycle, and worldwide distribution [17]. All soil transmitted helminths need a soil cycle and transmission in the United States is uncommon. They all have a limited life span and within 5 years of leaving an endemic area a refugee will be free of infection due to death of the adult worm.

Ascaris lumbricoides *Ascaris* is the most common of the soil-transmitted helminths, with nearly 1 in 6 (roughly 1.2 billion) people infected [18]. Human infection occurs after ingesting the *Ascaris* eggs. The majority of infected individuals are asymptomatic, but with a large worm burden, patients can suffer intestinal blockage, most common in children. Additionally, *Ascaris* may migrate into anatomic

Table 6.3 Adult treatment regimens of select nematode infections

Parasite	Treatment
<i>Ascaris lumbricoides</i> ^{**} [9, 18]	Albendazole 400 mg orally as a single dose OR Mebendazole 100 mg orally twice daily for 3 days or 500 mg orally as a single dose OR Ivermectin [†] 150–200 mcg/kg orally as a single dose
<i>Trichuris trichiura</i> ^{**} [21, 22]	Mebendazole 500 mg once daily for 3 days OR Albendazole 400 mg per day for 3 days
Hookworm (<i>Ancylostoma duodenale</i> , <i>Necator americanus</i>) [9, 10]	Albendazole [‡] 400 mg as a single dose OR Mebendazole 100 mg orally twice a day for 3 days or 500 mg orally as a single dose OR Pyrantel pamoate 11 mg/kg (up to a maximum of 1 g) orally daily for 3 days
<i>Strongyloides stercoralis</i> ^{**§} [9]	<i>Ivermectin</i> [¶] 200 µg/kg orally daily for 1–2 days. Consider repeat course after 2 weeks
<i>Loa loa</i> [9] Symptomatic loiasis with microfilariae/ mL <8000 Symptomatic loiasis, with MF/mL <8000 and failed 2 rounds DEC OR Symptomatic loiasis, with MF/ml ≥8000 to reduce level to <8000 prior to treatment with DEC	Diethylcarbamazine (DEC) [°] 8–10 mg/kg/day orally in 3 divided doses for 21 days Albendazole 200 mg orally twice daily for 21 days
Lymphatic filariasis <i>Wuchereria bancrofti</i> [*] [9]	Diethylcarbamazine (DEC) [°] 2 mg/kg orally three times daily for 1 or 12 day.
<i>Onchocerca volvulus</i> [9]	<i>To kill microfilariae:</i> <i>Ivermectin</i> [¶] 150 mcg/kg orally in one dose and then every 6 months <i>To hinder reproductive abilities of macrofilariae:</i> <i>Doxycycline</i> 200 mg orally daily for 6 weeks (initiate 1 week after Ivermectin treatment)

^{*}First-line therapy listed; alternative therapies can be reviewed at CDC's Parasite Home for Medical Professionals [9]

[†]Not an FDA-approved medication for this infection

[‡]Review alternatives for special hosts (children, pregnant and breastfeeding mothers, immunocompromised)

[¶]Must be used with caution in people from *Loa loa* endemic countries due to the risk of a fatal encephalitic reaction to ivermectin (see Table 6.8). Consider expert consultation

[§]Hyperinfection/dissemination infection requires prolonged therapy.

[°]DEC is only available in the United States through the CDC and expert consultation and alternative therapy should be considered for individuals in which *Onchocerca* or *Loa loa* infection is possible.

areas which leads to disease, coined “wandering *Ascaris*,” such as gallbladder outlet obstruction (causing cholecystitis) or appendiceal obstruction (causing appendicitis). Because of its life cycle which involves passing through the lungs, patient may also present with respiratory symptoms such as cough, dyspnea, and wheezing.

Trichuris trichiura *Trichuris* is a parasite which inhabits the large intestine and is found in many areas where human feces are used as fertilizer. Infection begins with ingestion of *Trichuris* eggs. Over 90% of people who are infected are asymptomatic, but those who are symptomatic may experience watery, bloody, and painful bowel movements. *Trichuris* has been associated with rectal prolapse and can cause anemia. In children with heavy infections, stunting can occur [9].

Ancylostoma duodenale, *Ancylostoma ceylanicum*, **and** *Necator americanus* (**Hookworm**) Hookworm is found in areas where human feces are used as fertilizer or in areas where human wastes are deposited on the soil. Infection occurs via direct penetration of the worm through the skin, often of the lower extremities, and the first symptom is often an itchy rash at the site of penetration. Once established in the small intestine, hookworm can cause abdominal pain, weakness, and fatigue. The hookworm species are most notable for the chronic anemia which may result from chronic infection, causing stunting and impaired cognitive development in children [19, 20]. Hookworm is among the most pathogenic of the soil-transmitted helminths.

Strongyloides stercoralis *Strongyloides* is a roundworm whose infective larvae are found in the soil and which like hookworm infects humans via skin penetration, often of the lower extremities. Found throughout the world but predominantly in tropical areas, *Strongyloides* often manifests with dermatologic, pulmonary, and intestinal symptoms such as rash, dry cough, and abdominal discomfort.

Unlike most other helminths, *Strongyloides* is capable of autoinfection, where the parasite can continue to reproduce and reinfect the human host, thus resulting in a persistent and potentially lifelong infection. Also, *Strongyloides* can develop “hyperinfection,” where the reproduction of the parasite is accelerated and leads to rapid increase in worm burden. Hyperinfection is most often caused by immunosuppression, particularly following the administration of corticosteroids or in individuals coinfecting with the virus HTLV-1. Hyperinfection can further lead to disseminated disease; this is where the parasite migrates throughout the body, potentially carrying enteric bacteria along, which has a high mortality rate largely related to the resulting Gram-negative sepsis. The capability for autoinfection and risk of potentially fatal hyperinfection and disseminated disease makes evaluation for chronic strongyloidiasis of particular importance for refugee patients who may require immunosuppression in the future. Any refugee from a *Strongyloides* endemic area should be carefully evaluated for chronic infection prior to initiating immunosuppressive therapy and treated if infection present. If unable to complete evaluation due to urgent need for immunosuppression, refugee patients should be given empiric ivermectin treatment if no other contraindication to therapy.

Loa loa *Loa loa* is a nematode transmitted by the bite of deerflies of the genus *Chrysops*. Loiasis most often results in “eye worm” where the nematode can be seen moving across the eye. It can also manifest as red, itchy swelling of the skin,

termed Calabar swellings. It is found throughout west central sub-Saharan Africa, in areas of high-canopied rain forest. One key factor making *Loa loa* infection of prime importance is that for patients given ivermectin to treat *Strongyloides* who are coinfecting with *Loa loa*, there have been reports of encephalitis precipitated by treatment. Using ivermectin (e.g., for *Strongyloides*) in populations at risk for *Loa loa* infection must be done carefully—this is discussed further in section II [9].

Lymphatic filariasis Filariasis is caused by multiple different species of roundworms, all transmitted by the bite of an infected insect vector. The microfilaria are found in the bloodstream, often with specific nocturnal or diurnal periodicity, while the adult worms reside in the lymphatics [9]. The most common species include *Wuchereria bancrofti* (Asia, Africa, Latin America, Pacific Islands) and *Brugia malayi* (Southeast Asia). While *Wuchereria*, *Brugia*, and other less common types of filaria are all similar in terms of transmission, presentation, and diagnosis, *Onchocerca* has notable differences and is therefore discussed separately below. Filarial parasites are transmitted by either day or night biting mosquitos. Acute manifestations can include filarial fever (acute onset of fever, chills, and lymphadenitis) or tropical pulmonary eosinophilia (paroxysmal cough and wheezing with diffuse pulmonary infiltrates on chest x-ray). Chronic manifestations develop due to damage to the lymphatics and include elephantiasis (uni- or bilateral leg swelling), hydrocele, and scrotum/vulva swelling. Diagnosis can be made by blood smears (with timing of blood collection specific for the species in question) and/or serology. Adult worms can also be seen by ultrasound of the lymphatic system, most classically in the scrotal lymphatics (“filarial dance sign”).

Onchocerca (River blindness) Onchocerciasis is also a filarial infection transmitted by *Simulium* black flies. *Onchocerca volvulus* is endemic to Africa, Latin America, and parts of the Middle East. *Onchocerca* microfilariae are not found in blood and are instead found in skin and subcutaneous tissues [9]. Therefore, instead of blood smears diagnosis can be made by skin snips, where the microfilariae can be seen emerging from the skin after incubation in saline. Onchocerciasis is also notable for historically being the world’s second leading cause of blindness, due to the presence of microfilaria in the cornea and anterior chamber. Adult worms can be found in subcutaneous nodules, which are often prominent over bony areas, and can be seen by ultrasound of subcutaneous nodules. A common symptom is skin itching, and acute and chronic papular lesions can also be seen on the skin. Chronic lesions can lead to skin atrophy and hyperpigmentation, leading to the characteristic “leopard skin” appearance.

Trematodes

Trematodes, also known as flat worms or “flukes,” are parasites which infect many different types of vertebrate hosts, including humans. Their life cycle typically involves a freshwater snail as an intermediate host before infection of the definitive vertebrate host. Treatment of trematode infections is reviewed in Table 6.4.

Table 6.4 Adult treatment regimens of select trematode infections

Parasite	Treatment
<i>S. mansoni</i> , <i>S. haematobium</i> , <i>S. intercalatum</i> [9]	Praziquantel 40 mg/kg per day orally in two divided doses for one day, 6–8 hours apart
<i>S. japonicum</i> , <i>S. mekongi</i> [9]	Praziquantel 60 mg/kg per day orally in three divided doses for one day, 6–8 hours apart
<i>Opisthorchis viverrini</i> * [9]	Praziquantel 25 mg/kg orally 3 times per day for 2 consecutive days
<i>Clonorchis sinensis</i> * [9]	Praziquantel 25 mg/kg orally 3 times per day for 2 consecutive days
<i>Fasciola hepatica</i> [9]	Triclabendazole ^o 10 mg/kg for 1 to 2 days (depending on parasite burden)
<i>Paragonimus westermani</i> * [9]	Praziquantel 25 mg/kg given orally 3 times per day for 2 consecutive days
<i>Fasciolopsis buski</i> [9]	Praziquantel [†] 25 mg/kg/day orally three times a day for 1 day

^oFirst-line therapy listed; alternative therapies can be reviewed at CDC's Parasite Home for Medical Professionals [9]

[†]Not an FDA-approved medication for this infection

[‡]Review alternatives for special hosts (children, pregnant and breastfeeding mothers, immunocompromised)

Schistosoma spp. Widespread throughout the tropical world, *Schistosoma* species are important and at times overlooked parasites, which can cause significant morbidity when chronic. Schistosomes have a complex life cycle which must involve certain freshwater snails, and humans are infected via the skin, usually by wading in freshwater where the snail intermediate host is present. Initially patients may have a dermatologic reaction at the site of skin penetration, including rash with vesicles and pruritus. Approximately 5–7 weeks after infection, patients may develop “Katayama fever,” the syndrome of fever, headache, myalgias, abdominal pain (often right upper quadrant), bloody diarrhea, and eosinophilia [21]. Serious neurologic complications can also occur at this time, including seizures and transverse myelitis. Untreated infections, which may last many years, lead to a chronic granulomatous disease due to the deposition of eggs into local tissues. Chronic infection with the species *S. mansoni*, *S. japonicum*, and *S. mekongi* can cause liver disease and large intestinal symptoms whereas chronic infection with *S. haematobium* can lead to disease of the GU tract and bladder cancer [9].

Opisthorchis spp., *Clonorchis sinensis* Found in Asia, Southeast Asia, Eastern Europe, and countries of the former Soviet Union, these trematodes are known as “liver flukes” and are contracted by eating undercooked freshwater fish. They inhabit the biliary tree of humans and, when they cause disease, can result in symptoms of abdominal discomfort, diarrhea, and constipation secondary to bile duct inflammation and biliary obstruction. Some species may be mistaken for gallstones and only be discovered upon surgery. Chronic infection results in inflammation and scarring of the biliary tree, which can lead to gallbladder and bile duct cancers. The most commonly encountered liver flukes in refugees are *Opisthorchis* and *Clonorchis* and are seen mainly in Southeast Asian refugees (e.g., Laotian) [9].

Fasciola hepatica *Fasciola* is another liver fluke found in a broader geographical range including South America and is acquired by eating raw freshwater plants, such as watercress (as well as undercooked sheep or goat livers) [23]. Symptoms are similar to the other liver flukes, although this parasite actively burrows through the liver parenchyma to arrive at the biliary tree.

Paragonimus westermani This trematode is also referred to as the “lung fluke” due to its propensity to infect the pulmonary tree. Paragonimiasis is most common in South and Southeast Asia, although it can also be found in other regions including South America. Humans are infected by eating raw or undercooked crab or crayfish. Symptoms of infection first involve the abdominal tract, with nausea, vomiting, and diarrhea. The GI symptoms may then be followed by pulmonary symptoms as the fluke migrates to the lungs, including chest pain, fever, and cough. Hemoptysis may develop, and therefore it is frequently initially thought to be tuberculosis [24]. Infection can also cause a pleural effusion with a predominance of eosinophils on fluid analysis. Paragonimiasis is seen primarily in Southeast Asian refugees, currently most common in Burmese refugees.

Fasciolopsis buski *F. buski* is the largest of the intestinal flukes, growing to up to 7 cm in length and infects the small intestine. It is found in south and Southeast Asia, and pigs are an important reservoir. Infection occurs when people ingest freshwater vegetation, such as bamboo shoots and water chestnuts, infested with the infected snails. Most patients are asymptomatic; however, ulcers can develop at the attachment site of the parasite causing epigastric pain similar to peptic ulcer disease. Heavy infections in the intestine can cause ileus or intermittent obstruction.

Cestodes

Cestodes are flat worms also known as tapeworms. Cestodes may eventually pass in entirety in the stool upon death of the worm. Alternatively, cestodes can also pass smaller segments intermittently in the stool known as proglottids, which are typical gravid (egg-laden) segments. Treatment of cestode infections is reviewed in Table 6.5.

Hymenolepis nana Found throughout the world, particularly where there is poor access to safe water and sanitation, this parasite is commonly called the “dwarf tapeworm.” Humans are infected by fecal-contaminated food or water, and most patients are asymptomatic because of the small size of this tapeworm. Symptoms if present usually include abdominal discomfort and weakness. Children with heavy infection may have perineal pruritus and therefore be misdiagnosed with pinworm infection. This infection is particularly common in Ethiopian and Somali refugees and may persist for prolonged periods after arrival and following travel back to endemic areas.

Taenia saginata (**Beef Tapeworm**) Found throughout the world, *Taenia saginata* is the largest tapeworm to cause human disease, reaching lengths of up to 10 meters. Humans are infected by eating raw or undercooked beef and when symptomatic will often have abdominal discomfort, weight loss, and anorexia.

Table 6.5 Adult treatment regimens of select cestode infections

Parasite	Treatment
<i>Hymenolepis nana</i> * [9]	Praziquantel 25 mg/kg orally as a single dose
<i>Taenia</i> (<i>T. saginata</i> and <i>T. solium</i> [§]) [9]	Praziquantel 5–10 mg/kg orally as a single dose
<i>Diphyllobothrium latum</i> * [9]	Praziquantel [†] 5–10 mg/kg orally as a single dose
<i>Echinococcus</i> ^{**¶} [9]	Albendazole 10–15 mg/kg orally divided twice daily for 1–6 months PLUS Percutaneous aspiration, injection of chemicals, and reaspiration (PAIR) therapy or surgery

*First-line therapy listed; alternative therapies can be reviewed at CDC's Parasite Home for Medical Professionals [9, 10]

[†]Not an FDA-approved medication for this infection

[‡]Review alternatives for special hosts (children, pregnant and breastfeeding mothers, immunocompromised)

[§]Recommended treatment for gastrointestinal infection. Use with caution if there is suspicion of neurocysticercosis. Praziquantel is cysticidal and may cause inflammation, seizures, and other CNS sequelae. See the CDC's Parasite Home for Medical Professionals [9] for review of neurocysticercosis treatment

[¶]Size and location of cyst can influence recommended approach. Consider expert consultation

Taenia solium (**Pork Tapeworm**) The pork tapeworm, like the beef tapeworm, is found throughout the world and causes a similar clinical presentation when it affects the gastrointestinal system. However, unlike the beef tapeworm, *Taenia solium* eggs can be directly infectious to humans (i.e., there is the possibility of human to human infection). When another human is directly infected by ingesting *Taenia* eggs, the parasite can migrate to any number of different tissues and develop into its larval cyst form. The most worrying location is the central nervous system, which results clinically in neurocysticercosis and is a significant cause of adult onset seizures in many parts of the developing world [25]. In an immigrant, particularly from Central or South America, who presents with new onset seizures, neurocysticercosis must be on the differential.

Diphyllobothrium latum (**Fish Tapeworm**) Obtained by eating raw or undercooked fish, diphyllobothriasis is found primarily throughout the northern hemispheres and is more common within the United States than in refugee populations entering the United States. Symptoms, when present, may be vomiting, diarrhea, and weight loss. Chronic infection can also cause vitamin B12 deficiency and consequent macroscopic anemia.

Echinococcus The most common form of this tapeworm infection is caused by the parasite *Echinococcus granulosus*, which is found worldwide. Definitive hosts are dogs, with intermediate hosts including sheep, cattle, pigs, camels, and goats. Humans are infected by ingesting eggs in canine feces. This parasite grows very slowly and humans may be asymptomatic for years. Infected humans develop cysts most commonly in the liver but also in the lung, brain, bone, and other organs. The cysts can spontaneously rupture which can cause an anaphylactic reaction. Diagnosis

can be made by classic radiographic images and/or serology. Definitive diagnosis is aspiration of cyst material showing protoscoleces or hydatid membranes. WHO stages disease based on ultrasound examination and activity/viability of the cysts. Treatment options depend on size, location, and stage of cysts and can include systemic therapy with albendazole and/or praziquantel, surgical removal, or percutaneous aspiration-injection of protoscolicidal solutions-reaspiration (PAIR) therapy [9] (Table 6.5).

Ectoparasites

Ectoparasites inhabit the outside of the human body and can be a common cause of pruritic skin lesions in refugees. Common ectoparasites seen in refugees include scabies, pediculosis (lice), and tungiasis.

Scabies Scabies is caused by the mite *Sarcoptes scabiei*. It is commonly encountered in refugee settings overseas but treatment and control programs currently decrease how often it is encountered in refugees migrating to the United States. Infection spreads person to person via close contact. Mites burrow into the stratum corneum layer of the skin which causes an intensely pruritic rash due to a hypersensitivity reaction to mite feces. Classic locations on the body include interdigital web spaces of the hands, flexor surfaces of wrists and elbows, axillae, male genitalia, under the breasts, and at the belt line. However, in young children, a more diffuse rash can be seen. Patients with immunosuppression can develop crusted or “Norwegian” scabies, which is an aggressive form of infection with hyperkeratotic plaques and crusts that can lack the characteristic pruritus and distribution. Definitive diagnosis can be made by microscopic identification of the mite or eggs obtained by scraping the lesions. Treatment can be topical permethrin or systemic ivermectin, with another key component being decontamination of fomites including clothes, bedsheets, etc [9].

Pediculosis (Lice) There are three different lice species that cause human infestation, including *Phthirus pubis* (pubic louse), *Pediculus humanus humanus* (body louse), and *Pediculus humanus capitis* (head louse). Transmission is via close contact with other infected people or fomites. Pruritus at the infestation site is common, and both the adult lice and the eggs (nits) can be seen by the naked eye. Body lice live in seams of clothing and are therefore rarely seen on skin. Body lice are also the only louse type known to transmit bacterial infection (*Rickettsia prowazekii* causing epidemic typhus, *Bartonella quintana* causing trench fever, and *Borrelia recurrentis* causing relapsing fever). Treatment for pubic and head lice is with topical insecticides, manual removal of nits, and aggressive decontamination of fomites; treatment of body lice only involves treatment of clothing [9].

Tungiasis Tungiasis is caused by the female sand flea *Tunga penetrans* which burrows into the skin, most commonly of the feet. The fleas feed on the blood of the host and grow in size, causing localized irritation and pruritus, and may also become superinfected with bacteria. Animals serve as reservoirs for human disease, and transmission to humans occurs when skin comes into contact with soil containing

the adult sand fleas. Tungiasis is found in all tropical and subtropical parts of the world, particularly in areas with high rates of poverty. Chronic infection can lead to pain, disfigurement, and disability. Treatment includes surgical removal of embedded sand fleas and/or topical therapies to protect against infection [9].

Presumptive Therapy and Screening Recommendations (Section II)

The term “presumptive therapy” encompasses treatment for parasites which refugees coming from certain areas of the world can be “presumed” to have based on prevalence data from the area and targets soil-transmitted helminths, *Strongyloides*, and *Schistosoma*. This began in 1999 for pre-departure treatment of refugees bound for the United States when albendazole was introduced, and this has significantly decreased prevalence and changed the distribution of parasites seen in newly arrived refugees to the United States (Fig. 6.3) [3]. Prior to the broad use of pre-departure albendazole therapy, the most common parasites found during arrival screening included hookworm and *Giardia*. After implementation of empiric albendazole therapy in 1999 the most commonly encountered nematode was *Trichuris* [3].

Subsequent data indicated that *Schistosoma* species and *Strongyloides*, which is not adequately treated with a single dose of albendazole, were also highly prevalent infections in refugees [3]. These two parasites are of particular concern, since they are very common and can cause chronic infection resulting in serious morbidity and even mortality. To combat this concern, in 2007 both ivermectin for *Strongyloides* and praziquantel for *Schistosoma* were also recommended for pre-departure therapy for high-risk refugees coming to the United States. An up-to-date list of pre-departure therapy received by each major resettlement group may be found at the CDC’s website for Immigrant and Refugee Health (<http://www.cdc.gov/immigrantrefugeehealth/guidelines/overseas/interventions.html>).

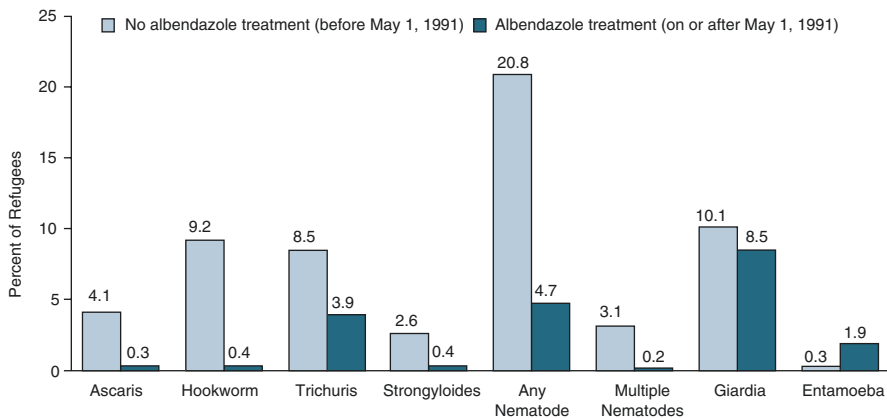


Fig. 6.3 Change in intestinal parasitosis with empiric pre-departure therapy. (Figure from Swanson et al. [3])

Now, optimally, refugees arriving to the United States from Africa, Asia, and Southeast Asia should receive some form of presumptive therapy for parasitic infections. This is typically performed by the International Organization for Migration (IOM) in their home countries or refugee camps within days prior to departure for the United States. Recommended pre-departure presumptive treatment is outlined in Table 6.6. Refugees from Asia, Middle East, North Africa, Latin America, and

Table 6.6 Recommended medication regimen for presumptive treatment of parasitic infections

Refugee population	Regimens by pathogen		
	Soil-transmitted helminths	Strongyloidiasis	Schistosomiasis
<i>Adults</i>			
Asia, Middle East, North Africa, Latin American, and Caribbean	Albendazole 400 mg orally once	Ivermectin 200 µg/kg/day orally once daily for 2 days	Treatment not recommended
Africa, non- <i>Loa loa</i> endemic area	Albendazole 400 mg orally once	Ivermectin 200 µg/kg/day once daily for 2 days	Praziquantel, 40 mg/kg once (may be divided and given in two doses for better tolerance)
Africa, <i>Loa loa</i> endemic area	Albendazole 400 mg orally once	If <i>Loa loa</i> cannot be excluded, treatment may be deferred until after arrival in the United States OR Albendazole 400 mg twice daily for 7 days	Praziquantel, 40 mg/kg once (may be divided and given in two doses for better tolerance)
<i>Pregnant women</i>			
Asia, Middle East Latin America, Caribbean	Not recommended	Not recommended	Not applicable
Africa	Not recommended	Not recommended	Praziquantel 40 mg/kg once (may be divided and given in two doses for better tolerance)
<i>Children</i>			
Asia, Middle East Latin American, Caribbean	<12 month: Not recommended 12–23 months of age: Albendazole 200 mg orally once	Weight ≤15 kg: Not Recommended Weight >15 kg: Ivermectin, 200 µg/kg/day orally once daily for 2 days	Not applicable
Africa	<12 month: Not recommended 12–23 months of age: Albendazole 200 mg orally once	From <i>Loa loa</i> endemic country: Not recommended Weight ≤15 kg: Not Recommended Weight >15 kg: Ivermectin, 200 µg/kg/day orally once daily for 2 days	Children under ≤4 years of age should not receive presumptive treatment with praziquantel

Adapted from the Centers for Disease Control and Prevention [26, 27]

Caribbean are to be treated with albendazole and ivermectin, with the exception of those with contraindications (Table 6.7). It is also recommended that all refugees from Africa without contraindications be treated with praziquantel in addition to albendazole and ivermectin.

Certain exceptions, contraindications, and adverse events are important to point out. An exception to the presumptive treatment with ivermectin include those who originate, or have lived, in countries endemic for *Loa loa*. In areas of *Loa loa* endemicity (as listed in Table 6.8), encephalitis can occur after ivermectin therapy in patients who have a concomitant *Loa loa* infection with a high microfilarial parasite

Table 6.7 Contraindications to presumptive therapy

Medication	Population
Albendazole contraindications	Children <12 months of age Pregnancy Refugees with known neurocysticercosis Evidence of cysticercosis (e.g., subcutaneous nodules) A history of unexplained seizures
Praziquantel contraindications	Children <4 years of age Refugees with known neurocysticercosis Evidence of cysticercosis (e.g., subcutaneous nodules) A history of unexplained seizures
Ivermectin contraindications	Children <15 kg or measuring <90 cm Pregnant women in any trimester Breastfeeding women within the first week of delivery Refugee is departing from or has lived in a <i>Loa loa</i> endemic area

Adapted from the Centers for Disease Control and Prevention [26]

Table 6.8 *Loa loa* endemic countries in Africa

African countries NOT endemic for <i>Loa loa</i> (may use ivermectin for presumptive <i>Strongyloides</i> therapy)		African countries endemic for <i>Loa loa</i> (use albendazole for 7 days for presumptive <i>Strongyloides</i> therapy)
Algeria	Mauritania	Angola
Botswana	Mauritius	Cameroon
Burkina Faso	Morocco	Central Africa Republic
Burundi	Mozambique	Chad
Côte d’Ivoire	Namibia	Democratic Republic of the Congo
Egypt	Niger	Equatorial Guinea
Ethiopia	Rwanda	Gabon
Eritrea	Senegal	Nigeria
Gambia	Somalia	Republic of the Congo
Ghana	South Africa	South Sudan
Guinea	Sudan	
Guinea-Bissau	Swaziland	
Kenya	Tanzania	
Liberia	Togo	
Libya	Uganda	
Madagascar	Zambia	
Malawi	Zimbabwe	
Mali		

Adapted from the Centers for Disease Control and Prevention [27, 28]

load. Therefore, any refugee from a *Loa loa* endemic country will not receive ivermectin presumptively before departure and should *not* be treated presumptively without ruling out high microfilarial *Loa loa* load. In addition, albendazole or praziquantel can precipitate seizures in individuals with neurocysticercosis, and therefore those individuals in whom there is concern for neurocysticercosis, including unexplained seizures or subcutaneous nodules suggestive of cysticercosis, should not have presumptive treatment with albendazole or praziquantel [26]. Both albendazole and ivermectin are category C drugs in the United States and are not recommended for the presumptive treatment for US-bound refugees during any trimester of pregnancy [26]. Albendazole and ivermectin (1 week after birth) can be administered during breastfeeding [26].

Post-arrival screening is recommended in refugees based on their geographic origin and their preventative treatment history. These recommendations are not uniformly implemented due to complicated logistics and lack of funding. Please see Table 6.9 for post-arrival screening recommendations.

Eosinophilia (Section III)

A complete blood count with differential (CBC with diff) is recommended during the new arrival screening, and accordingly, eosinophilia is frequently encountered. Eosinophilia refers to an absolute eosinophil count of greater than 400–500 per cubic millimeter in a peripheral blood sample (the absolute count should be used

Table 6.9 Overview of post-arrival screening recommendations

	Pre-departure treatment with albendazole	Pre-departure treatment with albendazole and praziquantel	Complete pre-departure treatment including ivermectin
No pre-departure treatment			
Eosinophil count (all refugees)	Eosinophil count (all refugees)	Eosinophil count	Eosinophil count—if elevated recheck in 3–6 months
Stool O&Px2 or presumptive albendazole (all refugees)	Presumptive treatment or Schistosoma serology (refugees from sub-Saharan Africa)	Presumptive treatment or Strongyloides serology (all refugees from non- <i>Loa loa</i> endemic areas of sub-Saharan Africa)	
Presumptive treatment or Schistosoma serology (refugees from sub-Saharan Africa)	Presumptive treatment or Strongyloides serology (all refugees from non- <i>Loa loa</i> endemic areas of sub-Saharan Africa)	Strongyloides serology and treat only if no contraindications (refugees from <i>Loa loa</i> endemic areas of sub-Saharan Africa)	
Presumptive treatment or Strongyloides serology (all refugees from non- <i>Loa loa</i> endemic areas of sub-Saharan Africa)	Strongyloides serology and treat only if no contraindications (refugees from <i>Loa loa</i> endemic areas of sub-Saharan Africa)		
Strongyloides serology and treat only if no contraindications (refugees from <i>Loa loa</i> endemic areas of sub-Saharan Africa)			

Adapted from CDC Guidelines on Domestic Intestinal Parasites [26]

and not the percentage). Because of the high pretest probability of parasitic infection, we prefer to use 400 as the cutoff for refugees. An elevated eosinophil count may result from either infectious or noninfectious etiologies (Tables 6.10 and 6.11). Eosinophilia can be the only indication that the affected individual has an asymptomatic parasitic infection. However, eosinophilia persists for months after successful treatment of a parasitic infection. In addition, eosinophilia has a poor negative and poor positive predictive value as a marker of parasitosis and neither rules in nor rules out parasitic infection [29].

Table 6.10 Causes of eosinophilia, from CDC Domestic Intestinal Parasite Guidelines [26]

Parasites causing eosinophilia commonly found on stool exam	Other parasitic infections associated with eosinophilia	Parasites commonly found in the stool NOT typically associated with eosinophilia	Nonparasitic causes of eosinophilia
<i>Ascaris lumbricoides</i> Hookworm species (<i>Necator americanus</i> , <i>Ancylostoma duodenale</i>) <i>Trichuris trichiura</i> <i>Strongyloides stercoralis</i> <i>Taenia species</i> (<i>solium</i> and <i>saginata</i>) <i>Schistosoma</i> species (<i>S. mansoni</i> , <i>S. haematobium</i> , <i>S. japonicum</i>) Liver flukes (<i>Paragonimus</i> , <i>Opisthorchis</i> , <i>Fasciola</i>)	<i>Echinococcus</i> spp. Filariasis (<i>Wuchereria bancrofti</i> , <i>Brugia</i> spp, <i>Onchocerca volvulus</i> , <i>Loa loa</i>) <i>Angiostrongylus</i> * <i>Anisakis</i> * <i>Capillaria</i> spp.*	<i>Entamoeba</i> spp. <i>Cryptosporidium</i> spp.* <i>Giardia intestinalis</i> (a.k.a. <i>G. lamblia</i> and <i>G. duodenalis</i>)	Asthma Atopy Drug allergy Eosinophilic leukemia Hodgkin’s lymphoma Hypereosinophilic syndrome Pemphigoid Pemphigus Polyarteritis nodosa Rheumatologic disease (e.g., Churg-Strauss)

*Not covered in this chapter but detailed description of presentation, diagnosis, and treatment can be found at the CDC parasitic website for health professionals [9]

Table 6.11 Causes of eosinophilia in refugees, by region, from CDC Domestic Intestinal Parasite Guidelines [4]

Region	Parasites causing eosinophilia
Global	<i>Ascaris lumbricoides</i> , <i>Trichuris trichiura</i> , <i>Hookworm species</i> (<i>Ancylostoma</i> , <i>Necator</i>) <i>Strongyloides stercoralis</i> , <i>Fasciola hepatica</i>
Africa	<i>Schistosoma mansoni</i> , <i>haematobium</i> , <i>intercalatum</i> , <i>Taenia saginata</i> (esp. Ethiopia and Eritrea)
Asia	Overall: <i>Fasciolopsis buski</i> Southeast Asia: <i>Opisthorchis viverrini</i> , <i>Clonorchis sinensis</i> , <i>Schistosoma japonicum</i> , <i>mekongi</i> South Asia: <i>Taenia solium</i>
Latin America	<i>Taenia solium</i> <i>Schistosoma mansoni</i> <i>Opisthorchis guayaquilensis</i> (Ecuador)
Middle East	<i>Echinococcus</i>
Eastern Europe	<i>Diphyllobothrium latum</i> <i>Opisthorchis felineus</i>

In the previous sections of this chapter, we have detailed the presumptive therapy which newly arrived immigrants should undergo prior to or at time of arrival to the United States. It is important to realize that eosinophilia can take up to 3–6 months to return to normal after treatment. Therefore, in patients who have been treated, a recheck of the peripheral eosinophil count should be performed three to six months afterward to ensure resolution. If the eosinophil count remains elevated, a more detailed workup should be pursued, with emphasis on the most common causes—*Strongyloides*, soil-transmitted helminths, and *Schistosoma* species. During the workup of eosinophilia, it is important to consider the geographic region where the patient originates, as this can help guide the differential diagnosis. If 6 months after presumptive treatment the eosinophil count is still elevated, the differential must be broadened to include other infectious and noninfectious causes.

In the setting of parasitic infection, eosinophilia typically develops when the parasite is migrating through tissues. Many parasites that cause eosinophilia can have a long duration of infection. The most extreme example of this is *Strongyloides*, as the duration of infection can last the entire life of the patient due to the parasite's capability for autoinfection. Without the ability for autoinfection, the duration of eosinophilia will last the life span of the parasite in question. Other parasites with a long duration of infection are *Schistosoma* (up to 32 years), *Loa loa* (16–24 years), and *Onchocerca* (15 or more years). Hookworm and *Ascaris* are examples of parasites with relatively shorter life spans (3–5 and 1–1.5 years, respectively); therefore the duration of eosinophilia is much shorter [30]. Treatment should be directed at the parasite identified during eosinophilia evaluation. However, despite a thorough investigation, it is possible that an etiology may not be identified, in which case presumptive therapy may be warranted. In this scenario, single-dose therapy with ivermectin and/or albendazole has been proposed [30].

Summary

Parasitic infections continue to be a cause of morbidity in newly arrived refugees. While pre-departure presumptive treatment has reduced parasitic infection burden, some parasites remain of concern, especially those that have a long duration of infection. CDC provides screening recommendations for refugees based on geographic risk factors, and following these guidelines can detect a majority of parasitic infections. Since screening and treatment recommendations are updated periodically, providers are encouraged to access CDC resources for guidance on management.

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Chapter 7

Viral Hepatitis



Douglas J. Pryce

Viral Hepatitis A, B, C, D, and E in Refugees (Screening and Clinical Considerations)

Where you were born and where you have lived determine most of a refugee's viral hepatitis risk.

Introduction

Viral hepatitis disproportionately affects refugees, asylees, and immigrants from resource-poor regions. Five main viruses (hepatitis A, B, C, D, and E) that infect the human liver cause liver diseases that are endemic to many parts of the world (see Table 7.1). All of the viral hepatitises have an acute phase that lasts several months with similar symptoms when present (see Table 7.2). Many times, acute hepatitis A, B, and E in children and hepatitis C in adults are very mild or have no symptoms.

Hepatitis A virus is the most widespread and common hepatitis infection. It causes an acute infection that is self-limited and is highly endemic in underdeveloped regions of the world.

Hepatitis B virus has infected an estimated 30% of the world mostly through perinatal transmission and close household contacts of children under age 5. Hepatitis B at birth and in young children <5 years old is seen as self by the early immune system (immune tolerance) leading to chronic hepatitis defined as hepatitis B surface antigen (HBsAg) positive for 6 months or greater. Hepatitis B can persist as a chronic infection, which can be lifelong and is one of the most common chronic

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Table 7.1 Viral hepatitis characteristics and WHO worldwide data¹

Hepatitis	A	B	C	D (requires HBV infection)	E
Acute infection annual	119 million	Unable to estimate perinatal	1.75 million	Incomplete reporting	20 million
Chronic infection	No	257 million	71 million	15–20 million	Rare ^a
Mortality annual	10,400	887,220	399,000	Incomplete reporting	44,000
Acute hepatitis phase	Yes	Yes	Yes	Yes	Yes
Mild or asymptomatic	Children	Perinatal–young adult	Most	Coinfection with acute HBV	Children
Severe symptoms	In preexisting CLD	Development of ESLD	Development of ESLD	Superinfection of CHB	Pregnancy and CLD
Vaccine preventable	Yes	Yes	No	Hepatitis B vaccination	In development ^b
Antiviral medication	No	Yes	Yes (curative)	Yes (less effective)	No
Refugee screening test ^c	No	All refugees	With increased risk ^d	No	No
Test		HBsAg, anti-HBc, anti-HBs	Anti-HCV ^e		
Transmission	Fecal/oral	Perinatal (up to 90%)	Parental	Close contacts	Fecal/oral
	Close contacts	Sexual contact	Perinatal (rare 6%)	Parenteral	Perinatal
	Sexual contact	Parenteral, Close contacts		Sexual contact	
Referral ^f	No	Yes	Yes	Yes	No

¹Global Hepatitis Report 2017. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO

WHO World Health Organization, *HBV* hepatitis B virus, *CLD* chronic liver disease, *ESLD* end-stage liver disease, *CHB* chronic hepatitis B, *HBsAg* hepatitis B surface antigen, *anti-HBc* antibody to hepatitis B core antigen, *anti-HBs* antibody to hepatitis B surface antigen

^aHepatitis E genotype 3 infections which are endemic in the developed world can become chronic in persons on immunosuppressive treatments for solid organ transplant and with HIV

^bAn effective vaccine is licensed in China for hepatitis E genotype 4 common in Taiwan and China

^cRefugees with signs or symptoms should receive diagnostic testing

^dBorn during 1945–1965 or from countries $\geq 2\%$ hepatitis C prevalence or with risk factors

^eCheck antibody to hepatitis C virus (anti-HCV), and if positive, confirm with hepatitis C virus polymerase chain reaction

^fChronic hepatitis B, C, and D should be assessed for disease severity and need for treatment and monitored periodically for progression of liver disease and hepatocellular carcinoma

Table 7.2 Signs and symptoms of acute hepatitis infection from all types of viral hepatitis

Fever
Fatigue
Decreased appetite
Nausea and emesis
Abdominal pain
Gray-colored stools
Dark-colored urine
Arthralgia
Jaundice
Abnormal lab tests (elevated liver transaminases and bilirubin)

infections with a worldwide prevalence of 3.5% [1]. There is an associated 15–40% risk of developing end-stage liver disease from cirrhosis and/or hepatocellular carcinoma (HCC) [2–5].

Acute hepatitis C infections are caused by infected blood products, medical procedures, self-inflicted injections, and 75–85% become chronic hepatitis C (CHC) which is endemic in both developed and underdeveloped regions, disproportionately affecting those areas with infected blood products and unsafe medical procedures.

Hepatitis D is an incomplete viral particle that requires hepatitis B to replicate and is known to worsen the liver damage and limit effective treatment options for hepatitis B. Hepatitis E virus causes mostly acute self-limited infections (except in pregnant women, immunocompromised, and those with chronic liver disease) and is associated with sporadic epidemics after flooding in areas with lack of water purity and untreated sewage, especially in crowded settings like those encountered by refugees.

Worldwide Transmission and Prevention

Initiatives to prevent and control the widespread and massive amount of hepatitis infections worldwide are led by the World Health Organization (WHO). Significant improvements have been achieved with the very safe and effective hepatitis B vaccine focused on vaccination at birth and in early childhood through the Expanded Vaccination Program.

The new infection rate of hepatitis B reduced from 4.7% in the pre-vaccination era to 0.8% in 2017. However, Africa’s new infection rate is still at 3% [6].

Widespread challenges will need to be addressed in order to achieve the stated WHO goal by 2030 for worldwide reduction of new hepatitis B infections by 90% and mortality by 65%. In 2019, the WHO reported 124 countries have national hepatitis plans in place and only 58% include domestic funding [6].

Effective antiviral medications to control and prevent liver damage from hepatitis B and curative treatment for hepatitis C are now available, and low-cost versions are available according to the WHO. Hepatitis C treatment is increasing worldwide

from 1.7 million in 2015 to 5 million in 2017 with the increased use of highly effective (cure rates of 95%), well-tolerated direct-acting antiviral medications [1].

Major challenging features of the viral hepatitises include:

1. Chronic hepatitis B (CHB) and CHC are usually silent conditions until late-stage complications develop. Most people do not know they are infected (only 9% or 22 million are diagnosed with hepatitis B, and 20% or 14 million are diagnosed with hepatitis C); therefore, many are at ongoing risk for spreading infection and will miss the opportunity to get treatment that may help avoid developing end-stage liver conditions [1].
2. In order to reduce hepatitis A and hepatitis E, more municipal resources and efforts toward water purity and sewage control will be required as well as implementation of hepatitis A vaccination and development of a hepatitis E vaccination (a licensed vaccine for hepatitis E genotype 3 is available in China).
3. Persons who inject drugs (PWID) continue to be at risk for spreading hepatitis B, C, and D; safe injection practices and addiction services are not adequate. Hepatitis C infects an estimated 71 million of which 5.6 million (8%) continue to inject drugs [6].
4. Hepatitis D has a much lower prevalence than hepatitis B or C, and hepatitis D data is limited by lack of testing and reporting by some countries. Its spread is controlled by vaccination preventing hepatitis B which is essential for the hepatitis D replication.

Hepatitis Screening and Follow-Up in US Refugees

Newly arrived US refugees are recommended to complete a Domestic Medical Examination with specific guidelines outlined by the Centers for Disease Control and Prevention (CDC):

1. Screening for hepatitis B in all refugees.
2. Screening for hepatitis C in all of those with risk factors or are adults born during 1945–1965 and adults that were born or lived in areas with higher hepatitis C prevalence >2%.
3. Vaccination for hepatitis A for children and hepatitis B vaccination for all susceptible children and adults.
4. Referral of all chronically infected with hepatitis B or C.
5. Asymptomatic testing for hepatitis A and E is not needed due to the self-limiting course with no significant chronic phase, in which exposure and symptoms most times resolve prior to arrival.
6. Hepatitis D screening is not indicated and clinical testing can be considered in those of concern upon referral for hepatitis B [7].

Hepatitis B screening and vaccination may start overseas. The CDC Vaccination Program for US-Bound Refugees is a voluntary program that screens refugees prior to arriving in the USA for HBsAg and attempts to provide at least the first two doses

of the hepatitis B vaccination. Clinicians performing the Domestic Health Screening in the USA for refugees will need to review Department of State screening forms (DS 3025 and 3026) forwarded electronically to state health departments and other designated clinics. The CDC overseas vaccination program is voluntary; not all refugees will have been screened [8, 9]. Asylum seekers and other similar immigrants would start health screening in the USA. Other vaccination records from abroad, if administered at the appropriate time, are acceptable proof of vaccination.

Challenges for the long-term follow-up care for refugees, immigrants, and asylum seekers are:

1. A substantial percentage of those previously admitted to the USA have moved in and out of various health systems, have been lost to follow up, and have no longer recall their hepatitis B or C status, even those initially diagnosed with chronic hepatitis. Since most chronic hepatitis is silent until end-stage disease is present, the risk for spreading hepatitis B and C continues, and opportunities are missed for surveillance, counseling, and treatment even when receiving health care in the USA.
2. Foreign-born travel internationally more often than American-born; thus, a traveler's hepatitis A and B status needs to be known and reviewed to provide vaccination and counseling before returning to endemic areas. Electronic medical record systems can identify patients from hepatitis B endemic areas based on the country of birth or patients in the birth cohort for hepatitis C born during 1945–1965 and determine if appropriate serology tests are needed and alert the treating provider [10, 11].

Hepatitis B

Chronic hepatitis B (CHB) infection is one of the most common chronic infections worldwide and is a high concern for newly arrived refugees due to high prevalence of refugees that are HBV carriers, the long-term health risks, and risk of transmission to household and sexual contacts. Clinicians should be aware of the hepatitis B endemic regions and assess for appropriate testing when caring for patients born or that have lived in those regions (see Fig. 7.1).

Epidemiology

The World Health Organization (WHO) in 2015 estimated the burden worldwide as 3.5% of the world population (257 million people) living with chronic infection, defined as hepatitis B surface antigen (HBsAg) positive for more than 6 months [1]. In 2015, the WHO estimated 887,220 persons died from HBV infection (337,454 due to HCC, 462,690 from cirrhosis, and 87,076 from acute hepatitis) [12, 13].

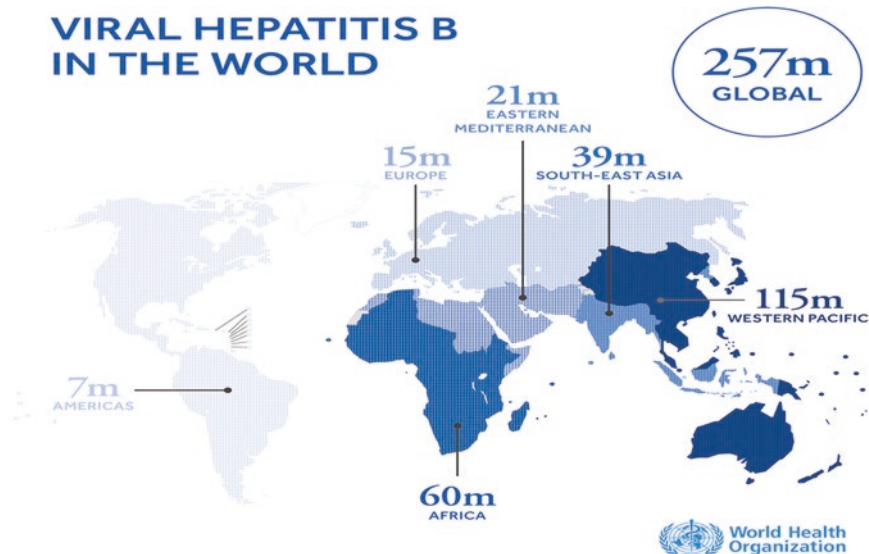


Fig. 7.1 Geographic distribution of chronic hepatitis B virus infection. (Source. Viral Hepatitis B in the World. World Health organization. <https://www.who.int/hepatitis/news-events/global-hepatitis-report2017-infographic/en/>)

Most refugees are from countries and regions with intermediate ($>2\%$) or highly endemic ($\geq 8\%$) prevalence of CHB infection. In highly endemic regions, most new infections are in infants and young children due to perinatal and household exposure. Lifetime risk of exposure to hepatitis B is about 20 to 60% in intermediate endemic and 60% in highly endemic regions with at least 2% to about 8% developing chronic infection. CHB is mostly asymptomatic until complications occur. The US population has about 1.3–2.2 million infected with CHB, and the overall prevalence of CHB infection is less than 1%, but foreign-born account for about 47–70% of those infected [16]. Antiviral treatment for hepatitis B is available and indicated for those with progressive chronic infection to reduce or postpone the development of end-stage liver disease. Despite the known need for clinical evaluation and monitoring for CHB, in 2010, the Institute of Medicine report highlighted that 65% of all persons with CHB in the USA are undiagnosed and only half of those diagnosed receive appropriate care [17, 18].

Perinatal transmission of CHB is as high as 90% in the highly endemic areas. Good measures are available to prevent transmission of HBV at delivery that dramatically reduce the new CHB infection rate of infants to HBV-infected mothers, but still in the USA, about 1000 babies are born yearly infected with HBV due to lack of pregnancy screening for mothers with CHB [19]. Treatment of newborns born to HBsAg-positive mothers with the hepatitis B immune globulin within 12 hours of birth and the three-dose hepatitis B vaccination series are both highly effective at breaking the chain of perinatal transmission.

The US data on the prevalence of HBsAg in newly arrived refugees between 2006 and 2008 demonstrated 2.8% overall prevalence, ranging 0.6–15.5%, with 95% confidence range of 2.6–3.0%. The highest prevalence was among refugees from Eritrea (15.5%), Liberia (12.2%), Myanmar (12.4%), Ethiopia (9.1%), Somalia (8.3%), and Malaysia (8.8%). Six other countries (Iran, Iraq, Laos, Russia, Thailand, and Vietnam) were noted to have substantially decreased rates when compared with 1991 prevalence data [14]. Arriving refugee populations in the USA from 2011 to 2015 have a reported average prevalence of HBV infection 5.7% with variations depending on the specific population. Overall 42% were nonimmune and still susceptible to exposure [15].

It is important to realize that refugees in the USA live their life and marry in their respective ethnic communities, which have high prevalence rates of CHB. Ensuring serology testing of all refugees for chronic hepatitis B infection and identifying those that lack protective immunity against hepatitis B will yield high-value health information to protect refugees from infection transmission, disease progression, and applying hepatitis B vaccination series.

Clinical Course

Hepatitis B is asymptomatic in infants and infection with the virus seen as self (immunotolerant phase) by the early immune system. After several decades of life, the adult immune system starts to react to the infection, causing liver inflammation and damage during the immunoreactive phase. Unvaccinated adults that are infected acutely with HBV will display acute hepatitis symptoms (Table 7.2) similar to acute hepatitis from other causes for up to 6 months, and almost all will become immune with less than 5% (who are usually immunocompromised) that will develop CHB.

Screening and Vaccination Guidelines

Refugee Hepatitis B Screening National Guidelines [7]

Test Hepatitis B surface antigen (HBsAg), hepatitis B surface antibody (anti-HBs), and hepatitis B core antibody (anti-HBc) in all children and adults (for interpretation, see Tables 7.3 and 7.4).

Vaccinate Previously unvaccinated and susceptible children 0–18 years of age and susceptible adults.

Refer All persons with chronic HBV infection for additional ongoing medical evaluation and counseling.

Table 7.3 Interpretation of hepatitis B serologic screening tests [7]

HBsAg, anti-HBc, and anti-HBs All are negative	Susceptible to hepatitis B, recommend HBV vaccination series
HBsAg Positive False Positive Negative False Negative	Infection, acute or chronic (CHB if positive for more than 6 months) Antigen from recent (<1 month) hepatitis B vaccination Not infected Undetectable early acute infection
Total anti-HBc Positive	Becomes positive in acute and CHB infection, remains positive in recovery and positive for life in both those who become naturally immune or have CHB or received previous vaccination from older inactivated/killed HBV vaccine used between 1981 and 1990
IgM anti-HBc Positive Negative	Acute HBV infection CHB or never infected or recovered from infection or immune status post recovery
Anti-HBs Positive	Protective antibody-Indicates immunity from either recombinant or the older inactivated vaccinations or immunity from natural infection

Table 7.4 Special considerations for serology results [7]

Total anti-HBc is the only detectable serologic marker (no HBsAg or anti-HBs)
<i>May be due to:</i>
1. Resolving acute infection in the window period of acute hepatitis B (this can be confirmed by testing for IgM anti-HBc).
2. Resolved HBV infection. Anti-HBs levels have waned over many years. <i>A person from a high endemic area for hepatitis B with lone anti-HBc is considered immune (does not need vaccination).</i>
3. CHB with undetectable circulating HBsAg titer that has waned to below the cutoff level. This is most likely for populations with a high prevalence of HBV infection or CHB coinfection with HIV or HCV.
4. False positive is seen mostly in low-prevalence populations with no risk factors for HBV. These individuals are still considered susceptible to HBV (offer HBV vaccination series).
Further evaluation for examples 2, 3, and 4: Testing a HBV DNA viral load would identify those infected with hepatitis B infection that need to be counseled and followed medically.
HBsAg and anti-HBs are both positive
The antibodies are unable to neutralize the circulating virus. These individuals are HBV-infected carriers.

Additional Hepatitis B Refugee Screening Considerations [7]

1. Test children born in the USA, not vaccinated at birth, for HBsAg, if parents are from high HBV endemic regions $\geq 8\%$.
2. Any refugee with potential exposure to HBV within the last 60 days of hepatitis B testing should have repeat testing in 3–6 months.
3. Testing for hepatitis B should be done regardless of prior hepatitis B vaccination. CHB infection is mostly silent, and hepatitis B vaccination would not be protective if they are already infected prior to vaccination.

Table 7.5 Risk factors or conditions that should be tested for HBV infection

All children, adolescents, and adult refugees that have lived in or were born in countries with a rate of CHB infection $\geq 2\%$
US-born persons not vaccinated as an infant whose parents were born in regions with high-HBV prevalence $\geq 8\%$
Males who had sex with males
History of injection drug use
HIV infection
Persons seeking evaluation or treatment for a sexually transmitted disease
Household contacts or a mother with history of hepatitis B infection
Subpopulations with known prevalence rates $\geq 2\%$ (indigenous populations or ethnic minorities)
End-stage renal disease and hemodialysis patients
Chronic liver disease, including HCV
Incarceration history
Received whole blood products or blood components before migration
Elevated liver enzymes of unknown etiology
Medical conditions that require immunosuppressive therapy
Travelers to countries with intermediate to high prevalence of HBV infection
Pregnant women

4. Testing for HBsAg should *not* be done within 1 month of vaccination; it may lead to a false-positive result.
5. Screen all pregnant women and any individual that may develop high-risk conditions and hepatitis symptoms or acquire HBV infection risk factors (see Table 7.5).

Preventive Hepatitis B Vaccination for Refugees [20]

1. *Timing:* The first vaccination of the series may be done at the time of HBsAg testing. It will not be harmful in HBsAg-positive cases. There are several single-antigen hepatitis B vaccines licensed in the USA including two-dose series and the traditional three-dose series. Combination hepatitis vaccination series are three or four doses.
2. *Overseas testing and vaccination:* The Overseas Vaccination Program for US-Bound Refugees offers voluntary testing of HBsAg and the first two hepatitis B vaccinations at participating sites for the US-bound refugees. HBsAg-positive people receive counseling, and their household contacts are offered the entire three-dose HBV vaccine series if they are present long enough to receive it before departure.

Overseas medical records document the refugee's vaccinations on the Form DS-3025 (Vaccination Documentation Worksheet) and the HBsAg result in the Form DS-3026 Medical History Remarks Section. These records are available to state health departments and other designated clinics through the CDC Electronic Disease Notification (EDN) system [8, 9].

New arrivals with a negative overseas HBsAg test that have started HBV vaccinations can forgo further testing for anti-HBs and anti-HBc and complete the remaining HBV vaccinations. Refugee arrivals that are HBsAg negative and no HBV vaccine has been initiated can be offered serologic testing and HBV vaccination series if indicated or just receive the HBV vaccination series.

3. *Prior vaccination:* Immunizations administered outside the USA are accepted if they come with written documentation. Acceptable written vaccination information (date, type of vaccination, and the location or name of clinic) and administration intervals at the appropriate age can be accepted as valid, if the schedule was similar to the standard US recommendations (inappropriate age at the time of the previous vaccine is unacceptable).
4. *Vaccination series:* If one or two doses of the hepatitis B vaccine series were given abroad and properly documented, the series should be completed without restarting, following an acceptable US schedule. The minimum intervals are 4 weeks between first and second doses and another 8 weeks between second and third doses.

A positive anti-HBs test after one documented dose of the hepatitis vaccine is not considered protective, and the three-dose series should be completed.

5. *Immune response:* Severe malnutrition at the time of the vaccination could impair immune response to some vaccines. Consider revaccination after nutritional reconstitution or assessing for immunity by serology.
6. *Travel post-arrival:* Established refugees frequently will be returning to endemic areas to visit friends and relatives (VFRs). Hepatitis B serology should be reviewed and susceptible patients vaccinated [21].
7. *Negative anti-HBs serology despite history of complete hepatitis B vaccination series:* Repeat the series one time. Those who have received a hepatitis B vaccination series twice have a low risk of acquired infection; thus, in an immunocompetent host, no follow-up testing or vaccination is required.

Preventive Counseling

Identification of those infected with hepatitis B will lead to increased awareness and the opportunity for counseling to protect health and prevent spreading infection by:

1. Recommending careful hygiene (use barrier protection; do not share razors, toothbrushes, injection equipment, glucose testing equipment; cover cuts and scratches; clean blood spills with bleach; do not donate body fluids).
2. Assessment of hepatitis B status (susceptible, immune, or infected) for all household members and sexual contacts. Vaccinate susceptible household members and contacts.
3. Avoid alcohol (many are unaware of the risk) and optimize weight, lipids, and blood sugar to prevent metabolic syndrome and fatty liver [22].

Management/Referral

For those infected with HBV (HBsAg positive):

1. Assess hepatitis A serology for immunity or need to protect by vaccination.
2. Rule out coinfection with HCV and HIV.
3. Refer to gastroenterology or a liver specialist to assess for chronic liver disease, periodic monitoring for liver cancer, and consideration of antiviral therapy which cannot cure HBV but can reduce liver inflammation, disease progression, and HCC risk for those with active HBV liver disease.

Hepatitis D Coinfection or Superinfection with Hepatitis B

Hepatitis D virus (HDV) is an incomplete virus that requires HBV infection to replicate and infect humans. HDV infection is estimated to occur in about 15–20 million people (5% of the 257 million CHB-infected people are coinfecting) [1, 23]. Not all countries test or report HDV infection rates; thus, information is not complete.

Epidemiology

The WHO reports hepatitis D is more common in Africa (Central and West Africa), Asia (Central and Northern Asia, Vietnam, Mongolia, Pakistan, Japan, and Chinese Taipei), Pacific Islands (Kiribati, Nauru), Middle East (all countries), Eastern Europe (Eastern Mediterranean regions, Turkey), South America (Amazonian basin), and Greenland [23]. HDV infection is decreasing in areas of the world where CHB prevalence rates are decreasing due to expansion of global childhood vaccination [23].

Refugees with elevated prevalence rates of hepatitis B infection are susceptible to HDV, but specific refugee prevalence data is rare.

Low prevalence has been reported in past surveys of HBV-infected Albanian refugees (one case was detected from 91 HBsAg positive) and Southeast Asian refugees (no HDV detected) [24, 25].

Transmission risks are the same as HBV (percutaneously, close contacts, sexually, infected blood or blood products; vertical transmission is rare but possible). HDV enhances the severity of acute and chronic hepatitis B.

Clinical Course

Two forms of HDV infection occur in association with hepatitis B virus:

1. *Coinfection* is the simultaneous acute hepatic infection of both HBV and HDV viruses that is mild and 95% of the time it clears.

2. *Superinfection* is an HDV infection of a person already chronically infected with the hepatitis B virus (CHB) that presents as a severe acute hepatitis (Table 7.2) and leads to chronic hepatitis D infection in up to 80% of the cases. The rates of cirrhosis, fulminant hepatitis, and mortality are much higher than in CHB infection alone [23, 26].

Screening

Routine testing is not recommended for HDV in newly arrived refugees.

Prevention

There is no HDV vaccine. HBV vaccination will protect those not infected with hepatitis B from HDV infection but cannot protect the estimated 257 million CHB carriers worldwide from HDV infection susceptibility [1]. Preventive measures include promotion of worldwide blood product and injection safety and harm reduction services for PWID.

Management

HDV infection should be suspected in those infected with hepatitis B that have elevated and/or worsening liver function tests. Clinical tests include serologic antibodies (IgM and IgG anti-HDV) and confirmatory serum HDV RNA. Referral to a liver specialist is indicated if HDV is suspected or confirmed. Treatment options are limited to older interferon-based treatments; newer antiviral antinucleos(t)ides do not work well for HDV infection.

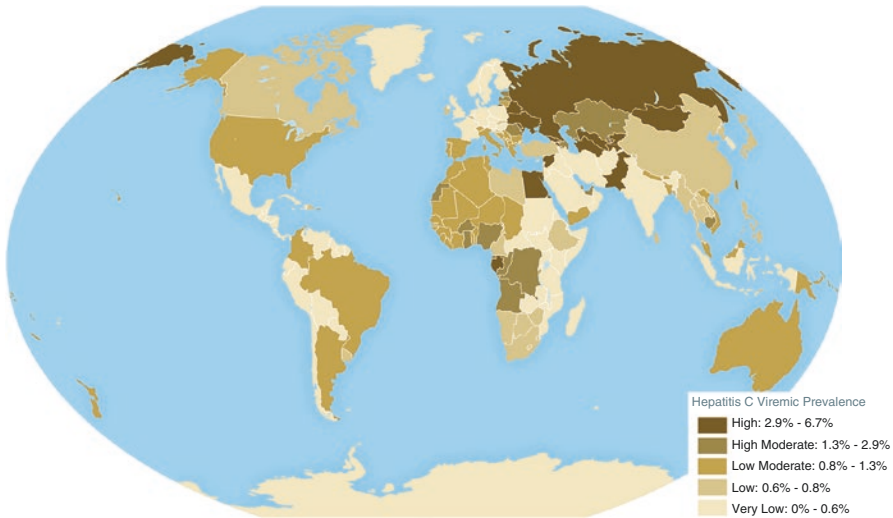
Liver transplantation is an option for ESLD and fulminant hepatitis caused by HDV.

Chronic Hepatitis C

Hepatitis C virus (HCV) infection is a slowly progressive and clinically mild chronic liver infection that over 2–3 decades can develop into cirrhosis, and then there is a 1–5% annual risk of developing hepatocellular carcinoma (HCC) [27, 28]. Most with HCV are asymptomatic and may be unaware of their infection until chronic liver disease complications develop.

Epidemiology

The anti-HCV world prevalence was estimated at 2.5% (includes past and current infections) in 2015; the WHO estimates 71 million people (1% of the world's population) are chronically infected. HCV is found with the highest rates in areas that



MAP 4-5. Prevalence of hepatitis C virus infection¹

Boundary representation is not necessarily authoritative.

¹ Disease data source: Gower et al. Global epidemiology and genotype distribution of the hepatitis C virus infection. *J Hepatol.* 2014 Nov;61 (1 Suppl):S45-57. doi: 10.1016/j.jhep.2014.07.027. Epub 2014 Jul 30.

Fig. 7.2 World map of prevalence of hepatitis C virus infection. (Source: Centers for Disease Control Health Information for International Travel (Yellow Book chapter 4) 2020. <https://wwwnc.cdc.gov/travel/yellowbook/2020/travel-related-infectious-diseases/hepatitis-c>)

have non-sterile and unsafe medical procedures from injections, equipment, or blood products (see Fig. 7.2) [1, 29, 30]. In 2015, there was an estimated 1.75 million new HCV infections and about 399,000 preventable HCV-related deaths, and about 843,000 with HCV were cured [1].

HCV prevalence rates vary between and within countries, and the highest country rates for HCV antibody seroprevalence (not confirmed infections) are found in Egypt (14.7%), Cameroon (13.8%), Burundi and Uzbekistan (11.3%), Mongolia (10.7%), and Libya (7.9%) [30, 31]. The high rates in Egypt have been traced to use of contaminated needles during a rural campaign to eradicate schistosomiasis in the Nile River basin [32]. Newly arriving refugee groups are being assumed to have similar HCV prevalence rates similar to the regions and countries that they originated unless specific data after arrival is available. HCV prevalence rates are below 0.9–1.2% in North America, Europe, and Australia, which accept many of the relocated refugees from around the world [1].

HCV transmission in developing countries where most refugees originate is mainly through non-sterile and unsafe medical procedures from injections, equipment, and blood products. WHO global estimates in 2010 that 5% of health-care-related injections remain unsafe (compared with 39% in year 2000) and are still a concern in Southeast Asia, in East Africa, and in the Middle East. Global blood donations are estimated to be screened 97% of the time [1]. In developed countries, current transmission is caused by sharing of needles by people who inject drugs (PWID). Perinatal transmission of HCV occurs at a rate of 5–6%, and health-care needlestick

from an HCV-infected patient has a 1.8% infection rate. Although sexual contact (not monogamous) increases risk, it is less efficient and a low rate compared to intravenous drug abuse. HCV is detected in breast milk, but breast-feeding is not associated with increased risk [33]. HCV infection in refugees is not a major communicable disease threat to the US public health compared with tuberculosis, hepatitis B, or syphilis since in the USA, blood supply and most medical procedures and equipment are sterile and safe, and most modes of human contact have low infection rates.

Clinical Course

Hepatitis C infection has an incubation period of 2 weeks to 6 months, and a symptomatic acute hepatitis phase occurs in less than 30% of those infected. The symptoms are indistinguishable from other acute hepatitis syndromes (Table 7.2) and last less than a month. Chronic HCV infection persists in about 70–85% of those infected, and over 2–3 decades of chronic HCV infection, approximately 20% to 40% (depending on age) develop cirrhosis with increased risk of HCC [34]. Chronic HCV infection is known to progress more often to cirrhosis with moderate alcohol intake, infection at older age, coinfection with HIV, or infection with schistosomiasis [35–39].

Screening Guidelines

Screen for HCV infection in *those born during 1945–1965 or those of any age with risk factors (Table 7.6) similar to guidelines for the general US population.*

The CDC states it is also reasonable to screen *all adult and child refugees originating from or have lived in countries with high moderate (2–5%) or high (≥5%) prevalence [7].*

Table 7.6 Common risk factors and high-risk conditions for HCV infection

Former and present PWID
Children born to HCV-positive mothers
Household contacts
Refugees that have ever received blood products or clotting factors in developing nations or those exposed to potentially unsafe medical (or dental) injections and procedures in developing countries
Any refugee group from a low-prevalence country that has a higher detected prevalence rate after arrival than their country of origin
Conditions including HBV or HIV infection, hemodialysis patients, or abnormal liver function tests
History of tattooing or body piercing or other cultural practices of skin penetration or scarring
Multiple sex partners or those sexually exploited
Being in prison in a source country
Persons seeking evaluation or treatment for sexually transmitted diseases

Other Countries Hepatitis C Refugee Screening Guidelines Screen for HCV in refugees with risk factors or high-risk conditions and who were born or have lived in countries with HCV infection prevalence of >3% for Australia, ≥3% for Canada, and ≥2% for the United Kingdom.

HCV screening guidelines will continue to evolve with new prevalence data for specific groups, regions, and counties as well as improved cost-benefit from treatment with new direct-acting antiviral drugs. Prevalence can vary highly in specific groups and locations, probably related to the mechanism of a particular exposure and lack of complete data in many regions; thus, some resettled refugee groups may have higher prevalence than the specific country or region they originated from [40, 41].

Testing for antibody to HCV (anti-HCV) if positive is followed by confirmatory testing with HCV polymerase chain reaction (PCR). The HCV PCR test is needed regardless of HCV antibody results for patients with immunocompromised conditions, children less than 18 months with HCV-positive mothers (due to passive acquired maternal antibodies), and patients with end-stage renal disease (anti-HCV may be false negative).

Prevention

There is no vaccination. Illicit intravenous drug users should be offered treatment referrals. Prevention programs should encourage the use of sterile injection equipment and advise against sharing needles. If HCV infected and not immune to hepatitis A and/or B, protective vaccinations are indicated.

Counseling

Infected people should be advised to avoid alcohol use and to not share personal items contaminated with infectious blood (toothbrushes, razors, or nail clippers). Physicians should discuss limiting drugs that affect the liver. Safe sex practices should be endorsed. Although breast-feeding has not been associated with increased transmission, it should be avoided with cracked or bleeding nipples. Physicians should encourage weight control and healthy diet to reduce risk of fatty liver disease.

Management/Referral

A liver specialist is needed for those infected by HCV to:

1. Evaluate for chronic liver disease
2. Receive consideration for curative treatment with the new direct-acting antiviral medications for hepatitis C infection that are safe, have few side effects, and have cure rates of >95% with 12 weeks of treatment
3. Perform lifelong HCC surveillance screening for those with cirrhosis [1]

Acute Hepatitis A

Hepatitis A virus (HAV) is the most highly prevalent acute viral hepatitis and is endemic in most of the developing world. HAV is shed through feces. The most common transmission is the fecal oral route from the contamination of water to the food supply. It can also be transmitted through direct contact with an infected person.

Epidemiology

In HAV highly endemic areas, 90% have been infected by age 10 years. The infection is mild and self-limited in most children and usually lasts less than 2 months, but in about 10% of cases, prolonged or relapsing symptoms can last 6–9 months [42]. Symptoms and signs of acute hepatitis (Table 7.2) are more likely with increased age (older children and adults). Most adult refugees were infected as children and have lifelong immunity. Unvaccinated children and young adults from areas with good water sanitation may be susceptible to HAV infection, including some urban middle-class individuals from developing countries. In general, lower-income regions (see Fig. 7.3) correlate with intermediate to high hepatitis A endemicity. High-income regions and countries have low prevalence rates of HAV infection and have higher susceptibility [43].

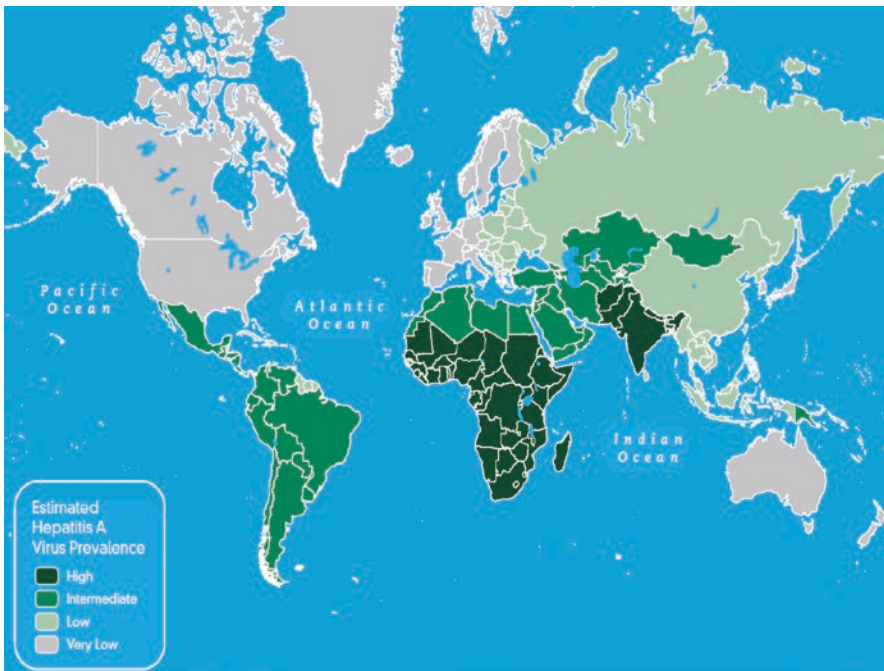


Fig. 7.3 Geographic distribution of hepatitis A endemicity. (Source: Chapter 7. Viral Hepatitis. Refugee Health care: An Essential Medical Guide, First Edition. Chapter 7. Springer 2014)

Clinical Course

Incubation usually is 14–28 days, and symptoms of acute hepatitis (Table 7.2) occur in older children (age > 6) and adults. Symptom duration is usually 2 weeks to 2 months, but 3–20% can have prolonged or relapsing symptoms up to 6–9 months. Most can expect complete resolution [44]. Serious complications are rare, except that those immunocompromised or with chronic liver disease may develop fulminant hepatitis. HAV does not have a chronic phase.

Screening

Routine testing for HAV infection in asymptomatic refugees is not recommended at any age.

Prevention

ACIP recommends the two-dose HAV vaccine for all children around age 1 (12–23 months) or catch up to age 18 [44].

Currently, the US-bound refugee populations do not receive predeparture hepatitis A vaccination.

An alternative reasonable approach to vaccination of those older than 2 years of age is to test for immunity with hepatitis A serology (total anti-HAV IgG) [7]. Considering the high prevalence of previous HAV exposure in the US-bound refugee populations and the cost of the test versus the cost of two visits to administer two doses of HAV vaccine, HAV serology testing is known to be cost-effective in adult refugees from regions of HAV prevalence >33% where a two-dose series of HAV vaccination is being considered [45, 46]. For established refugee travelers that are likely to be visiting friends and relatives (VFRs) in highly endemic areas, serology testing or vaccination can be done for unvaccinated VFRs <20 years old. In VFRs age ≥ 20 , it is cost-effective to check serology and vaccinate if susceptible [21].

Refugees with chronic liver disease (including CHB and CHC) are at risk for developing fulminant hepatitis from HAV infection. Hepatitis A immunity should be checked and susceptible individuals vaccinated.

Other Prevention/Counseling

Access to sanitary water is a key factor in prevention. People should be counseled on avoidance of infected close contacts or careful hygiene measures when in close contact with infected individuals.

Management

In a refugee with signs and symptoms of acute hepatitis, testing of IgM anti-HAV serology can confirm active HAV infection. Treatment would be supportive care, rest and symptom control, and contact precautions.

Acute Sporadic and Epidemic Hepatitis E

Hepatitis E virus (HEV) liver infections occur worldwide through four genotypes (1, 2, 3 and 4). Genotypes 1 and 2 are due to fecal contaminated drinking water and occur in the undeveloped areas of the world. HEV infection usually is an acute mild self-limited infectious hepatitis.

Worldwide Distribution

Geographically, most large outbreaks are caused by genotype 1 in Africa, South America, and Asia and occur after natural disasters like flooding, that cause water contamination in overcrowded situations (temporary housing, refugee camps). Genotype 2 is associated with sporadic cases and smaller outbreaks that occur in endemic areas of Mexico and West Africa [47, 48]. Genotypes 3 (developed countries) and 4 (India, Mainland China, Taiwan, and Japan) are zoonotic and cause occasional transmission to humans. See Fig. 7.4.

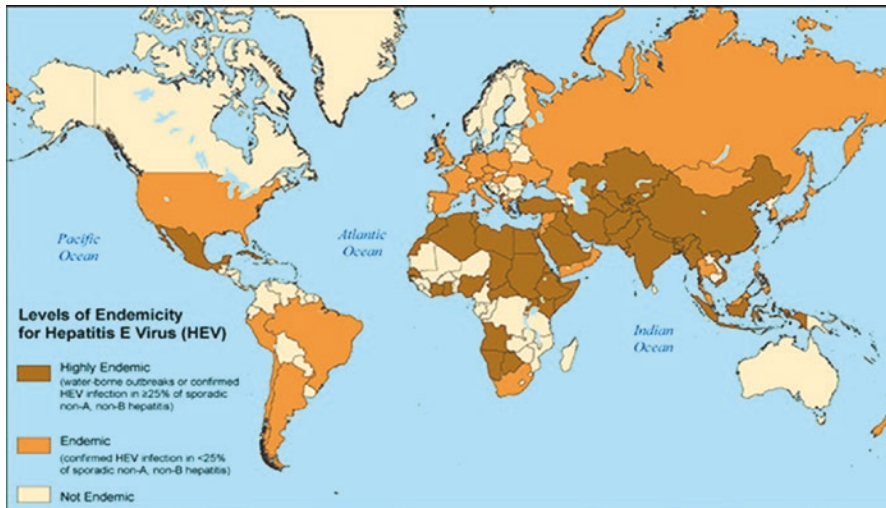


Fig. 7.4 Geographic distribution of hepatitis E. (Source: Centers for Disease Control and Prevention. Hepatitis E Questions and Answers for Professionals. <https://www.cdc.gov/hepatitis/hev/hevfaq.htm#section1>)

Clinical Course

Acute HEV incubation usually ranges from 15 to 60 days with acute hepatitis symptoms (Table 7.2) that are more likely to occur in young adult males (age 15–39) [47]. It is usually asymptomatic in children. Most people recover from HEV infection completely. High risk for complications is seen in preexisting liver disease and pregnant women.

Women in all stages of pregnancy are most likely to experience severe hepatitis symptoms from HEV infection with genotype 1 with serious complications including fulminant hepatitis and stillbirth, and reported mortality rates range from 10% to 50% or more [49]. The high variability in reported mortality of HEV infection with pregnancy in part may be due to prior exposure and resultant immunity.

Chronic HEV infection, due to genotype 3 by zoonotic transmission of eating raw pork or shellfish, has been documented in developed countries in immunosuppressed groups (HIV, solid organ transplant recipients, and others on chronic immunosuppression) [47, 50–52]. HEV infection in the USA is most likely to be in returning travelers from endemic areas [47].

Screening

No screening for refugees is recommended for HEV infection due to rare chronic phase and short infection cycle.

Prevention

No vaccination is available, except in China where there is a licensed vaccine for HEV genotype 4 that may be effective against other genotypes, but it is not yet known [48]. Improving water sanitation and sewage systems.

Management

HEV infectious hepatitis should be considered in a new arrival (<3 months) from an HEV endemic area with potential exposure and acute hepatitis symptoms (Table 7.2) and in whom other acute hepatitis syndromes (A, B, and C) have been ruled out. There is no FDA-approved test for HEV in the USA. HEV testing (IgM and IgG antibodies to HEV and PCR assay for HEV RNA) can be requested from the CDC Division of Viral Hepatitis Laboratory for clinical evaluation [53].

Treatment is supportive care with hospitalization for fulminant hepatitis and severe illness in pregnancy.

Summary

Hepatitis screening is an important part of a domestic refugee medical exam. Hepatitis B is a common hepatitis worldwide that causes chronic infection and is preventable by vaccination. It is endemic in many of the countries refugees come from. Thus, it is important to screen refugees, provide follow-up care for those who are chronic carriers, and vaccinate those who are susceptible. Hepatitis C is screened and managed as per recommendations for the US adults. Hepatitis A is a common infection worldwide, but it is an acute and self-limited infection and most refugees have acquired immunity, so screening is not necessary. Hepatitis D and E also do not require routine screening in refugees.

Chronic hepatitis treatment is available and can reduce the risk of developing end-stage liver disease.

Long-term periodic disease surveillance and treatment for hepatitis B and C carriers can be challenging due to problems inherent in the longitudinal primary care for refugees. Detection, preventive vaccination, counseling, and treatment of viral hepatitis are all opportunities that can lead to substantial health benefits for refugees.

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Chapter 8

Malaria



Kristina Krohn and William Stauffer

Introduction

The World Health Organization (WHO) estimated 219 million cases of malaria and 435,000 deaths from malaria in 2017 [1]. Over 5000 refugees entering the United States each year come from sub-Saharan Africa, where malaria is hyperendemic [2]. The WHO defines an area as hyperendemic when more than 50% of children age 2–9 years old have malaria parasites in their blood at any given time [3]. African children under the age of 5 years are at particular risk of contracting and dying from malaria [4]. Most adults in hyperendemic areas have some immunity and therefore can be infected with malaria without showing signs of disease. In one study of Liberian refugees from refugee camps in four different countries, even 4 weeks after arriving in the United States, 60% still had malaria parasites in their blood [5].

Malaria is believed to have been brought to the United States by European settlers and African slaves. Malaria was endemic until the 1950s when it was eradicated in the United States. Most of the United States continues to have the *Anopheles* mosquitoes, which can act as a vector. Since the vector was not eradicated when malaria was eradicated in the United States, cases of autochthonous cases and small outbreaks have occurred rarely, associated with importation of malaria [6, 7]. Less than 200 autochthonous cases have been documented since 1957 [6], which pales in comparison to the more than 1000 clinical cases of malaria imported to the United States annually. Prior to presumptive treatment of refugees prior to departure for the United States, many of these imported cases occurred in refugees [8–11].

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Displaced populations have historically suffered more malaria than their stable countrymen, both in endemic and outside endemic settings. This is due to many factors, but in endemic environments, it is likely related to elements during their flight including frequent poor housing conditions and lack of access to prevention and treatment [11, 12]. Even refugees who come from urban areas may have subclinical malaria infections. Once refugees arrive in the United States, they may be disenfranchised and have poor access to care due to language barriers, difficulty with transportation, stigma, or economic hardship. Therefore, refugees who have clinical or subclinical infection may not present to a health-care provider [12–15]. Unfortunately, delayed diagnosis and inappropriate treatment of malaria infection by health-care professionals in the United States have led to fatal outcomes [16, 17].

Malaria Pathogenesis

There are five species of malaria that infect humans: *Plasmodium falciparum*, *P. ovale*, *P. vivax*, *P. malariae*, and *P. knowlesi* [18, 19]. The *Anopheles* mosquito is the vector for transmitting plasmodium to humans. When a female *Anopheles* mosquito bites a human, they can deposit sporozoites into the person. The sporozoites mature in liver cells and ultimately release merozoites that infect red blood cells and are released into the bloodstream. In *P. vivax* and *P. ovale*, a dormant stage known as hypnozoites can remain dormant in the liver, if untreated, and invade the bloodstream even years later causing a relapsing infection. Merozoites replicate in the bloodstream causing disease. They differentiate into a sexual stage called gametocytes, which, when ingested by another mosquito, sexually reproduce inside the mosquito and are ready to be passed on to another human host [20].

Malaria Epidemiology

P. falciparum causes most malaria deaths globally. It is highly endemic throughout sub-Saharan Africa and hyperendemic in many areas. In these areas, most of the adults have some (“partial”) immunity, and subclinical infection is common. *P. vivax*, *P. ovale*, and *P. malariae* are also endemic in sub-Saharan Africa, but they have a lower prevalence than *P. falciparum* and cause less severe disease.

P. vivax and *P. ovale* cause relapsing human infection because they have an extended liver stage, where the sporozoites may live and reproduce without entering the bloodstream. Most antimalarials do not treat the liver phase of infection, particularly hypnozoite infections of *P. vivax* and *P. ovale*. Therefore, these species can cause repeat infection if the liver stage is not treated [4]. Primaquine is needed to treat the liver stage, in addition to another antimalarial that treats the blood stage. Neither *P. falciparum* nor *P. malariae* have a dormant liver stage; therefore, they are not considered relapsing species. However, *P. malariae*-infected individuals may be asymptomatic or have subclinical infection for extended periods of time, giving it the appearance of a recurrent or relapsed infection [14].

Central Asia, South Asia, Southeast Asia, and parts of Latin American and the Caribbean have varying levels of all four species of malaria, but with a few exceptions (e.g., Papua New Guinea), not to the same hyperendemic level observed in sub-Saharan Africa. Refugees arriving from Southeast Asia, South Asia, Central Asia, and all areas in the Western Hemisphere generally come from areas with low or absent levels of malaria transmission. According to the Centers for Disease Control and Prevention (CDC), it is not currently feasible or cost-effective to do routine screening or to give presumptive treatment for refugees from areas other than sub-Saharan Africa, except under special circumstances, due to the low level of malaria in these refugees, and the higher rates of non-falciparum malaria. For those refugees coming from or passing through areas with low level of malaria transmission, if signs and symptoms are present, physicians should consider malaria and perform diagnostic testing and treatment for confirmed infections [21].

Clinical Manifestations of Malaria

Physicians should suspect malaria in a newly arrived, or recently arrived, refugee with nausea, vomiting, fever, chills, sweats, headaches, muscle pains, hepatosplenomegaly, thrombocytopenia, or anemia. However, newly arrived refugees from hyperendemic areas may have subclinical infection or may have only incidentally noted abnormalities such as anemia, thrombocytopenia, hepatomegaly, or splenomegaly if they have not received presumptive treatment. The initial symptoms can be similar to common viral infections or the “flu.” The classic cyclical fever pattern is helpful when it is present, but its absence does not rule out malarial infection. Later signs of severe malaria, including confusion, coma, neurologic focal signs, severe anemia, respiratory difficulties, and hepatosplenomegaly, are more striking and may be specific to the type of malaria [22].

The most concerning malarial infection is *P. falciparum* malaria; it is the most common species identified in refugees and is considered the most pathogenic. Classic symptoms are the common symptoms listed above with cyclical fevers that spike around dusk and dawn. For *P. falciparum*, the most common complications include neurologic changes indicating cerebral malaria, severe anemia due to hemolysis, hemoglobinuria, acute respiratory distress syndrome (ARDS), coagulation abnormalities, hypotension leading to cardiovascular failure, acute kidney failure, metabolic acidosis, and dangerous hypoglycemia. Even when none of these are present, a parasite load with >5% of infected red blood cells, called hyperparasitemia, is considered complicated malaria. Complicated malaria is life-threatening and requires aggressive treatment [23, 24].

P. ovale and *P. vivax* both are sometimes referred to as tertian malaria due to their tendency to cause cyclic fever spikes every 48 hours in well-established disease. However, symptoms and signs are similar to *P. falciparum* malaria, and *P. vivax*, like *P. falciparum*, can cause severe disease. Due to their ability to form a hypnozoite in the liver, both *P. ovale* and *P. vivax* may relapse months and even years after last exposure.

P. malariae is usually subclinical. However, it may cause a nephrotic syndrome where patients lose significant proteins in their urine and become edematous due the loss of blood proteins. This is different from the nephritic, blackwater fever seen with *P. falciparum* where hemolysis causes dark urine from fragmented red blood cells in a patient's urine [25].

P. knowlesi is found in the Asia Pacific and has not been reported in the US-bound refugees due to geography. It can cause a severe disease similar to *P. falciparum*.

In general, physicians should have a low threshold to test for malaria in refugees who present with symptoms, especially fever, jaundice, and hepatosplenomegaly.

Management of Malaria During Refugee Resettlement

Countries that are actively resettling refugees from malaria-endemic countries must consider malaria during the resettlement process. There are three approaches to managing malaria in this population:

- (a) No screening or presumptive treatment but a diagnostic approach in an ill refugee
- (b) Screening with treatment if malaria is detected
- (c) Presumptively treating a whole population prior to resettlement

The approach chosen by a resettlement country is complicated and is based on such factors as the prevalence of infection in the refugee population that is resettling, the cost of each approach, the test performance in the case of screening (e.g., sensitivity, specificity), and the consideration of adverse events for presumptive use of medicines. For example, Australia uses a screen/test and treat approach for refugees coming from highly endemic areas [26]. The United States uses a presumptive treatment program for populations coming from sub-Saharan Africa where prevalence of *P. falciparum* is still very high and a no-treatment and observation for those coming from lower-risk areas outside of sub-Saharan Africa [21].

Approach to Malaria in the US Refugee Resettlement Program

1. Predeparture Presumptive Treatment

Starting in 1999, the Centers for Disease Control and Prevention (CDC) recommends that all refugees departing for the United States from malaria-endemic areas in sub-Saharan Africa receive presumptive therapy for malaria. Predeparture presumptive treatment has been shown to be cost-effective in highly endemic areas in sub-Saharan Africa [27]. Initially, a presumptive treatment course of sulfadoxine-pyrimethamine (SP, Fansidar™) was used, but as resistance emerged,

the recommendation changed to artemisinin-based combination therapy (ACT) [14]. Malaria predeparture presumptive therapy must be administered and documented as directly observed therapy, and this documentation must be completed no sooner than 3 days prior to departure. Documentation is communicated to state health programs through the CDC's Electronic Data Network (EDN) and is in the paper copy carried by the refugee. Pregnant or lactating women and children <5 kilograms do not receive presumptive therapy prior to departure [21, 28].

2. *Post-Arrival Presumptive Therapy*

Once refugees arrive in the United States, if they have proper documentation of predeparture treatment, they require no further evaluation or treatment for malaria, unless they have clinical symptoms. If refugees are from a known high-risk area of sub-Saharan Africa and have not received appropriate predeparture therapy, they should receive presumptive treatment with atovaquone-proguanil or artemether-lumefantrine. The exceptions are for pregnant or lactating women, children less than 5 kilograms, and people with medication allergies who should not receive pre- or postdeparture presumptive treatment [21, 28]. These special populations should instead receive post-arrival screening. In these cases, the most sensitive and specific test for screening is malaria PCR. Refugees from any area with endemic malaria should be monitored for malaria symptoms [21, 24, 28].

3. *Screening and Diagnosis of Malaria*

Diagnostic tests for malaria available in the United States include a thick-and-thin blood smear, a rapid antigen test, and a polymerase chain reaction (PCR) testing. For newly arrived refugees without symptoms, a single malaria thick-and-thin blood smear lacks sensitivity (<40%) [21]. Three separate blood films taken at 12- to 24-hour intervals are recommended as it has a greater sensitivity [21]. Rapid antigen testing also has poor sensitivity (<30%) in asymptomatic individuals in a small study of refugees [14]. Also, the rapid antigen test can stay positive for a period of time following treatment, so either blood smears or PCR confirmation should be done to confirm positive test results [21, 24]. The most sensitive test for screening asymptomatic refugees for malaria is PCR testing [21, 24]. The PCR testing is limited by availability, cost, and time it takes to receive results.

Many experts will perform both a blood smear and rapid antigen test simultaneously as initial screening or diagnostic tests at first presentation. This is done since the rapid test, if it can be done on-site, will yield a prompt result and is highly sensitive for *P. falciparum* [21, 24]. The currently licensed rapid test in the United States lacks sensitivity for non-falciparum species, and a blood smear is more sensitive for these species. Further, a rapid test must always be confirmed by a blood smear [25]. In addition, the combination of the two tests likely increases overall sensitivity. Initial blood smears may result in a false negative even in experienced hands, and when malaria is suspected and the initial smear is negative, blood smears should be repeated at 12- to 24-hour intervals for at least three smears [21]. The CDC recommends all positive malaria tests be confirmed by PCR which may be more accurate at speciation, especially in mixed infections.

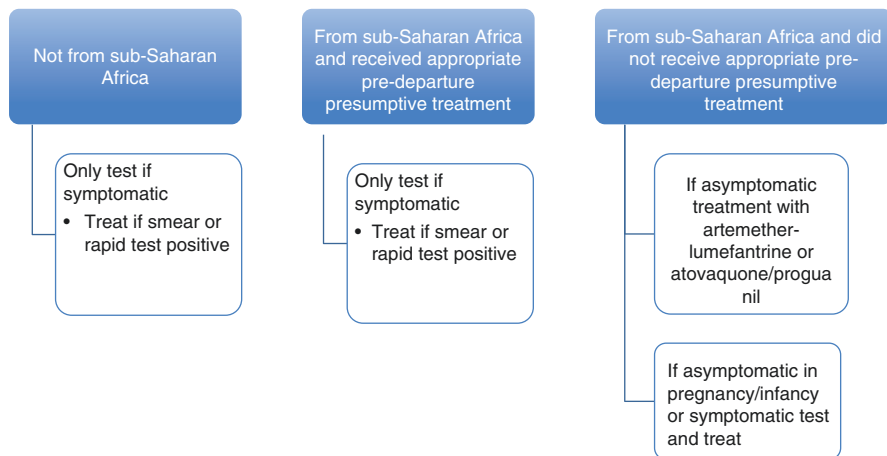


Fig. 8.1 When to screen or provide presumptive post-arrival treatment

As explained above, refugees coming from sub-Saharan Africa who have not received predeparture therapy with a recommended regimen should receive presumptive treatment on arrival in the United States; however, if there are contraindications to treatment (i.e., pregnancy or infancy), screening is appropriate. Refugees coming from other areas need to be tested only if malaria is suspected based on symptoms. Some findings like thrombocytopenia and splenomegaly in refugees from highly endemic areas should prompt consideration of malaria even in asymptomatic patients. See Fig. 8.1 for recommendations on screening for different refugee groups.

Diagnosis and treatment in specific populations (such as pregnant women and infants) and treatment of severe malaria infection are complicated. Providers may obtain consultation by calling the CDC [21].

CDC's Malaria Hotline (770-488-7788)

from 9:00 am to 5:00 pm Eastern Time. After-hours or on weekends and holidays, call the CDC Emergency Operations Center at 770-488-7100 and ask to page the person on call for the Malaria Branch.

4. Treatment

Treatment of malaria depends on the disease severity, the species of malaria parasite causing the infection, and the resistance patterns in the part of the world where the infection originated [21]. Most areas should be considered to have chloroquine resistance for *P. falciparum* malaria, and with rare exceptions, falciparum malaria should not be treated with chloroquine. Mefloquine resistance has also emerged in Cambodia, Vietnam Thailand, and Burma/Myanmar [29]. A patient's age, weight, pregnancy status, drug allergies, coexisting conditions (e.g., glucose-6-phosphate-dehydrogenase deficiency), and clinical severity of infection affect treatment

choices. Severe malaria requires intensive care and close monitoring during drug treatment. Treatment of pregnant women is complicated as illness can be severe with reduced treatment response to medications, and medication choices are limited by teratogenicity potential. A full discussion of treatment is beyond this chapter.

Physicians not familiar with malaria should obtain immediate expert consultation or may obtain clinical assistance through the CDC's Malaria Hotline (770-488-7788) from 9:00 am to 5:00 pm Eastern Time. After-hours or on weekends and holidays, call the CDC Emergency Operation Center at 770-488-7100 and ask to page the person on call for the Malaria Branch [30].

Summary

Malaria can be imported into the country by refugees and transmitted locally. A complete history, including geographic risk factors, and the screening recommendations outlined above can help detect a majority of cases. Laboratory screening depends on local feasibility of testing modalities. Treatment of malaria is complicated and dependent on various factors. Guidelines on screening for malaria in refugees and treatment recommendations are periodically updated by CDC, and providers are encouraged to access this information.

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Chapter 9

HIV and Other Sexually Transmitted Infections



Amir M. Mohareb and Emily P. Hyle

This chapter focuses on screening and managing sexually transmitted infections among refugees, including HIV. Many of the infections discussed in this chapter are prevalent among non-refugee populations in North America and Western Europe, and in general, methods of testing and treatment are the same in these patients. However, emphasis will be placed on special considerations relevant to refugees.

HIV: History and Global Epidemiology

The global HIV epidemic has been one of the most critical and far-reaching health-care challenges in recent history. Nearly 37 million persons live with HIV worldwide, more than two-thirds of whom live in sub-Saharan Africa [1]. This number is rising because of ongoing transmissions and improved access to effective antiretroviral therapy (ART) that results in near-normal life expectancy for those with HIV [1]. An estimated 940,000 people died of HIV in 2017, which is a substantial reduction since the peak of the epidemic more than a decade ago [1].

Although the global epidemiology of HIV varies greatly by region (Table 9.1), refugees may have a higher risk of HIV than would be suggested by their country of origin based on other sociodemographic characteristics. The World Health Organization (WHO) defines key populations that are most at risk for acquiring HIV, including men who have sex with men (MSM), transgender people, people who inject drugs, and commercial sex workers. Refugees with any of these risk factors are disproportionately affected by HIV. Moreover, factors prior to resettlement,

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Table 9.1 Global epidemiology of HIV

WHO region	HIV prevalence	HIV incidence ^a	Comments
Africa	25.6 million (4.1%)	1.22	Transmission common via heterosexual activity, perinatal, and medical procedures
Southeast Asia	3.5 million (0.3%)	0.08	Epidemic driven by transmission in special populations, particularly in India and Thailand
Americas (North, Central, and South America)	3.3 million (0.5%)	0.16	Prevalence high in many countries in Central America and Caribbean
Eastern Mediterranean	0.36 million (0.1%)	0.06	Limited data on incidence and prevalence
Europe	2.3 million (0.4%)	0.18	Potentially higher risk in refugees who are secondary migrants from Europe
Western Pacific	1.5 million (0.1%)	0.06	Epidemic driven in special populations

^aNew HIV infections per 1000 uninfected population, 2017 WHO data

including exposure to sexual violence and unregulated health-care procedures, further increase the risk of HIV acquisition among refugees.

Despite these shared risk factors around the world, regional differences in the HIV epidemic persist. In sub-Saharan Africa, the predominant mode of transmission is unprotected heterosexual activity with a substantial number of persons acquiring HIV through mother-to-child transmission and health-care exposures, including blood transfusions [1]. Data on MSM in Africa are limited largely because of stigmatization and criminalization of the practice in some parts of the continent. However, several studies have demonstrated higher rates of HIV in persons identifying as MSM compared to the general population [2]. Asia has the second highest burden of HIV disease among continents after Africa. Rising HIV incidence in this continent, particularly in central Asia and Eastern Europe, is recognized in persons who inject drugs [3]. Intense stigma against these populations has limited the public health response to the epidemic and has resulted in a low uptake of testing and ART among persons with HIV [1]. In South and Central America, HIV epidemics have occurred among MSM, transgender women, and commercial sex workers. These risk factors are also present in the Caribbean, where nearly 90% of new infections in 2017 occurred in just four countries: Cuba, the Dominican Republic, Jamaica, and Haiti [3].

Several studies from North America and Western Europe have noted that HIV prevalence among resettled refugees vary based on their country of origin, reaching up to 6% of some cohorts [4–8]. In particular, refugees from sub-Saharan Africa are at high risk of living with HIV. A study evaluating the prevalence of HIV among refugees resettling in Minnesota between 2000 and 2007 found that approximately 1% of their cohort were living with HIV, of whom the vast majority originated from sub-Saharan Africa [9]. In their study, refugees with HIV were at high risk of other infectious diseases, including opportunistic infections and chronic viral hepatitis.

HIV: Screening and Evaluation

HIV Travel Restriction

Stigma against people with HIV has been pervasive since HIV was first identified more than 35 years ago. In the first decade of the epidemic in the United States, ignorance about the nature of the disease combined with political and economic climates that were hostile to refugees [10]. From 1987 until 2010, a travel restriction was implemented against all foreigners living with HIV entering the United States with the charge that HIV was a “communicable disease of public health significance,” despite substantial public outcry and formal opposition from international bodies, including the Joint UN Programme on HIV/AIDS. Immigration policies that restrict entry on the basis of HIV status or that require HIV testing have no scientific merit or public health justification.

Prior to 2010, a limited number of refugees with HIV were resettled in the United States after obtaining a waiver (Class A waiver) prior to resettlement. Since the elimination of the HIV travel restriction in 2010, predeparture HIV testing is no longer required for refugees coming to the United States. Therefore, all refugees should undergo HIV screening at the time of resettlement, consistent with recommendations from the CDC and the US Preventative Services Task Force to screen all persons in the United States 13 years of age and older [11, 12]. This is especially necessary in refugees given their heightened risk factors for HIV exposure and acquisition prior to resettlement.

Screening Tests

Screening for HIV is conducted by an FDA-approved HIV-1 p24 antigen/HIV-1/HIV-2 antibody immunoassay. Specimens that are reactive on this antigen/antibody combination immunoassay will undergo follow-up testing to confirm the diagnosis with an assay that differentiates HIV-1 from HIV-2, the latter of which is prevalent in West Africa [13]. This screening algorithm effectively diagnoses HIV at least 14–20 days after acquisition with a specificity of 99.8% (Fig. 9.1) [13].

Acute HIV infection is a possible cause of discordance between the initial immunoassay and the differentiation test. Specimens that are reactive on the initial assay and either indeterminate or nonreactive on the follow-up differentiation assay should be tested with an HIV-1 nucleic acid application test (NAAT); a positive HIV-1 NAAT confirms acute HIV-1 infection. Acute HIV should be considered, in particular, among patients with mononucleosis symptoms; fever, fatigue, pharyngitis, rash, and headache are the most commonly reported symptoms. In addition to the screening test described above, patients with suspected acute HIV infection should undergo immediate testing by HIV NAAT as it has greater sensitivity for early infection. Repeating the HIV NAAT at least 2 weeks after an initially negative

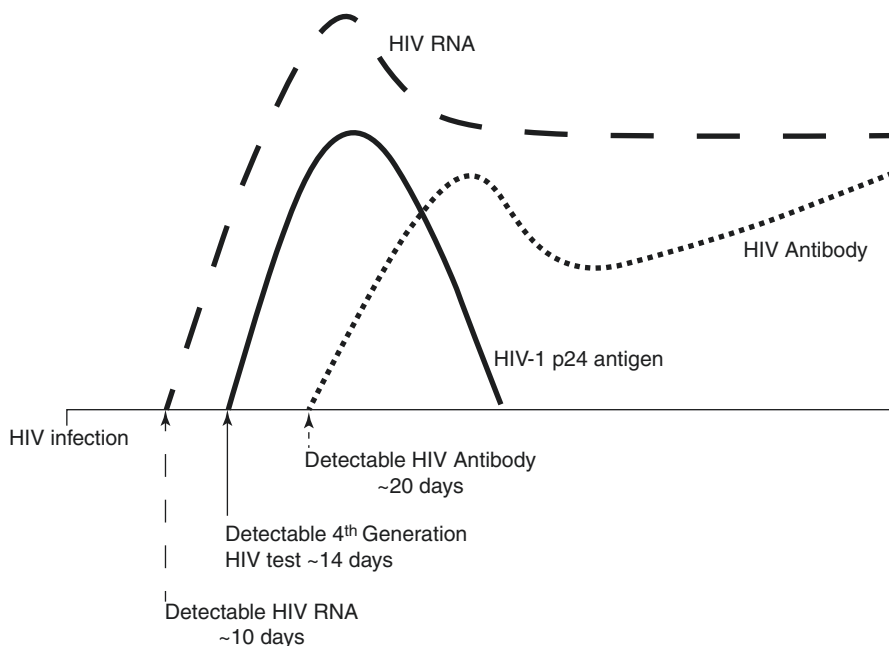


Fig. 9.1 Diagnostic testing for HIV after infection, based on Delaney et al. *Clin Infect Dis.* 2017 [14]

screen is recommended for patients with a recent exposure or high-risk activity. This is because all HIV tests have an “eclipse period” of negative results between the time of infection and the time when the test can reliably detect the presence of infection (Fig. 9.1) [14].

Preventive Counseling

For people who test negative for HIV, screening should be taken as an opportunity for culturally sensitive counseling on HIV prevention and risk modification. People at increased risk of HIV acquisition, including men who engage in sexual activity with other men, transgender women, persons who use intravenous drugs, or persons who are in a sero-discordant relationship, should be counseled on pre-exposure prophylaxis (PrEP), described in further detail below. For people diagnosed with HIV, dedicated and confidential counseling is required to explain the diagnosis and next steps in management. Refugees, like the general population, may harbor misconceptions or hold stigmatizing beliefs against persons with HIV. Misunderstanding of HIV diagnosis and inconsistent engagement in care remain too common. Persons with HIV should also be counseled to disclose this diagnosis to sexual partners and expedite partner screening.

Management of Patients with HIV

Initial evaluation of the person with HIV should start with a detailed history and physical exam. Refugees may be unwilling or unable to specify a risk factor for acquisition, particularly if the transmission occurred during a period of trauma or violence. History should instead be focused on evaluating symptoms and a full review of systems, which may indicate the presence of associated coinfections. Dermatologic and mucosal exam may reveal lesions suggestive of herpes simplex virus, herpes zoster, molluscum contagiosum, eosinophilic pustular folliculitis, or oropharyngeal candidiasis. Advanced HIV infection is associated with a higher risk of Kaposi sarcoma, caused by HHV-8 infection.

Baseline laboratory testing in HIV overlaps with other parts of the recommended screening evaluation for newly resettled refugees, such as a complete blood count with differential, complete metabolic panel, urinalysis, pregnancy testing for women of childbearing age, testing for latent or active tuberculosis, serologic screening for vaccine-preventable diseases, and testing for other sexually transmitted infections. In addition, people with HIV should be evaluated with an HIV NAAT, CD4 test to determine the extent of immunosuppression and possible need for antimicrobial prophylaxis, and HIV genotype to evaluate transmitted resistance.

Resettled refugees who are known to be living with HIV may require repeating the above evaluations. At minimum, they should undergo repeat HIV testing as a confirmatory measure, as well as complete blood count, complete metabolic panel, HIV NAAT, CD4, and screening for associated infections. Refugees who have previously had inconsistent engagement with care or adherence to ART may benefit from genotype testing to identify drug resistance prior to reinitiation of ART. All adults with HIV should be screened with a lipid profile and hemoglobin A1C, even when lacking traditional cardiovascular risk factors. People with HIV who smoke should be intensively counseled on smoking cessation as they are at greater risk for cardiovascular disease and malignancy.

Nearly all people with HIV, including those with acute HIV infection or are asymptomatic with normal CD4 counts, should immediately start ART [15]. A notable exception is any patient with a specific opportunistic infection who is at risk of developing the immune reconstitution inflammatory syndrome. ART with the goal of viral suppression improves nearly all clinical outcomes for patients with HIV and reduces the risk of transmission of the virus [16]. Initial selection of ART involves consideration of drug safety, tolerability, pill burden, and costs. A thorough discussion of ART selection is beyond the scope of this chapter, but further reading is available from guidelines by the Department of Health and Human Services (DHHS) and the International Antiviral Society-USA (IAS-USA) on ART initiation [15, 17]. In practice, refugees diagnosed with HIV should be referred to a local HIV specialist for ART initiation and continued care. Choice of ART in refugees can especially be influenced by other medical considerations, including pregnancy and mental health disorders. Specialty consultation is recommended in these circumstances.

HIV-2 Infection

Some refugees may be at risk for HIV-2, particularly if they have spent time in West Africa and countries with historical or economic ties to West Africa, such as former Portuguese colonies (e.g., Angola, Mozambique, and Brazil). The prevalence of HIV-2 appears to be declining in many of these countries, and the majority of diagnosed HIV cases in these regions remain HIV-1 [18]. The modes of transmission are the same for both types of HIV, but HIV-2 is thought to have a lower infectivity and a slower progression to AIDS compared to HIV-1 [18]. People diagnosed with HIV-2 infection should have specialty consultation for treatment initiation and monitoring.

Other Sexually Transmitted Infections: Overview

Global burden of sexually transmitted infections (STIs) varies by region and risk factors. Many STIs are asymptomatic, so regions with limited surveillance programs often underestimate prevalence. Data on the prevalence of STIs among refugees is limited, although European studies report a similar rate of STIs among foreign-born migrants and the general population in a variety of settings [19, 20].

In refugees, acquisition of STIs can occur at any point prior to, during, or after the migration process. Poverty, sexual violence, abuse, and exploitation all increase the risk of STIs among refugees. Predeparture STI screening and counseling are often limited, and refugees are frequently reluctant to volunteer sexual exposures or symptoms that may prompt further questioning or examination. The United States currently mandates predeparture screening for syphilis and gonorrhea, which remain on the list of “communicable diseases of public health significance”; refugees who screen positive for either of these are treated prior to resettlement. As of 2016, chancroid, lymphogranuloma venereum, and granuloma inguinale were removed from this list [21].

Evaluation for STIs in refugees must begin with recognition of the extent to which sexual violence, torture, and exploitation may have been experienced. Providers should approach every refugee under the assumption that they have such a history. Health-care workers must be deliberate in creating an atmosphere that promotes the healing, safety, and empowerment of victims of trauma. While assurance of trust and confidentiality is essential in all patient interactions, it is particularly important when obtaining a sexual history from a refugee who may have experienced trauma. Sensitive questions and examination maneuvers should be carefully introduced, and patients should feel empowered to request different providers or to defer parts or all of the sexual evaluation to later times.

The bedrock of the STI evaluation is the sexual history. A common pitfall in taking the sexual history is to fail to obtain enough specificity, such as the number and sex of sexual partners and the body parts involved in sexual exposures.

This information helps guide STI testing. Review of systems should emphasize lesions in the skin or mucosa, as well as genital and rectal discharge and pain. Physical examination includes palpation for enlarged lymph nodes, particularly in the inguinal region, as well as rashes on the skin, including palms and soles of the feet.

Syphilis

Syphilis is a globally prevalent infection caused by *Treponema pallidum*. Untreated syphilis can cause wide-ranging systemic effects, including skin, gastrointestinal, cardiac, and neurologic disorders. Congenital syphilis can cause fetal or infant demise in almost half of cases, as well as neurologic deficits and other deformities for those who survive. The estimated rate of syphilis among refugees is 373 cases per 100,000 persons, based on a study that analyzed all US-bound refugees who were diagnosed in the predeparture screening exam from 2009 to 2013 [22]. In that study, independent risk factors for syphilis diagnosis included male sex and living in non-camp settings (usually urban centers) prior to departure. Regions with the highest age-adjusted rates of syphilis were Africa, particularly East Africa, and Southeast Asia.

Screening and Diagnosis in Refugees

Despite a historical recognition of the clinical importance of syphilis, diagnosis of this disease remains difficult. Although the United States requires overseas syphilis screening with treatment of confirmed cases for all adults prior to immigration, adult refugees without clear evidence of overseas syphilis screening should undergo laboratory screening in the domestic exam. Syphilis is not routinely cultured in clinical care, so diagnosis rests on the combination of two broad categories of tests: treponemal and non-treponemal testing. Treponemal tests detect antibodies to proteins of the bacteria *Treponema pallidum* and include the hemagglutination assay, the *T. pallidum* particle agglutination (TPPA), and the fluorescent treponemal antibody absorbed (FTA-ABS) test. Once positive, a treponemal test often remains positive for life. Non-treponemal testing are indirect tests for syphilis and are able to detect disease activity. These include the rapid plasma reagin (RPR) and the Venereal Disease Research Laboratory (VDRL). Prior syphilis testing algorithms began with a non-treponemal test followed by confirmatory treponemal testing. However, many laboratories in the United States have moved to a “reverse screening” algorithm that begins with treponemal testing, which are usually automated and provide an accurate test of exposure [23]. Positive tests in patients with no prior history of syphilis exposure should be followed by a non-treponemal test to measure disease activity. In people with a positive treponemal test followed by a negative

non-treponemal test, the CDC recommends a second treponemal test (preferably one based on different antigens than the original test), which, if positive, can indicate late latent infection or previously treated infection. If negative, and clinical probability is low, treatment may not be necessary.

In foreign-born persons, positive syphilis screening can indicate prior infection with related treponemal pathogens such as pinta, yaws, and endemic (non-venereal) syphilis. These syndromes are caused by bacteria endemic in many parts of the world, specifically *Treponema carateum* and *Treponema pallidum* subspecies *pertenue* and *endemicum*. Even though these infections are not sexually transmitted, their recommended management is the same as syphilis, and distinguishing between treponemal subspecies is not possible with routine testing. It is our practice to counsel patients without high-risk sexual exposures that a positive treponemal test may possibly represent prior exposure to one of these other pathogens. However, since this is not known for certain, treatment is still often pursued since it is generally well tolerated and addresses the risk of future syphilis complications.

Treatment

The mainstay of treatment is parenteral penicillin G. The formulation, dosage, and duration depend on the stage of disease and the allergy profile of the patient. Special considerations must be paid to cases of syphilis that are categorized as late latent, tertiary, or of unknown duration as the recommended duration is longer in these patients. Patients with ocular or neurologic syphilis require intravenous aqueous penicillin G. Patients with early syphilis who receive treatment may experience the Jarisch-Herxheimer reaction—an acute febrile reaction with headache, myalgias, and other constitutional symptoms. Such reactions are often self-limited and can be managed with antipyretic therapy, though patients may need repeat evaluation if the symptoms worsen.

Clinical follow-up is necessary to ensure resolution of symptoms, and quantitative non-treponemal testing (RPR or VDRL) should be repeated at 6, 12, and 24 months following treatment. In patients whose titer starts at >1:32 but fails to decline fourfold after 12 months of therapy, CSF evaluation is recommended to consider treatment for neurosyphilis with intravenous aqueous penicillin G. If CSF evaluation is negative, retreatment for latent syphilis should be administered [23].

People with HIV often have risk factors for infection with syphilis. Diagnostic and treatment decisions are the same for persons with and without HIV. However, people with HIV have a higher risk of neurologic complications with syphilis and have a higher rate of treatment failure, so clinical follow-up is especially important in this population [24].

Neisseria Gonorrhea and Chlamydia Trachomatis

Gonorrhea and chlamydia are the two most commonly reported STIs in the United States. Their incidence has been rapidly increasing in recent years, a trend that has also been observed in other parts of the world [23]. Of particular global concern is the rise of drug-resistant strains of *Neisseria gonorrhea* [25]. Asymptomatic infection with both pathogens is common. When symptomatic, they can present as urethritis, vaginal or urethral discharge, and pelvic or abdominal pain. Women with untreated disease are at risk for pelvic inflammatory disease, ectopic pregnancy, infertility, and strictures. Rarer complications include reactive arthritis, dermatitis and arthritis from disseminated gonococcal infection, and Fitz-Hugh-Curtis syndrome (inflammation of the hepatic capsule from pelvic inflammatory disease).

Screening and Diagnosis in Refugees

Studies on the specific prevalence of gonorrhea and chlamydia infection in refugees are limited. An evaluation of refugees completing STI screening examinations in Minnesota from 2003 to 2010 noted an overall prevalence of chlamydia and gonorrhea of 0.6% and 0.2%, respectively [26]. Screening for these two infections, particularly in women, remains recommended despite their relatively low prevalence because the initial refugee health encounter may be one of few opportunities in which some otherwise healthy persons will be agreeable to a battery of medical tests. The most commonly performed method of asymptomatic screening is by nucleic acid amplification. Sensitivity and specificity in men are high when testing “first catch” urine samples. In women, sensitivity of testing vaginal swabs is superior to that of urine samples, and self-collected specimens in the general population are as accurate as those collected by a clinician [27]. However, some foreign-born women may not feel comfortable self-collecting a vaginal swab, so additional counseling may be warranted, and patient preferences should be taken into account. Patients with sexual exposures involving the mouth and anus should additionally undergo screening with pharyngeal and rectal swabs for nucleic acid testing.

Treatment

The treatment of uncomplicated gonococcal infection is ceftriaxone 250 mg intramuscular in a single dose and azithromycin 1 gm oral in a single dose [23]. The use of dual agents for treatment is based on the rationale that combination therapy with agents of different mechanisms of action may slow the emergence of resistance of *N. gonorrhea* to cephalosporins. Treatment of chlamydial infections is typically

azithromycin 1 gm oral in a single dose or doxycycline 100 mg oral twice daily for 7 days. Both regimens are equally effective, although clinicians and patients may prefer a single dose of azithromycin for convenience and adherence.

Other Sexually Transmitted Infections

Several sexually transmitted infections are endemic in countries from which refugees originate, which may not be as familiar to clinicians practicing in North America and Western Europe. Microbiologic testing is often limited for these infections. Diagnosis relies on maintaining a high index of clinical suspicion, especially if culture-based methods of testing are negative.

Chancroid is a syndrome characterized by painful, superficial genital ulcers with regional lymphadenopathy that develop 3–10 days following sexual exposure. This is caused by *Haemophilus ducreyi*, which is more prevalent in Asia, Africa, and the Caribbean than in the United States. Chancroid can cause rectal pain, ulcers, and bleeding in those with a history of anal receptive intercourse. Treatment consists of azithromycin 1 gm oral in a single dose or ceftriaxone 250 mg intramuscular in a single dose.

Lymphogranuloma venereum (LGV) is a syndrome that presents as painless ulcer at the site of infection and often progresses to symptomatic rectal or vaginal inflammation. LGV is caused by *C. trachomatis* serovars L1, L2, and L3 and is prevalent in Africa, Asia, and South America. The incubation period ranges from 3 to 30 days. Diagnostic testing consists of swabbing the ulcerative lesion for nucleic acid amplification (preferred) or culture of *Chlamydia trachomatis*. Treatment of LGV is doxycycline 100 mg oral twice daily for 21 days. Patients should be closely followed until symptoms completely resolve.

Granuloma inguinale, or donovanosis, is characterized by superficial ulcers covering a large area of skin with a “beefy red” granulomatous base. This syndrome is caused by *Klebsiella granulomatis* and is commonly reported in India, Guyana, New Guinea, and southern Africa. The incubation period for this infection can be weeks to months. Treatment consists of azithromycin 1 g oral once per week (or 500 mg daily) until all lesions have completely healed and at a minimum of 3 weeks. Patients require close follow-up as granuloma inguinale is known to cause relapsing ulcerations.

STI Prevention and HIV Pre-exposure Prophylaxis

The CDC recommends STI prevention counseling for all sexually active people. Pre-exposure vaccination is an effective means of reducing transmission of human papillomavirus (HPV), as well as viral hepatitis A and B. The two-dose HPV vaccination series is currently recommended for all females from 9 to 26 years old and

males up to 21 years old. In particular, clinicians should consider vaccinating male patients between 21 and 26 years old who are MSM, transgender, or immunocompromised [28].

In the United States and around the world, a variety of misconceptions remain regarding transmission of HIV and STIs. Abstinence or use of barrier protection during sex (e.g., condoms) is effective at reducing transmission of many STIs, including HIV. HIV cannot be transmitted by casual contact, saliva, and sweat or by sharing toilets, food, or drinks. People with HIV who consistently take ART and maintain an undetectable viral load cannot transmit the virus to others [16].

Antiviral pre-exposure prophylaxis (PrEP) should be offered to people without HIV but at increased risk of acquisition, including persons who are MSM, are transgender, inject drugs, or are in sero-discordant sexual relationships [12]. The efficacy of PrEP was demonstrated in several large, randomized, placebo-controlled trials with the use of once daily fixed dose combinations of tenofovir disoproxil fumarate and emtricitabine resulting in a more than 50% decreased risk of transmission compared to placebo [29, 30]. People treated with PrEP must be evaluated for HIV and viral hepatitis B before starting therapy and should be tested for HIV and other STIs every 3 months after PrEP initiation [31].

Summary

Many refugees have risk factors for HIV and STI acquisition, including a higher risk of exposure to sexual violence and unregulated health-care procedures than the general population. All refugees should be screened for HIV. Local epidemiology from the country of origin and countries of transit should be used along with individual patient risk factors, clinical signs, and symptoms to guide additional STI screening. Diagnostic testing and treatment recommendations for HIV and STIs in refugees are the same as non-refugee persons. Culturally sensitive counseling on HIV and STI prevention, testing, and treatment is of particular importance in refugee populations because some risk factors for infection, such as exposure to high-risk sexual contacts, may persist after resettlement.

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Part III
Primary Care

Chapter 10

Chronic Disease Management



Bryan Brown, Astha K. Ramaiya, and Peter Cronkright

Introduction

The medical literature regarding refugee populations in developed countries has predominantly focused on infectious communicable diseases and mental health; however, with changing lifestyles in developing countries and the process of acculturation within developed countries, refugees are facing an increased risk of non-communicable diseases by either having a preexisting condition or acquiring it once in a developed country [1–5]. In 2018, the majority of the 33,400 refugees to the United States came from Democratic Republic of Congo, Myanmar, Ukraine, and Bhutan. The United States also resettled 71,455 people from Afghanistan and Iraq under the Special Immigrant Visa (SIV) program (see Chap. 1 for details on migrant and SIV numbers).

On one hand, the healthy migrant effect postulates “first-generation immigrants to the United States are healthier than people of similar ethnic backgrounds who were born in this country” [6]. A 2019 study in Canada assessed if this applies to refugees and found that the healthy immigrant effect was present to a lesser degree and only in refugee women without serious chronic conditions such as heart disease, diabetes, or cancer [7]. Thus, for refugees as a whole, the healthy migrant effect is unlikely to be a useful assumption.

With a global rise in noncommunicable diseases, refugees are increasingly presenting with high rates of chronic illness. Among refugees tested within the first

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8 months of arrival in one region of the United States, 51.1% had some chronic disease and 18.4% had two or more [5]. Such prevalence rates support the need to address chronic conditions in refugees, but the literature historically has provided little guidance for care of common noncommunicable disorders in refugees. The objective of this chapter is to (1) synthesize the medical literature so as to offer clinicians an evidence-based approach for the care of common noncommunicable disorders in adult refugees and (2) cite the systems challenges that caregivers face when providing chronic care to refugees.

Noncommunicable Systemic Diseases

Obesity, Hypertension, and Diabetes

Health providers may have a misconception about the relative burden of infectious versus noninfectious diseases among resettled refugees. Additionally, given the high rates of micronutrient deficiencies in refugees, it may seem counterintuitive that obesity, hypertension, and diabetes should be commonly encountered. This pattern is conferred by both the significant prevalence of these conditions in refugees prior to arrival and subsequent effects of resettlement and introduction of American lifestyle risk factors.

Despite a cohort of mostly young adults, over half of adult refugees received at an academic US clinic were overweight (31.3%) or obese (23.3%, BMI > 29), 13% were noted to be hypertensive, and 4.4% had diabetes [2]. Refugees emigrating from Europe and Central Asia are at significant risk of obesity, hypertension, coronary artery disease, and anemia [2]. Iraqi refugees resettled in San Diego County from 2007 to 2009 were found to have adult obesity prevalence (24.6%) which rivaled that in the United States [1].

Importantly, when screening or monitoring for diabetes, providers should remember two additional caveats in comparison to domestic-born patients. First, refugees may come from parts of the world with higher prevalence of red blood cell disorders (see “Anemia” below) and may thus have spuriously elevated or reduced hemoglobin A1c readings, depending on the particular disorder and the assay used [8]. Cross-referencing with fasting blood sugars should be utilized when in doubt. Second, phenotypes of adult-onset diabetes may differ globally compared to locally. For example, it has been observed that adult-onset diabetes in sub-Saharan Africa likely represents a distinct phenotype of unclear cause, with normal to low BMI, age of onset less than 50 years, and a blunted insulin secretion response [9]. This may have implications for diagnosis and treatment.

In addition to the significant burden of obesity, hypertension, and diabetes at the time of arrival, refugees may be at elevated risk of rapidly acquiring these comorbidities after resettlement. A study out of Buffalo, New York, showed that each additional year a refugee had lived in the United States contributed an odds ratio of

1.23 and 1.18 for men and women, respectively, to their likelihood of overweight or obesity at that time. However, weight gain after resettlement disproportionately affected certain groups, with Middle Eastern and Eastern European women actually reducing their rates of obesity [10]. A 2016 study found a hazard ratio of 2.08 for refugees to develop diabetes compared to American controls, even after correcting for age, gender, education, income, insurance, and baseline BMI [11]. This risk is likely multifactorial, relating to level of education; the contrast of food abundance and variety with near-starvation or restricted access previously; relative increase in sweets, sweetened beverages, fruit juices, and fast food after resettlement; and the desire of the adolescents in the refugee population to acculturate to the food behaviors of their peers [12]. In one study, only 13% of the cohort’s resettled refugees felt they ate generally healthy diets in the United States [13]. A study of Bhutanese refugees in Ohio found that 19%, 7%, and 6.1% of Bhutanese refugees self-reported hypertension, asthma, and diabetes, respectively, despite the CDC’s report that the rates of these diseases in this ethnic group are less than 3% prior to immigration [14]. See Fig. 10.1 for a representation of factors contributing to chronic disease in refugees.

Systems of care delivery for these common conditions should be adapted to meet the needs of the refugee, as described in the final section of this chapter. In follow-up medical visits after arrival, providers should trend blood pressure and BMI and have a low threshold to begin counseling about the risks of American diets and prevention of these acquired metabolic diseases.

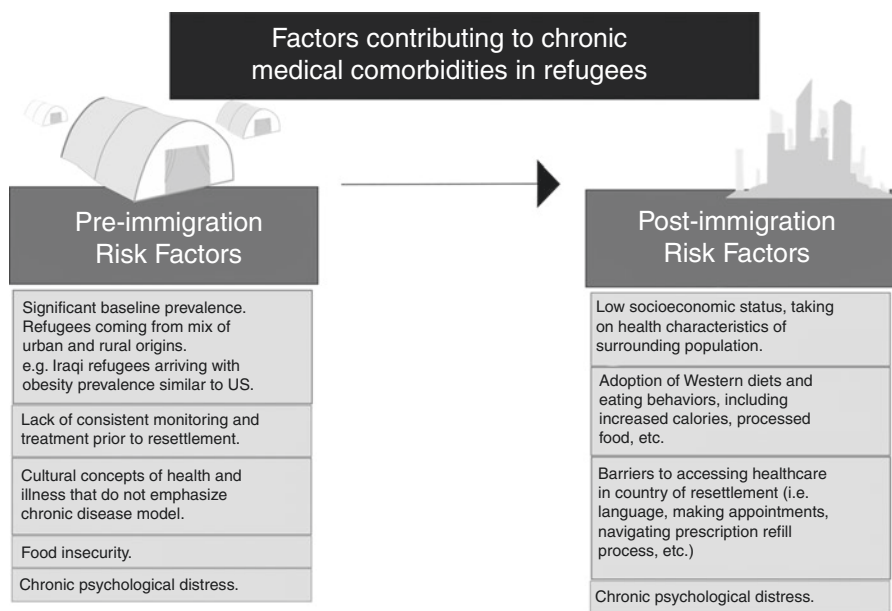


Fig. 10.1 Chronic disease burden among resettled refugees is impacted by a variety of influences before, during, and after migration and resettlement

Chronic Lung Disease

Tobacco use and its related illnesses are common in refugees, especially among men [5]; refugees are also at risk of COPD and lung cancer from exposure to biomass smoke. Labeled “Hut Lung,” the COPD is attributed to inhalation of biomass fuel smoke and fine sand dust from grinding maize or wheat on soft stone. Biomass fuels, such as crop residues, animal dung, and wood, are used for cooking and heat in much of the world, especially Southeast Asia and Africa. Women who cook are at greatest risk, but children and elderly who remain indoors are also at risk from exposure. There is clear evidence of spirometry changes in women who cook regularly with biomass fuels [15]. Questions have also been raised about the interplay of childhood lung infections with vulnerable lungs in children exposed to this smoke regularly. Either way, pulmonary symptoms suggestive of obstructive lung disease should prompt history gathering around biomass fuels prior to resettlement, particularly in nonsmoking women.

Refugees with previously treated pulmonary tuberculosis are at risk for chronic lung disease from residual damage, which is often symptomatic with chronic productive cough. Pulmonary function testing up to 16 years after treatment has noted obstructive as well as restrictive disease in the majority of patients, and the degree of abnormality correlates with the extent of disease on the original chest radiograph [16].

Infectious etiologies of pulmonary disease other than TB should also be considered depending on the region of origin. This includes *Strongyloides*-related lung infiltrates or refractory asthma, as well as schistosomiasis as a cause of WHO Group 1 pulmonary hypertension (see also Chap. 6).

Rheumatic Heart Disease

Rheumatic heart disease (RHD) is a disease of poverty and remains a major cause of cardiovascular disease in the regions of refugee emigration. For adults less than age 40 in endemic countries, RHD is the leading cause of heart disease and often results in heart failure [17]. Chronic, progressive valvular disease typically develops years after one or more episodes of acute rheumatic fever. A prospective 5-year study of children with latent rheumatic heart disease noted progression to persistent, progressive valvular disease in more than half of the subjects [18]. Echocardiography has been considered as a routine screening tool in endemic areas; however, organizations including the WHO note the frequent mismatch between the areas of prevalence and echocardiography access [19]. Clinicians should assess all refugees for suggestive symptoms, a heart murmur, and have a low threshold for performing an echocardiogram. Clinicians should also be aware that the absence of murmur does not eliminate the possibility of RHD, and echocardiography has significantly superior sensitivity and specificity for RHD compared to auscultation for murmurs [19].

The mitral valve is involved in almost all cases of RHD, with or without concomitant involvement of other valves. Mitral regurgitation (MR) is typically the earliest valvulopathy and is the most common RHD valvulopathy in children. In patients over age 30 with recurrent exposure to rheumatic fever, mitral stenosis (MS) or combined stenosis and regurgitation become most common. Mitral stenosis presents clinically as a diastolic murmur and should be monitored periodically according to established guidelines. Symptomatic mitral stenosis requires immediate surgical intervention. Symptoms are mainly exertional dyspnea and poor effort intolerance as the stenosis progresses. Patients with mitral stenosis are at risk for atrial fibrillation due to atrial dilatation and the fibrotic changes from the prior carditis. Among acquired valvular heart disease, mitral stenosis has the highest risk for systemic thromboembolism, and the risk increases markedly following the onset of atrial fibrillation. More than half of mitral stenosis mortality is related to heart failure, followed by systemic emboli, and thirdly by pulmonary embolism [19]. All patients with mitral stenosis should be assessed for warfarin anticoagulation prophylaxis. Chronic mitral regurgitation, meanwhile, can be well tolerated for years, and surgery is influenced by the following factors: patient's age, the severity of symptoms, coexistent coronary artery disease, preoperative left ventricular function, the type of surgery (repair vs. replacement), and the presence of atrial fibrillation [19].

Many patients with RHD develop mixed mitral and aortic involvement, with stenosis and/or regurgitation at either site. Aortic involvement without mitral valve is rare. Mixed aortic valve disease is challenging and should be managed by a cardiologist if available.

Chronic, severe aortic regurgitation (AR) often remains asymptomatic; it leads to volume and pressure overload, and the rate of progression to systolic dysfunction is <6% per year. Most patients can be safely monitored with regular exams and periodic echocardiograms and referred for surgery when left ventricular dysfunction occurs [19]. Importantly, patients with MS may mask the severity of their AR and left ventricular dysfunction since a stenotic mitral valve prevents excessive filling of the left ventricle. Pharmacotherapy in AR can include nifedipine, ACE inhibitors, and hydralazine, but details of this management are beyond the scope of this text [19].

Aortic stenosis usually needs surgical treatment soon after symptoms of dyspnea and exercise intolerance occur. Survival rapidly declines after onset of symptoms, to 5 years, 3 years, and 2 years for angina, syncope, and heart failure, respectively. Regarding pharmacotherapy, diuretics are used to treat heart failure and overload symptoms; however, extra care must be taken to avoid excessive reduction of preload. Similarly, beta-blockade and ACE inhibitors must be used with greater caution and titrated up slowly if used [19].

In addition to aortic stenosis and regurgitation, rheumatic heart disease can also lead to tricuspid regurgitation, which is also categorically found with concomitant mitral disease [19].

Rheumatic heart disease should be assessed periodically (at least once per year) with echocardiography. There are defined echocardiographic criteria for surgical assessment that are independent of the patient's symptoms [19].

Coronary Artery Disease and Heart Failure

Refugees may have an increased risk of non-rheumatic as well as rheumatic heart disease. One population-based study in Sweden showed an increased risk of congestive heart failure compared to Swedish-born patients for immigrants coming from Africa (not specified into countries or regions), Iraq, Lebanon, and parts of Eastern Europe [20].

Between 1990 and 2010, coronary artery disease replaced lower respiratory infection as the leading cause of death in the Middle East [21]. The INTERHEART study showed that patients from the Middle East have the lowest median age of first acute myocardial infarction (age 51) of the nine regions studied, which was 12 years less than that of Western Europe. However, only 5% of study subjects from the Middle East had been prescribed lipid-lowering agents prior to presentation [22].

More research is certainly needed on heart disease in refugees, both at the time of resettlement and in the years following. In the meantime, given the available evidence for heart disease prevalence in regions of refugee origin such as the Middle East, combined with evidence of increased cardiac risk factor incidence after resettlement (i.e., obesity, hypertension, and diabetes), the authors recommend vigilant screening and primary prevention strategies. There are no refugee-specific guideline recommendations for cardiac risk reduction at this time.

Renal Disease

To date, data on kidney disease rates in refugee populations are scant. A study that accessed health-care referral data for 85% of the Afghan refugees in Iran noted kidney disease to be the third most common reason for specialist referral after gastrointestinal and respiratory disease, with ESRD as the most common reason within that group [23]. While it has been challenging to calculate the true prevalence of chronic kidney disease (CKD) and ESRD, this chapter demonstrates the high prevalence for CKD risk factors, like diabetes, hypertension, hyperlipidemia, low socioeconomic status, and poor health-care access. Providers should be vigilant in risk-based screening for CKD and proteinuria in select populations in accordance with general population guidelines. No refugee-specific recommendations exist, though one article proposes recommendations for Muslim refugees receiving renal replacement therapy for end-stage renal disease (ESRD) [24]. For example, the diet safe for dialysis patients must be negotiated in the context of culture-specific dietary preferences. Food from the Middle East tends to be higher in potassium and calcium. Providers also should be aware of fasting periods in religious observance that might affect kidney disease and its treatment.

In addition to impaired renal function, nephrolithiasis may be another key renal pathology to consider in refugees, particularly in those from the Middle East. Nephrolithiasis rates have been observed to be higher in Gulf States such as Kuwait,

United Arab Emirates, and Saudi Arabia. In these regions, postulated mechanisms have included (1) oxalate intake three times higher than that of Western countries and calcium intake lower than that of Western countries, combining to cause enteric hyperoxaluria, (2) low urine volumes from hot desert climate, (3) acidified urine from diets rich in animal protein, and (4) uricosuria from high-purine diets. Data on nephrolithiasis rates among refugees upon arrival or in the time following resettlement are lacking, though the author has observed locally a high incidence of nephrolithiasis in refugees within the first few years of resettlement, particularly from Iraq (Brown B et al. Unpublished Data, 2017). Nephrolithiasis can mimic acute or chronic back pain and may warrant a higher pretest probability in refugees with back pain, though more data is needed. Nephrolithiasis should also be considered on the differential for unexplained urinalysis findings such as hematuria or pyuria. The presence of crystals in the urine can occasionally give clues about the type of stone, but crystalluria is not sensitive or specific enough as a diagnostic test for nephrolithiasis.

Dyspepsia

Dyspepsia is defined as a chronic or recurrent pain or discomfort centered in the upper abdomen and is a common complaint in the care of adults. The discomfort is a subjective negative feeling that does not translate well verbally, especially for refugees, and often results in a broad differential diagnosis and risks excessive testing. The discomfort can include symptoms of early satiety, upper abdominal fullness, bloating, or nausea [25]. The predominance of epigastric discomfort helps to distinguish dyspepsia from gastroesophageal reflux (GERD) and suggests a broader differential. The predominant complaints in GERD are typically heartburn and acid regurgitation. Heartburn is classically a burning sensation in the retrosternal area, often experienced postprandially. However, presenting symptoms attributed to GERD range widely and include nocturnal heartburn, chronic cough, and non-burning atypical chest pain. The authors recommend taking a dietary history, as individual refugees may integrate or avoid Western diets to varying degrees, which may be relevant to emergent gastrointestinal (GI) symptoms after resettlement.

Consistent with guidelines for non-refugee patients, dyspepsia in those over 55 years of age or with coexisting alarm features should undergo prompt esophago-gastroduodenoscopy (EGD). Upper GI malignancy is rare in younger patients without alarm features—unintended weight loss, persistent vomiting, progressive dysphagia, odynophagia, unexplained anemia or iron deficiency, hematemesis, palpable abdominal mass or lymphadenopathy, family history of upper gastrointestinal cancer, previous gastric surgery, or jaundice [25]. One exception is the consideration of endoscopy in a refugee from regions where gastric or esophageal cancer is common. Upper GI cancers are more common in developing countries, and the incidence is greatest in Eastern Asia, Eastern Europe, and South America [26].

Strongyloidiasis should be considered in dyspeptic refugees whose symptoms do not respond to proton pump inhibitor (PPI) treatment.

For dyspeptic patients without alarm concerns, the care plan depends on their likelihood of *Helicobacter pylori* (*H. pylori*) infection. *H. pylori* prevalence varies by ethnicity, geographic region, socioeconomic class, and age. Transmission typically occurs during childhood through an oral-oral or a fecal-oral route, and *H. pylori* is most common in impoverished areas with overcrowding and poor sanitation. A moderate to high prevalence of *H. pylori* infection is considered to be $\geq 10\%$ of the population.

Geographic origin and prior living conditions place refugees in a high-prevalence group for *H. pylori* infection. A cross-sectional study of refugees in Australia showed 21% prevalence, and *H. pylori* rates were higher in African and Asian refugees compared to Middle Eastern refugees [27]. Other studies done in Asia and Africa have shown even higher prevalence rates. Studies of resettled pediatric refugees have also shown high prevalence of *H. pylori*, and infected children were found to have lower body mass indices [28, 29].

Current guidelines recommend a test-and-treat approach for patients with uninvestigated dyspepsia and those from regions of high gastric cancer prevalence [30]. Urea breath testing, if available, and stool antigen assay are the tests of choice. Serologic testing of IgG antibodies using ELISA can be used for those coming from regions with high background prevalence, as false positives are less likely; however, the test needs local validation to be effective and does not distinguish between active infection and persistent positivity after eradication. Hence, the authors recommend serologic testing only when other tests are not readily available. Concomitant bismuth or proton pump inhibitor therapy reduces sensitivity of both the urea breath tests and the stool antigen assay and should be stopped at least 2 weeks before testing. For those refugees who test positive and are treated, eradication of infection should be confirmed with urea breath testing or a stool antigen assay. Testing should be done after at least 4 weeks of treatment, and again, proton pump inhibitor therapy should be stopped for at least 2 weeks before repeat testing [31].

Anemia

Globally, anemia affects 24.8% of the population, and refugees emigrate from countries where anemia is of moderate to severe public health significance [32]. The prevalence is highest in preschool age children (47%) and lowest in men (12.7%) [32]. While nonpregnant women have a lower prevalence than preschool age children by percentage (41.8% vs. 30.2%, respectively), they comprise the largest absolute number of affected individuals [32]. Regionally, the highest proportion of affected children and women are in Africa (47.5–67.6%), while the greatest number affected are in Southeast Asia [32]. Studies report prevalence rates of 17–22% of anemia in refugees resettling in developed countries, and the rate is higher in female and older refugees [33].

Iron Deficiency Anemia

Iron deficiency is the most common nutritional deficiency [32]. The WHO estimates that 50% of the cases of anemia are due to iron deficiency, but the proportion may vary among population groups and regions. Among newly arrived immigrants and refugees, prevalence of IDA has been reported at greater than 20% and 15% for children and women, respectively [34]. The main risk factors for iron deficiency anemia (IDA) are a low intake of iron, poor absorption of iron from diets high in phytate or phenolic compounds, and periods of life when iron requirements are especially high (i.e., growth and pregnancy). Heavy blood loss as a result of menstruation or parasite infections such as hookworms, ascaris, and schistosomiasis can result in IDA [32]. Refugee women may arrive with menorrhagia and other gynecological symptoms, so providers must ask about menstruation, particularly when anemia is observed. In addition to iron, refugees are at risk for other micronutrient deficiencies that cause anemia, including vitamins A and B12, folate, riboflavin, and copper [32]. Vitamin B12 deficiency alone causes a macrocytic anemia while coexisting iron and vitamin deficiency results in a normocytic anemia picture.

Anemia of Chronic Disease

Anemia of chronic disease or inflammation (ACD) should also be considered. Acute and chronic infections, and noninfectious inflammatory states, can result in ACD, which typically is a normochromic-normocytic anemia but can progress to a microcytic anemia. If laboratory evaluation reveals anemia of chronic disease, clinicians should consider HIV, other chronic infections, chronic kidney disease, and chronic liver disease. Other causes of normocytic anemia are acute blood loss, early nutritional deficiencies, bone marrow disorders, and dimorphic coexisting anemias (vitamin B12 and iron deficiency).

Red Blood Cell Disorders

Endemic malaria regions are also geographic regions of high prevalence for genetic red blood cell (RBC) disorders and should be considered as a cause of anemia in such patients. Genetic defects of the RBC result in disorders of hemoglobin quantity (thalassemias) or quality (hemoglobinopathies), RBC enzyme dysfunction (G6PD deficiency), or membrane defects, which are described below. Table 10.1 summarizes anemia etiologies to consider in refugees.

Thalassemias

The thalassemic syndromes are autosomal recessively inherited disorders that cause a decrease in β - or α -hemoglobin chain production. Thalassemia trait often presents as mild microcytic anemia with a mean corpuscular volume (MCV) that is reduced

Table 10.1 Lists of the anemias prevalent in different regions

Disorder	Mechanism	Unique signs/symptoms	CBC/smear Findings	Region of high prevalence
Iron Deficiency Anemia	Lack of iron stores to produce hemoglobin	Look for associated menorrhagia, occult GI/GU bleeding; if dyspepsia consider H. pylori; consider risk for other nutritional deficiencies.	Microcytic anemia	Global
Anemia of Chronic Disease	Chronic inflammation leads to lack of mobilization of body's iron stores	Look for associated chronic illnesses, occult infections, cachexia or anorexia, renal dysfunction.	Microcytic or normocytic anemia	Global
Sickle Cell Disease/Trait	Hemoglobin mutation causing misshapen RBCs	Disease: Recurrent vaso-occlusive crises; chronic pain; stroke; acute chest syndrome; etc. Trait: mild anemia and urinary concentration defects but vaso-occlusive crises rare.	Moderate to severe chronic hemolytic anemia	Sub-Saharan Africa most common; also parts of India, Arabian Peninsula
Hemoglobin E Disease	Point mutation in hemoglobin beta chain gene	Homozygotes have mild hemolytic anemia and mild splenomegaly. Note - can also cause severe disease when combined with a beta thalassemia allele.	Mild microcytic anemia. RBC number normal or increased	Southeast Asia, Northeast India, Sri Lanka, Bangladesh
Beta Thalassemia-major	Homozygote for mutated beta chain of Hb	Profound anemia and growth retardation; Splenomegaly; gallstones; also hemochromatosis - like syndrome from increased GI iron absorption; Usually present within first two years of life.	Severe microcytic anemia (transfusion dependent)	Africa, Mediterranean, India, Southeast Asia
Beta Thalassemia-Trait or Minor	Heterozygote for mutated beta chain of Hb	Mild anemia. Still some risk for iron overload.	Mild microcytic anemia with a mean corpuscular volume (MCV) that is reduced out of proportion to the degree of anemia	Africa, Mediterranean, India, Southeast Asia

Table 10.1 (continued)

Disorder	Mechanism	Unique signs/symptoms	CBC/smear Findings	Region of high prevalence
Alpha Thalassemia	Mutations in alpha globin chain of Hb	Varies - can be asymptomatic, or: jaundice, fatigue, gallstones, hepatosplenomegaly.	Normal, mild or moderate Microcytic anemia; may have target cells/Heinz Bodies	Africa and Asia
G6PD Deficiency	Loss of enzyme to combat oxidative stress	Neonatal jaundice; infection, food, or drug-induced hemolysis.	Episodes of hemolysis; Normal between episodes	Africa, Mediterranean, India, Southeast Asia, and Central and South America World's most common enzyme deficiency
Southeast Asian Ovalocytosis	Mutations in the RBC cytoskeleton, affecting shape and fragility	Often asymptomatic.	Usually mild normochromic-normocytic anemia with elliptical or oval-shaped RBCs	Southeast Asia
Common Hereditary Elliptocytosis		Range from asymptomatic to life-threatening hemolytic anemia.		North Africa
Acute Malaria	Infection with malaria parasite	Hemolytic anemia; splenomegaly.	Hemolysis during episode	Central and South America, Subsaharan Africa, South and Southeast Asia

out of proportion to the degree of anemia. Thalassemia major can cause profound anemia and growth retardation. Thalassemias are common in Africa, the Mediterranean, India, and Southeast Asia. Thalassemia trait without coexisting iron deficiency should not be prescribed iron. Patients of reproductive age should consider genetic counseling [35].

Other Hemoglobinopathies

Other hemoglobinopathies to consider in refugees are sickle cell disease and hemoglobin E. Heterozygous and homozygous HbE exist primarily in Southeast Asia. HgbE produces a mild microcytic anemia and should be identified to avoid unnecessary iron treatment. Sickle cell anemia is characterized by moderate to severe chronic hemolytic anemia with recurrent painful vaso-occlusive crises. Sickle cell trait presents as mild anemia and urinary concentration defects but does not cause vaso-occlusive crisis unless severe hypoxia occurs [36].

RBC Enzyme Defects

Glucose-6-phosphate dehydrogenase (G6PD) is important for the production of glutathione, which prevents oxidative damage to the RBC. G6PD deficiency can cause four clinical hemolytic conditions: neonatal jaundice and infection-, food-, and drug-induced hemolysis. G6PD deficiency has the same geographic distribution as the thalassemias, plus Central and South America. It is important to make note of G6PD in the patient's medical record so that certain medications may be avoided, including key classes of antibiotics (including quinolones, sulfamethoxazole, and nitrofurantoin), antimycobacterials, and antimalarials [37].

Hemolytic anemia can also be caused by acute malaria infection. Malaria infects the RBC and is endemic in many of the regions from which refugees come.

RBC Membrane Defects

Hereditary elliptocytosis is an RBC membrane defect seen in northern Africa, and hereditary ovalocytosis occurs in Southeast Asians. Elliptocytosis and ovalocytosis are thought to confer resistance to malaria. Both produce a mild normochromic-normocytic anemia with elliptical or oval-shaped RBCs on peripheral blood smear [38].

Nutritional Deficiencies

Iron Deficiency

See the Section "[Anemia](#)" above.

Vitamin D Deficiency

Vitamin D deficiency is highly prevalent in refugees resettling from various regions of the world due to nutritional deficiencies and/or reduced skin absorption of the sun's ultraviolet radiation (UVR). Risk factors for reduced UVR light exposure are age < 5 years, female gender from cultures/religions that cover extensively in clothing, and decreased daylight exposure [39, 40]. Considering geographic origin, immigrants from the Middle East and Eastern Africa have the highest prevalence of vitamin D insufficiency (25–50 nmol/L) or deficiency (<25 nmol/L). Karen refugee females also have a high prevalence of vitamin D deficiency and hypocalcemia [40]. Insufficiency or deficiency was less prevalent (33%) among immigrants/refugees from Eastern Europe in comparison to other immigrant/refugee populations; this rate was comparable to the US-born population prevalence of 35%. Such findings suggest that vitamin D deficiency should be considered in resettled refugees and warrants testing 25-OH vitamin D levels in all resettled refugees [41, 42]. Some experts recommend vitamin D replacement in all newly resettled refugees due to the high prevalence of deficiency in this population [43].

Vitamin D deficiency is diagnosed and treated similar to domestic patients. Most adults are asymptomatic, but if severe and prolonged, it can cause reduced intestinal absorption of calcium and phosphorus absorption resulting in secondary hyperparathyroidism and ultimately osteomalacia. Patients may present with bone pain of the lower spine, pelvis, and lower extremities and proximal muscle weakness [44]. Vitamin D supplementation in those with deficiency may improve muscle strength, bone pain, and bone density in 3–6 months. Serum 25-hydroxyvitamin D should be measured approximately 3–4 months after initiating therapy. Vitamin D toxicity can cause hypercalciuria and hypercalcemia, and so dosing should be adjusted based on 25-OH levels [44]. Commonly used forms of vitamin D are vitamin D2 (ergocalciferol) and D3 (cholecalciferol). Dosing depends on severity of deficiency, but one common approach is to treat with 50,000 IU of vitamin D2 or D3 orally once per week for at least 6–8 weeks and then daily 800 IU dosing. In addition to vitamin D supplementation, all patients should maintain a calcium intake of at least 1000 mg per day [44].

Vitamin B12 Deficiency

Vitamin B12 deficiency is also highly prevalent in some refugee populations. Vitamin B12 deficiency, defined as serum concentration < 203 pg/ml, was found in 64% of overseas specimens collected during medical examinations in Nepal and in about 27% of resettled Bhutanese refugees to the United States [45]. Vitamin B12 deficiency is also prevalent in refugees from Iran and Afghanistan [46]. The most likely cause of deficiency in the refugee population is thought to be inadequate dietary intake. Approximately 5–10 years are required for body stores of vitamin B12 to become depleted. Low B12 can also be caused by poor absorption due to chronic gastritis from *H. pylori* [47, 48]. Tropical sprue, in which an inflammatory response to a gut pathogen leads to chronic inflammation and villous atrophy in the intestines, is another cause of vitamin B12 deficiency in immigrants from India, Southeast Asia, and the Caribbean [49]. Noninfectious, inflammatory malabsorption etiologies such as celiac and inflammatory bowel disease should also be considered in the right clinical context [50].

If the vitamin B12 level is low normal and patient is asymptomatic, elevated methylmalonic acid level can help to confirm the diagnosis of vitamin B12 deficiency. A complete blood count (CBC) is not a sufficient screening test since hematologic manifestations are a late clinical sign of vitamin B12 deficiency. Furthermore, there is curiously an inverse correlation between degree of megaloblastic anemia and neurologic symptom severity among patients with vitamin B12 deficiency [50].

The Centers for Disease Control (CDC) recommends that all Bhutanese refugees be given nutrition advice and receive supplemental vitamin B12 upon arrival in the United States.

Refugees with vitamin B12 deficiency are treated like any other patient with deficiency. Oral vitamin B12 appears to be as effective and safe as intramuscular treatment for short-term hematologic and neurologic responses [51]. The route of

administration depends on patient preference and cost of supplements. Typically, supplementation is started at a 1000 mcg dose, and the frequency depends on severity of deficiency. If deficiency is dietary, supplementation is needed until adequate nutrition is ensured.

Other Deficiencies

Iodine Deficiency

The actual prevalence of iodine deficiency in refugees is unknown. Globally, the inland mountainous soil of the Andes, Alps, and Himalayas are iodine deficient. Coastal regions are typically rich in iodine food sources like fish, kelp, and vegetables grown in iodine-sufficient soil. However, sea salt naturally contains only a small amount of iodine, and iodine deficiency also occurs in coastal populations lacking dietary sources of iodine.

Clinical disorders resulting from iodine deficiency include thyroid goiter, hypothyroidism, and cognitive impairment. Severe deficiency during pregnancy is associated with congenital hypothyroidism and increased neonatal and infant mortality. Mild deficiency during childhood is associated with goiter formation and learning disabilities.

Goiter patients from regions of endemic iodine deficiency are at risk for iodine-induced hyperthyroidism following salt iodization. Increased incidences of both hypothyroidism and hyperthyroidism have also been observed after the introduction of iodized salt in various countries [52]. Clinicians should be aware that refugees with thyroid nodules may develop hyperthyroidism when iodine is supplemented.

Vitamin B3 Deficiency

Deficiency of vitamin B3, or niacin, causes a clinical syndrome of pellagra. The classic mnemonic for this condition is “the four D’s: dermatitis, diarrhea, dementia, and death.” While “dementia” is convenient to the mnemonic, the neurologic manifestations actually range from mild (headache, irritability, poor concentration, and apathy) to severe (confusion, memory loss, and psychosis). Skin manifestations include pruritus and skin desquamation. The desquamation typically starts on the dorsal hands as an erythema and spreads symmetrically on sun-exposed surfaces and bilateral extremities. Involvement of the face and neck leads to the classic sign “Casal necklace.” It is important to note that the majority of patients lack the classic triad of neurologic, dermatologic, and gastrointestinal involvement. The main risk factor in refugees is malnutrition. Other risk factors are malabsorption, chronic alcohol use, medications, and carcinoid syndrome.

Vitamin B1 Deficiency

Deficiency of vitamin B₁, or thiamine, causes two main syndromes. Wernicke's encephalopathy is the most common manifestation of thiamine deficiency in adults and presents with ataxia, abnormal eye movements, and dementia. In particular, the dementia has not only an amnesic component but also the hallmark confabulation in which patients confidently make false statements as if true. Beriberi, meanwhile, occurs in the pediatric population and is further subdivided into "wet" (heart failure with dyspnea and cyanosis as well as edema) and "dry" (ataxia, aphonia, a pseudo-meningitic form with bulging fontanelle, muscle twitching, nystagmus, and convulsions) beriberi. There are other less common manifestations, including "tropical ataxic neuropathy," a syndrome in West Africa with sensory polyneuropathy, gait ataxia, bilateral optic atrophy, and deafness. There is evidence for a linkage to places where cassava is the primary energy source, and thiamine therapeutic challenge seems to improve the condition. There are additional rare syndromes found around Africa for which thiamine deficiency has also been implicated but with limited data.

Zinc Deficiency

Zinc deficiency is found around the world, primarily in places where the diet is entirely plant based. Zinc is an important cofactor in numerous enzymatic processes and thus affects development in utero and in children and adolescents. Signs and symptoms include immune deficiency, growth retardation, male hypogonadism, and impaired appetite and dysgeusia [53].

Vitamin A Deficiency

Vitamin A deficiency is rare in the industrialized world but common worldwide. It is the most common cause of blindness in children, with ocular manifestations ranging from impaired night vision to total blindness. Given vitamin A's importance to epithelial differentiation, symptoms of deficiency include ocular effects such as vision impairment, dry eye, corneal perforation, as well as dry skin and hair, impaired bone growth, and impaired immune response.

Vitamin C Deficiency

Vitamin C deficiency creates the clinical syndrome known as scurvy. It occurs classically in diets devoid of fruits and vegetables and is also seen in alcoholism and chronic general malnutrition. Outbreaks of scurvy have been reported in refugee camps in Somalia, Ethiopia, Sudan, Kenya, and Nepal. Signs and symptoms include results of collagen dysfunction, including ecchymoses, petechiae, bleeding gums, as well as less specific findings such as weakness, malaise, arthralgias, depression, and neuropathy [54].

Skin Problems

Skin Findings Due to Traditional Healing/Rituals

Clinicians providing care for refugees will likely encounter skin findings of scarification, coining, and cupping. The practice of traditional healing occurs worldwide, and traditional healers in Africa provide the first line of care for 70% of the population [55].

Scarification is a common skin finding in refugees from sub-Saharan Africa and is a result of small incisions into the skin. According to traditional healers, the illness leaves the body through bleeding (see Fig. 10.2). Sometimes, the incision is used as a depot for herbal medicines. Scarification can also result from participation in cultural ceremonies and be unrelated to illness [55].

Coining is practiced in Southeast Asian communities and is used for a wide variety of illnesses. Coins are rubbed on the skin of the chest and back in symmetrical bands, creating linear petechiae and ecchymosis that may last several days [56] (see Fig. 10.3).

Fig. 10.2 Scarification



Fig. 10.3 Coining. (Image appears with permission from Visualdx © Logical Images, Inc.)



Fig. 10.4 Cupping

Gua Sha is a traditional healing technique widely used by practitioners of traditional East Asian medicine worldwide. The term *Gua Sha* is Chinese: *gua* means to scrape or scratch, and *sha* means sand or red, raised, millet-size rash. Different cultures have different terms for this practice, and refugees will not likely be familiar with the English terms of coining, scraping, and spooning.

Cupping is a traditional Chinese practice used primarily to treat respiratory conditions, pain disorders, and gastrointestinal complaints. Traditionally, “dry” cupping involves burning a flammable substance inside a cup, which removes oxygen and creates a vacuum. The cup is turned upside down on the skin as the substance burns, typically on the back or abdomen. The vacuum draws the skin upward, and the skin vasodilates, creating a circular bruise. In “wet” cupping, a suction pump is used rather than a flammable substance, and the skin is punctured to stimulate surface blood flow [56, 57] (see Fig. 10.4).

Melasma

Melasma is a common condition in darker-skinned members of the refugee population [58]. Chloasma faciei or “the mask of pregnancy” is a form of melasma associated with pregnancy that presents as patchy facial hyperpigmentation thought to be due to stimulation of melanocytes by estrogen and progesterone in sun-exposed skin [58]. Melasma is a common condition, occurring in up to 75% of Asian and Hispanic women [58]. It may also occur with hormonal contraception. Predisposing factors are genetics, sun exposure, and thyroid disorders [58–60].

Absolute recognition of its features is necessary since treatment of melasma can involve teratogenic agents, as with retinoic acid and hydroquinone [58]. Expensive treatment, such as light therapy, may also be an unnecessary financial burden. Pregnancy should immediately be ruled out prior to any treatment of melasma, given its association with chloasma [58]. Typically, the condition resolves spontaneously within months after delivery, although in some women, hyperpigmented skin changes persist.

Pruritus

Itching is a common complaint in primary care [61]. Dry skin (xerosis) is one of the most common causes of itch in adult patients. Changes of the environment and daily routine often expose the refugees to conditions that promote xerosis, such as lower humidity, frequent bathing, and excessive use of defatting soaps. The approach to pruritus includes determining if the itch is caused by a primary skin condition or due to secondary skin changes of itching and subsequent scratching. As with any patient, diffuse itching in the absence of an underlying skin condition requires evaluation for a systemic cause.

Atopic and allergic contact dermatitis are common causes of itching. In the refugee patient with itch, infectious conditions should also be considered as possible causes. Chapter 6 describes some ectoparasites that can cause pruritus. Bedbug infestations may be seen in resettled refugees as many will live in substandard conditions during and in the initial months to years after migration. Superficial fungal skin infections may also cause pruritus. Dermatophytes such as *tinea versicolor* thrive in warm humid conditions and may be seen in migrants from tropical regions.

Treatment of pruritus is most successful when an underlying cause is identified. Skin care includes regular use of emollients. Histamine-mediated itching often responds to antihistamines, avoidance of hot water bathing, and use of cool compresses. Topical corticosteroids are the standard treatment for eczematous dermatitis. Refugees who struggle with both itch and insomnia or anxiety/depression may benefit from doxepin or mirtazapine nightly [62].

Dental Disorders

Dental disorders in refugees arise due to limited accessibility to dental services in the native and host country [63]. Within refugee camps, individuals may be subject to violent physical trauma resulting in complications of oral health [63, 64]. Changes in diet after resettlement and poor nutrition within refugee camps increase the chance of developing cavities [64]. Cost of services, lack of coverage by insurance, communication barriers, and traditional beliefs about oral health contribute toward poor oral health in refugees [65, 66].

The prevalence of dental disorders among refugees ranges from 22% to 51%. This rate is variable between settings when compared to national rates [64, 67]; a review showed that refugees had higher burden of oral disease compared to even the least privileged groups in the host country [65]. Prevalence of tooth decay is significantly higher among refugees [68]. Frequently observed dental disorders include dental caries, periodontal diseases, malocclusion, orofacial trauma, missing and fractured teeth, and oral cancer [64].

Dental disorders differ by geographic regions and ethnicities. Africans show lower oral disorders due to traditional diets low in sugar, dental practices using

miswak stick brushes, and genetic protection [64, 67, 69, 70]. Use of betel nut, which is common among Asians from the Indian subcontinent, Far East, and Pacific Rim, may cause tooth breakage. The habit causes oral submucous fibrosis, leading to diseases of the oral cavity, pharynx, and upper digestive tract. Betel nut in the Indian subcontinent is typically combined with sugar, tobacco, and betel leaf leading to tooth staining, hypersensitivity reaction, oral submucous fibrosis, and oral cancer [71].

Among refugees entering host countries, the prevalence of visiting dental services at least once since resettlement ranged from 23% to 85% over a period of 5–10 years [63, 70, 72]. This range is varied among different settings based on dental insurance coverage. In the United States, there is limited coverage of dental services under Medicaid [70, 72]. One study looking at the impact of resettlement factors on use of preventive dental care services found acculturation to be more predictive of use rather than language proficiency and health literacy [66]. Dental care should target refugees because of low health literacy, low prior exposure to dental care, and the increased influence of American food habits after resettlement [66].

Children of refugees can undergo a school-based oral care program which incorporates education, screening, and counseling [73]. Refugees who use betel nut should be encouraged to stop and be screened for oral cancers. Treatments to prevent progression of oral submucous fibrosis will need specialist dental interventions with potential need for surgery in severe cases [71].

Individual- and System-Level Challenges and Recommendations

Delivering longitudinal care to refugees is challenging, and the unique barriers to care are well defined [4, 5]. Screening agencies should link refugees to primary care in order to ensure continuum of care in the management of chronic conditions. Linking to primary care will aid in monitoring the health of this population and ease the integration process into the health-care system [2].

Refugees arriving in developed countries face individual- and system-level challenges [5]. Monitoring chronic disorders requires identification of factors that influence their health-care utilization [4]. Their experience with the health-care system is often shaped by their region of origin, duration of resettlement, language, expectations, functional status, and beliefs [2, 5, 74–76]. Language competency has been documented as a barrier to seeking health care. Language barriers also lead to discontinuation of treatment and/or use of traditional medicine [74, 75]. Many refugees are not able to communicate their symptoms and conditions to physicians and only seek health care when they get the symptoms, delaying diagnosis and treatment [5, 77–80].

Health-care delivery systems should consider the refugee patient's cultural differences, beliefs, and expectations of care. A study on female Somali Bantus

demonstrated that women expected to be seen by a female physician to effectively communicate their health status [75]. Refugees have differing perceptions to treatment based on their financial situation and cultural beliefs. Their belief may contradict physician recommendations [3, 80]. Cultural beliefs sometimes support their use of traditional medicine to overcome their health condition. A study among Hmong Shaman noted that 90% of individuals reported using traditional shamanic treatment for their illness, and most only took the allopathic prescribed medicine when they felt sick [74]. Chapter 2 reviews recommendations for effective cross-cultural communication between refugee patients and providers.

Management of chronic disorders is often lifelong, yet many refugees stop taking medicines when the prescription is completed unless they are reminded by their physician or pharmacist [75]. Detrimental outcomes have been linked to refugee's belief that illnesses are short term and curable. Such beliefs are associated with random use of medications, limited knowledge about associated complications, and use of traditional medicine [3, 74]. A comprehensive multidisciplinary system including pharmacists and health navigators in the treatment team is ideal.

Refugees are typically provided with health insurance when they enter the country. However, if resettled in the United States, Refugee Medical Assistance, which provides benefits usually similar to Medicaid benefits in that state, is provided only for 8 months [81]. Transitioning off of this plan to either employer insurance or Medicaid puts the refugee at risk of a lapse in insurance if they cannot easily navigate this complex system. Lack of health insurance in individuals with chronic disorders is associated with increased health complications and decreased likelihood of seeking health service [4].

Refugees with behavioral and psychological consequences of trauma often do not seek or are not offered psychiatric care. War-wounded refugees with chronic pain are much more likely to seek general health care than psychiatric care [79]. However, in spite of a high prevalence of mental and emotional problems compared to the local population, acknowledgment and discussion of the trauma with a primary care provider is low [78].

The chronic care model has been tested as an intervention within the general population for chronic disease management [82], and the authors recommend it as a best practice model for refugee care. The model outlines that a multifaceted approach is warranted between patients, providers, and organization. Patients require physical, psychological, and social support, which can be achieved through patient-centered education, to facilitate self-management of the illness [82]. Providers require continuing medical education and feedback from expert-based teams for clinical and behavioral management [82]. Organizational changes include changing personnel role, facilitating accurate and timely information systems, linkage with the community and multidisciplinary teams, and innovative scheduling and organization of visits [82]. This model has shown moderate evidence of being beneficial in terms of health-care utilization, health-care costs, health behavior of patients, perceived quality of care, and satisfaction of patients and caregivers [83]. Although there is no documented data on the chronic care model within refugees, it

is applicable within this population. In order to monitor trends within countries, there is a need to collect timely data and collaborate to understand which programs are working and are cost-effective [1].

Summary

Chronic, noncommunicable diseases represent a vital yet underappreciated domain of refugee health care. The burden of disease is influenced by a constellation of factors concerning the host, the region of origin, and the country of resettlement. Treating these conditions often requires providers to mobilize multiple resources to leverage team-based care, overcoming barriers related to differing concepts of health and illness, different language, and lack of familiarity with the health-care system.

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Chapter 11

Chronic Pain



Bryan Brown, Astha K. Ramaiya, and Peter Cronkright

Introduction

A common concern of newly resettled refugees is chronic pain, but very little is known about the long-term course [1]. Clinicians currently assess and provide care based on the knowledge and management strategies of chronic pain for the general population. Among various populations, the frequency of chronic pain ranges from 7% to 40% [2]. Refugees will likely express their symptoms to providers in unfamiliar ways, in the setting of language barrier, cultural idioms, and different concepts of pain and disease. We recommend that providers review fundamental concepts of pain, including the broadness of its definition, in order to avoid the shortcomings familiar to western pain-related illness scripts.

Cultural Relativism in Pain

The conceptual models of pain vary both historically and culturally between being emotional and physical. Today, in mainstream medicine, pain is often considered as “real” or “not real,” which is a perception the authors discourage. Rather, clinicians should approach pain as an expression of a complex and delicately balanced system. When functioning effectively, our pain system promotes life by avoiding harmful

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stimuli; however, an imbalance of its functions may result in chronic pain disorders and diminish life experiences [3].

Clinicians of mainstream medicine typically gather patient information using a framework that classifies the pain according to its origin physiologically. The efficacy of this approach is often limited by the physiologic type; the limits of language and verbal skills required to verbalize pain, especially for the refugee; and the meaning of the pain, which draws in the patient's experiences, beliefs, culture, and coping mechanisms [3]. For example, Somali language uses the word *xanuun* which may refer to pain or illness [4].

A Western Framework for Pain Etiology

Pain is classified as either nociceptive or neuropathic. Nociceptive pain is divided into somatic or visceral. Neuropathic pain arises from abnormal neural activity secondary to disease, injury, or dysfunction of the nervous system [5]. The physiologic process of feeling pain (nociception) requires three conditions: an organ to receive an outside impression, a connecting passageway, and an organizational center to transform the sensation into a conscious perception [3].

Somatic pain is triggered by injury to a joint, muscle, tendon, bone, or skin. The injury activates the peripheral sensory neurons (nociceptors). Most experiences of acute pain are somatic, and the pain serves as an alarm that is localized in time and place. The most intense component has a fast onset after injury and typically dampens long before the injury leaves. The process of tissue disruption and inflammation causes the release of chemical mediators, triggering electrical signals in sensory nerves that carry the pain message to the brain. This response is often an intense, rapid, protective alarm that triggers a cascade of inflammatory mediators. The injured area is left with a persistent hypersensitivity that protects against trauma and promotes healing. Peripheral inflammation induces a sensitized state in which weak pain stimuli cause an exaggerated pain response (hyperalgesia). It also may trigger pain from a stimulus that is normally non-noxious (allodynia), such as light touch to a burned finger or movement of an inflamed joint. Recovery limits the repetitive firing of nociceptors, resulting in the intense but brief character of acute somatic pain [3].

The viscera do not have the same protective signals of tissue damage as connective tissues. Pain from the viscera is typically diffuse and poorly localized. While somatic fibers are precisely mapped in the spinal cord and brain, viscerosensory afferent fibers overlap each other and converge at several levels within the central nervous system. Visceral injury often results in a high degree of visceral-autonomic integration, and chronic visceral pain is often expressed as a functional disorder. Such disorders may feature extra-organ involvement, such as sexual dysfunction, sleep disruption, fatigue, and ill-defined pain. Irritable bowel syndrome is a common example of a functional visceral disorder [3].

The neuropathic pain category refers to primary injury to the nervous system; it is painful, independent from any somatic or visceral nociception. A classic example of neuropathic pain is shingles. Meanwhile, injury to the central nervous system, as

in stroke or spinal cord injury, results in an inability to sense touch while having painful pressure ulcers or bladder infections. In these cases, the nervous system does not transmit touch signals, yet pain fiber regeneration can cause pain when the location is reinjured or inflamed [3]. Important causes of neuropathic pain in recently resettled refugees include peripheral neuropathies from vitamin deficiencies (such as vitamin B12) and medication toxicity, specifically in the setting of isoniazid therapy for latent tuberculosis.

Chronification and Central Sensitization of Pain

Under normal circumstances, we adapt to our pain rather than reliving it. The healing process resets the pain alarms to standby and normalizes the stimuli response. Chronic pain results when the balance is not reestablished. It is an illness, occurring in many diseases. Chronic pain is pain that has lost its purpose [3].

Many physiologic factors contribute to the chronic pain state. The peripheral nerve fibers become more responsive to a given stimulus, firing at lower thresholds and generating more signals for a given stimulus. When a painful stimulus persists, the pain receptors may lower their firing threshold, and a bidirectional neuro-inflammatory cycle can develop. Finally, the central nervous system (CNS) undergoes physiochemical changes when pain signals are continuously transmitted from the spinal cord, resulting in hypersensitivity to pain, increased pain with repeated stimuli (wind-up), and resistance to pain-relieving inputs. The CNS response risks embedding a “painful memory” that no longer requires a peripheral pain trigger [3]. See Fig. 11.1. Importantly, traumatic events in refugees are associated with chronic pain, and multiple mechanisms have been proposed to describe the shared pathology of post-traumatic stress disorder (PTSD) and mood disorder as well as chronic pain in these patients. Providers should consider the vulnerability of refugees to central sensitization and chronification of pain (Fig. 11.1), given physical traumas, prolonged lack of access to healthcare to correct physical conditions, and the intersecting influence of psychological trauma.

Recognizing that chronic pain may occur without a persistent peripheral stimulus, all pain is “real.” Historically, patients presenting with “unexplained” pain were labeled as having a somatization disorder. In general, somatization refers to a tendency to experience and communicate psychological or social distress in the form of somatic (i.e., physical) symptoms [6]. However, the term somatization has been used in several different ways and does little to clarify the realities and meaning of the symptoms [7].

The Total Pain Concept

The concept of Total Pain (Fig. 11.2) was first described by Cicely Saunders, the founder of modern-day hospice, and offers clinicians a window to recognize the refugees’ pain and suffering [8]. Implementing the Total Pain concept requires clinical skill. The clinician should strive to master the physical domain, be skilled in the

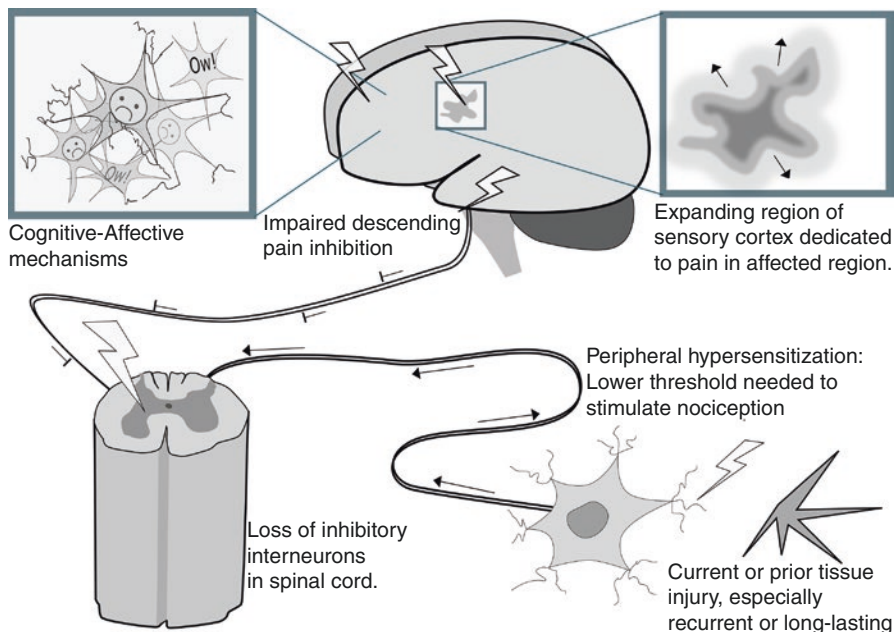
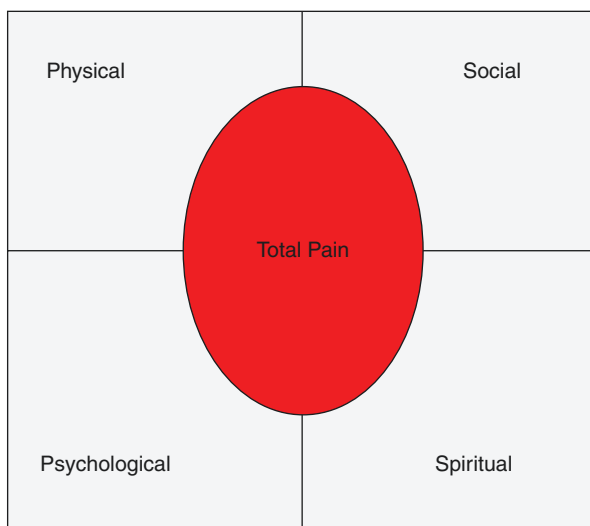


Fig. 11.1 Summary of pain chronification mechanisms

Fig. 11.2 The Total Pain model



psychological, and work with a team of consultants to address the social and spiritual domains. The authors recommend a modification of LEARN (Fig. 11.3), a model of multicultural communication adapted for chronic pain, to effectively practice the skills of the physical and psychological domains [9].

Fig. 11.3 LEARN, a model of multicultural communication [9]

L = Learn
 E = Examine (replaces Explain)
 A = Acknowledge
 R = Recommend
 N = Negotiate

Management of Chronic Pain

Learn and Examine

Practicing the behaviors of a modified LEARN model supports the assessment and management of chronic pain. The *Learn and Examine* portions of the mnemonic are performed during the clinician’s history and physical exam. Primary care providers should be skilled in recognizing worrisome diseases that may present as various chronic pain syndromes, be it chronic arthralgias, headache, or a fibromyalgia-like syndrome of diffuse pain.

The physician’s approach should include the imperative to rule out red flags on history and physical exam and judicious diagnostic testing. Identifying red flags differs from diagnosing by exclusion, which fosters “either-or,” “real or not real” thinking. In the example of low back pain (LBP), the physician must rule out malignancy, inflammatory/infectious diseases, or fractures. There are therefore red flags to consider in the history and physical exam, such as age of onset, history of cancer, unexplained weight loss, fever, incontinence, and so on. Identification of these red flags is the first step in guiding how aggressively to pursue diagnostic imaging and other interventions.

In addition to assessing for red flags, acquiring patient-centered information about the pain allows for the recognition of “yellow flags.” Yellow flags of pain consist of the patient’s excessive (1) negative thoughts expressed regarding their symptoms or (2) unreasonable fear and avoidance of physical activities. Such expressions suggest maladaptive pain coping behaviors and are predictive of acute pain becoming chronic [10, 11]. The following are examples of yellow flag expressions that lead the authors to recognize patient suffering: For a Sudanese single mother, “every corner of my body I have pain.” Pain for a Somali father of nine children was verbalized as “burning pain from head to toe.” The headache of an Iraqi male with TBI was characterized as “lost in myself since the explosion.”

While ruling out red flags sometimes requires close-ended, pointed questions, yellow flags are typically discovered using open-ended questions and patient-centered listening. Table 11.1 lists some examples of open-ended and close-ended questions.

A refugee patient’s cultural health model may lack the concept of psychological disease, and providers should screen for emotional distress as a routine aspect of managing chronic pain in refugees. Patients with PTSD, depression, and chronic anxiety disorders often present to the primary care office with somatic complaints [6]. Women with chronic pelvic pain are likely to report depression, anxiety, and

Table 11.1 Examples of questions evaluating pain

Examples of open-ended questions	Examples of close-ended questions
“Tell me more about the leg pain.”	“Does the pain radiate down your leg?”
“Start at the beginning and tell me all about the leg pain.”	“Did you twist the wrong way?”
“How does this pain affect your daily life?”	“Does it hurt more when you bend down?”
“What does the pain feel like?”	“Is it sharp pain?”

sleep disturbances, in addition to limitations in sexual activity and mobility [12]. Depression and anxiety are present in 30–50% of patients at the time of being diagnosed with fibromyalgia, and 30–70% of fibromyalgia patients meet criteria for irritable bowel syndrome and chronic fatigue syndrome, two other poorly understood somatic syndromes. Clinicians should avoid, if possible, being a diagnostic “splitter” of such patients into multiple subspecialty diagnoses [13]. Besides the mental health screening tools noted in Chap. 14 for refugee populations, the PRISM (Pictorial Representation of Illness and Self-Measure) tool has been validated for assessing noncancerous pain and PTSD in non-refugee patients [14]. The PRISM uses image-based activities and correlates with quality of life, pain catastrophizing, and pain intensity.

Acknowledge

Recognition of yellow flag expressions of pain opens the door for clinicians to acknowledge and address the refugee patient’s suffering. The following are examples of acknowledgement statements that the authors have used to build a trusting rapport: “it is clear that you have been suffering” or “it is clear that the pain has been running your life.” Once acknowledged, the clinician can direct the discussion toward identifying the patient’s worries, assessing coping skills, and recommending a care plan. This approach can be applied in a compassionate manner for various chronic pain complaints, be it headache, back pain, pelvic pain, or total body pain [15].

Recommend (Pharmacotherapy and Beyond)

The authors recommend a care plan based on the knowledge and management strategies of chronic pain for the general population. Historically, allopathic providers and patients alike have often been dissatisfied with the management of chronic pain syndromes. A review of treatment for the various chronic pain syndromes is beyond the scope of this chapter. Rather, the authors present a summary of the noninvasive management for low back pain (LBP), the most common pain complaint and one of

Table 11.2 Pain scale

Pain	Slight/small effect	Moderate effect	Large/substantial effect
0- to 100-point Visual Analogue Scale	5–10	>10–20	>20
0- to 10-point Numerical Rating Scale or equivalent	0.5–1.0	>1–2	>2

the most common reasons patients present to providers in the United States. Our summary is derived from a 2017 review of the effectiveness of noninvasive treatment options for chronic low back pain, according to the American College of Physicians Clinical Practice Guidelines (ACP Guidelines) [11]. The ACP Guidelines provide treatment guidance based on the efficacy, comparative effectiveness, and safety of noninvasive pharmacologic and nonpharmacologic treatments for chronic (>12 weeks) low back pain in primary care. The ACP Guidelines are based on two background evidence reviews [16, 17] and a systematic review sponsored by the Agency for Healthcare Research and Quality (AHRQ) [18]. Most studies measured the intervention’s effect on pain, and the magnitude of effect, based on mean between-group differences, is shown in Table 11.2. When interpreting study effects, it is important to realize that an intervention resulting in a decrease of 1–2 on the 0–10 scale or 10–20 on a 0–100 scale is considered a moderately effective intervention while clinically it may not provide significant pain relief.

Nonpharmacologic Treatment of Chronic LBP

Clinicians and patients should initially select nonpharmacologic treatment, given the limited benefit of pharmacologic treatments for chronic LBP. In practice, out-of-pocket cost is a limiting factor for the use of nonpharmacologic treatments for resettled refugees in the United States.

The ACP Guidelines reviewed the outcomes of pain or function for the manipulative and body-based practices of physical therapy, acupuncture, and spine manipulative therapy for chronic LBP. Moderate evidence supports the use of physical therapy and rehabilitation interventions for chronic LBP. Physical therapy reduces pain intensity and disability in the short term compared with nontreatment/wait-list controls. Exercise therapy compared to usual care improved post-treatment pain intensity and disability and long-term functioning. The ACP Guidelines concluded that there is good evidence of a small/slight benefit in pain and function outcomes from physical therapy of 6–8 weeks’ duration, typically lasting 3–12 months. The harms of physical therapy were poorly reported and consisted of muscle soreness and increased pain.

Acupuncture results in moderate short-term improvement (immediate to 12 weeks) for both acute and chronic LBP but not function. Spine manipulative

therapy provides a high-impact-velocity thrust at the synovial joint. It has been shown to provide a slight improvement for acute and chronic LBP if combined with exercises. Massage therapy for adults suffering from chronic LBP provides slight short-term improvement and decreases short-term disability when combined with therapeutic exercise and education. Superficial heat (heat wrap) is moderately effective for acute and subacute LBP, but there are no studies of its use for chronic LBP.

Tai chi offers slight improvement in pain-related outcomes versus wait-list or no tai chi. One trial found tai chi associated with lower pain intensity versus backward walking or jogging through 6 months. Tai chi has been studied in patients with fibromyalgia and osteoarthritis of the knees, as well as LBP, and provides slight benefit; but strength of evidence is low for pain relief, physical function, and psychological well-being.

Yoga is associated with lower pain intensity and better function versus exercise in most trials, though effects were small and differences were not always statistically significant. All yoga interventions included specific asanas (poses), pranayama (breathing), and relaxation, and many included meditation or mental focus practices. The most common specific yoga styles evaluated were Iyengar and Viniyoga. Most trials evaluated yoga classes lasting 75 minutes once weekly with recommended home practices of 30 minutes for 5–7 days per week. Trials generally reported starting out with simple or restorative yoga poses and progressing to more challenging poses.

Given the life adjustments required of the refugee, psychological therapies should be considered in refugees with chronic LBP. Psychological therapies, which included progressive relaxation, electromyography feedback, operant therapy, and cognitive behavioral therapy, showed small to moderate benefit. In general, trials compared one psychological therapy with another for chronic low back pain and found no differences among the different psychological therapies in pain or function. However, methodological shortcomings in most trials, small numbers of trials for each comparison, and variability in the psychological therapy interventions evaluated within comparisons precluded strong conclusions. Mindfulness-based stress reduction showed improvements in pain compared with usual care.

Multidisciplinary rehabilitation, also known as interdisciplinary rehabilitation, refers to a coordinated program with both physical and biopsychosocial treatment components and is provided by professionals from at least two different specialties (e.g., physical therapists, occupational therapists, psychologists, physicians, and/or complementary and alternative medicine). Multidisciplinary rehabilitation, versus usual care, was moderately effective in reducing pain and disability; but intensity of intervention did not seem to change its effectiveness [19].

There is no evidence that the Pilates method improves pain or functionality of adults with nonspecific chronic LBP [20].

Pharmacologic Treatment of Chronic LBP

Pharmacotherapy is of limited value for chronic low back pain and should be used thoughtfully and in combination with nonpharmacologic modalities. Of note, many regions of the world have pharmacies that provide liberal access to medications,

which in the United States require prescription and specific recommendation. Thus, providers may find that some refugee patients associate receiving a prescription with a successful visit. Refugees are often receptive to a trial of acetaminophen for pain, which is relatively safe when taken appropriately. However, the ACP Guidelines no longer recommend acetaminophen as an effective pharmacologic treatment for acute or chronic low back pain. As is often the case, providers must weigh the ease of prescribing a medication against the challenges faced by patients in navigating the healthcare system, appropriate use, limited effect, and risks of polypharmacy. Also, it is the authors' experience that refugees are often receptive to nonpharmacologic management if offered in an easily accessible manner.

For chronic low back pain (≥ 3 months), NSAIDs were associated with a slight improvement in pain from baseline to 12 weeks versus placebo. No one NSAID is more effective than the other. NSAIDs are associated with more side effects versus placebo, but serious harms were rare in trials up to 12 weeks' duration.

Muscle relaxants are moderately effective for acute LBP but have extremely insufficient evidence to determine effects for chronic low back pain. The side effects with muscle relaxants or narcotics are greater than NSAIDs.

The ACP Guidelines noted that the strength of evidence is insufficient to recommend use of several medications that are commonly prescribed for chronic radicular or non-radicular LBP. The antiseizure medications (gabapentin, pregabalin, topiramate) are of no proven benefit for either chronic radicular or non-radicular LBP. Selective serotonin reuptake inhibitors or tricyclic antidepressants are also no better than placebo, though their use may benefit concomitant mood disorders that may impact the patient's quality of life in the context of pain. Clinicians often prescribe a combination of analgesic medications with differing modes of action for chronic neuropathic pain, but evidence for combination pharmacotherapy is limited to diabetic peripheral neuropathy and post-herpetic neuralgia; also, safety and efficacy for greater than 6 weeks' duration is not known [21].

Clinical trials of 1–6 months' duration suggest modest pain relief relative to placebo from tramadol or opioid medications; however, no long-term studies have determined whether analgesic efficacy is maintained, and the trials were not designed to assess risks of overdose, abuse, addiction, or long-term harms. Data on opioid addiction and other substance use disorders in refugees is limited, but one large epidemiologic study in the United States found refugees, and to a lesser degree non-refugee immigrants, to be less likely than non-immigrants to have any substance use disorder including opioid and others [22]. That said, their prospective risk of developing dependence and addiction after initiation of a prescription opioid in the country of resettlement has not been studied, and the authors presume it to be similar to that of the general population. Such concerns are cause for clinicians to pause and consider alternative treatment options for the refugee patient with chronic pain [23].

The serotonin-norepinephrine reuptake inhibitor duloxetine, 60 mg/day, was noted in three trials to improve pain, function, and global well-being. However, the effect was small and was noted after 12–13 weeks of treatment.

Importantly, patients from parts of the world without chronic disease models may expect a medicine for pain to provide quick, potent analgesia or assume that the medication is appropriate for "PRN" (as needed) dosing. When prescribing daily

scheduled medications for chronic pain, providers should emphasize the dosing schedule and inquire at follow-up in a nonjudgmental manner, such as “How have you been taking this medication?” Anticipatory guidance should stress that it may take weeks for the medication to provide full effect.

Specialty consultants should be utilized judiciously, given the limited efficacy in the literature for interventions such as epidural injections, transcutaneous electrical nerve stimulation (TENS), and surgery in the treatment of chronic low back pain [24, 25].

Negotiation

The Total Pain concept and modified LEARN model offer a framework for clinicians to establish a positive rapport with refugee patients [9]. Patients are more receptive to recommendations and willing to negotiate a care plan from a trusted clinician. The goal of pain management is to support the patient in managing the pain rather than have the pain manage them. Improvements of function and quality of life are important measures for success that likely require skilled negotiation.

Disability assessment can occur in the care of a refugee, and clinicians should consider the appropriateness of the patient’s “sick role” [6, 15]. Sociologist Talcott Parsons described the “sick role” as allowing persons to be exempted from normal social obligations and responsibilities without blame. In a normal response to illness, taking on the sick role is adaptive and not pathological. At the other end of the spectrum, patients readily embrace the sick role or are resistant to giving it up [6]. The experience of the “sick role” is affected by a patient’s culture, socialization, family, and personal experience and traits. A cohort of Sudanese refugee patients with “somatization” shared their illness stories and revealed narrative styles that highlight the interconnection of bodily illness and refugee-related trauma. They articulated the cause of the illness as threatening assaults on their sense of self and as part of their community and culture. The use of embodied metaphors to understand and cope with their current and past traumatic experiences was common, such as “traveling pains,” “the heart,” “blood,” and “body constriction.” In their narratives, an illness was perceived as a process and continued threat rather than a prior event [7]. Such embodied expressions are often accompanied by a normal neuromuscular examination. The examination lacks the objective evidence of tissue damage or organ dysfunction that is typically required for disability. Recovery does not follow a predictable course [3]. As such, disability determination for chronic pain syndromes is a challenge.

There is a paucity of literature to guide the clinician in management of disability, and none target the resettled refugee. An important reminder to the provider feeling challenged or burdened by disability forms is that in this context, he or she is not the final decision-maker but rather a reporter of data [26]. Furthermore, most primary care providers do not receive formal training in determining disability. Thus, the authors recommend that providers ask open-ended questions around function, rather

than merely the amount or location of pain. “How do you spend your days?” “How did you get here today?” “Tell me about how your [pain, condition, etc.] affects your life?” “What are the things your [symptom, condition] prevents you from doing?” Such questioning along with a physical examination may support negotiation of realistic management goals and completion of disability paperwork.

For cases of work-related injury, half of patients with disability beyond 120 days’ duration continue to have a protracted disability. There is no proven formulary to assess the likelihood of protracted disability [3]. Recovery from the sick role does not follow a predictable course. Recommendation and negotiation of a care plan is challenging and may alter the clinician-patient relationship. The focus of care should be to empower the patient in moving from the sick role to behaviors that improve function. Cognitive behavioral therapy that is provided by a psychologist has reduced work-related disability [3]. Encouraging refugees to manage chronic pain through participation in mind-body therapies is reasonable. However, as previously mentioned, these therapies may not be easily available to refugees.

Summary

Chronic pain is a common presentation in refugee patients. The western framework for pain etiology may not be neatly applicable in all situations, and pain assessment needs to follow a biopsychosocial model. The authors recommend adapting the LEARN model of communication to evaluate and manage pain. Specific recommendations for treating chronic pain in refugees are derived from evidence available for non-refugee populations, as there is limited evidence for refugees.

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Chapter 12

Palliative and End-of-Life Care



Alexandra Molnar and Margaret Isaac

Introduction

Although refugees tend to have lower mortality rates than the locally born population, they are not immune to terminal illness [1]. When refugees do become ill, they may have particularly challenging paths related to their prior exposures and trauma. Many refugees resettle from countries with endemic tuberculosis, hepatitis B, and other infectious diseases that can create an increased risk for long-term pulmonary, liver, and other life-threatening illnesses. Refugees are also increasingly coming from regions with a high prevalence of noncommunicable diseases resulting in cardiovascular morbidity. In addition, the deep trauma and mental health sequelae of war and displacement have, necessarily, a negative effect on the experience of illness and can increase the pain experienced by patients [2].

Every culture has beliefs, values, and attitudes about the end of life. It is crucial to recognize that some cultures have strong taboos about sharing terminal diagnoses directly with the patient, for fear of eliminating the will to live [3, 4]. Other cultures have strict rules about which member of the family needs to be present for major decisions [5]. Although we cannot be experts on every culture, it is important to be aware that cultural differences exist and may be further affected by individual patients' experiences. This chapter will discuss some of those differences and offer guidance for exploring individual patient's beliefs, values, and attitudes about their end-of-life care.

Many challenges exist for refugees to access medical care for basic needs; these can be compounded when it comes to end-of-life care. Multiple studies have shown

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decreased use of advance care planning and palliative and hospice services by immigrants as compared to US-born patients [6–8]. Much of this difference is related to barriers to care around language, insurance, and the flexibility of these services to meet cross-cultural needs as well as patient preferences [9, 10]. More resources are being created to help address cross-cultural issues in palliative care including accessible advance directives (ADs) available in multiple languages. Projects such as EthnoMed offer tips on cross-cultural healthcare and links to peer-reviewed articles on provider-patient communication in palliative care [11].

Definitions and Background

Palliative care is care focused on “prevent[ing] and reliev[ing] suffering and supporting the best possible quality of life for patients and their families, regardless of the stage of the disease or the need for other therapies” [12]. A palliative care focus on mitigating suffering can and should occur at all stages of disease, though this is often neglected when medical efforts focus primarily on curative or life-prolonging treatments. Palliative care interventions, including discussions of goals of care, attentive symptom management, and a focus on improving quality of life, may have multiple benefits in patients coping with serious disease.

The term *hospice* refers to palliative care delivered by a multidisciplinary, integrated team, exclusively to patients at the end of life. To qualify for hospice care under the Medicare Hospice Benefit, a physician must attest that, with usual care, a patient’s life expectancy is predicted not to exceed 6 months. Patients can receive the hospice benefit for a longer period of time provided their prognosis for continued survival remains less than 6 months. In practice, hospice care is usually initiated when no curative treatment strategies remain or when a terminally ill patient’s personal wishes include a desire to obtain their care at home, to minimize invasive interventions, and to focus on intensive symptom management.

The Patient Encounter

Part 1: Data Gathering/History Taking

It is crucial when meeting a patient with a potentially life-threatening illness to ask key questions to understand how they experience their illness. At the end of life, it is imperative to have a trained interpreter/cultural mediator present for key discussions. Many refugees have worked hard to gain proficiency in English but may find comfort, security, and enhanced clarity in communicating their needs in their native language. They may also find speaking a second language more challenging in the setting of the pain and confusion of terminal illness.

Cultural Assessment

This book contains several chapters that look in-depth at cultural assessment. For patients at the end of life, many of the tips from the other chapters hold true. Exploring our patients' previous experiences of healthcare and illness is valuable in building rapport and trust and in understanding practical considerations that impact care. Please see Table 12.1.

As noted above, some cultures may have very specific practices about who is told about an important diagnosis or present for a goals of care discussion [5]. It can be helpful to explore these in advance with a patient. In the authors' experience, some patients decline to follow the broad practices of the cultures in which they participate: for example, preferring to be involved in all medical diagnoses and decisions even if their culture generally excludes patients from this process. Thus, it becomes even more critical to have these discussions with patients as early as possible and not assume preferences based on a general understanding of cultural practices and/or standard of care. From an ethical standpoint, it is crucial to ask the patient to share their preferences about who is told and carefully document if the patient prefers *not* to be made aware of their diagnosis, prognosis, and/or treatment options.

Inquiring about cultural traditions and beliefs about illness and death is immensely helpful in approaching palliative care (Table 12.1). As with medical care in any stage of disease, gently investigating any history of torture or untreated pain/injury can help inform which treatment modalities might reduce pain and other symptoms at the end of life and which might reactivate torture experiences [13]. For example, a patient who underwent torture that involved forced feeding or confinement to small spaces might have very strong emotions around enteral feeding or the confinement required to obtain an MRI. Exploration of the patient's history allows for these fears and concerns to be anticipated.

During the diagnostic evaluation and treatment, there are often times when patients need to be "NPO" or nothing-by-mouth for operations, studies, or procedures. This can be particularly traumatizing for refugee patients who have experiences of food insecurity or starvation. Specifically asking about this can help providers mentally prepare a patient for NPO status. By discussing the pros and

Table 12.1 Cultural assessment questions

What experiences and expectations do you have regarding illness and healthcare?
If you were ill, who in your family or community would need to be involved in your decisions about care? What would you like their role to be?
What expectations would you have about who would be told about any important diagnosis? Would you want to be told?
What are the traditional practices in your home country when someone is very ill?
What are the traditional practices in your home country when someone is dying or after death?
Understanding any experiences of injury or torture that you may have had will help us try to protect you from further trauma. Have you had any experiences like that?
Have you experienced times when you did not have enough food for yourself or your family?

cons of the study/procedure and the missed meals with the patient, they can be centered in the decision-making process. Sometimes patients will prefer to forego the procedure in order to eat regular meals, and this decision should be explored and respected.

Spiritual/Religious Assessment

Spiritual needs figure prominently in patients with serious and potentially life-limiting illness, and spiritual beliefs often profoundly shape decision-making about medical care [14]. Provision of spiritual care may fall outside the usual scope of practice for clinicians, but developing an understanding of a patient's spiritual and religious beliefs, values, and traditions can greatly enhance a provider's ability to provide patient-centered care. Furthermore, exploring spiritual beliefs and values can be extremely important in supporting families and toward finding common ground on medical decisions through shared decision-making. Clarity around one's role in assessing spiritual needs and then involving spiritual care providers to address these needs is essential [14]. Several tools exist to facilitate spiritual assessment by clinicians. The FICA tool, in particular, is a widely utilized framework [15, 16] and is shown in Table 12.2.

Understanding broadly how specific religious and spiritual traditions can impact values and attitudes toward end-of-life care and death is helpful, but is not a proxy for a deeper exploration of the individual patient's values. Similar to the discussion above on how culture can impact the experience of disease and of healthcare, patients may participate in a multitude of cultures and spiritual traditions and may have practices and beliefs that fall outside of an established tradition or community practice. For example, while many authors have explored belief traditions within Islam, a survey of Muslim physicians found broad disagreement about whether or not a Do-Not-Attempt-Resuscitation (DNAR) order is permitted within the faith

Table 12.2 FICA tool [16]

	Category	Sample questions
F	Faith, belief, meaning	"What gives meaning to your life?" "Do you consider yourself religious or spiritual?" "Do you have any specific values, beliefs, or practices that help you deal with difficult situations?"
I	Importance, influence	"How do your beliefs and values influence the decisions you make about your healthcare?" "How important is your faith/religion in your life?"
C	Community	"Are you part of a spiritual or religious community?"
A	Address/action in care	"How can we best address these beliefs/values in your care?" "Do you have a priest/rabbi/spiritual leader who has been guiding and supporting you?" "We have spiritual care providers/chaplains here in the hospital that have experience working with patients of all faiths. Would you be interested in having them come by?"

tradition [17]. Thus, in performing a spiritual assessment, a stance of cultural humility and curiosity is essential for appropriate patient care.

Symptom Assessment

The symptom burden at the end of life can be high. In the last 2 days of life, the most common symptoms reported include pain, dyspnea, agitation, and nausea [18]. Pain has been reported in over 50% of patients in their final 2 years of life [19]. Because it is inherently subjective, the experience of pain is shaped by cultural factors, including beliefs about pain, its origin, and its function. Some cultures and some individuals may believe there is value in suffering or may lionize a stoic approach to physical suffering [20]. Furthermore, caution is advised when generalizing how specific groups of people approach and interpret pain since this can be highly variable even within cultural groups. Asking specific questions can guide providers toward a stance of cultural humility with regard to pain assessment and management, including questions such as [20]:

1. How important is being mentally alert in the final days before death?
2. What pain level are you willing to endure?
3. What type of pain medicine or alternatives should be considered?

Various pain scales can be used in the assessment of pain, including the Wong-Baker FACES pain scale, the numeric (0–10) scale, and the visual analog scale [21]. These may be effective in patients with limited English proficiency and low health literacy and numeracy.

Observational tools exist to aid in assessment of nonverbal and/or cognitively impaired patients – these include the PAINAD scale for pain [22] and the Respiratory Distress Observation Scale [23].

Part 2: Building Rapport/Relationship

In the authors' experiences, gently and empathically exploring cultural, spiritual, and symptom assessments with a patient over time – while respecting patient wishes and focusing on language of empowerment – powerfully builds rapport with patients. In addition, collaborating with interpreter services, being sensitive to health literacy, and establishing trust form a foundation for a caring physician-patient relationship.

A refugee patient's history of loss of control and/or fear informs their care as they move into a space of decreasing control of health and bodily functions. Exploring with patients what experiences and fears they may have had in this regard can help providers think collaboratively about ways to empower patients and help them experience control over small and large decisions in their care [24]. Simple phrases such as “So that I can make sure that we have explained this well, what is

your understanding of the plan for the day?” instead of “What did *they* tell you is your plan for the day?” and, when possible, offering choices about timing of medications or provider visits can be powerful ways to help the patient feel like the manager instead of the object of other people’s choices.

It is imperative during encounters with refugee patients that professional/certified interpreter services [25] are offered. During emotionally charged conversations about difficult diagnoses and end-of-life planning, it is a disservice to the patient and family members to use substandard or family interpretation. Even for patients who have worked hard for language proficiency, encouraging the use of interpreters for complex and fraught discussions such as these can reduce the burden on the patient. In addition, the interpreter can function as a resource regarding traditional practices in the patient’s community and sources of support. Meeting with the interpreter a few minutes before sitting down with the patient, huddling briefly in the hallway, or chatting by phone with a telephonic interpreter outside the room before entering can help set the stage, clarify roles, and give both the interpreter and the provider an opportunity to think collaboratively about any cultural concerns [25, 26]. A survey of medical interpreters noted that they often feel ill-prepared to have end-of-life conversations, and so a short advance discussion about the provider’s goals and concerns can help put the interpreter at ease and increase the likelihood of an optimal conversation for all involved [27]. As with all interpreted interactions, short phrases and eye contact with and speaking directly to the patient help to ensure accuracy and connection [28].

Refugee patients come from many different backgrounds and educational levels. Refugees may be accomplished physicians in their home country or may have no formal schooling at all in their lives. Respectfully explore this with questions such as “Did you have the opportunity to attend school when you were growing up? How many years/to what level did you attend?” Even with relatively advanced schooling for any patient from any background, health literacy and numeracy can be challenging. Providers often find themselves thinking in probabilities or percentages or explaining disease processes and progression assuming the patient understands pathophysiologic concepts and basic anatomy. This is not always the case. Drawing pictures, using analogies, and assessing understanding with teach-back are powerful tools in any patient encounter and can help simplify complex concepts [29]. A common provider error is to offer information that is too detailed or too complex, more than the patient desires. Asking how much and in what manner a patient would like medical information may be helpful. Patients may not be explicitly aware of what their information needs are, so being attentive to cues from patients can be critical – if the patient responds with detailed questions, they may desire a longer explanation, and if they ask for direction – “What would you do, doctor?” – they may benefit from a more parental/directive approach.

Building trust is a key part of any patient-provider interaction [30, 31]. For refugees who have undergone trauma and may have had prior negative experiences with healthcare, this can prove especially challenging. Asking for and respecting patient and family wishes is a key first step in establishing trust.

Part 3: Treatment and Treatment Planning

Surrogate Decision-Makers: DPOA-HC, LNOK, Cultural Considerations

For patients lacking decisional capacity without a designated durable power of attorney for healthcare (DPOA-HC), providers rely upon a legal next of kin (LNOK) to serve in the role of surrogate decision-maker. The priority order for determining the LNOK varies significantly by state. Additionally, in common situations in which multiple people share the same degree of relatedness to a patient (e.g., a patient with multiple adult children), state laws vary in how decisions are made – by consensus or by majority rule, for example [32]. In any state, the order for LNOK may not align with cultural beliefs regarding who in the family should serve in such a role, and this can be a point of conflict between families and providers. Working collaboratively with families in this situation is critical. Making sure all members feel heard and addressing questions and concerns as they arise, even from family members who may not be the LNOK, can mitigate conflicts before they arise.

The role of a surrogate decision-maker, be they a legally designated durable power of attorney for healthcare or a legal next of kin, is extremely challenging. Family members involved in medical decision-making for loved ones who have died in the intensive care unit (ICU) have been shown to suffer from increased rates of depression and post-traumatic stress symptoms long after the death of the patient [33, 34]. For patients who may have emigrated from places without critical care services, the intensive care unit, where a quarter of patients in the United States die [35], may be an unfamiliar and intimidating place. Meeting with families early and often during life-threatening illness can facilitate deeper understanding and comfort with the difficult decisions at hand. Open access for families with loved ones in the ICU has been shown to improve patient and family satisfaction, as well as communication between patients and medical personnel [36], and may be particularly important for patients with extended family and community networks of support, including those from immigrant and refugee communities.

Advance Care Planning, Advance Directives, and Their Limitations

Advance care planning refers to the process by which decisions are made about care preferences outside of the setting of an acute illness or hospitalization. Planning in advance allows patients and their providers to thoughtfully consider medical decisions in the context of a patient's individual goals and values. The presence of an advance directive is especially important for patients who lack decisional capacity, when surrogate decision-makers must be centrally involved. Advance directives (ADs) are, unfortunately, not widely utilized: one small study found that a third of patients who died in the hospital entered with ADs [37], and others have described even lower prevalence – between 5% and 11% [38–40]. Although advance directives have not been shown to consistently change the type of care provided to patients [41, 42] at the end of life, the families of patients who have an advance directive rate the quality of the dying process more highly than those without ADs [43].

Patients from racial and ethnic minority groups have been shown to have less knowledge about advance care planning and to be less likely to utilize ADs [44–46] which suggests that there may be opportunities to better engage minority patients, including immigrants and refugees, in this process in the primary care setting. Some interventions have been developed, combining patient engagement with plain language advance directives to improve advance care planning for patients with limited English proficiency [47].

Decision Control and Shared Decision-Making, Cultural Aspects: Autonomy Versus Parentalism, Family Conferences

The standard of care in Europe and North America often centers around patient autonomy and shared decision-making practices. In the Western biomedical ideal, patients have control and the right to decline or modify their care and be involved in all major steps. Many refugee patients may come from a healthcare model in which providers take a “parental” role and dictate each step with minimal patient voice. As such, there may be a preference for strong advice or discomfort on the part of patients and caregivers if advice is not given. Less-aculturated caregivers of advanced cancer patients in the United States were more likely to report having received too much information from physicians than those who had higher ratings of acculturation [46]. These less-aculturated caregivers may only be used to a model in which less information and more direction is given.

Transparency about standard of care may be helpful. As noted above in “Cultural Assessment,” exploring with the patient, about their prior experiences with healthcare, may inform a discussion. In addition, when planning a family conference, it can be helpful to clarify family roles and expectations and discuss expectations with the patient and family [48–50]. Studies have shown that specific ethnic groups may favor a family-centered approach to decision-making, as opposed to a more Western model that centers on individual patient autonomy [44]. Additionally, caregivers who are less acculturated report stronger family relationships and support [46] and may, therefore, depend on others for assistance with decision making. This suggests that a provider’s obligation to educate may extend beyond the legal surrogate decision-maker.

Ethical Considerations in End-of-Life Care

Resuscitation, Artificial Nutrition and Hydration, Withholding and Withdrawal of Life Support, Physician Aid-in-Dying, Double Effect

Preferences related to cardiopulmonary resuscitation (CPR), artificial nutrition and hydration, and withholding and withdrawal of life support are strongly influenced by personal and cultural values.

Studies suggest that there is significant variability in end-of-life care preferences across racial and ethnic groups [51]. Decisions related to the provision of artificial

nutrition and hydration at the end of life are strongly influenced by cultural and religious values, and certain communities may be less likely to opt against or discontinue these medical interventions [52, 53]. One study found that caregivers in the United States who are less acculturated may be more likely to opt for artificial nutrition through a feeding tube [46], though this is not universally true and these decisions are complex and multilayered. Patients and their caregivers may come from parts of the world where these types of interventions are not widely available or familiar. As such, many families may equate artificial nutrition with feeding – the latter being a central part of caring family traditions throughout the world. Using terms such as “artificial nutrition” rather than “feeding” or “food” can help to clarify that these interventions are distinct medical treatments that have a specific purpose. Careful use of terminology allows providers to differentiate enteral nutrition from food, which is a symbol of and vehicle for love, care, sustenance, and fellowship within families and communities. Thoughtful, patient- and family-centered discussions explaining the natural process of dying are also critical (e.g., explaining that part of the natural process of dying is a decrease in appetite and willingly foregoing food as the body slows down and enteral perfusion decreases). It may also be helpful to engage community elders and religious leaders to assist families in complex decision-making.

Withdrawing and withholding life support are considered ethically equivalent in Western biomedical ethics though patients and families may not view them as such. And, independent of ethics, withdrawing a treatment that has already been initiated can feel like a more active and more difficult decision. Furthermore, understanding the role of these treatments may be informed by patients’ personal histories with illness, death, and medical treatment. Approaching conversations with humility and curiosity allows providers to explore the individual and cultural factors shaping these complex and difficult decisions.

Cultural Aspects of Medication Choices

In many cultures, there are traditional herbs, medications, or treatments that are considered integral to end-of-life care. Exploring and integrating these practices is important for establishing trust and respecting traditions [54]. At the same time, these practices may come into conflict with standards of care. While coining and herbal teas may be easy to integrate into end-of-life care, beliefs around enemas or potentially hepatotoxic herbal remedies may cause concern to providers [55, 56]. Reviewing traditional practices in detail and discussing potential benefits and risks with the patient and family will help navigate these dilemmas.

Summary

End-of-life care is complex and culturally bound. Refugees may have an additional layer of complexity based on past trauma, prior healthcare experiences, and extent of acculturation with their host country. While ethnic groups may share common

attitudes toward end-of-life care and death, individual differences between patients within one group exist and should be explored. A stance of cultural humility by the provider facilitates careful exploration of physical, psychological, cultural, and spiritual domains of end-of-life care with patients. As with any medical care, effective communication using a professional interpreter who may also serve as a cultural broker will ease the path for the patient and the provider.

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Part IV
Mental Health

Chapter 13

Risk Factors and Prevalence of Mental Illness



Paula C. Zimbrea and Rabin Dahal

Introduction

Identifying mental illness in refugees poses multiple challenges to providers and organizations worldwide. These challenges range from technical aspects of language barriers and accessibility to phenomenological questions such as the definition of mental illness across cultures.

Nevertheless, most Western societies now consider refugees as a population with high prevalence of mental illness, and multiple efforts are ongoing toward standardizing screening methods and identifying risk factors early in the process of resettlement.

Screening for Mental Illness

Overseas Screening

As outlined in Chap. 3, the Secretary of Health and Human Services promulgates, under the authority of the Immigration and Nationality Act (INA) and the Public Health Service Act, regulations outlining the requirements for the medical examination of aliens seeking admission into the United States. The Division of Global Migration and Quarantine provides the Department of State (DOS) and the US Citizenship and Immigration Services (USCIS) physical and mental health screening guidelines for all examining physicians.

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The purpose of the overseas mental health examination is to identify applicants with inadmissible health-related conditions that include any physical or mental disorder with associated harmful behavior and any drug abuse or dependence.

Following this evaluation, refugees with a mental disorder are classified as follows:

- *Class A refugees* are diagnosed with a mental disorder with associated harmful behavior that may pose a threat to property or welfare of the alien or others. These refugees need an approved waiver for travel. An approved US healthcare provider is identified for the refugee. When the class A refugee arrives in the United States, he or she must report promptly to the identified US healthcare provider.
- *Class B refugees* are diagnosed with a mental disorder with no current associated harm or behavior, or there is a history of harmful behavior judged not likely to recur. Refugees with a class B mental disorder do not require a waiver, but it is recommended that they are evaluated by a mental health specialist soon after arrival.

Domestic Screening

The domestic examination includes screening and a more comprehensive assessment, when indicated. The Centers for Disease Control and Prevention (CDC) recommends that mental health screening be performed at the first medical evaluation that refugees undergo in the United States. Other countries have also issued guidelines for mental health screening in refugees. Mental health screening and assessment are discussed in Chap. 14. Chapter 16 reviews best practices in assessing for sequelae of torture in refugees.

The range of psychiatric disorders seen in refugees is broad, and the severity of illness is variable. While posttraumatic stress disorder (PTSD) and depression are most prevalent among refugees, other conditions may be identified. The following sections discuss factors leading to higher risk of mental health conditions in refugees and review prevalence in different refugee populations.

Risk Factors for Psychiatric Problems in Refugees

Risk factors can be broadly considered under three phases of migration: premigration, post-migration, and during migration.

Premigration Factors

Age Studies looking at age of refugees and prevalence of mental illness have produced variable results. Some studies showed that refugees of younger ages experience more depression [1], while other studies showed that adolescents do better

than older adults, especially in the Ethiopian population [2]. And finally, other studies found that more severe PTSD symptoms and anxiety symptoms were associated with older age [3–5].

Gender In most studies, women have a higher prevalence of PTSD and depression than men; and this finding has been consistent in refugees from the Middle East, Central Africa, Southern Asia, and Southeast Europe [6]. Other psychiatric conditions such as anxiety and pain disorder are also more common in women: tortured Bhutanese women reported higher prevalence of generalized anxiety disorder, pain disorder, and dissociative disorders than men [7]. Several studies, however, found depression more common in male refugees than in female refugees [1]; oftentimes, this is a reverse of the ratio seen in the country of origin. One study found an abnormal (80%) prevalence of psychosis in men in a Somali refugee clinic population [8].

Premigration Education Overall, more educated refugees scored lower on the mental health indices [2], which is thought to be related to loss of status that these refugees experience during the resettlement. At the same time, patients with limited education have more difficulties with integration and are more likely to have depression [1]. In a review of North Korean refugees living in South Korea, the premigration level of education appeared to be a protective factor against developing mental health problems [9].

Region of Origin In general, refugees from rural areas had poorer outcomes [2]. Refugees from Europe had relatively worse mental health outcomes than those from Asia or the Middle East when the comparator groups were non-refugee residents in those respective regions [2]. In addition, Southeastern European subjects had more somatic complaints than Central African refugees [10].

History of Trauma By definition, a refugee is exposed to traumatic events; and there is no doubt that this exposure increases the risk of mental health problems, as shown in numerous studies. Not all trauma is equal however, and many studies have tried to link specific psychiatric conditions to specific types of trauma. In most studies, trauma is defined according to the *Diagnostic and Statistical Manual of Mental Disorders (DSM) V* as “exposure to actual or threatened death, serious injury or sexual violence” [11]. Multiple studies have looked at what aspect of the trauma influences the risk for subsequent mental health problems. For instance, some authors have divided traumatic experiences in four groups: life threat, war exposure, torture, and sexual violence [12]. Among these, exposure to life threat trauma was a significant predictor of PTSD and depressive symptom severity [12]. Exposure to war had a less severe impact on young adults’ sense of self and other psychological problems compared to older adults [13]. There are multiple studies showing that a history of torture increases the risk of mental health problems [14] and that in victims of torture, mental health problems may persist long after the resettlement [15, 16]. Details on impact of torture will be discussed in Chap. 16.

The concept of “cumulative trauma” summarizes the fact that more episodes of trauma were related with more intensive symptoms of PTSD in refugees (with the exception of the symptom of avoidance, which did not correlate with the number of

traumatic events/experiences) [17]. Cumulative trauma also predicted a higher incidence of anxiety and depression [3].

“Trauma centrality” is another significant concept in understanding the role of trauma in developing psychopathology and defines how close a subject is to the event; directly witnessing murder, kidnapping, or disappearance of family members is associated with emotional suppression, which increases the risk for PTSD [13].

Death of a Relative Having lost a relative or a close friend in the home country or during the resettlement has been associated with increased likelihood of psychiatric problems [18–20].

Migration Factors

The following factors characterizing the migration process have been associated with poorer mental health status: being detained after leaving the country [21], immigration detention [22], forced repatriation [23], incidence of torture [14], time spent in the refugee camp, waiting to be granted refugee status/asylum status, and not being satisfied in the camp [24]. Stopping somewhere else before resettlement to the current location was linked with a higher risk of developing major depressive disorder [25]. For minors, being unaccompanied at the time of migration predicted poorer mental health outcomes [26, 27].

Being granted the refugee status had a positive impact on mental health [28]; in addition, having the right to return to the country of origin was also associated with less depression [29].

Post-migration Factors

Although emphasis is often placed on the refugees’ experience of trauma in their country of origin, there is a growing body of evidence that factors related to their post-settlement period can contribute more to mental health problems than experiences prior to fleeing their country [30, 31].

Communication Problems Lack of knowledge of the language of the adoptive country can affect the prevalence of mental health problems in two ways: On the one hand, it can seriously impact the quality of adjustment to the new environment and therefore increase the prevalence of depression or anxiety [32–34]. On the other, communication barriers can cause underdiagnosis and poor access to care leading to underreporting of psychiatric problems. Interestingly, however, Somali refugee men with higher English proficiency seemed to have worse mental health in one study [35].

Housing Accommodations Permanent private accommodations were related to better mental health than institutional or temporary accommodations [2, 33, 36]. In addition, residential mobility (frequent changes in residence) was seen as stressful

and worsened mental health [37]. Living in unsafe neighborhoods and being concerned for one's physical safety can also contribute to psychiatric problems [18].

Restricted Economic Opportunity Lack of employment or loss of economic status has been associated with worse mental health [2, 31, 33, 38]. Stable housing and employment significantly moderated treatment response of patients with PTSD and chronic pain [39].

Access to Care Time spent before presenting for services significantly predicted anxiety, PTSD, and depression in torture survivors in the United States [3].

Other post-migration factors associated with worse mental health outcomes are worry about family not in the host country [40, 41], initiating conflict not resolved [2], uncertainty of their status [42], experiencing discrimination [43], and facing repatriation to a country they had previously fled [2]. In general, social disconnection in the host country was associated with poorer mental health even three decades after settlement [44]. The impact of acculturation may vary with gender—in Somali girls, for instance, greater Somali acculturation was associated with better mental health, while for Somali boys, greater American acculturation was associated with better mental health [45].

Prevalence of Common Mental Illnesses

Determining the prevalence of various psychiatric disorders in the refugee populations presents multiple levels of challenges. Most of the prevalence studies were performed in clinical populations, typically refugees who were seen either in mental health clinics or in general health programs, which already introduces a selection bias. Epidemiologic studies attempt to overcome this bias, but face communication difficulties, fear of stigma, and local beliefs about mental illness and how it is integrated in everyday life. These factors lead to low rates of participation and minimization of symptoms on questionnaires. In addition, the measures used to identify mental health problems have to meet the demands of being, at the same time, culture specific, standardized, and practical for the provider. A study looking at how refugee trauma and health status were measured in English-language publications identified over 125 different screening or diagnostic instruments used [46]. This illustrates the complexity of studying the prevalence of mental illness in the refugee population.

Communication Challenges

Communication can be particularly difficult when working with refugees due to multiple factors: language and cultural differences, the effect of culture on symptoms and illness behavior, differences in family structure, acculturation, and intergenerational conflict. These difficulties can be addressed through specific inquiry, use of trained interpreters, culture brokers, meetings with families, and community organizations [47].

Use of Interpreters

The first step in working with an interpreter is selecting the language in which the interview will be conducted. Refugees, like many migrants, oftentimes speak more than one language. Although it may be convenient to conduct the interview in a language that is known to both patient and clinician, effort must be made in order to identify the language in which the patient can be most accurate. This will help avoid abbreviated statements and allow the expression of emotional content. In certain situations, it may be possible to dispense with interpreter services: patients speak some English and insist on conducting the interview in English or later in treatment when patients' mastery of English improves. Interpreters or translators should be familiar with the psychiatric assessment, and they need to be able to translate (to find the corresponding words from one language to another while retaining the same meaning) and also to interpret which implies the transmission of denotative meaning, in addition to the connotative meaning [48]. It is important to train the interpreter to translate in such a way that the clinician can assess the important parts of the mental status exam such as the process, association, and affect.

Use of Bilingual Providers

A frequent model uses the bilingual psychiatric worker, which is sometimes employed in places where there are communities of refugees from the same country or cultures. In this case, attention must be given to boundaries and countertransference. Patients tend to try to recreate the doctor-patient relationship from their country, which often may be different from the accepted model in the United States. Some examples include total trust and obedience in the provider (which can translate into a passive attitude or lack of participation), a desire to compensate the provider with gifts, or asking the provider for a letter of reference for a job application. A sensitive but firm delineation of boundaries will help the refugee in learning and adjusting to the US healthcare system and will promote a healthy societal integration in general. For all clinicians evaluating or treating refugees, but especially for those clinicians who are themselves prior refugees, special attention must be given to countertransference, and additional peer supervision should be sought if necessary.

Treatment Beliefs

Another factor that can affect the attendance of mental health programs and the evaluation of the prevalence of psychiatric disorders in refugees and immigrants is the use of alternative or complementary medicine. Traditionally it was believed that

the use of alternative medicine is associated with avoidance of Western medicine in immigrants. A study of Cambodian refugees showed that 34% of them relied on alternative medicine in the past year; however, only 5% used the alternative medicine exclusively. Surprisingly, using alternative medicine was positively associated with seeking Western sources for mental health care [49].

Phenomenology

In addition to the above challenges, given that the phenomenology of mental illness can be very different across cultures, Western diagnoses are not universally accepted as valid for these populations. However, most studies of prevalence utilize Western psychiatric diagnoses as outlined in the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* and may overestimate or underestimate true psychological distress in refugee populations. Even the best standardized instruments have to be complemented with a comprehensive assessment within the appropriate cultural framework, and symptoms and impairment have to be observed over time. See Chap. 14 for a discussion of validated assessment scales and mental health assessment in refugee populations.

With all these caveats, studies across refugee populations have consistently shown PTSD and depression to be the most commonly encountered diagnoses. A review of studies of refugees resettled in Western countries showed a PTSD prevalence of 9% and major depression prevalence of 5% [50]. A review of studies that included traumatized refugees in post-conflict regions showed a higher rate of 30% for both PTSD and depression [51]. In general, larger and more methodologically rigorous studies showed lower prevalence of these disorders.

Other Psychiatric Disorders

Anxiety disorders are found to be co-morbid with PTSD and depression in many individual refugee studies. Enduring personality changes as a manifestation of chronic vulnerability and loss is also reported in refugees.

In addition, other psychiatric disorders have been described in refugee populations:

- *Traumatic brain injury* is frequently present in the medical history of the refugees, and it can present with a wide range of psychiatric problems [52, 53]. One clinical sample of refugees with moderate to severe mental disorder found that 51% of refugees had a history of head injury [54]; the CDC recommends screening all refugees for history of head trauma.
- *Postnatal or postpartum depression* tends to have a higher prevalence in refugee women compared to the general population. One review found the prevalence of

postpartum depression as high as 42% in migrant women (including immigrants, asylum seekers, and refugees) as opposed to 10–15% in native-born women [55]. One study from Jordan reported that half (49.6%; $n = 181$) of the Syrian refugee women scored >12 on the Edinburgh Postnatal Depression Scale (EPDS) [56]. Migrant women at greatest risk to develop depressive symptoms were those who experienced abuse, had pain post-birth, worried about family members left behind, had food insecurity, and had reduced access to healthcare (limited insurance and/or no regular care provider) [56, 57]. A particular risk factor for depression in women is domestic violence, considered to be underreported by refugees due to cultural factors, fear of stigma, and also fear of losing children to the child protection agencies if abuse is reported.

- *Suicide* rates were four to five times higher in Ethiopian immigrants than in the national population in one study [58]. More recently, higher suicide rates were observed in Bhutanese refugees resettled in the United States compared to other refugee groups [59].
- *Pathological gambling* was initially thought to be very common in Cambodian refugees (70% prevalence [60]); however, a later study, considered to be more representative of Cambodian refugee communities in the United States, showed a prevalence of only 13.9% [61].
- *Substance abuse* has been reported as well: 45% of Indo-Chinese refugees had problems with alcohol or tobacco, while 13.9% of the same had problems with drugs [62].
- *Psychoses*: A study of Somali refugees in Minnesota showed an 80% prevalence of psychosis in young Somali men compared to non-Somali clinic samples [8, 94].

Table 13.1 presents a summary of the most illustrative studies regarding prevalence of psychiatric disorders in refugees.

Psychiatric Comorbidity

It is important to keep in mind that refugees often experience more than one psychiatric condition and that once a mental health problem is present, the risk of co-morbid problems is increased. In a clinical sample of 61 refugee outpatients from psychiatric clinics in Norway, 80% of those who had PTSD had three or more additional psychiatric diagnoses [10]. Hocking found that 99% of mental health problems in refugees were associated with PTSD or depression [93]. In a different study, 40.9% of refugees with PTSD had secondary psychotic symptoms [94]. Women refugees with PTSD had three times higher incidence of positive screening for eating disorders [63].

Medical Comorbidity with Psychiatric Illness

Refugees with mental health problems often present with physical symptoms as their chief complaint, and multiple studies have shown pain to be comorbid with PTSD and depression. Specific PTSD symptoms (Criterion D = negative alterations

Table 13.1 Prevalence of psychiatric problems in refugees

Year	Author	Population	Prevalence (<i>lifetime prevalence, unless specified otherwise</i>)	Assessment
2018	Acarturk, Cetinkaya, et al. [24]	Syrian refugees in Turkey	PTSD 83.4% Depression 37.4%	Impact of Events Scale—Revised (IES-R) Beck Depression Inventory (BDI)
2018	Aoun, Joundi, et al. [63]	Syrian refugees in North Lebanon	Eating disorder screen positive 3.2%	SCOFF (SickControlOneFatFood) questionnaire Primary Care PTSD (PC-PTSD) questionnaire
2018	Chung, Shakra, et al. [64]	Syrian refugees	PTSD 30%	Harvard Trauma Questionnaire (HTQ)
2018	Georgiadou, Zbidat, et al. [5]	Syrian refugees in Germany	Depression (moderate to severe) 14.5% Generalized anxiety disorder (moderate to severe) 13.5% PTSD 11.4%	Essen Trauma Inventory (ETI) PHQ-9 GAD-7
2018	Javanbakht, Amirsadri, et al. [65]	Newly arrived Syrian refugees in the United States	PTSD (possible) 32.2% Anxiety 40.3% Depression 47%	PTSD checklist Hopkins Symptoms Checklist
2018	Leiler, Bjarta, et al. [66]	Refugees in Sweden	Depression 56–58.4%	PHQ-9 GAD-7 Primary Care PTSD (PC-PTSD) questionnaire
2018	Mohammad, Abu Awad, et al. [56]	Syrian refugee women living in north Jordan	Postnatal depression screen positive 49.6%	Edinburgh Postnatal Depression Scale (EPDS)
2018	M’Zah, Lopes Cardozo, et al. [67]	Syrian refugees in Atlanta, GA, USA	PTSD 84% Depression 44%	Hopkins Symptoms Checklist-25 (HSCL-25) PTSD-8
2018	Park, Rim, et al. [68]	North Korean adolescent refugees in South Korea	Suicidal ideation 16.7%	Clinical records
2018	Schweitzer, Vromans, et al. 2018 [4]	Sudanese and Burmese refugees in Australia	PTSD 20% Anxiety 29% Depression 41% Somatization 41%	Harvard Trauma Questionnaire (HTQ) Post-migration Living Difficulties Checklist and Hopkins Symptoms Checklist
2018	Verroken, Schotte, et al. [69]	Refugee minors in Belgium	Self-injury behavior (non-suicidal) 17.4%	Brief Non-suicidal Self-injury Assessment Tool (BNNSI-AT) Strengths and Difficulties Questionnaire (SDQ)

(continued)

Table 13.1 (continued)

Year	Author	Population	Prevalence (<i>lifetime prevalence, unless specified otherwise</i>)	Assessment
2017	Ahmed, Bowen, et al. [70]	Syrian refugees to Canada Pregnant or postpartum within 1 year	Postpartum depression 58.3% Depression 50.0% Anxiety 25.0% PTSD 16.7%	Structured questionnaire Edinburgh Postnatal Depression Scale
2017	Crepet, Rita, et al. [20]	Libyan and other asylum seekers in Italy	PTSD 31% Depression 20%	Clinical assessment using <i>DSM V</i> criteria
2017	Dennis, Merry, et al. [57]	Recent migrant vs. Canadian-born women Refugee, asylum-seeking vs. non-refugee immigrant	Postpartum depression 11.5% (refugees) vs. 6% (recent migrants) vs. 16% asylum seekers vs. 2.9% (Canadian born)	Structured questionnaire Edinburgh Postnatal Depression Scale
2017	Ibrahim et al. [71]	Syrian Kurdish refugees in Iraq	PTSD 35–38%	Harvard Trauma Questionnaire (HTQ)
2017	Nickerson, Schick, et al. [72]	Refugees resettled in Switzerland	PTSD and depression 50% Depression only 33.6% PTSD only 2.2%	Harvard Trauma Questionnaire (HTQ) Posttraumatic Diagnostic Scale
2017	Slewa-Younan, Yaser, et al. [73]	Afghan refugees in Australia	PTSD 44%	Hopkins Symptoms Checklist-25 (HSCL-25) Afghan War Experience Scale (AWES) impact of events scale-revised (IES-R).
2017	Thela, Tomita, et al. [74]	Refugees/asylum seekers	Anxiety 49.4% Depression 54.6% PTSD symptoms 24.9%	Hopkins Symptoms Checklist, Harvard Trauma Questionnaire (HTQ)
2017	Tinghog, Malm, et al. [75]	Refugees from Syria aged 18–64 years who were granted residency in Sweden on grounds of asylum between 2011 and 2013	Depression 40.2% Anxiety 31.8% PTSD 29.9%	Hopkins Symptoms Checklist, Harvard Trauma Questionnaire (HTQ)
2017	Wong, Cheung, et al. [76]	African asylum seekers in Hong Kong	Depression 36.1%	Everyday Discrimination Scale PHQ-2
2017	Belz et al. [77]	Refugees in a reception center in Germany	PTSD 81.2% Depression 88.2%	Essen Trauma Inventory (ETI) Symptom Checklist (SCL-90-R) Beck Depression Inventory Revision II (BDI-II)

Table 13.1 (continued)

Year	Author	Population	Prevalence (<i>lifetime prevalence, unless specified otherwise</i>)	Assessment
2016	Ceri, Ozlu-Erkilic [78]	Yazidi Kurd refugee children and adolescents	Depression 36.8% Insomnia 71% Conversion disorders 28.9% PTSD 10.5% Nonorganic enuresis 18.4%	Clinical evaluation
2016	Morina, Sulaj, et al. [79]	Civilian survivors of the Kosovo War	OCD 35% PTSD 39%	Revised Obsessive-Compulsive Inventory Scale Posttraumatic Stress Diagnostic Scale Hopkins Symptoms Checklist
2015	Akinyemi, Atilola, et al. [80]	African refugees in Nigeria	Suicidal ideation 27.3% (vs. 17.3% in non-refugees)	Mini-International Neuropsychiatric Interview (MINI)
2015	Feyera, Mihretie, et al. [81]	Somali refugees in a camp in Ethiopia	Depression 38.3%	Patient Health Questionnaire Harvard Trauma Questionnaire (HTQ)
2012	Lopes Cardozo, Blanton, et al. [82]	Cambodian landmine survivors	Anxiety 62% Depression 74% PTSD 34%	Harvard Trauma Questionnaire (HTQ) Hopkins Symptoms Checklist
2012	Slewa-Youan, Chippendale, et al. [83]	Iraqi refugees in Australia	PTSD 48% MDD 36% Dysthymia 36%	Clinical evaluation
2011	Husain, Anderson, et al. [84]	Sri Lankans (internally displaced)	PTSD 7% Anxiety 32.6% Depression 22.2%	Harvard Trauma Questionnaire Hopkins Symptoms Checklist
2011	Kroll, Yusuf, et al. [8]	Somali men in an inner-city community clinic	Psychosis 80% (<i>non-Somali men in the same clinic, 13.7% prevalence of psychosis</i>)	Clinical evaluation, <i>DSM IV</i> based
2011	Schweitzer, Brough, et al. [40]	Burmese refugees in Australia	PTSD 9% Anxiety 20% Depression 36% Somatization 37%	Harvard Trauma Questionnaire (HTQ) Post-migration Living Difficulties Checklist Hopkins Symptoms Checklist
2009	Fawzi, Betancourt, et al. [18]	Haitian refugees	PTSD 11.6% Depression 14% PTSD and depression 7.9%	Interview via standardized questionnaire
2007	Jamil, Farrag, et al. [85]	Iraqi refugees in the United States	Anxiety 80% Depression 80% PTSD 54.3% in men, 11.4% in women	Posttraumatic Stress Diagnostic Scale Hopkins Symptoms Checklist

(continued)

Table 13.1 (continued)

Year	Author	Population	Prevalence (<i>lifetime prevalence, unless specified otherwise</i>)	Assessment
2006	Sabin, Sabin, et al. [86]	Mayan refugees to Guatemala	PTSD 8.9% Anxiety 17.3% Depression 47.8%	Harvard Trauma Questionnaire (HTQ) Hopkins Symptoms Checklist-25
2005	Basoglu, Livanou, et al. [87]	Refugees from Yugoslavia	PTSD 33% MDD 10%	Trauma Survivors Questionnaire (RTSQ) 48-Item Emotions and Beliefs After War (EBAW) Semi-structured Interview for Survivors of War (SISOW) <i>Diagnostic and Statistical Manual of Mental Disorders (DSM) IV (SCID-I/NP, version 2)</i>
2005	Steel, Silove, et al. [88]	Vietnamese refugees in Australia	Anxiety 6.1% Depression 6.1% Substance dependence 6.1% (12 months' prevalence)	Composite International Diagnostic Interview (CIDI 2.1)
2005	Marshall, Schell, et al. [16]	Cambodian refugees (99% had experienced near-death situations; 90% had a family member of a friend killed)	PTSD 62% MDD 51% Alcohol use disorders 4%	Harvard Trauma Questionnaire (HTQ) Alcohol Use Disorders Identification Test (AUDIT)
2004	Fenta, Hyman, et al. [1]	Ethiopian refugees and immigrants in Toronto	Depression 9.8%	Composite International Diagnostic Interview (CIDI)
2004	Karunakara, Neuner, et al. [89]	Sudanese	PTSD 46% in refugees (48% in stayers and 18% in Uganda nationals)	Posttraumatic Stress Diagnostic Scale (PDS)
2004	Van Ommeren, de Jong, et al. [7]	Bhutanese refugees in Nepal	Somatoform pain disorders 31% PTSD 85%	Diagnostic interview, ICD 10 based
1999	Peltzer [90]	Sudanese refugees	PTSD 32% Depression 30%	Hopkins Symptoms Checklist
1998	D'Avanzo et al. [91]	Cambodian refugee women	Depression 87% (France) Depression 65% (United States)	Hopkins Symptoms Checklist
1998	Holtz et al. [92]	Tibetan refugees	Anxiety 41.4% Depression 14.4%	Hopkins Symptoms Checklist

in cognitions and mood and Criterion E = alterations in arousal and reactivity according to *DSM V*) have been associated with higher level of reported physical pain [95]. Somatization, a term typically used when patients present with physical complaints without a clear medical or surgical diagnosis, has been long considered rather common in refugees of non-Western origins [96]. It has been postulated that the stigma of mental illness is high in these populations, and having a physical illness is somewhat “more acceptable”; therefore, patients would express their psychological distress through physical complaints. Before attributing physical complaints to history of trauma, it is important however to remember that migrants diagnosed with PTSD and depression have significantly higher rates of chronic disease compared with migrants without diagnosed psychiatric disorders—especially infectious disease, neurological disease, and pulmonary disease [97]. Treatment of the psychological symptoms improves physical symptoms, and conversely, addressing chronic pain facilitates treatment response of PTSD symptoms [39].

Resilience and Posttraumatic Growth

Although the prevalence of psychiatric problems is relatively high compared to the general population, many of the refugees succeed in integrating in the receiving society and achieving a good quality of life. Long-term outcome studies show that while psychological distress remains high in some resettled refugees, trauma-related symptoms overall decline over time and many refugees have no mental illness at ten-plus years after resettlement [98]. The concept of posttraumatic growth, which summarizes the positive personal changes one makes in reaction to traumatic events, has received recent attention from researchers. Posttraumatic growth is related to a higher quality of life in general; in addition, it explained more of the variance in quality of life than did posttraumatic stress symptoms, depressive symptoms, or unemployment [99]. Religious beliefs are often associated with resilience [32] and less mental health problems [100]. Bridging social networks were also associated with better mental health, particularly in women [101].

Culture-Specific Syndromes

Each culture has specific syndromes that in the Westerner’s eye are classified as psychiatric diseases or specific presentations of more common psychiatric diseases. Various populations can present with specific syndromes, but at the same time, the same syndrome can be seen in different cultures located in different geographic regions. For instance, women who jump into wells in suicide attempts have been described in Pakistan, Punjab, Bangladesh, and Sri Lanka [102]. *Koro* (the penis shrinking syndrome) is a classic example of a culture-bound syndrome seen in different ethnic and geographic groups [103]. Survivors of the Rwanda genocide

divided mental health symptoms into a mental trauma syndrome (a PTSD-like presentation plus some depression symptoms plus “local” symptoms) and a grief syndrome (other depression symptoms plus “local” symptoms) [104]. Multiple culture-specific syndromes have been described in the Cambodian population; among them are *Khya ^ l* attacks (a variant of panic attack, characterized by physical symptoms and fear of heart arrest) and *khmaoch sangot* (“the spirit pushes you down”—a form of sleep paralysis) [105].

Cultural factors may also become specific risk factors for mental health problems; for example, in Lao refugees, violating clan and kingship rules is associated with higher risk of suicide [106].

Transcultural psychiatry, which, in part, focuses on the study of these syndromes, is a rapidly growing discipline. While only a subset of refugees manifest clearly defined cultural syndromes, there are many subtle cultural variations in illness manifestations. In working with refugees, one must not only become familiar with the specific culture to which the patients belong but also consider local and individual specifics and avoid premature labeling. Many areas of conflict are extremely multicultural or multireligious. As in any clinical setting, maintaining an attitude of inquiry and curiosity will facilitate breaking transcultural barriers.

Summary

Many factors in the premigration, migration, and post-migration phases of displacement predispose refugees to psychological distress and mental illness. While prior trauma is a major risk factor, many other social and acculturation factors in the resettlement period also contribute significantly to mental distress. Prevalence of mental illness in refugees is difficult to measure due to methodological and cultural reasons, but PTSD and major depression are consistently shown to be high compared to host populations in resettled countries. However, refugees also exhibit resilience, and the majority successfully integrate into their host countries and function well over time.

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Chapter 14

Mental Health Screening



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Introduction

There has been a long-standing discussion among scholars about the role and utility of early mental health screening to detect common mental health challenges in refugees. In the development of a health screening protocol for refugees arriving in the United States, models were deemed inadequate, in part at least, due to the lack of mental health screening [1]. Challenges to the development of mental health protocols for refugees have included the lack of validated tools, insufficient research about instruments and efficacy, insufficient post-screening referral sources for assessment and treatment, and limited funding support within the resettlement process for mental health [2]. Since the release of the first edition of this book, there has been a growth in research of screening instruments shifting the debate from whether to conduct screening to what are best practices for mental health screening of refugees. This discussion has focused primarily on the ethics of screening with limited treatment resources to meet the needs of this population and how to ensure that referrals to services are effective.

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Therefore, the role of a screener requires understanding of the unique challenges related to refugee mental health and refugee trauma [1]. This chapter includes several issues to be considered when screening refugee clients, a discussion of best practices, and an overview of research related to screening instruments.

Screening is best thought of as a distinct process from diagnosis with the intent to efficiently detect common mental conditions and distress with reasonably high sensitivity and specificity. Encouraging the practice of mental health screening with refugees, authors have discussed both the value of self-report questionnaires to help normalize symptoms in refugees [3] and the use of structured interviews to enable the collection of important details relevant to mental health [4]. While this debate continues, some suggest that early detection of mental health symptoms in refugees improves long-term functioning [4, 5].

The Office of Refugee Resettlement guidelines require a health screening in the first 90 days. A survey of state refugee health coordinators in 2010 reported that only 4 of the 44 states surveyed used a formal screening instrument and 68% used informal conversation [6]. Guidelines provided to resettlement agencies by the Centers for Disease Control and Prevention (CDC) dated 2012 stated that a mental health screen “may be performed according to resources available for intervention for conditions identified” [7]. The newly revised Centers for Disease Control and Prevention guidelines on mental health screening for refugee populations provide suggestions and resources for mental health screening during the initial domestic medical examination. The Centers for Disease Control and Prevention is clear that recommendations provided must be tailored to a specific clinic’s abilities and time, community referral resources, and the health system’s ability to address issues identified [7].

Refugees endure a high burden of distress and illness with its concomitant impairment; best estimates are that up to 10% of refugees suffer diagnostic levels of PTSD and depression [8] and approximately 30% have high levels of distress that might require treatment [9].

The Refugee Experience

While most refugees anticipate an end to the long-term suffering and uncertainty when they arrive to the city of resettlement, the initial months, and often years, is a period of emotional adjustment that can fluctuate between relief and distress, even, in some cases, reactivating symptoms of trauma. The period of acculturation that serves to enhance an integrated life in the country of resettlement brings significant challenges interpersonally, socially, and culturally. Family dynamics, role changes, loss of power, and language development are all elements faced in acculturation that may incite emotional distress at any time and even years after arrival [10]. Therefore, mental health screening, at any time, can play a vital role in identifying refugee mental health needs.

It is important to note that refugees are a diverse group and represent a broad variety of ethnic, language, and people groups. Additionally, the method of screening may vary depending upon the environment, the provider administering the screen, and the potential for referral to appropriate services. Across the United States, these methods vary by locality, resources, local training, and capacity. Before screening, it is important to be aware of local resources and protocols. The CDC guidelines are an excellent resource for best practices in screening for refugee emotional health distress [7].

The Need for Screening

There are a number of factors that impact an individual's expression of distress. When working with refugees, some factors to consider include language, culture, social/family role, the individual traumatic history, and the client medical worldview [11, 12]. Gaining greater insight into the issues that impact a refugee's expression of distress will lead to better understanding of the individual's health perspective, their strengths, as well as their needs and challenges.

The human biological system response to stress includes a series of common physiological changes [13], which might predict core symptoms, yet the language used to express these varies based on social and cultural factors. For the purpose of screening, identifying the central symptoms that arise from the neurological process and less on the complex communication of them avoids being distracted by cultural and medical frameworks.

Screening is often the first step in the clinical diagnostic process. Screening can aid providers in quickly identifying the presence of a particular condition during critical entry points in a refugee's primary care journey. If a patient is identified as in need of further care through use of validated instruments, a more in-depth exploration through a comprehensive assessment is suggested. A comprehensive biopsychosocial assessment after screening, when warranted, contributes to understanding the complex symptoms, co-morbidities, and explanatory models that help define treatment needs.

In addition, screening can effectively be a first step to assist the refugee to understand the many ways in which their trauma exposure(s), subsequent flight to resettlement, and resettlement all affect their life through a continuum of physical, emotional, cognitive, spiritual, and even communal impacts. While screening suggests a possible diagnosis or identifies a cluster of symptoms, subsequent assessment can contextualize for the refugee the impact of their experiences and help them describe the effect of these experiences on themselves. When an assessment indicates a diagnosis, it can provide the clinician with information to help explain the condition to the client. This can support the refugee to accept the changes they are experiencing and the treatment that may be offered, especially if such treatment is not commonly available in the country of origin. Oftentimes, the explanation and

the recognition that one's condition or "new way of being" has a name and a cause and is a shared experience with others who suffer displacement and loss is helpful and even healing.

One concern expressed by primary care physicians about mental health screening with a refugee is that it may cause a strong emotional reaction. There is no evidence to suggest that physicians need to be concerned with this, and following the guidelines above will increase refugee comfort. Screening for symptoms using an instrument such as the VDS for depression or the RHS-15 for PTSD, anxiety, or depression and not initially discussing trauma, torture, or other emotionally laden issues will mitigate immediate distress. Effective screening of refugees in the primary care setting may increase visit time and does require a focused effort. However, the need for services is great, and outcomes have shown that there is value for refugees in receiving services [14]. Ultimately, providers can support the healing process by creating a safe and engaged connection that allows refugees to improve their understanding of the medical system and have power over their own medical and mental health care.

Mental Health Presentations

With growing research in the area of refugees over the past decade and new populations arriving in the United States, the landscape of presentations seen is shifting. Besides PTSD and depression, mental health issues that should be considered in a mental health screening include traumatic or acquired brain injuries, forms of psychosis, and conditions previously undiagnosed in adults, including developmental delays, autism spectrum disorders, and similar diagnoses [5]. According to screening guidelines from the CDC, physicians should screen for undiagnosed psychosis and traumatic or acquired brain injury. These conditions are often more complex and may require additional visits or evaluations after primary mental health screening.

Primary care physicians are an important source to identify survivors of torture and to help them obtain necessary medical and psychiatric care. For more information on providing medical care to survivors, see Chap. 16.

Considerations for the Screening Process

Safety and Security

Refugees, by definition, have endured experiences of harm, persecution, and loss of security, all of which can reduce an individual's level of trust. Therefore, careful engagement of a refugee and consideration of their need for safety are important.

Based on past experience, many refugees hesitate to speak openly or disclose too much information for fear of retaliation, of persecution, or that the information will be used against them. Establishing a feeling of security is necessary for an accurate measure of health symptoms of any kind [15].

Timing

The period of adaptation in the preliminary months of resettlement adds another layer of physical, social, and psychological stress, and some refugees may find the process of adjustment to be overwhelming. Emotional responses during this period vary widely, and while some individuals experience an initial “honeymoon” period that masks symptoms, others may find that specific events trigger symptoms even years after arrival. Language and cultural adjustments, changes in family roles, and social expectations can manifest in a variety of medical or psychological complaints for many years after arrival to the country of resettlement. Hence, screening may yield variable results depending on when it is administered.

Cultural Manifestations

Refugee descriptions of symptoms and emotional distress are communicated using language that reflects their medical worldview. Many refugees come from naturalistic or personalistic medical models, both of which understand the nature of illness and the body differently than Western-based medicine [15, 16]. Research has demonstrated that experiences of extreme stress effect a variety of changes in the body [17] and refugees will often report physical symptoms of distress. A significant number of refugees come from worldviews that do not differentiate between mind and body symptoms [18]. Best practices for effectively screening refugees for emotional distress suggest that when discussing symptomology with a refugee patient, it is helpful to describe the relationship of distress being caused both in their body and in their mind.

Provider-Refugee Communication

Another issue affecting communication is the respect awarded to people in authority. In many cases, refugees may not initiate communication but only respond to specific questions and in some cases will avoid any appearance of disagreement even when a provider’s advice goes counter to the refugee’s belief or understanding.

Language and cultural barriers make using trained interpreters and translated instruments a requirement. Providers working with refugees must have knowledge of and follow proper interpreter protocol. It is important that providers do not ask interpreters to answer questions or “fill in the blanks.” Providers should have sufficient knowledge of the cultural context to ensure that an interpreter being used is not representative of a tribe, clan, or ethnic group that had previously persecuted the patient’s refugee group. Depending on the type of assessment, or the religious or cultural worldview of the individual, gender matching may also be imperative. It is important to watch for signs of discomfort, ask clarifying questions, and ask the interpreter to follow protocol.

Even with the best tools at hand, understanding what the refugee intends to communicate can, at times, be a challenge. Screening that includes both standardized instruments and an interview is best as refugee literacy (in their primary language) and comprehension of scale formats may interfere with accurate conclusions [4]. Researchers found that bicultural case workers who could follow up with refugees after initial screening and support any positive cases in connection to follow-up care helped to alleviate attrition rates and a number of other healthcare barriers [19].

Psycho-education

Providers can help overcome some of the challenges of communication by using concrete simple language and provide psycho-education by focusing on symptoms, rather than specific diagnosis. Also, a provider can never assume that a refugee understands the context of the medical encounter and should take time to provide clarity about their role and intention [11]. Careful explanation of the use of any paperwork or documentation the refugee has to sign is warranted, as many may have signed stacks of papers they did not understand either in the context of traumatic experience or in the resettlement process. Additionally, offering patients concrete information and explaining what mental health services entail in the United States helps to reduce misinformation and may alleviate stigma associated with seeking care [20, 21].

Since the refugee experience is one of disempowerment, refugees are best served when provided with education about procedures and services that include opportunities for choice. Refugees who are protective of information or reluctant to participate in activities that might improve their health are often mislabeled as noncompliant or suffering from a stigma [20, 21]. Explanations and instructions that allow refugees to have control over choices are more effective. When referring refugees for follow-up assessment or mental health services, rather than using diagnostic or psychological language, it is useful to describe the services as an opportunity to meet with another provider who can help them to manage the symptoms and increase their comfort. It is useful to listen for those things that the refugee themselves identify as a need or priority and then link that need to the subsequent mental health encounter. This both affirms the individual and helps to shape their understanding of how the services can be of use to them.

Treatment Availability

Another important consideration is the ethics of mental health screening as it will frequently reveal complaints, symptoms, and issues that warrant assessment and referral for treatment. Best practice dictates that screening only be completed when there are appropriately trained and supported assessment and treatment options and sites, i.e., there must be meaningful and accessible referral options. Therefore, a well-constructed referral process is paramount to a refugee taking the next steps.

Considerations for Referral

Referral Process

Effective referral is a critical step in ensuring that this underserved population receives needed treatment. Referral for mental health services depends on many factors, and with refugees it is especially important to refer to an agency, system, or provider that feels relevant for the person. Usually, referrals are offered within an insurance or health network or an agency; they are also often done within a group of providers who may share a common treatment approach or philosophy or even geographic or clinic location. There are multiple dimensions for consideration when making a referral, and based on the screening and assessment, referrals are ideally made by a coordinated interdisciplinary team. Care coordination is a critical aspect of an effective mental health referral [22].

For many cultures, it may be unusual to see a different provider for different parts of one's health. Receiving treatment for one's mental health may not only be a new concept for some; it may be very confusing for a refugee patient, who may be used to seeing one healer or provider for all their health concerns [23]. Providing health information and sharing concrete information about available resources and offering psycho-education as to the nature of the emotional health problems are critical ingredients in the referral offer. These aspects may make it more likely for a refugee patient to accept a referral [20].

Provider Factors

Serving the refugee population requires creative approaches and critical thinking in developing treatment models. As a referring provider, it is best if the referral is made with culturally appropriate and sensitive approaches, by validating the refugee experience, normalizing feelings that follow significant trauma and loss, and assuring the patient of rules related to confidentiality of the care they may receive. Receiving providers that understand the refugee context and that integrate psycho-education,

cultural transition, safety building, problem solving, and resiliency skill development are a good choice. Mental health providers that work on building personal security can form a strong foundation for healing.

Treatment Approach

The movement toward favoring evidence-based practice in the United States can bias referrals toward a particular treatment approach that may or may not be relevant to the individual being referred. Multiple studies show that refugee populations are amenable and responsive to pharmacological, psychotherapeutic, and integrative/culturally determined mental health treatment [14, 24]. However, many refugees come from sociocentric cultures that are accustomed to sociocultural processes, often communally based processes that integrate arts and traditional medicine and ritual. Many of the once “alternative” but now more integrated creative arts and somatic therapies might be more relevant and helpful, just as alternative treatments may be more familiar to the refugee than mainstream medical or psychological approaches [25–27]. Ideally, the treatment should be tailored to the individual refugee’s needs and expectations.

Refugee Engagement

Barriers to consistent screening included time, cost, refugees’ help-seeking behaviors, accessibility and availability of services, language, and cultural or conceptual differences in health perceptions [28]. Refugees also experience poor general access to and engagement in healthcare [29]. These disparities are most likely driven by multiple structural and internal barriers [28]. To adequately address barriers to care and emotional health literacy, the provider’s manner of engaging, communicating, and processing has to be relevant and relatable to the clients’ orientation and worldview. A patient-centered approach will assist in reducing stigma, shame, and misinformation about emotional health care services in a new culture and context. Collaborative methods that include psycho-education are key to increasing the chances of engagement in care [10].

Community Support

Effective treatment goes beyond clinical care. Services that include a case management component that attends to common refugee stressors, healthcare, housing, immigration status, employment, and language acquisition are highly recommended [10, 21]. Moreover, community-based approaches that help to normalize the trauma

experience and serve to integrate the individual into systems of social support can at times support the healing process. Social and group activities that build greater connection and safety allow natural strengths and resiliency to flourish.

Elements of an Effective Referral

Below is a summary of important elements to consider in the referral process:

1. Language – Are there providers who speak their language or adequately trained interpreters?
2. Payment/insurance – Is the patient eligible to receive services from the agency receiving the referral? Will the payment mechanism pose a barrier to receive services?
3. Access – Is the location accessible for the refugee by public transportation or other means? Is it in a safe place for people from a different culture? Is childcare service available? Is the building accessible for people with physical disabilities?
4. Sustainability – Is the treatment program or practice able to provide long-term mental health services for refugees that need them? Are there case management services available in the program?
5. Provider expertise – Are there clinical providers in the agency with experience, interest, and willingness to treat refugees with multiple levels of trauma?
6. Provider demographics – Are the gender, age, religion, and country of origin of the treater important to the refugee? Individual preferences even among refugees from the same culture can vary; their choices can also be a window into their worldview.
7. Flexibility – Can the agency or provider offer flexibility in the timing, length, number, and types of sessions with an openness to having family sessions or conducting home visits?
8. Treatment approach – Is the agency or provider able to provide a range of services that may include psycho-education, support for cultural integration, resilience-building skills, and enhancing social functioning?

Instruments for Screening

The need for short, culturally appropriate mental health screening tools to identify refugees who need additional services has led to the development of several tools [7]. The primary challenge to developing a screening instrument is that refugees are heterogeneous groups who collectively experience many psychological and somatic symptoms of distress. Theoretically, a screening instrument should include symptoms that optimally predict common disorders in multiple refugee groups with high

efficiency. A few instruments have been developed in refugees for specific diagnostic identification. Depending on the clinic environment, and for a busy practitioner, only a primary screening and referral process may be feasible. However, in clinics with additional resources, a second-tier clinical assessment that allows for a more comprehensive narrative by the refugee(s), an in-depth history, and diagnostic formulation may be possible.

The Vietnamese Depression Scale (VDS) consists of 15 items that effectively identify depression in Vietnamese refugees [30]. The Harvard Trauma Questionnaire (HTQ) has a 30-item section assessing symptoms that have been used as a proxy for PTSD [31]. Both instruments were developed by expert consensus methods for use in the clinical setting.

There are a few instruments developed for refugees that assess symptoms as diagnostic proxies (DPs). None are definitive diagnostic equivalents. The Hopkins Symptom Checklist-25 (HSCL-25) is a valid indicator of anxiety and depression for the general US population and for Indochinese refugees and demonstrates transcultural validity. Item-average scores ≥ 1.75 predict clinically significant anxiety and depression on the scale in general US and refugee samples and are considered valid DPs [32].

The Beck Depression Inventory [33] was developed to measure depression in the general population. Although not developed for use with refugees, the adapted inventory has demonstrated purpose, construct definition, design, developmental process, and reliability and validity in subsequent studies [2].

A screening instrument developed by the *Pathways to Wellness* project, the Refugee Health Screener-15 (RHS-15), was designed to be short (15 questions) with neutral language that does not directly address violence, torture, or trauma. The RHS-15 was empirically developed to be a valid, efficient, and effective screener for common mental disorders in refugees [16]. The RHS-15 has been integrated into standard physical health screenings for newly arrived refugees in many states across the United States, as well as in Sweden and Germany [34].

Symptoms that form the validated RHS-15 were derived from 27 New Mexico Refugee Symptom Checklist-121 items, [35] the Hopkins Symptom Checklist-25, and the Posttraumatic Stress Disorder Symptom Scale – Self Report that were found to be most predictive of anxiety, depression, and PTSD across a sample of Iraqi, Nepali Bhutanese, and Burmese refugees. Multiple exploratory methods were used during analysis, including correlations and general linear models using t-tests and analysis establishing the most useful and efficient set of symptom items. The RHS-15 is composed of 14 symptom items and a distress thermometer that predict each of three diagnostic proxies with sensitivity ranging between .81 and .95 and specificity ranging from .86 to .89 [16].

Strengths of the RHS-15 are its metric properties, the efficiency of administration, and its demonstrated preliminary effectiveness and desirability in meeting a clear need. Because developers of the RHS-15 were sensitive to the cultural beliefs and expressions regarding symptoms of mental health, participatory community methods, including translation, helped ensure cultural equivalence for important words and phrases of distress. The RHS-15 is available in Amharic, Arabic, Burmese,

Farsi, French, Karen, Kinyarwanda, Nepali, Russian, Somali, Spanish, Sorani Kurdish, Swahili, and Tigrinya. Since its development, the RHS has been found valid in other populations against other valid measures and clinical diagnoses [35]. Limitations of the RHS-15 are that prospective efficacy and effectiveness testing is yet to be reported and generalizability to other refugee groups is still pending [16].

The original version of the RHS-15 items has high internal consistency (Cronbach's $\alpha = 0.92$). A validated 13-item version of the scale has shown similar psychometric properties with only marginal change in both sensitivity and specificity [35, 36]. With the 13-item version, the sum of scores is used, and recommendation for screening purposes has a cutoff score of 11.

Researchers in Sweden recently examined the use of a 13-item RHS scale with stepped scoring procedures. In their study cohort of over 500 asylees, they found the RHS-15 to be highly efficient in identifying symptoms of depression, anxiety, and PTSD among asylees. Their findings support a cutoff score of 11 for RHS-13, and they suggest a "stepped scoring process" with further cutoffs for moderate and severe symptoms (18 and 25, respectively). One important outcome of this study is that it indicates that RHS measure is sensitive to change, at least with regard to specific contextual factors [37].

Kaltenbach and colleagues found that 52% of refugees (out of 86) in Germany screened positive on the RHS-15, indicating the need for further follow-up care. The RHS-15 showed excellent psychometric properties in both a self-rating and the interview version. It detected clinically relevant mental health problems when PTSD, depression, anxiety, or somatization problems were present. These researchers found the 13-item measure to be equally valid, time efficient, and feasible, with a gain in specificity and only a minor loss in sensitivity [34]. Commonly used mental health screening instruments are summarized in Table 14.1.

Table 14.1 Common mental health screening instruments used in refugees

Instrument name	Format	Design	Tested in refugees	
			Reliability	Validity
Harvard Trauma Questionnaire	Self-report, screens for trauma and PTSD	Designed for the refugee population	Tested reliable with refugees	Tested valid with refugees
Vietnamese Depression Scale	Self-report, screens for depression	Designed for Refugee population	Not reported	Tested valid with refugees
Hopkins Symptom Checklist-25	Self-report, screens for anxiety and depression	Adapted for use with the refugee population	Tested reliable with refugees	Tested valid with refugees
Beck Depression Inventory	Self-report, screens for depression	Adapted for use with the refugee population	Tested reliable with refugees	Tested valid with refugees
Refugee Health Screener-15	Self-report or clinician administered, screens for PTSD, anxiety, and depression	Developed in the refugee populations	Tested reliable with refugees	Tested valid with refugees

Summary

Several advances have emerged as best practices of how to screen refugees for emotional distress. Screening is the first step before diagnostic assessments and referrals to specialty care. Effective screening and referral depends on many factors including using appropriate screening tools. Despite many advances, *some* challenges in methodology in screening, referring, and distinguishing screening from diagnostic assessment persist. It is our recommendation that primary care physicians attend not only to clinical best practices for screening but also engaging refugees in ongoing behavioral healthcare support.

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Chapter 15

Treatment of Mental Illness



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Introduction

As has been outlined in Chaps. 13 and 14, estimates of the prevalence of mental illness in refugees are varied depending on their home countries, their experience, torture history, and the process by which they made their way to the United States [1]. However, numerous existing studies confirm that several risk factors put refugees at high risk of developing mental illness. The World Health Organization (WHO) estimates that of the people who experience traumatic events as a result of armed conflict, 10% will have serious mental health problems and another 10% will develop behaviors that will hinder their ability to function effectively [2]. While post-traumatic stress disorder (PTSD) and major depressive disorder (MDD) are among the commonly reported mental illnesses, generalized anxiety disorder (GAD), psychotic illness, and culture-specific syndromes are also described [3–5] (see also Chap. 13). Refugees may also manifest isolated mental and physical symptoms that do not fulfill criteria for a known disorder but appear to result from emotional distress.

The challenges described in previous chapters are inherent in screening and diagnosing mental illness and apply to designing treatment interventions for these illnesses. A major barrier to delivering optimal care is language. Qualified medical interpreters are critical as the efficacy of psychotherapeutic interventions is dependent

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on effective communication. Subtle differences in meanings particularly of idiomatic speech, if not interpreted correctly, can contribute to a poor understanding of cultural factors in the manifestation of emotional distress or even frank misdiagnosis.

General Principles

As described in Chap. 10, many refugees present with physical symptoms; and musculoskeletal pain, dizziness, fatigue, and dyspepsia have been commonly described [6]. Often these symptoms are predictors of anxiety, depression, or PTSD [7]. Examples of specific physical manifestations in traumatized refugees in certain cultural groups, such as tinnitus related to PTSD [8] and “gastrointestinal-focused panic” [9], have been described. Management of these symptoms and conditions should include assessing for and addressing psychiatric issues, when present. The importance of including physical symptoms in psychiatric screening is underscored in the development and use of the Refugee Health Screener-15 (RHS-15) in refugee populations (see Chap. 14).

When there is suspicion for significant psychological distress or psychiatric illness based on history, physical exam, and use of screening tools, the refugee should be referred to mental health services, if available. Regions greatly vary in availability of local resources and capacity to provide mental health care, and mental health agencies typically have limited capacity to provide specialized care for refugees. Finding adequately qualified interpreters is one of the biggest barriers to delivering appropriate mental health care to refugees [10, 11].

Treatment strategies for refugees should be multidisciplinary. An array of approaches including pharmacological, psychotherapeutic, psychosocial, and community-based interventions should be considered. Refugees are often reluctant to accept mental health treatment; therefore, it may be useful to frame it as support to cope with their past traumas as well as ease their transition to a new society. Refugees also often come from societies where treatment for anxiety and depression is infrequent and viewed as unnecessary. For a refugee with significant physical symptoms, the primary care clinic may be the best setting for treatment, especially if he or she is reluctant to engage in mental health treatment. Treatment recommendations for these patients are similar to general principles of treating chronic illness, specifically somatic symptoms [12].

Psychoeducation is important as the first step in engaging patients in treatment. This would include education on previously undiagnosed or untreated mental illness, a discussion of psychological distress in the context of acculturation and previous traumatic experiences, and the options available for support and treatment. Refugees may acknowledge the need for support in adapting to a new environment as well as separation and loss of family, culture, and home. Focus should not just be on past trauma but also on adjustment to living in the new country. Changing of gender roles and intergenerational conflicts may emerge during transition. It is important for providers to recognize that their approach to mental illness may be

very different from that of the refugee and Western-based treatment modalities should not be applied uniformly to all patients. Supportive therapy based on a person-centered counseling paradigm and empathic understanding should be provided in a non-challenging environment.

Psychopharmacology

There are very few studies evaluating psychotropic treatment for refugees. Most are studies of PTSD and depression and measure symptom change with pharmacological treatment in specific refugee groups without any control groups. Agents used in these studies were selective serotonergic reuptake inhibitors (SSRIs), serotonergic and noradrenergic reuptake inhibitors (SNRIs), mirtazapine, and bupropion. Results showed improvement in PTSD and depression symptoms [13–15] and in associated somatic symptoms in at least one study [14].

SNRIs are an interesting option when treating refugees because of potential analgesic properties. Venlafaxine has been found to show better results in treating PTSD symptoms compared to sertraline [16]. Other medications that have shown efficacy in refugees are clonidine [17] and prazosin [18] for PTSD. In a group of Cambodian refugees with PTSD, combination therapy with an SSRI and Cognitive Behavioral Therapy (CBT) was more efficacious than medication alone [19].

Some clinical studies have reported marked sensitivity to side effects of psychotropic medications among refugee groups [20]. Since many refugees are medication naïve, it is recommended that lower doses be initiated to minimize side effects. We have also found that many refugees are unaccustomed to participating in treatment decisions with their physicians, so extra efforts to describe patient options and even their right to refuse as part of informed consent are worthwhile to improve long-term engagement in treatment.

It is relevant to consider that refugees have lower rates of dispensed psychotropic medications, as it is described in a Sweden cohort of more than 40,000 young adult refugees, compared to Swedish-born [21]. The authors speculated barriers to access as a possible explanation.

Psychotherapy

Most research on mental health treatment in refugees has been on trauma-focused therapies, and interventions have targeted post-traumatic stress. This approach has been emphasized by the recommendation of trauma-focused psychotherapy as the treatment of choice for PTSD by the National Institute for Health and Care Excellence [22]. It is important to remember that PTSD in refugees is complex with repetitive and cumulative trauma and compounded by post-migratory living difficulties. Alternative conceptualizations to include a broader range of symptoms,

such as Disorder of Extreme Stress Not Otherwise Specified (DESNOS), have been proposed [23–26]. DESNOS is characterized by problems in regulation of affect, impulses, memory, attention, self-perception, and interpersonal relations, together with symptoms of somatization and disturbances in systems of meaning; this conceptualization is often referred to as complex PTSD [27, 28]. In spite of the fact that PTSD in its pure form may not be applicable to refugees, it remains the most common diagnosis studied in this population. Since traditional treatment modalities for PTSD that focus on one traumatic event may not be effective in refugees, other adaptations have been tried in this population.

Traditional Cognitive Behavioral Therapy (CBT)

CBT is a contemporary treatment model used widely for PTSD [29, 30]. CBT is based on a PTSD framework in which extreme fear at the time of the traumatic event is associated with other stimuli related to the trauma and this results in a conditioned response; each time any of these stimuli are encountered, a fear response is triggered. One of the CBT techniques is via extinction learning where the person learns that those stimuli are no longer paired with the traumatic event and over time anxiety is diminished. CBT also is useful for altering maladaptive cognitions. Disturbances in processing memories and distorted thinking are responsible for the intrusive and avoidance symptoms of PTSD.

Standard CBT has been examined and studied extensively; however, differing results have been reported. A large review of studies conducted by Tribe et al. concluded that CBT has a limited evidence base when applied to refugee populations [31]. On the other hand, a systematic review of 25 studies demonstrated significantly large effect sizes in the treatment of PTSD in adult refugees [32]. It may be that CBT efficacy is less robust in refugees due to ongoing threat, such as living in refugee camps, being contained in detention centers, and living with the uncertainty of future security [33].

Culturally Sensitive CBT

In addition to standard CBT methods, some studies adapted culturally appropriate imagery and specialized techniques such as mindfulness and meditation [34, 35]. A randomized controlled trial by Hinton et al. studied Cambodian refugees with pharmacology-resistant PTSD and panic attacks and found much greater improvement in patients who were treated with culturally adapted CBT [36]. The focus in these culturally adapted therapies is more on regulating affect rather than exposure. These therapies showed effectiveness for PTSD, depression, and anxiety; but follow-up duration was short; also they have not been studied across multiple refugee populations. Treatment dropout rates can be high in PTSD populations [37], and modifications of standard treatment are especially relevant in specific populations

such as refugees. Considering the well-known chronicity of traumatic symptoms in refugees, there is a need for outcome studies with a focus on long-term treatment effects in diverse refugee groups and an exploration of treatments that could be effective in preventing relapse [32].

Exposure Therapy

Exposure therapy continues to be a mainstay treatment used for extinction conditioning, although some authors caution against exposure therapy in an already hypervigilant and retraumatized refugee population. In this type of therapy, a person is confronted with or exposed to thoughts or situations that evoke fear and is taught to address the fear with relaxation or other techniques. Many refugees have experienced forced migration, starvation, near-death situations, torture, disease, injury, and loss or killing of family and close friends; this makes their story of traumatic events prolonged and repeated, making it difficult to practice usual exposure therapy techniques which are often aimed at one's worst traumatic experience [32].

Narrative Exposure Therapy (NET) is an adaptation of exposure therapy originally applied to war survivors. Schauer et al. describe NET for traumatic stress after war or torture [38]. It is also tested in comparison with other modes of therapy in refugees with PTSD [39, 40]. NET is a form of testimony psychotherapy, which involves the recounting of the patient's life story focusing on traumatic experiences that led to PTSD. The goal is to integrate the memory of repetitive traumatic experiences into the refugee's life story so a coherent chronological narrative is formed. The narrative is recorded in written form with both therapist and patient reviewing it, and at the end of treatment, the patient keeps the record. Tribe et al. found that NET treatment consisting of 3–12 sessions resulted in reductions of PTSD symptoms, with medium to large effect sizes [31]. An interesting observation by Schulz et al. was that sharing in an acquired language is less emotionally charged, so clients were asked to write in their native language to ensure that they dealt with the real emotions provoked by the trauma [41].

NET has a good evidence base for reduction of PTSD symptoms [31, 32]. For anxiety and depression symptoms, NET seems no better than treatment as usual, and for pain symptoms it is somewhat superior to treatment as usual [32].

In terms of overall study quality and accumulation of evidence, NET and culturally sensitive CBT (for Southeast Asians) are the two treatments with the best documentation of effect among all treatments for symptoms of PTSD in traumatized refugees.

Other Psychotherapeutic Treatments

Other treatments have been tried in refugees, but evidence is limited to small refugee groups. Studies of these treatments are listed in Table 15.1.

Table 15.1 Other Psychotherapeutic Treatments

Type of therapy	Description	Treatment target	Literature
Eye Movement Desensitization and Reprocessing (EMDR)	Patient attends to emotionally disturbing material while focusing on therapist-directed lateral eye movements. The new association created results in new learning and elimination of emotional distress	Symptoms of PTSD Has also been tested in children [42]	Overall, the evidence for EMDR in refugee populations remains limited at this time, with somewhat mixed findings [31]
Mother-child dyad treatment	A manualized group aimed to improve young children's mental health through improving mothers' self-confidence [43]	Symptoms of PTSD in mothers and children	Proved to be beneficial on mothers' PTSD symptoms as well as aspects of children's mental and physical health [32]
Musical therapy	Musical therapy in combination with usual treatment	Symptoms of anxiety and depression	Found to be beneficial in a very small group [44]
Psychodynamic psychotherapy	Trauma-focused psychodynamic psychotherapy with 15 months' follow up	Symptoms of PTSD and general mental health	A non-manualized, psychodynamically oriented trauma-focused therapy has been tested and found effective in a small group of refugee patients [45]
Interpersonal psychotherapy (IPT)	Individual and group IPT	Mainly symptoms of depression	Reductions in depressive symptoms in displaced adolescents and adults in Uganda [46] Effective for depression symptoms among adolescent girls affected by war and displacement [47] Large systematic review concluded lack of robust evidence base in refugees [31]
Emotional regulation and interpersonal skills	Delivered in addition to trauma-related cognitive therapy	Symptoms of PTSD	Found to be effective, reducing PTSD symptoms in a group of 70 refugees [48]
Behavioral biofeedback therapy	Learning process that combines relaxation training with the use of instruments that measure mind/body processes	Chronic pain	Found modest benefits on chronic pain but not on PTSD or depression [49]
Thought field therapy (TFT)	A blend of acupuncture, chiropractic, and psychotherapy	Symptoms of PTSD	A nonexperimental study of TFT has shown effectiveness [50]
Multimodal treatment	A combination of psychotherapy, social support, and medications	Symptoms of PTSD, depression, anxiety, and overall functioning	Reduction of symptoms of PTSD [51] No significant improvement [33]

The efficacy of any of these treatments over the long term has not been well established. A number of studies have documented that PTSD, anxiety, and depression (often comorbid) remain chronic for a substantial number of refugees [52–54] even years after resettlement and in spite of treatment [55]. Also, while there is some evidence for improvement in somatic symptoms with trauma-focused therapy in refugees, somatic symptom treatment is under-researched [40].

Community-Based Interventions

Post-migration stressors such as under- or unemployment, limited finances, and language barriers, coupled with the demands of acculturation, decreased social support, and possible role changes, increase the psychological distress faced by refugees. Several studies have suggested that addressing the “basic” needs of the refugees will aid them in their recovery from conflict-related trauma [56–59]. Resettlement agencies generally try to provide assistance with the resettlement process (residency status, family union, housing, social services, language classes, education, and employment opportunities) along with accessing medical care including psychiatric treatment, when necessary. They may also strive to provide some form of psychological support, either direct professional counseling or problem solving at the individual and family level.

Community-based health interventions are also a way to empower local refugee groups to participate in solving their social and health problems. There is a focus on self-help, inclusion, empowerment, and advocacy. Examples of activities for refugees can range from professional roles (e.g., advice from medically trained refugees), leadership (e.g., group facilitators), and liaison roles (e.g., more established refugees assisting with case management services) to mentoring and individualized support [60]. Using refugees as peer facilitators can be effective in improving social integration, and creating peer support groups matched by gender and ethnicity was found to be successful as a culturally congruent intervention to meet and support needs of refugees [61].

Studies describing community-based interventions are summarized in Table 15.2.

In general, community-based mental health services in both resettlement countries and countries of origin can improve several different health outcomes for refugee populations [60], but more studies are needed to identify the elements that lead to improvement.

Other interventions such as creative expression therapy (music, dance, drama) as well as other family group interventions delivered in community settings are reviewed and summarized by Murray et al. [65].

Online resources for refugee children and youth are available at <https://brycs.org/>. Bridging Refugee Youth and Children’s Services (BRYCS) is a national technical assistance program working to broaden the scope of information and collaboration among service providers in order to strengthen services to refugee children, youth, and their families.

Table 15.2 Community-based health interventions

Type of intervention	Description	Location	Target population	Results
Psychosocial	Training, community awareness campaigns, and clinical group therapy sessions	Refugee camp in Guinea	Paraprofessional counselors and community leaders	Reduced trauma symptoms and improved social functioning [62]
Outreach-oriented model	Culturally sensitive, individualized services to overcome obstacles to accessing care	Community-based mental health program in the United States	Children, adolescents, and their families	The quantity of services did not correlate with clinical improvement [63]
School based	Teachers responsible for screening, assessment, and referral to clinical services	Three schools in the United Kingdom	Teachers	Clinical improvement attributed to teachers' increased awareness, parental involvement, and local resources [3]
"Playing to grow": mental health workshops for children	Preventative intervention aimed at facilitating children's psychosocial and sociocultural development and at providing a context in which feelings can be expressed	Two refugee communities in Guatemala	Children and teachers in the community	Play and creative therapy, drama, and art improve mental health outcomes in children [64]

Summary

Refugees face a range of complex mental health problems caused both by repeated trauma and ongoing social difficulties including adjusting to a culturally different environment. A range of mental health treatment modalities have been studied to treat PTSD in refugees, and NET and culturally adapted CBT have been found to be effective. However, it is important to utilize community-based interventions to address ongoing psychosocial needs. The key is thinking broadly across a range of modalities of treatment and incorporating a team of providers, informally and formally. For most refugees whose distress is vast and often inchoate and who are unable to identify specific needs and problem-solve toward meeting them, even the practical guidance physicians can give is invaluable. Primary care physicians are often the focal point of contact of a refugee with the healthcare system and can provide support, engage in a discussion of emotional health, manage coexisting physical symptoms, and make mental health referrals when necessary.

On a final note, working with refugees can be a most enriching and rewarding experience; nevertheless, working with highly traumatized populations can also take a toll on their providers (including medical interpreters) [66] especially in the

context of limited resources and services to offer distressed individuals. A growing literature on caregivers working with refugees, especially those who are victims of torture, suggests that caregivers too are at risk of burnout and vicarious traumatization as well as depression, anxiety, and substance use problems [67]. We strongly encourage providers to engage in personal and professional self-care which may include ongoing professional supervision and collaboration, ongoing training and management of caseloads, and, as necessary, ongoing counseling and debriefing.

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Chapter 16

Torture and Violence



Mara Rabin and Cynthia Willard

Introduction

Experiencing and witnessing acts of violence creates an indelible mark on the physical and emotional health of a refugee [1]. Many refugees experience a range of violence from intimate to state sponsored. Intimate violence most often affects women and includes interpersonal and domestic violence. State-sponsored violence includes torture, genocide, and civil war. All acts of violence can increase the vulnerability of a survivor and the likelihood of future victimization. Violence that is intentional, such as in the setting of interpersonal and torture, often leads to greater morbidity and mortality in comparison to unintentional violence [2]. Exposure to violence activates the hypothalamic-pituitary-adrenal and sympathetic nervous systems. This activation results in a cascade of complex physiologic changes. When these changes become chronic there is a decrease in physical health [3, 4] and an increase in mental illness [5–7]. In this chapter, we provide an introduction to a few types of violence experienced by refugees with a specific focus on torture and violence against women. It is imperative that health providers have an understanding of the often heartbreaking and unspeakable violence that many refugees have suffered prior to arriving in a health center.

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Torture

The nature of war has shifted dramatically over the past 100 years. Modern-day war now claims the lives of more civilians than in previous wars. In World War I and II, an estimated 10% and 50% of casualties, respectively, were civilians. In armed conflicts since 1945, up to 90% of casualties are civilians [8]. As a result, it is now common for refugees to have witnessed or experienced mass atrocities, violence, and state-sponsored torture in their journey to safety.

Torture is defined by the World Medical Association as “the deliberate, systematic or wanton infliction of physical or mental suffering by one or more persons acting alone or on the orders of any authority, to force another person to yield information, to make a confession, or for any other reason” [9]. At its core, torture destroys trust between two individuals, the perpetrator and the victim, and can lead to lifelong impaired mental, physical, and spiritual health of the survivor. The impact of torture is also far reaching: it not only has the power to destroy individuals but also their families and the greater community. Torture is a worldwide public health epidemic and is an important consideration in the primary health care of refugees. Torture is perpetrated in nearly 141 countries [10]. In every conflict that has generated refugees, torture exists. As a result, many refugees are torture survivors.

There are two classifications of torture survivors: primary and secondary. Primary torture survivors are individuals who were tortured or who witnessed the torture of another. Secondary torture survivors are closely related family members or partners of primary survivors. Secondary survivors were not present during the torture and may not know the extent of the torture. Secondary survivors may also be symptomatic, but tend to be less symptomatic than primary survivors [11].

The common methods of physical and mental torture are listed in Tables 16.1 and 16.2:

Table 16.1 Methods of physical torture

Beatings to the head
Beatings, kicking, striking body with objects: falanga, beating the soles of the feet with cudgels and whips; telefono, beating both ears simultaneously with cupped hands causing tympanic membrane rupture and hearing loss
Being placed in a small box, hole, sack, or cell
Burning
Electric shocks to genitals and other body parts
Exposure to heat, sun, strong light, and cold
Forced labor
Forcing consumption of urine or feces; having urine or feces thrown at one
Near drowning, repeated submersion underwater
Sexual torture—rape, insertion of objects in vagina, rectum
Stretching—suspension or forced abduction of limbs
Starvation
Unhygienic conditions that can lead to disease

Table 16.2 Methods of mental torture

Harm to family members
Isolation
Mock executions
Prolonged interrogation
Sensory deprivation or overload (forced darkness, excessive noise)
Sleep deprivation
Threats of harm to family members
Threats of pain, torture, execution
Uncertainty about release

Torture Prevalence

There are a limited number of studies that document torture prevalence in refugee populations living in the United States. The most recent analysis estimates that 44% of refugees living in the United States are torture survivors [12]. By this count, there are 1.3 million torture survivors living in the United States. Refugees resettling in the United States are an extraordinarily diverse group. As a result of this diversity, torture prevalence varies greatly by country of origin, ethnicity, and gender. Only a handful of studies document torture prevalence in specific refugee subgroups: among Karen refugees from Burma primary and secondary torture survivors were 27.4% and 51.4%, respectively [13], 21% among Tibetan refugees [14], 36% among Somali refugees, 55% among Ethiopian Oromo refugees [15], 54% among Cambodians who survived the Khmer Rouge reign [16], 57% in Iraqis resettled post 2006 [17], and 41.7% in Syrian Kurdish refugees [18]. The authors studied torture prevalence in a complete set of refugees arriving for resettlement in one US state and found an overall torture prevalence of 19%, but range of 5–57% when looking at specific populations [19]. Gender differences are found in torture prevalence but this also varies by ethnicity and country. Some recent studies show a gender difference in primary torture prevalence: 25% and 47% among Somali men and women, respectively, and 59.3% and 55.1% among Iraqi men and women, respectively [17]. An estimated 4–7% of child refugees are torture survivors [20, 21].

Health Effects of Torture

Regardless of the type of torture experienced, survivors are often left with physical, sexual, and psychological sequelae including chronic pain, depression, and posttraumatic stress disorder (PTSD) that can present acutely or years later.

Physical Effects

The most common physical consequence of torture is pain, both acute and chronic. Literature shows that survivors of torture have a very high prevalence of persistent pain [22]. For a survivor, daily pain resulting from torture is a constant reminder of the past and can impact an individual's ability to heal. One of the most common forms of torture is beating, but most other torture methods can also lead to either localized or somatic pain. Some studies suggest that the focus of pain is often related to the location of torture, but not always. For example: beatings around the head can give rise to chronic headaches, suspension can lead to lower back pain, falanga or beating to the feet leads to foot pain, and sexual torture can result in both lower back pain and genital pain [23, 24]. Survivors also experience somatic symptoms such as atypical chest pain, irritable bowel syndrome, myalgias, and fatigue.

Specific types of torture can result in characteristic signs and symptoms, depending on the severity of the torture method. Suspension can lead to brachial plexus injuries, lumbosacral plexus injuries, neuropathic pain, and polyarthritis in the wrist and ankle joint commonly referred to as "stretch arthritis" [25]. Rarer complications from suspension can include winged scapula due to thoracic nerve damage [26]. In addition to severe foot pain, falanga can lead to sensory dysfunction such as neuropathy and connective tissue disorders both of which affect mobility [27]. Telefono can lead to tympanic membrane rupture, tinnitus, vertigo, and hearing loss [28]. Asphyxiation techniques including waterboarding or submarino can lead to severe psychological consequences such as a fear of drowning or nightmares. Scars can be found on the body from electrical shock; chemical, cigarette, or other heat burns; and lacerations. Sexual torture can lead to intestinal damage from insertion of foreign objects into the rectum, genital trauma, sexual dysfunction, and chronic genital or pelvic pain [29–31]. Torture survivors may also have been verbally humiliated, threatened with death, or told that they would be permanently "damaged" or made infertile during their torture.

Traumatic Brain Injury

Closed head injuries have been reported by nearly 70% of torture survivors [32, 33], many times accompanied by loss of consciousness. Head injuries may be a result of asphyxiation, direct blows to the head, poisoning, nutritional deprivation, or waterboarding/submarino. These injuries can lead to traumatic brain injury (TBI), with resulting symptoms including: chronic headaches, dizziness, cognitive dysfunction, memory loss, and sleep disturbance. Torture survivors with a history of TBI are more likely to suffer health complaints than those survivors without a history of TBI [34]. A study of South Vietnamese torture survivors showed that those with TBI were more likely to suffer psychiatric morbidity including symptoms of depression, PTSD, and post-concussive syndrome [35]. Structural changes in the brain also showed thinner prefrontal and temporal cortices among Vietnamese torture survivors with TBI [36]. TBI sequelae can be difficult to treat and are likely to have an

adverse impact on resettlement. Cognitive dysfunction, in particular, poses challenges to learning English and new job skills, which can negatively impact a survivor's ability to gain employment and citizenship. Diagnostic testing for TBI includes brain imaging, neuropsychiatric testing, and occupational therapy assessments. These tests can be helpful in differentiating TBI symptoms from PTSD [37]. Challenges in conducting neuropsychiatric testing include a lack of culturally and linguistically validated measures [37].

Mental Health Effects

The mental health sequelae of torture are often the most frequent, long-lasting, and disabling consequences. Mental health issues can manifest in somatic complaints, difficulties with successful resettlement, cognitive deficits, sleep disorders, PTSD, anxiety, and depression. Usually there is an overlay of several of these issues. PTSD is one of the most common mental health conditions noted in survivors of torture with observed prevalence rates of 30–90%, even years after the torture experience [38, 39]. Mental health issues can manifest in varying ways among cultures, and torture survivors may not readily describe their symptoms. Torture can make survivors distrustful of others and their own experiences. In addition, torture experiences can impact memory and make it difficult for survivors to concisely convey their experiences.

The stressors of exile and resettlement can also exacerbate preexisting mental health symptoms from past trauma and torture in refugees [40–42]. Many refugees experience a symptom-free honeymoon period immediately after resettlement with symptoms appearing later. Factors that may contribute to symptom exacerbation include: prolonged separation from family members; loss of preexile profession and identity; discrimination, limited English proficiency, and poor physical health; acculturation struggles affecting the individual and traditional family structures; code-switching among adolescent survivors who assume both a parental and child role in their new country; weak social networks [43–45]; and any other traumatic or stressful event [46, 47]. Given these post-resettlement stressors, mental health symptoms are important to screen for shortly after resettlement as well as in subsequent years. It is particularly important to screen for mental health symptoms among refugee populations resettled before 2010, when the Centers for Disease Control (CDC) first published formal screening guidelines that include mental health.

Chronic Disease and Torture

Torture survivors are at an increased risk of chronic disease development [48, 49]. Longitudinal health studies in Cambodians show that Cambodian torture survivors have a 20% increased risk of diabetes mellitus compared to their age matched, non-torture survivor peers [50]. Physicians should also consider pre-migration stressors including food insecurity, malnourishment, and micronutrient deficiencies that can

occur more often in torture survivors, as other risks for chronic disease development due to compromised organ development and function [51]. For torture survivors from developed countries where the prevalence of obesity and chronic disease is already significantly elevated, the risk for an individual may be even higher. In a study of refugees 8 months after arrival, over half were found to have at least one chronic, noncommunicable disease diagnosis [52]. Due to possible increased risks, clinicians should consider screening torture survivors for chronic diseases earlier than the United States Preventive Services guidelines recommend for the general population. The Canadian Collaboration for Immigrant and Refugee health recommends screening for diabetes in refugees, aged 35 and older from high-risk populations, including South Asian, Latin American, and African [53].

Children and Torture

Even very young, preverbal children may be significantly impacted by witnessing or hearing the sounds of torture. Younger children may be more traumatized than older children who are able to articulate their fears and horrors surrounding the events experienced. The Adverse Childhood Events (ACE) study of over 17,000 adults shows that those who experienced childhood trauma have an increased risk of developing chronic physical and mental health conditions, as well as substance abuse as adults [54]. Although the ACE study does not focus specifically on torture, these findings strongly support the theories that childhood trauma can lead to significant health issues in adulthood. Child survivors of torture may be at an increased risk of chronic disease development, substance abuse, mental illness, and premature death.

Mediators of Torture Effects

A group of studies have shown that some characteristics in refugees provide protection from the consequences of torture while others may exacerbate sequelae. Survivors with higher levels of political activism, better social support networks, greater resiliency, and male gender may suffer less psychological effects. A strong belief system has been found to be both protective and a risk factor in various studies [55, 56].

Screening for Torture

Need for Screening

The CDC Refugee Health guidelines recommend screening refugees for mental health symptoms and a history of violence within the first 90 days of resettlement [57]. However, less than half of states follow these recommendations [58]. Even

fewer screen for a history of war trauma and/or torture. Other experts recommend screening refugees for a torture history if they exhibit signs of depression, PTSD, or unexplained pain [59]. Torture is arguably the most severe form of violence. If refugees are not identified as torture survivors during the refugee health screening, they are unlikely to be asked this history by their primary care clinician. Studies indicate that even in high-risk clinical settings—community health centers in Boston, New York, and Los Angeles—primary care clinicians rarely asked their patients about a history of political violence or torture [60, 61]. Only 3% of survivors shared their trauma history with a primary care clinician without being asked [60]. Therefore, the most common barrier to identifying torture survivors is a clinician's failure to ask the patient about a past history of trauma [62, 63]. Other barriers include the survivor's lack of trust in the clinician, fear of authority (medical personnel participate in up to 20% of torture cases worldwide) [64], and re-traumatization.

The purpose of screening is to identify individuals at risk and provide an intervention that will improve health. As outlined above, torture increases the risk of acute and chronic mental and physical health conditions [65–69] and torture survivors may present to their primary care clinicians more often with complaints of anxiety, chronic pain, cognitive dysfunction, depression, headaches, insomnia, and PTSD, than non-tortured refugees.

Another reason to consider screening refugees for torture early in the resettlement process is that it allows referral to appropriate specialists while the patient is still covered by Refugee Medical Assistance (up to 8 months after resettlement in most states). This may be less urgent in states that implement the Affordable Care Act, which includes a Medicaid expansion. A study of refugee's insurance status 8 months after resettlement found that 46.5% of refugees with chronic health conditions did not have health insurance beyond the initial resettlement period [70].

Some physicians may be uncomfortable or fearful about asking a patient about torture. Clinicians are asked to address many difficult issues. However, identifying this history will allow more effective treatment for refugees' health conditions. Tragically, many of the 3 million refugees living in the United States have suffered human rights violations in their journeys to safety. Within these refugee communities, many torture survivors live and continue to suffer from their past histories of severe trauma. By bringing a survivor's history to light and not shying away from this darkness, we can help our patients regain their health. If we do not screen for torture, we will never know our patient's past. By not understanding our patient within the context of torture, we perpetuate the vast injustices that a survivor has already suffered.

Screening Tools

The following validated question was developed by Dr. David Eisenman to screen for torture and violence:

“In this clinic we see many patients who have been forced to flee their homes because of violence or threats to the health and safety of patients and their families. I’m going to ask you a question about this now. Were you [or any of your family members] victims of violence and/or torture in your home country?” [71]

This question destigmatizes the experience of torture/violence and reassures the patient that the clinician is comfortable with this issue and prepared to help. If an individual responds “yes,” it is helpful to ask further questions in order to understand the scope of a patient’s traumatic experiences and possible consequences. This may be done over a few visits to ensure the comfort and trust of the patient. However, it is not necessary to have a patient recount their entire trauma story, and doing so may be destabilizing for the individual [72]. Many torture survivors report that their physician is the first person with whom they have shared their torture history. Although it can be difficult to hear about these experiences, acknowledging these atrocities can be therapeutic to a survivor of torture. It is important that a clinician allow adequate time for the patient to share their experience and to never doubt or deny a survivor’s story no matter how extreme.

The screening question seeks to identify secondary survivors through its inclusion of “or any of your family members.” Secondary survivors are at an increased risk of adverse health outcomes because of their vicarious exposure to the torture through the survivor.

Other options for screening include using semi-structured and open-ended questions, as was done in an academic study of screening for traumatic events among Karen refugees. This was found to take clinicians 5–7 minutes of time to gather answers [73]. After normalizing the trauma response, the following questions were asked:

- (a) In your life, have you ever been harmed or threatened by the following: government, police, military or rebel soldiers, or other? If yes, what was it?
- (b) Has any of your family ever been harmed or threatened by the following: government, police, military or rebel soldiers, or other? If yes, what was it?
- (c) Some people in your situation have experienced torture. Has that ever happened to you? If yes, what was it? and (d) Has anyone in your family been tortured? If yes, what was it? [73]

Another option is to simply ask “Why did you leave your home country?”. Clinicians can also consider screening only those refugees who present with significant health concerns or mental health symptoms, since torture survivors have more chronic physical and mental health symptoms than non-tortured refugees [74].

Approach to Torture Survivors

Certain aspects of a medical visit can re-traumatize survivors of torture; thus it is important to minimize these triggers including: prolonged wait times, crying babies, uncompassionate staff, unfamiliar forms, multiple questions, and small, windowless exam rooms. In addition, some procedures including venipuncture; eye, pelvic, and rectal exams; and an electrocardiogram may all remind survivors of their torture experience. Re-traumatization can trigger flashbacks, fear, anger, panic, and/or a loss of trust in the provider, which may prevent survivors from accessing care and following their clinician's recommendations. As clinicians, our medical evaluation and care can be reassuring and enormously healing for the patient.

Once torture has been identified as a possible cause of physical or psychological symptoms, it is important to consider contacting a specialized torture treatment program that may provide integrated rehabilitation with a comprehensive bio-psycho-social model [76]. Multidisciplinary torture treatment has been shown to be cost effective for the survivor and their family. Treatment over a 36-month period ultimately increased the economic self-sufficiency and contribution to society of a survivor and their family [77]. The ethical protection of torture survivors and their need for comprehensive medical and psychiatric care has been well established in the Istanbul Protocol [78]. Treatment programs in the United States can be located by contacting the National Consortium of Torture Treatment Programs (www.ncttp.org). However, access to these programs can be limited and many torture-related health issues can be addressed in the primary care setting with specialty assistance if needed. There has been a move to identify the "best practices" in the care of torture survivors so the highest quality of care can take place in most medical settings [79]. The H5 Model, developed by Richard Mollica, MD, at the Harvard Refugee Trauma Program, is an evidence-based framework that addresses the many facets of trauma and recovery. The model encourages providers to understand the individual refugee in the context of five categories: human rights, healing (self-care), humiliation, health promotion, and habitat. Although not all of these areas can be addressed within the primary care setting, there is great value in having awareness of the multidimensional aspects of trauma and the barriers to recovery [79].

Chronic pain is the most common health condition reported by survivors and can be challenging to treat in the primary care, specialty, and mental health settings. A meta-analysis of chronic pain treatment in survivors found that CBT and manual therapies vs. no intervention had the same outcomes of no change to chronic pain [75].

Finally, the comprehensive documentation of torture sequelae is sometimes needed for forensic reasons. Several comprehensive reference sources provide guidance in this area [78, 80]. Please refer to Chap. 19 for a review of forensic evaluation of asylum seekers.

Women and Violence

Tragically, women and girls across the world face many types of violence regardless of socioeconomic strata, age, or ethnicity. One in three women across the world have been beaten, coerced into sex, or otherwise abused in her lifetime [81]. The largest worldwide study on the prevalence of violence in women and girls was conducted by the World Health Organization (WHO) in 2005. The WHO Multi-Country Study of Women's Health and Domestic Violence Against Women included 24,000 women across ten countries and assessed their experience with intimate partner violence as well as non-partner violence including physical abuse and sexual assault; 13–61% of women experienced intimate partner violence (IPV), while 5–65% of women experienced non-partner violence combining physical and sexual assault [82].

Gender-based violence against women and girls includes female genital cutting and child marriage. Two hundred million girls and women worldwide have suffered the effects of female genital cutting and 3.6 million girls are at risk of being forced into the practice [83]. The health consequences are outlined in Chap. 17. Child marriage also has significant health consequences for girls, and rates of child marriage may be higher in some refugee populations due to increased poverty and insecurity [84, 85]. Fifteen million girls under the age of 18 are married annually. Women who marry before age 18 are more likely to experience intimate partner violence including rape [86].

Violence against women is largely based in unequal power relations, which perpetuate and condone violence within the family, community, and state [87].

Refugee women, depending on their country of origin and migration pattern, may be particularly vulnerable to gender-based violence during armed conflict, flight from conflict, and in refugee camps [88, 89]. Rape has been used as a weapon of war throughout history and has been widely documented in recent conflicts including Bosnia, Cambodia, Congo, Liberia, Peru, Somalia, and Syria [90–92].

Intimate Partner Violence

A recent study of 81 countries showed that 30.0% of women aged 15 and over have experienced, during their lifetime, physical and/or sexual intimate partner violence (IPV) [93].

IPV is defined as a pattern of assaultive and coercive behaviors designed to establish control by a person who is, was, or wishes to be involved in an intimate or dating relationship with an adult or adolescent. Assaultive and coercive behaviors can include physical, psychological, emotional, and sexual abuse, stalking, threats, and social isolation. Intimate partners include current and former spouses, common-law spouses, and dating partners of either sex. Intimate partners may or may not be cohabitating. IPV can affect all women regardless of socioeconomic status,

educational background, and culture. It can carry serious and long-lasting consequences in that it tends to be repetitive and accompanied by psychological and sexual violence. A United Nations study on global homicide showed that women killed by intimate partners or family members account for 58% of all female homicide victims reported globally in 2017. While recent reviews of the current literature did not find the prevalence of IPV higher in communities of refugees resettled in North America, the data is very limited and most agree that refugees may be particularly vulnerable to IPV or may have suffered IPV before resettlement. There is growing evidence that intimate partner violence increases during times of war and displacement. Some studies suggest that lifetime rates of IPV in women living in refugee camps are close to 50%. A recent study conducted across three refugee camps in three different countries revealed several key drivers for IPV: breakdown of gender norms and roles, men's substance use, women's separation from their family, rapid remarriages, and forced marriages.

In the United States, nearly one-third of American women experience physical or sexual abuse by a husband or boyfriend at some point in their lives. In addition to possible IPV before arrival, refugee women may be more vulnerable to IPV once in the United States for several reasons. Refugee women experience limited English proficiency (LEP), which may limit their ability to seek help. In contrast to asylum seekers, resettled refugees have official refugee legal status in the United States, yet many may still have fears about jeopardizing their immigration status or that of their partner-perpetrator by reporting IPV. Many refugee women lack social networks that would encourage help seeking, despite attempts by the US State Department to resettle refugees as families and even communities. Many refugee women are impoverished and possibly dependent on the perpetrator for economic survival. Refugee women may lack an understanding of US laws around IPV.

Although some recent studies have failed to show benefits from universal IPV screening, the US Preventive Services Task Force (USPSTF) now recommends that clinicians screen all women of childbearing age for IPV and provide or refer women who screen positive to intervention services.

In addition, the US Department of Health and Human Services has endorsed the Institute of Medicine's recommendations that IPV screening and counseling be a core part of women's health visits. The American Congress of Obstetricians and Gynecologists (ACOG) also recommends that all women be screened at periodic intervals. Screening may be particularly important in refugees due to their numerous barriers to seeking help. A number of IPV screening tools are used in clinical practice. To our knowledge, none have been validated for use across cultures and languages or specifically in refugee populations. It is critical that screening take place privately in the context of a trusting relationship, in a culturally and linguistically appropriate way. Clinicians should be familiar with IPV reporting laws in their state and be prepared to provide immediate assistance and safety planning for victims of IPV. Some resources are provided below for clinicians treating victims of domestic violence. IPV is also discussed in Chap. 17.

Resources

National Domestic Violence Hotline.

1-800-799-SAFE (7233)

www.thehotline.org

Futures Without Violence www.futureswithoutviolence.org

National Coalition Against Domestic Violence www.ncadv.org

National Resource Center on Domestic Violence www.nrcdv.org

Office on Violence Against Women www.usdoj.gov/ovw

Summary

Given the widespread prevalence of human rights violations among refugees, it is crucial that health providers sensitively screen for a history of violence and torture in these populations. By identifying survivors, a path toward recovery begins. The first step on this path must be to establish trust between the survivor and the health provider. This trust will allow for a greater likelihood of healing for the survivor. Providers must also understand the many ways that trauma impacts the physical, spiritual, and emotional health of a survivor and, with this understanding, help the survivor access services from other professionals that will lead to a robust and healthy recovery.

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Part V
Special Groups

Chapter 17

Women's Health



Geetha Fink, Tara Helm, and Crista E. Johnson-Agbakwu

Introduction

Women's health encompasses care provided to women across their reproductive life course and involves not only their reproductive health but also sexual function, cancer screening, and overall psychosocial health. The emphasis placed on women's health is a reflection of available resources and the value placed on women in society. In many war-torn countries, where medical care is limited, women's health hardly exists. In discussing refugee women's health it is prudent to recognize that there are a host of pre-migratory and post-migratory stressors that may impact a woman's health throughout her process of resettlement from conflict regions around the world [1]. Beyond the psychosocial challenges of immigration and assimilation, these women have suffered traumatic experiences, often have been abused as victims of war, and have not received appropriate medical care in their country of origin. Many refugees have lived in refugee camps for years prior to emigration. In these camps they have suffered physical violence, malnutrition, and unsanitary living conditions, as well as rape, sexual abuse, extortion, and physical insecurity [2]. Consequently, there is a high incidence of post-traumatic stress disorder [3].

Post-migration, refugees suffer from increased barriers to care including poverty, insurance status, transportation, language barriers, and lack of understanding of its importance [4]. Additionally, there are social differences that may impact health-seeking behavior, such as conservative cultures in which a pelvic exam is unacceptable or the belief that only the sick need to seek care [5]. Refugees underutilize

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Table 17.1 Assessment questions recommended for refugee women

Identify a patient's host country and endemic risks
What was her path to immigration? Was she imprisoned in a refugee camp prior to reaching the United States?
Was she a victim of violence or rape?
Has she lost family in the war (specifically children or her husband)?
How many children has she already had and how many more does she want? Is she interested in contraception?
How is her mental health? Is she suffering from post-traumatic stress disorder or depression?
What kind of psychosocial support does she have?
Does she have religious beliefs that may impact her health or health-seeking behavior?
Has she been screened for cervical cancer or breast cancer in the past? Has she received the HPV vaccine?
Has she undergone female genital cutting (FGM/C)? Is she interested in defibulation, if indicated?
Has she utilized preventive care in the past? Does she have a primary care provider?

preventive and primary care, as these facets of healthcare may not exist in developing countries [6]. Moreover, this lack of familiarity with navigating the healthcare system increases patient anxiety when faced with accessing care in the hospital setting.

Some generalizations can be made regarding refugee health because of the shared experience of war and immigration. However, it is important to distinguish that refugees come from many different countries, ethnic, and cultural backgrounds, have highly varied experiences in their host countries of resettlement, and have widely varying beliefs on reproductive health. Table 17.1 delineates important risk factors that may impact women's health and should be identified when caring for refugee women.

Identifying these key factors will guide patient care. Additionally, a keen understanding of her psychosocial background and risk factors can facilitate providing culturally sensitive and medically complete care.

Preventive Health

Pelvic Exams

Pelvic exams can be stress inducing for any woman. For refugee women, pelvic exams can be even more anxiety provoking due to histories of sexual violence or abuse, FGM/C, and cultural backgrounds that demand modesty and deem such an exam inappropriate. Some cultures view a pelvic exam as a violation of virginity [7]. A history of sexual trauma has been shown to decrease cervical cancer screening due to an aversion to pelvic examination [8]. Suggestions to improve the experience include fostering appropriate communication, safety, trust, and patient control of the situation [8]. A professional interpreter is highly recommended when needed.

It is standard practice to have a chaperone present for patient comfort and liability concerns. Female healthcare providers are preferred when possible. While a pelvic exam may be deferred on the initial visit if the patient is uncomfortable, if indicated, it should still be performed once trust has been established between the patient and her provider. A pelvic exam is essential in identifying pathology, classifying cultural practices such as FGM/C, performing a Pap test, and testing for sexually transmitted infections. Even when a pelvic exam is deferred, measures to promote future utilization of preventive services should be employed, such as identifying a primary care provider, explaining the importance of annual preventive health visits, and utilizing an interpreter to educate patients in a culturally sensitive manner [9]. Even when a pelvic exam is indicated, patient autonomy and the right to refuse should be respected, provided the patient is appropriately counseled on its importance.

Infectious Diseases

Screening for human immunodeficiency virus (HIV) is not mandated except in prenatal care. Prior to January 2010 refugees were required to be screened for HIV prior to entry into the United States [10]. Current CDC guidelines recommend screening of all persons age 13–64 in a healthcare setting. Therefore, refugees should be offered screening and counseled regarding the meaning of a possible positive result. Patients must consent to HIV testing and they have the right to opt out. Repeated screening is recommended 3–6 months after resettlement for patients with recent exposures and high-risk activity [10]. A potential HIV diagnosis may be missed due to stigma, cultural taboos, and lack of awareness [11]. Given the prevalence of HIV and rape as a weapon of war in refugees' native countries, they are considered a high-risk and vulnerable population. Thus, patients should be screened for these risk factors and tested when indicated. However, there is minimal data in regard to incidence of gonorrhea, chlamydia, and syphilis in refugee populations. A study in Minnesota of 18,000 refugees showed very low incidence of these STIs. Thus routine screening may not be indicated [12]. For a discussion on STI testing in refugees, see Chap. 9.

The human papilloma virus (HPV) is a sexually transmitted virus that increases the risk of cervical cancer. Vaccination for HPV can reduce that risk; however vaccination does not change recommendations for cervical cancer screening. Refugees typically migrate from countries where the HPV vaccine has not been available, though efforts are underway to improve access [13]. The CDC recommends routine HPV vaccination for all adolescents starting at age 11–12. The vaccine can be given as young as age 9, especially with a history of sexual abuse [14]. The CDC recommends vaccination for women up to age 26 if not previously vaccinated [15]. Studies of HPV vaccination among refugees have shown limited knowledge of HPV and the vaccine, but overall willingness to accept vaccination [16, 17]. A study conducted in Massachusetts compared HPV vaccination among adolescent refugees and the general population and unexpectedly found a higher rate of vaccination among

refugees. The study suggests that the use of a clinical vaccination protocol by specialized clinics specifically designed to perform health assessments of newly arrived refugees greatly increases uptake of vaccinations [18]. The CDC recommends that the HPV vaccine be recommended to adolescents and their parents the same day as other vaccinations [19].

In February 2016 the WHO declared the pandemic of Zika virus a public health emergency of international concern. The Zika virus can be spread by certain types of mosquitos and also through sexual contact. Women, especially women of child-bearing age, have been found to be exceptionally vulnerable and can pass on infection to their unborn child [20]. Zika infection of pregnant women can lead to Zika congenital syndrome, which causes microcephaly and other birth defects [21, 22]. Refugees migrating from endemic areas should be screened for possible Zika exposure and symptoms. Symptoms can include acute onset of fever with maculopapular rash, arthralgia, conjunctivitis, myalgia, or headache. However many patients with Zika may be asymptomatic. Symptomatic patients with history of exposure can be tested with a blood or urine test. However, testing is not recommended for nonpregnant asymptomatic individuals or as a part of preconception counseling [23].

Cancer Screening

Female cancer screening is primarily composed of Pap tests for evidence of cervical dysplasia and mammography for breast cancer. Many refugee women have never had any screening prior to immigration, primarily due to lack of access to care. There is limited data on screening rates in the refugee population. However, immigrants in general tend to be under-screened post-migration due to secondary barriers to care [24]. These barriers include fatalistic attitudes regarding cancer, lack of knowledge about cancer itself and the screening modalities available, fear of Pap tests threatening one's virginity, as well as beliefs that a Pap test is not indicated unless one is ill [7]. Access to a regular source of primary care and, ideally, access to a female health professional have been advocated as a means to increase screening rates [25]. Moreover, patient education about the importance of cancer screening can promote regular health-seeking behavior and reduce the stigma of such screening [26]. Pap tests are regularly performed as part of prenatal screening. Breast cancer screening is less taboo than cervical cancer screening. However, refugee women are still under-screened [27, 28]. Use of specially trained patient navigators has been found to improve cancer screening and follow-up of abnormal results [27, 29].

Mental Health

Refugee women are at increased risk for mental health problems, including PTSD [30], given the additional obstacles refugee women face in maintaining their health and well-being, high rates of exposure to violence and trauma, and difficulties adjusting to the host country and accessing health services [31]. When appropriate,

women should be referred for psychiatric services and/or therapy [32]. The Refugee Health Screener-15 is increasingly being validated as a screening instrument for common mental health conditions across multiple refugee populations and holds promise for utility across varied ethnic and linguistic refugee populations in primary healthcare settings [33].

Reproductive Health

Nutrition

For pregnant refugee women, malnutrition may be observed due to lack of access to food in war-torn areas and refugee camps. These women are at high risk for nutritional deficiencies such as folic acid, iron, and vitamin D. Iron deficiency anemia is also commonly seen among sub-Saharan African refugees arriving in host countries [34]. Anemia is of specific concern during pregnancy and could result from chronic blood loss due to intestinal parasites, menstruation, malabsorption, high parity, prolonged breastfeeding, sickle cell anemia, and malaria [34].

Lower amounts of physical activity and poor diet are commonly seen among refugee populations as they adjust to a “westernized” lifestyle and diet [35] and may give rise to obesity. A lack of familiarity with or knowledge of healthy foods and food preparation techniques are also concerns [36]. Providing nutritional support, counseling, and early intervention will promote healthy diet choices and physical activity, which could prevent obesity and diabetes as well as fetal macrosomia [37].

Cultural and religious practices may create challenges for pregnant women. Pregnant and breastfeeding Muslim women should be encouraged not to fast during Ramadan. Muslim religious teachings exempt pregnant and breastfeeding women from fasting; however many Muslim women still choose to do so [38]. It has been found that their dietary intake of most nutrients is below recommended daily allowances and their breast milk is also lacking in micronutrients [39]. These women should be advised to hydrate and consume nutritious foods before and after fasting. They should also be counseled on symptoms that warrant breaking the fast, such as decreased fetal movement, extreme fatigue or dizziness, and nausea and vomiting [40]. Adherence to daily intake of prenatal vitamins should also be promoted during this tenuous time. Other dietary factors such as vegetarianism or food restrictions during the antepartum, intrapartum, and postpartum period should also be discussed to determine any risk for poor outcomes.

Prenatal Care

An opportunity arises to improve maternal and neonatal health outcomes prior to pregnancy with preconception care. Infectious disease is an important area to assess prior to pregnancy with refugee populations as infections in the preconceptional

period can affect fertility. Spontaneous abortions and fetal congenital birth defects due to infections can also occur [41]. In some cultures, marriage and childbearing begins at an early age [42, 43]. Higher rates of teenage pregnancy among recent arrivals have been seen among refugee populations from Africa and Asia [44]. High parity may also be common as societal importance is placed on women's ability to have many children [5, 34].

Due to the lack of healthcare infrastructure and preventative care in some developing countries, refugee women may not understand the importance of prenatal care. Refugee women may have had prior pregnancies without prenatal care with good outcomes in their countries of origin. Some women may also delay or avoid prenatal care due to a fear of unnecessary tests or interventions that will cause problems during pregnancy and adverse birth outcomes. Providers should also be aware of the fear that women may have in regard to cesarean delivery causing severe complications, even death. This fear leads some women to avoid and/or delay seeking care as well as refuse interventions that could involve cesarean delivery [45].

During prenatal visits, providers should assess patient expectations and provide education and counseling on topics such as the importance of prenatal visits, the delivery room experience, pain medication options, interpreter services, and the possible indications for cesarean sections, as well as the risks and benefits of this surgical procedure. Tours of the hospital should be organized and highly encouraged as well [46]. Prenatal care visits are also an appropriate time for providers to discuss mental health and nutrition practices. Attention should be given to obtaining information regarding complications with prior pregnancies and deliveries, abortions, or issues with menstruation [47]. Providers can also begin to discuss postpartum issues such as postpartum depression, contraceptive options, and breastfeeding.

Pelvic and cervical examinations can cause extreme shame and embarrassment for some refugee women and there may be confusion regarding the necessity of these exams [5]. A pelvic examination may need to be deferred, particularly in women who have undergone infibulation (the most extensive form of FGM/C) as use of a speculum exam may not be possible or may cause extreme pain to the patient [37].

Routine laboratory tests according to the American College of Obstetricians and Gynecologists standards should be performed [48]. Additional tests recommended for refugee populations are listed in Table 17.2 [37].

Intrapartum

The experience of delivering in a hospital can be extremely overwhelming for refugee women who may be experiencing childbirth in a Western healthcare setting for the first time. Refugee women who have had successful deliveries at home in their countries of origin with very little to no assistance may find this experience unnecessary or overwhelming. Multiple pelvic examinations, intravenous lines, fetal monitoring equipment, and blood pressure cuffs may be considered disruptive and

Table 17.2 Additional prenatal tests recommended for refugee women

Screening for domestic violence/intimate partner violence or other forms of gender-based violence (see Appendix A)
Immunization history including verification of vaccines for influenza (seasonal vaccine administration is safe during pregnancy), measles/mumps/rubella (MMR), varicella, and tetanus/diphtheria/pertussis (TDaP). If there is no evidence of vaccination or immunity, all of the abovementioned vaccines should be administered, except MMR and varicella, which are live vaccines and thus should be given postpartum
Hemoglobin electrophoresis (for women of African, southeast Asian, and Mediterranean ancestry) to screen for thalassemia or sickle cell anemia
Tuberculin skin test (TST) or interferon-gamma release assay (IGRA), as indicated, and screening for symptoms. Any patient suspected of having TB disease should receive a complete evaluation that includes medical history, physical examination, and chest x-ray. Pregnant women with a positive TST or IGRA should have a shielded posterior-anterior chest x-ray. If asymptomatic and in the first trimester of pregnancy, the chest x-ray may be postponed until the second trimester [49]
Malaria screening if patient recently emigrated from malaria-endemic region and displays clinical signs and symptoms such as fever
Substance use including exposure to tobacco, alcohol, and illicit drugs. Also check for exposure to herbal and other traditional/alternative medications or substances
Screening for lead exposure with a blood test [50]

cause major distress during the birthing process. Aversion to interventions such as labor induction and augmentation, epidural placement, and cesarean delivery procedures may be expressed. A growing number of studies demonstrate that refugee women have a profound fear of cesarean delivery [45, 46, 50]. There is also a common misconception that epidurals will cause paralysis or chronic back pain. Providers should strive to provide anticipatory guidance, education, counseling, and appropriate language interpretation while empowering refugee women to incorporate traditional health behaviors and/or practices such as walking during labor or specific delivery positions as long as it is deemed safe for both the mother and fetus [37].

Verbal informed consent for procedures in lieu of written consent should be allowed through the assistance of a trained medical interpreter for those patients who have low literacy in English or in their native language [37].

The presence of family and social support should be encouraged. Evidence also suggests that the support of labor coaches or doulas may be beneficial to some refugee women in terms of increasing a positive attitude and experience with labor while decreasing the likelihood of obstetrical interventions [51]. Special attention should be paid to the role of men as it may or may not be culturally appropriate for men to be present during delivery [52, 53].

Decision-making in some cultures may be very different than in the US. Healthcare decisions affect the patient, the family, and the community. Gender roles in some cultures also dictate that men are the decision-makers for the family. During labor, healthcare providers should assess the level of autonomy of the patient in decision-making and the role that a pregnant woman's spouse and/or matriarchal familial support may play in decision-making [31].

Maternal and Infant Outcomes

While there is conflicting evidence regarding maternal and infant outcomes among refugee populations, some studies have demonstrated poorer maternal and infant outcomes for certain refugee populations [1, 54]. For example, evidence shows that Somali women may be at increased risk for adverse maternal obstetrical outcomes including emergency cesarean delivery for fetal distress, failed induction of labor, post-date delivery, oligohydramnios, perineal lacerations, and gestational diabetes [46, 55–57].

Adverse neonatal outcomes have been reported including prolonged hospitalization, lower 5-minute Apgar scores, meconium aspiration, and assisted ventilation [54, 55, 57]. Low birth weight has been seen among neonates born to some refugee groups and this trend has continued among refugees following immigration possibly due to psychosocial factors and social determinants of health [54, 58].

Higher infant morbidity and mortality are also seen among certain refugee populations [59]. While the reasons for this association are unclear, differences in mortality are not described solely by maternal risk factors [60]. The association between poor neonatal outcomes, poor access to care, and late prenatal care may explain some of these higher rates among refugees [34, 61].

Postpartum

The postpartum period is defined as the first 6 weeks after delivery. However, in other cultural contexts it may be defined differently. The postpartum period lasts 28 days for Hmong women, 40 days for African and Mexican women, and 3 months for Vietnamese and Cambodian women [62]. Additionally, many cultures consider postpartum women to be vulnerable to an imbalance and weakening of body forces related to delivery [62]. This period involves many cultural beliefs and practices that should be approached with cultural sensitivity.

Women who deliver via cesarean section should be extensively counseled on what to expect during their recovery period. This is likely a new experience for them and they may have limited social support in regard to what to expect. One study found that Somali women that experience cesarean section experienced a decline in fertility as compared to those with vaginal delivery [63]. This may be related to significant fear of death related to cesarean section [45]. Post cesarean section patients should be counseled that while they are at a slightly higher risk of pregnancy complications, pregnancy itself is not contraindicated.

Postpartum Depression

Postpartum depression refers to depression arising in the first year after childbirth. Risk factors for postpartum depression include a history of depression, significant life stressors, poor marital relationship, and lack of social support. A meta-analysis

identified migrants to be at 1.5–2 times the risk of postpartum depression compared to native-born women. This analysis identified risk factors as shorter length of residence in the destination country, lower levels of social support, poorer marital adjustment, and perceived insufficient household income [64]. Refugees are likely at an even higher risk when compared to other migrants. However, few studies have been conducted to evaluate for this [65]. A recent study among Canadian women found asylum seekers at highest risk, followed by refugees, followed by non-refugee migrant women. Risk factors that were identified were women that experienced abuse, had pain post-birth, worried about family members left behind, had food insecurity, and had reduced access to healthcare. Protective factors were higher levels of social support and the feeling of belonging to a community [66].

Refugee women should be screened for postpartum depression and risk factors. When available they should be provided with resources to address barriers to healthcare and other factors that may increase stress. Depression screening should be conducted in their native language or with a trained interpreter. The presentation of postpartum depression may be atypical and may be accompanied by somatic symptoms, such as pain and fatigue [67]. Many cultures stigmatize mental health leading to limited disclosure of emotional or behavioral difficulties [68]. One approach to addressing this stigma is to address depression as a state of “energy depletions” and demoralization, thus providing a rationale for psychosocial assessment and treatment [67].

The Refugee Health Screener-15 (RHS-15), a tool utilized to assess mental health among multiethnic newly arrived refugee women, is not specific to the postpartum period [69]. The more commonly used Edinburgh Postnatal Depression Scale may not be ideal for refugee women as it is a westernized ethnocentric model [70].

Breastfeeding

The CDC, WHO, and AAFP recommend exclusive breastfeeding for the first 6 months of life with the addition of complementary foods and continued breastfeeding until at least the first year of life [71]. The WHO supports continued breastfeeding until age 2 or longer. In general, breastfeeding initiation and continuation is higher among recently migrated women, as this is the natural way to feed the baby and provides passive immunity. In many cultures breastfeeding may continue for longer than 2 years, especially as a means of birth spacing. However multiple studies have found that as duration in the host country increases there is a decline in breastfeeding [72]. This is multifaceted and is related to the challenges of continuing to breastfeed, especially if the patient needs to return to work, discomfort with pumping, and discomfort with breastfeeding in public. Additionally, there is the perception that if women native to the host country do not breastfeed and choose to formula feed this must be better. Formula feeding is easier, their babies are larger and therefore perceived as healthier, and formula feeding is perceived as a sign of wealth [62]. Postpartum refugees should be counseled on the maternal and child benefits of breastfeeding, which include passive immunity, maternal-child bonding, and facilitating postpartum weight loss [73].

Family Planning

Refugee women should be screened for contraceptive need during their preventive health visits. It is unknown if refugees seek to increase or decrease their fertility after resettlement. It is theorized that they may desire childbearing to replace deceased children as they establish themselves in more stable living conditions [74]. Alternatively, they may desire to hold off on childbearing due to the challenges of resettlement, such as economic instability.

The discussion of contraception may be challenging, as refugees may be averse to terms like “birth control.” Terms like “family planning” or “birth spacing” may be better received. Many refugee women may defer to their husband or older women in the extended family to make decisions regarding whether to even use contraception. Additionally, distrust of western medicine and the belief that one should not disrupt their own fertility may lead refugee women to be unwilling to accept contraception [62]. Patients should be counseled on the benefits to both maternal and fetal well-being of birth spacing, in a culturally sensitive way.

Less effective natural methods, such as the rhythm method, coitus interruptus, and lactational amenorrhea, may be more acceptable among refugees. When unwilling to accept more effective methods patients should be counseled on how to maximize efficacy of natural methods. Additionally, they should be educated on emergency contraception as many migrant women are unaware of this option [75]. Patients utilizing lactational amenorrhea should be counseled that this method is only recommended for up to 6 months postpartum and only if the patient is exclusively breastfeeding and is amenorrheic. Outside of these parameters the patient should consider another contraceptive method [76]. Among women that are willing to accept more effective contraception special attention should be given to counseling on possible menstrual disturbance with these methods as they may believe they must bleed monthly in order to be healthy and may quickly discontinue any method that disrupts their cycle [62].

Refugees are at risk of unmet contraceptive needs and thereby increased risk of unintended pregnancy and abortion [77]. Multiple studies have found lower rates of contraceptive usage, higher rates of unintended pregnancy, and higher rates of induced abortions among refugees and undocumented immigrants [57, 75, 78, 79]. Patients should be counseled on the option of pregnancy termination when desired. Unsafe abortion is a major cause of maternal mortality globally and is expected to increase in humanitarian settings as related to the collapse of local healthcare systems [80]. Additionally, many humanitarian agencies fail to provide access to abortion-related services due to its politicized nature and misconceptions of the restrictiveness of national laws [80]. The right to sexual and reproductive healthcare is an indispensable part of the right to health [81].

Intimate Partner Violence

Violence against women is a global public health phenomenon that affects millions of women across racial, ethnic, social, economic, religious, and cultural lines [82, 83]. There are many different kinds of violent acts against women [84]. IPV is the

most prevalent form of violence among women and comprises a pattern of assaultive and coercive behaviors which may include physical assault, psychological or emotional abuse, sexual assault, progressive social isolation, stalking, deprivation, intimidation, and threats. There is some evidence showing high prevalence of IPV among refugee populations, and it often occurs within the context of immigration, acculturation, and rapid changes in family and social structures [85]. Refugee women are distinctly vulnerable in having survived pre-migratory experiences of sexual violence during war/armed conflicts. Upon resettlement in host countries, refugee women may continue to face risks of IPV within the context of language barriers, confusion over their legal rights, and the stress of acculturation to new cultural and social norms.

Beyond the immediate trauma of violence, IPV can have a profound impact on a woman's overall health and well-being. Women who have survived IPV may display psychological symptoms of fear, anxiety, depression, post-traumatic stress disorder, insomnia, feelings of hopelessness, and somatization; physical symptoms may manifest as chronic pelvic pain, menstrual irregularities, sexual dysfunction, musculoskeletal symptoms, and distorted body image. Providers may face difficulty managing chronic illnesses such as diabetes and hypertension, and alcohol and substance abuse issues may become apparent. General perceptions of poor health and worsened health status are also common [84]. While maintaining cultural beliefs and norms may confer protective coping mechanisms through community-centered values, resiliency, and social support, cultural context may also exacerbate the consequences of violence by imbuing psychosocial conflicts in traditional gender roles. Moreover, cultural values and practices may constrain women from seeking help, which when compounded by stigma and shame may limit women's health-seeking behavior and healthcare utilization. Institutional racism, sexism, and socioeconomic barriers may further contribute to disparities in refugee women's health.

Hence developing trust with refugee communities is critical. Survivors of IPV need culturally appropriate interventions and programs that address the many challenges specific to refugee communities. Female providers and female interpreters are often at the frontlines in being able to help identify concerns for IPV [86]. Culturally tailored interventional programs should support women's self-sufficiency and offer comprehensive services including shelter, safety planning, coordination with police and the judicial system, medical as well as social support (including employment, housing, and services for children) [87].

There are many challenges encountered by healthcare systems, service organizations, and programs addressing IPV in refugee communities including difficulty getting victims to talk about personal and shameful experiences and convincing them of availability of support and safety if they confront their abusers. Some strategies include changing cultural norms regarding IPV and using advocates who can provide leadership and raise awareness in the community [87].

A growing body of evidence supports the efficacy of routine screening in identifying women who are victims of or at risk for IPV, which provides a primary starting point for early identification of IPV in order to reach women regardless of whether symptoms are immediately apparent. In addition, screening for IPV provides an opportunity for disclosure and provides a woman and her healthcare provider the chance to develop a plan to protect her safety and improve her health.

The Family Violence Prevention Fund has developed National Consensus Guidelines on Identifying and Responding to Domestic Violence Victimization in Health Care Settings [88]. Healthcare providers and health systems should be aware of and have collaborative relationships with culturally competent resources in the community that are specific to patients' cultural groups and countries of origin [84]. See Appendix A for suggested questions to screen for violence against women.

Female Genital Mutilation/Cutting

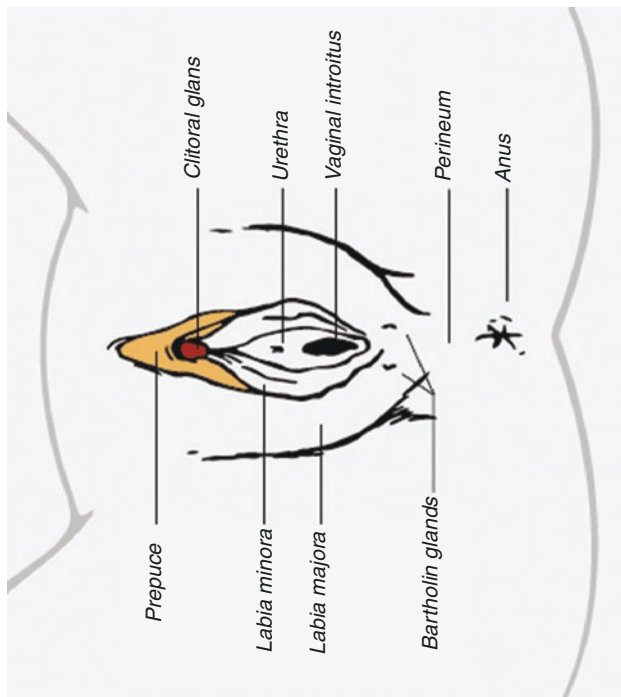
Female genital mutilation/cutting (FGM/C) or female circumcision (FC) is an ancient cultural practice that has gained global attention due to immigration from FGM/C-affected regions of the world. FGM/C is defined as any procedure that involves partial or total removal of external female genitalia or other injury to female genital organs whether for cultural or nontherapeutic reasons [89]. FGM/C is often performed as a ritual initiation into womanhood: ensuring one's chastity and eligibility for marriage and instilling pride, honor, value, and aesthetics. FGM/C affects at least 200 million women worldwide [90]. While precise estimates are unknown, each year 3 million girls are at risk of undergoing this practice [89]. FGM/C is documented in 28 countries throughout sub-Saharan Africa and in regions of Southeast Asia and the Middle East. Prevalence rates vary between and within nations, with some regions possessing rates higher than 90%. In the United States, the Centers for Disease Control and Prevention estimates that approximately 545,000 women and girls were either born in FGM/C-practicing countries or were born to women from FGM/C-practicing countries [91].

FGM/C is divided into four categories (Table 17.3, Fig. 17.1). Type I is the partial or total removal of the prepuce or clitoris (clitoridectomy). Type II is the partial

Table 17.3 2007 WHO classification of female genital mutilation/cutting [89]

Type	Definition
I	Partial or total removal of the clitoris ^a and/or the prepuce (<i>clitoridectomy</i>) <i>Type Ia</i> – removal of the clitoral hood or prepuce only <i>Type Ib</i> – removal of the clitoris ^a with the prepuce
II	Partial or total removal of the clitoris ^a and the labia minora, with or without excision of the labia majora (<i>excision</i>) <i>Type IIa</i> – removal of the labia minora only <i>Type IIb</i> – partial or total removal of the clitoris ^a and the labia minora <i>Type IIc</i> – partial or total removal of the clitoris ^a , the labia minora, and the labia majora
III	Narrowing of the vaginal orifice with creation of a covering seal by cutting and appositioning the labia minora and/or the labia majora, with or without excision of the clitoris (<i>infibulation</i>) <i>Type IIIa</i> – removal and apposition of the labia minora <i>Type IIIb</i> – removal and apposition of the labia majora
IV	Unclassified: All other harmful procedures to the female genitalia for nonmedical purposes (i.e., pricking, piercing, incising, scraping, and cauterization)

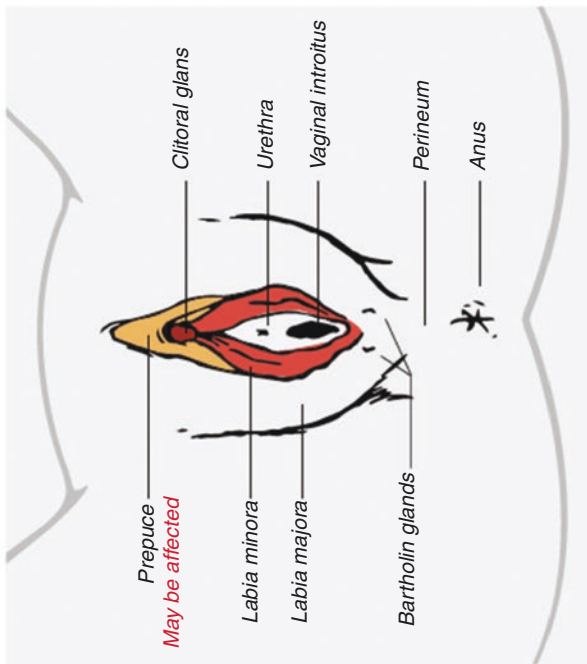
^aRemoval of clitoris refers to the glans or the glans with part of the body of the clitoris [89]



Type Ia: removal of the prepuce/clitoral hood (circumcision)

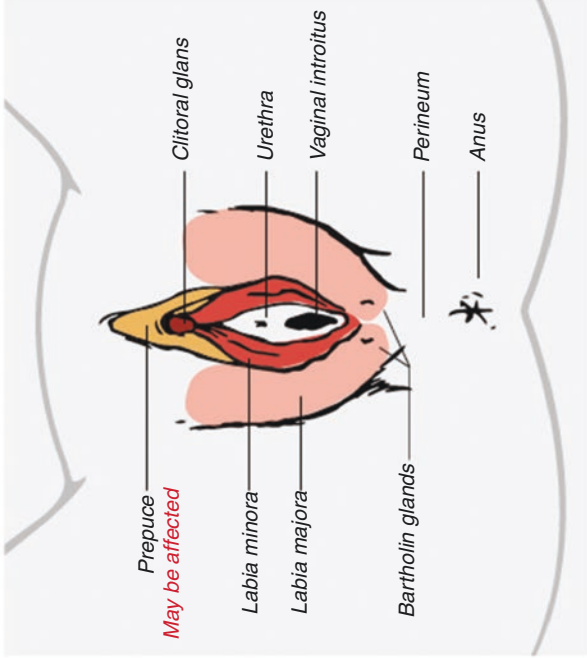
Type Ib: removal of the clitoral glans with the prepuce (clitoridectomy)

Fig. 17.1 (a) Type I: Partial or total removal of the clitoral glans (clitoridectomy) and/or the prepuce. (b) Type II: Partial or total removal of the clitoral glans and the labia minora, with or without excision of the labia majora (excision). (c) Type III: Narrowing of the vaginal opening with the creation of a covering seal by cutting and appositioning the labia minora or labia majora with or without excision of the clitoral prepuce and glans (infibulation). (d) Type IV: All other harmful procedures to the female genitalia for nonmedical purposes, for example, pricking, piercing, incising, scraping, and cauterization. (Reproduced with permission from WHO [92])



Type IIa: removal of the labia minora only

Type IIb: partial or total removal of the clitoral glans and the labia minora (*prepuce may be affected*)



Type IIc: partial or total removal of the clitoral glans, the labia minora and the labia majora (*prepuce may be affected*)

Fig. 17.1 (continued)

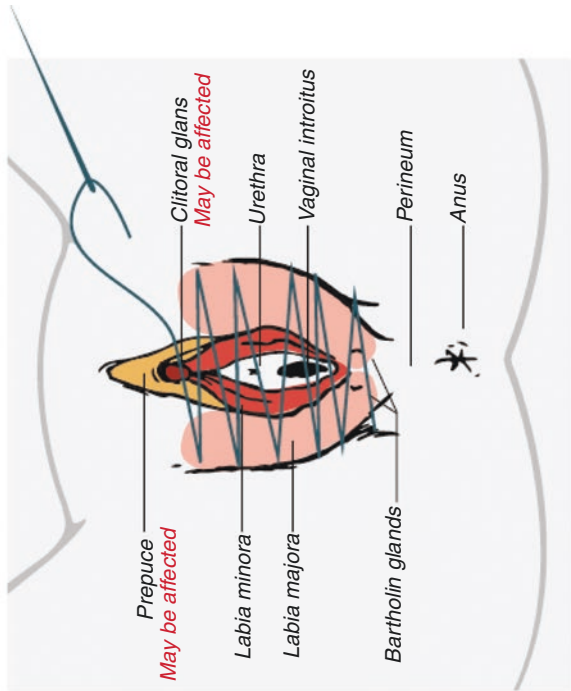
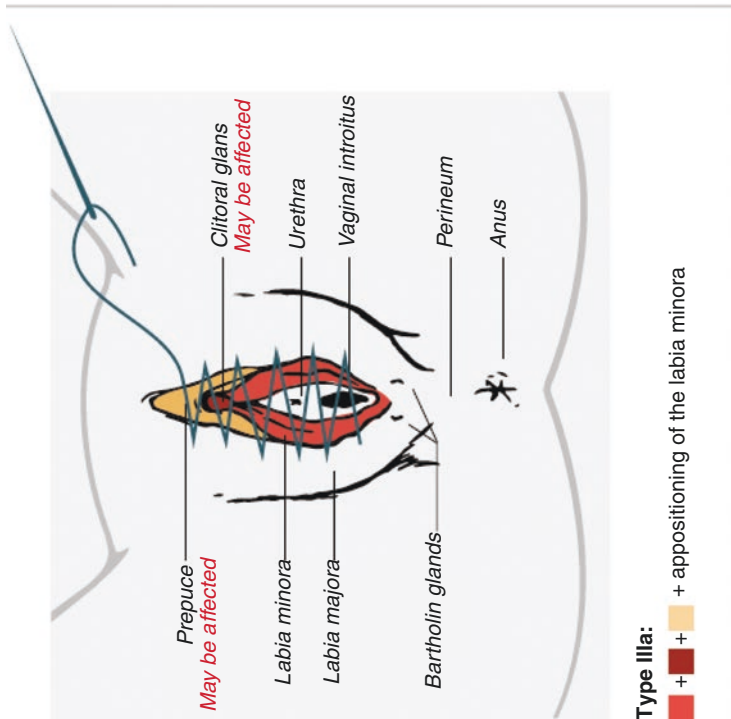
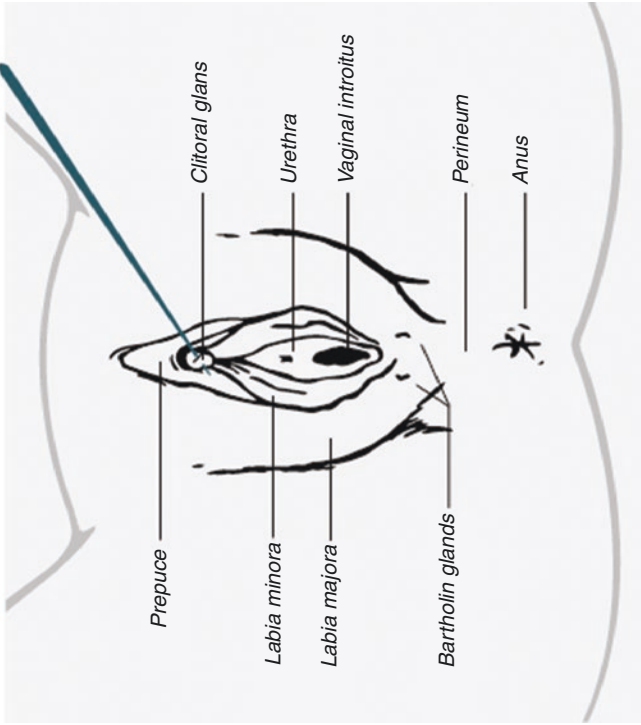


Fig. 17.1 (continued)



Type IV

Fig. 17.1 (continued)

or total removal of the clitoris and the labia minora, with or without excision of the labia majora (excision). Type III involves cutting and appositioning the labia minora and/or majora to create a covering that restricts the vaginal introitus (infibulation). This is the most extreme category, but only comprises 10% of all cases of FGM/C [93]. However, recent immigration and refugee resettlement from countries where type III FGM/C predominates (e.g., Somalia) have resulted in an increased prevalence of females with type III FGM/C throughout North America, Europe, and Australia. Type IV includes other alterations to the genitals that do not remove tissue, such as piercing, pricking, or cauterization [89].

Women who have undergone FGM/C may experience short- and long-term complications. Immediate complications may include pain, infection, laceration of adjacent structures (i.e., the bladder, urethra, vagina, or rectum), and uncontrolled hemorrhage. Long-term complications, seen mostly in women with type III FGM/C, include chronic urinary tract infections, severe dysmenorrhea, and dyspareunia, which in severe cases may lead to infertility. The extent of long-term morbidity depends on the type, extent, and severity of tissue excised [94–96]. A prospective study across six African countries has demonstrated a trend toward adverse obstetric and neonatal outcomes with increasing severity of FGM/C when compared to those without FGM/C, including cesarean delivery, postpartum hemorrhage, extended maternal hospital stay, resuscitation of the infant, and inpatient perinatal death [97]. Sexual function may also be affected. Increasingly more attention is being paid to psychosexual sequelae [98–101]; however the quality and strength of the evidence is mixed [102, 103]. Recent evidence suggests that FGM/C may not destroy sexual function or prevent sexual enjoyment in all women [104]. There is heterogeneity in sexual response among FGM/C affected that must be considered with important sociocultural distinctions in expressions of desire, pleasure, orgasm, and pain. More research is needed to further elucidate the impact of varying types of FGM/C on a woman and her partner's sexual health.

For women with type III FGM/C, a defibulation procedure can relieve FGM/C--related morbidity prior to coitus or pregnancy or during the antepartum or intrapartum period. Defibulation is also recommended for women with type III FGM/C who experience urogynecologic and/or sexual sequelae and to mitigate future obstetric complications. It also allows for routine gynecologic procedures, including cervical cancer screening. Pregnancy (from ejaculation on the fused labia) and HPV transmission can still occur among women who are otherwise unable to achieve penile-vaginal intercourse due to vulvar infibulation. A higher prevalence of HSIL (high-grade squamous intraepithelial lesion) has been noted among African migrant women with FGM/C, particularly type III [105]. The World Health Organization (WHO) recommends that cervical screening guidelines remain the same for women with type III or extensive genital scarring in accordance with national guidelines as HPV may be transmitted via contact with genitalia, digital penetration, anal, and oral sexual contact [92]. If a speculum exam is not feasible, and a woman declines defibulation, HPV only testing may be performed. Further counseling and education regarding the need for defibulation may become necessary if colposcopy or other invasive cervical procedures (e.g., LEEP or cold knife conization) are indicated. Defibulation entails the surgical release of the vulvar scar tissue by making a vertical incision along the infibulation to expose the urethral meatus and introitus, followed

by approximation of the raw edges on each labia majora [92, 106, 107]. Reconstructive surgery can also be performed to restore clitoral appearance and function. Local anesthesia may be used unless the patient possesses risk factors for distress associated with palpation of the vulva triggering flashbacks of the original infibulation procedure [108]. In such instances, local anesthesia should be avoided and general anesthesia may be required [109]. Excellent postoperative results have been reported with improvement in both sexual function and pain [110]. Links to educational videos detailing the surgical technique of defibulation are available [111–113].

For pregnant women with type III FGM/C, cesarean delivery should only be performed for obstetrical indications and precautions taken to ensure a safe vaginal delivery. Counseling is needed during the antepartum period to discuss what to expect during labor, as well as to determine the most appropriate timing of defibulation (antepartum during the second trimester or intrapartum). Antepartum defibulation avoids excessive blood loss at the time of delivery, facilitates the assessment of cervical dilation, and allows for urethral catheterization and the placement of intrauterine devices while minimizing patient discomfort. If a patient necessitates intrapartum defibulation, and she is remote from delivery, defibulation should be considered during the first stage of labor with regional anesthesia (saddle block), to allow cervical exams, bladder catheterization, as well as intrauterine monitoring as needed. The knowledge and expertise of healthcare providers in caring for FGM/C-affected women has been shown to influence clinical outcomes in terms of timely performance of defibulation as well as inappropriate performance of cesarean delivery for reasons outside of obstetrical indications [114, 115].

Counseling should be provided in a nonjudgmental manner, engendering trust and encouraging open dialogue. Women suspected of being at risk for or who have undergone FGM/C should be asked about their history in a culturally sensitive matter, with careful use of the patient's own terminology [116]. An exploration of the cultural significance ascribed to FGM/C should ensue along with elicitation of any medical sequela experienced. An interpreter should be available if necessary along with the woman's partner to aid in medical decision-making. During the physical exam, it is important to gain the trust of women who may feel uncomfortable with gynecologic exams. Pelvic exams may pose a challenge in women with a narrowed opening, and a pediatric speculum may be needed. Likewise, performing a bimanual exam may be difficult, and a rectovaginal exam may be required. Visual aids/diagrams illustrating vulvar anatomy should also be incorporated, and sexual health counseling made available for both the woman and her partner.

Legislation and educational campaigns against FGM/C have led to a significant decline in its prevalence over the last 25 years, although support for its continuation varies widely between and within countries [117]. In December 2012, the United Nations General Assembly passed a resolution to eliminate FGM/C, which is intensifying global efforts to eliminate the practice [118]. In November 2018, a federal judge ruled that FGM/C violates the US Constitution in a high-profile landmark case involving FGM/C among the Dawoodi Bohra community in the US [119]. As of this writing, 34 states have passed legislation criminalizing the practice, while a further six states have proposed legislation [120]. Notwithstanding, intense controversy abounds surrounding the medicalization of genital cutting performed on minors and the rights of a child to bodily integrity (regardless of gender) [121, 122], the

confluence of double standards around female genital cosmetic surgery and an adult woman's ability to choose genital modification procedures [123], the lack of long-term safety and efficacy evidence on clitoral reconstruction [124], and the Western media's portrayal of FGM/C without attention to rigorous evidence-based research and balanced public policy debates [125–127]. Thus, FGM/C provides a window of opportunity through which healthcare providers can impart culturally appropriate counseling and education, enabling women to make informed decisions regarding their reproductive healthcare and the prevention of FGM/C among their daughters.

Summary

Refugee women face several challenges experienced by all refugees due to unstable conditions before, during, and after migration. The women face additional challenges due to higher risk of exposure to violence that includes IPV. Women also receive reproductive care in their host country and that can present unique cultural and linguistic barriers. Women from certain countries may also have undergone culturally sanctioned practices like FGM/C that potentially affect psychological and reproductive health. Refugee women will benefit from optimal healthcare delivery from providers trained in issues specific to this population.

Appendix A

Suggested Assessment Questions and Strategies for Routine Screening of Violence Against Women

The following sample assessment questions can be used to develop a strategy most comfortable for each individual.

Framing Questions

- “Because violence is so common in many people’s lives, I’ve begun to ask all my patients about it.”
- “I am concerned that your symptoms may have been caused by someone hurting you.”
- “I don’t know if this is (or ever has been) a problem for you, but many of the patients I see are dealing with abusive relationships. Some are too afraid or uncomfortable to bring it up themselves, so I’ve started asking about it routinely.”

Direct Verbal Questions

- “Are you in a relationship with a person who physically hurts or threatens you?”
- “Did someone cause these injuries? Was it your partner/husband?”
- “Has your partner or ex-partner ever hit you or physically hurt you?”
- “Do you (or did you ever) feel controlled or isolated by your partner?”
- “Do you ever feel afraid of your partner? Do you feel you are in danger?”
- “Is it safe for you to go home?”

- “Has your partner ever forced you to have sex when you didn’t want to? Has your partner ever refused to practice safe sex?”
- “Has any of this happened to you in previous relationships?”

Effective Assessment Strategies When Working Cross-Culturally

It is important to adapt your assessment questions and approach in order to be culturally relevant to individual patients. Listen to patients, pay attention to words that are used in different cultural settings, and integrate those into assessment questions. Focusing on actions and behaviors as opposed to specific terminology can also help. Some groups may be more willing to discuss abuse if you use general questions. Be aware of verbal and nonverbal cultural cues (eye contact or not, patterns of silence, spacing, and active listening during the interview).

Some Examples Include:

- Use your patient’s language: “Does your boyfriend disrespect you?”
- Be culturally specific: “Abuse is widespread and can happen even in lesbian relationships. Does your partner ever try to hurt you?”
- Focus on behaviors: “Has you partner ever hit, shoved, or threatened to kill you?”
- Begin by being indirect: “If a family member or friend was being hurt or threatened by a partner, do you know of resources that could help them?”

(Adapted from the The Family Violence Prevention Fund [88])

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Chapter 18

Primary Care of Refugee Children



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Introduction

In the past decade, an estimated 274,000 children and adolescents have come to the United States as refugees [1]. Their exposure to health-related risk and protective factors varies by nationality, socioeconomic status, and time period. In 2005, the majority of US-bound refugees originated in Cuba (12%), Laos (16%), Russia (11%), and Somalia (19%). In 2011, individuals from Bhutan (27%), Burma (30%), and Iraq (17%) predominated. By 2017, the top five countries of origin were the Democratic Republic of the Congo (17%), Iraq (13%), Syria (12%), Somalia (11%), and Burma (10%). Even within the same ethnic or national group, children's experiences and exposures vary. For example, access to early childhood nutrition or preventive health services is often different for children born in refugee camps or other transitional settings when compared to their older siblings. Similarly, disease risk for children from the same camp or region may wax and wane over time as outbreaks flare or preventive health programs, such as micronutrient supplementation or early childhood vaccination, take root.

After arriving in the United States, growth and nutrition, communicable conditions, vaccine catchup, and entry into primary and specialty care are the focus of healthcare. Over time, psychosocial needs and chronic disease management may

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predominate. Psychosocial support is likely to be particularly important for survivors of violence and for those who have come to the United States without their parents or legal guardians, receiving assistance as unaccompanied refugee minors [2, 3].

This chapter will focus on refugee groups who have arrived in the United States in the prior decade. The intent is to review core information and concepts, bearing in mind that children's specific health needs, exposures, and experiences are heterogeneous. Because most studies and published guidelines have focused on children's health during the time immediately following arrival, the majority of recommendations focus on this period [4–7]. Providers seeking detailed, population-specific guidance may also want to consult the *CareRef Clinical Assessment Tool for Refugees* online [8]. Those seeking electronic health record-based clinical decision support for screening may want to review *Refugee Health Decision Support* available online through CDS Connect [9].

Nutrition and Growth

Nutrition and growth are among the most common concerns for health professionals caring for refugee children in the United States. The social forces that uproot families can also disrupt access to food, expose children to infectious diseases associated with malnutrition, and limit access to medical care. Children may also come to the United States from regions where childhood obesity is an emerging concern.

The prevalence of growth and nutrition problems among refugee children varies by population, as well as country of departure. In a study of children who resettled in Massachusetts in the late 1990s, *wasting* (low weight-for-height, which is often associated with acute malnutrition; for additional information about anthropometry, see Table 18.1) was present among 8% of children from developing regions in Africa and Asia. Similarly, *stunting* (low height-for-age, often associated with chronic malnutrition) was present among a high proportion of children from Africa (13%), the Near East (19%), and East Asia (30%) but very few children from Yugoslavia and the former USSR [10]. In a more recent evaluation of nutritional status among refugee children in Washington State, wasting was present among 8% of children from Burma, 17% of children from Iraq, and 29% of children from Somalia immediately prior to resettlement. Within the same time frame, stunting was noted for 38% of children from Burma, 8% of children from Iraq, and 21% of children from Somalia [11].

Refugee children from some regions are also at risk of overweight and obesity. For example, a 2007–2009 analysis of pre-departure data from Jordan found that 25% of US-bound 2–19-year-olds from Iraq were overweight or obese [12]. An analysis of 2015–2016 pre-departure data for a large cohort of Syrian refugee children ages 6–59 months found that 11% of children were overweight or obese [13]. Children may also experience excessive weight gain subsequent to resettlement,

Table 18.1 Selected anthropometric assessment of children's growth and nutritional status

Growth classification ^a	Measurement ^b	Definition	Limitations
Wasting ^c	Weight-for-height	Z-score below -2 on the sex-specific weight-for-height WHO growth chart	
Stunting ^c	Height-for-age	Z-score below -2 on the sex-specific height-for-age WHO growth chart	Requires accurate assessment of age
Stunting ^d	Height-for-age	Below the 5th percentile of the sex-specific height-for-age CDC growth chart	Requires accurate assessment of age Based on US norms
Underweight ^c	Weight-for-age	Z-score below -2 on the sex-specific weight-for-age WHO growth chart	Requires accurate assessment of age
Underweight ^d	Body mass index (BMI) ^e	Below the 5th percentile of the sex-specific BMI-for-age growth chart	Requires accurate assessment of age Based on US norms Applicable for children 2–19 years
Overweight ^d	Body mass index (BMI)	85th to less than the 95th percentile of the sex-specific BMI-for-age growth chart	Requires accurate assessment of age Based on US norms Applicable for children 2–19 years
Obesity ^d	Body mass index (BMI)	Equal to or greater than the 95th percentile of the sex-specific BMI-for-age growth chart	Requires accurate age assessment Based on US norms Applicable for children 2–19 years

^aThe CDC's Division of Global Migration and Quarantine recommends that clinicians use WHO-standardized growth references for children younger than 2 years of age and CDC/NCHS references for older children

^bIn children under 2 years of age, recumbent length is measured rather than standing height

^cWHO [95, 96]

^dCDC [97], Barlow et al. [98]

^eBody mass index is weight in kilograms divided by the square of the height in meters

either because of increasing food availability, adoption of an “American” diet, or decreased physical activity [14–16].

Children of any weight and stature may experience malnutrition in the form of micronutrient deficiencies (Table 18.2). Among refugee children, common micronutrient deficiencies include vitamin A, iron, vitamin B12, and vitamin D deficiencies [17–30]. Older data on refugees in Africa and Asia have highlighted the susceptibility of children dependent on long-term food aid [20, 22, 31], demonstrating rates of vitamin A deficiency of 21–62% and iron deficiency of 23–75% among young children ages 6–59 months. In a diverse sample of refugee children who had resettled in Massachusetts, nearly 70% of young children (≤ 5 years) and 80% of school-aged children (6–20 years) were vitamin D insufficient or deficient [21]. In an Australian study, vitamin B12 deficiency was documented among 16% of

Table 18.2 Brief overview of micronutrient deficiencies in refugee children

Micronutrient	Clinical presentation
Iodine	<p>Risk: Residence in mountainous and inland areas with little naturally occurring iodine in the soil</p> <p>Symptoms: Thyroid disease, mental retardation (congenital)</p> <p>US-bound refugees: Iodine deficiency has not been reported in children following resettlement in the United States, but data are limited. Many refugee camps provide iodized salt</p>
Iron	<p>Risk: One to three quarters of children in refugee camps in Asia, Africa, and the Middle East (e.g., Seal et al. [18], [22–24])</p> <p>Symptoms: Microcytic anemia, neurocognitive delay</p> <p>US-bound refugees: Iron deficiency is common, with variable risk by age and region of origin. Care should be taken to distinguish iron deficiency from hemoglobinopathies and G6PD deficiency.</p>
Vitamin A	<p>Risk: One in five preschool-aged children worldwide [25], up to 62% of young children in some refugee settings [22], [26].</p> <p>Symptoms: Infection; vision problems, including irreversible corneal damage and retinal problems, e.g., night blindness. Physical exam findings include dry skin, hair, or eyes and Bitot spots</p> <p>Prevention: Periodic oral supplementation programs</p> <p>US-bound refugees: Vitamin A deficiency has not been reported in children following resettlement in the United States, but data are limited.</p>
Vitamin B1 (thiamine)	<p>Risk: Altered metabolism (e.g., thyroid disease), losses (e.g., chronic diarrhea)</p> <p>Symptoms: Dry beriberi, characterized by progressive weakness and peripheral neurologic abnormalities; wet beriberi, a cardiomyopathy that can progress to congestive heart failure; infantile beriberi (congenital), which mimics shock; Wernicke encephalopathy, a triad of ophthalmoplegia, nystagmus, and ataxia</p> <p>US-bound refugees: Vitamin B1 deficiency has not been reported in children following resettlement in the United States. Data are limited</p>
Vitamin B3 (niacin)	<p>Risk: Diet dependent on corn or millet</p> <p>Symptoms: Pellagra, characterized by “diarrhea, dermatitis, and dementia” or gastrointestinal symptoms (glossitis, angular stomatitis, cheilitis, diarrhea), skin lesions (beginning as painful erythema on sun-exposed surfaces, skin eventually becomes rough and hard), and neurologic symptoms (e.g., irritability, depression, fatigue, memory impairment)</p> <p>US-bound refugees: Vitamin B3 deficiency has not been reported in children following resettlement in the United States. Data are limited</p>
Vitamin B12 (cobalamin)	<p>Risk: One in three adolescents from Bhutan [27], maternal vitamin B12 deficiency (breastfed infants), intrinsic factor deficiency, severe gastritis (e.g., <i>H. pylori</i>)</p> <p>Symptoms: Macrocytic anemia; pancytopenia; peripheral neuropathy; nonspecific neurologic symptoms, e.g., fatigue, irritability. Severe congenital cases may lead to profound neurocognitive regression, development delay, or obtundation</p> <p>US-bound refugees: Vitamin B12 deficiency has been reported among refugee children from Bhutan, Iran, and Afghanistan in Australia, as well as US-bound refugee children from Bhutan. Data are limited for other national groups</p>

Table 18.2 (continued)

Micronutrient	Clinical presentation
Vitamin C (ascorbic acid)	Risk: Limited access to fruits and vegetables, as vitamin C is not stored in the body and must be continually replenished Symptoms: Early symptoms include fatigue, aching lower extremities, and follicular hyperkeratotic papules (often on the shins); later symptoms include bleeding gums, perifollicular hemorrhage, and frank scurvy US-bound refugees: Outbreaks have been reported in refugee camps. Deficiency has not been reported in children following resettlement in the United States. Data are limited
Vitamin D	Risk: Refugee status, diseases associated with fat malabsorption Symptoms: Bone pain, dental caries and other tooth defects, impaired growth, rickets US-bound refugees: Vitamin D deficiency and insufficiency are highly prevalent, affecting approximately three quarters of children [21]
Zinc	Risk: Children with limited access to zinc-rich foods (e.g., meats) are believed to be at risk of mild to moderate deficiency [28] Symptoms: Zinc deficiency is characterized by immune dysfunction and disruption of mucosal integrity, resulting in acro-oral skin lesions, diarrhea, susceptibility to infection, and poor growth US-bound refugees: Deficiency has not been reported in children following resettlement in the United States. Data are limited

refugee children from Bhutan and in over a quarter children from Iran and Afghanistan [29]. In both Australian and Canadian clinic populations, the overall prevalence of vitamin B12 deficiency (<150 pmol/L) among refugee children is reported to be ~11% [29, 32]. Vitamin B12 deficiency is of particular importance when evaluating infants and young children, as those with deficiencies are at risk of severe neurocognitive regression and hematologic abnormalities [20–29]. Table 18.2 demonstrates the significant impact micronutrient deficiencies can have on childhood health and development and emphasizes its importance in evaluations of resettled youth.

The causes of growth abnormalities and malnutrition are multifactorial. In refugee settings, perishable foods can be difficult to transport and store, and movement or financial restrictions may prevent individual foraging or purchases in food markets. Even when children receive an adequate number of calories, they may lack food diversity or access to outdoor activities. As a result, micronutrient deficiencies may be present even when a child's growth has been normal. Children living in refugee settings are often also at risk of acquiring co-morbid communicable conditions associated with poor nutrition and growth. These include tuberculosis and *Helicobacter pylori*, which may impair micronutrient absorption [33, 34]. The relationship between growth and intestinal parasite burden is less clear. Research by Geltman et al. in Massachusetts found no association between intestinal parasite infection and the growth of recently arrived refugee children after taking into account demographic characteristics, such as country of origin [10]. This finding is consistent with a Cochrane review of intermittent deworming, which found minimal association with growth improvement [35].

Growth is also dependent upon heritable factors, although population-level variation between national or ethnic groups remains an area of investigation. Early childhood growth potential appears similar, although perhaps not identical, for children with access to optimal nutrition [36–38]. Data on adolescent growth are less clear, and it is possible that interpopulation variation explains at least some differences in growth between adolescents from different regions [39, 40]. At present, however, children from all groups are evaluated using standard WHO or Centers for Disease Control and Prevention (CDC) growth curves.

The US Centers for Disease Control and Prevention's Domestic Medical Screening Guidelines for refugees include recommendations for the evaluation of nutritional status, including reviewing past medical history, a detailed dietary family and social history, anthropometry, physical examination, and laboratory screening [4]. Because most anthropometric references provide age-specific standards, clinicians may need to use ancillary records (e.g., vaccination cards) and narrative history (e.g., season and location of birth, age in relationship to other children) to try to accurately assess the age of children whose birthdate is unknown. Children ages 6–59 months should be prescribed an age-appropriate multivitamin with iron. Practitioners should be alert for signs and symptoms of micronutrient deficiencies among children of any age, including children who have exhibited normal growth.

Infectious Conditions: Consideration for Children

As described in earlier chapters, the diagnosis and treatment of communicable conditions is a core component of primary care for recently resettled refugees. While many aspects of diagnosis and care are similar for adults and children, in this section we highlight issues specific to children.

Tuberculosis

The prevalence of tuberculosis among refugee children and adolescents varies by country of origin and departure [41]. Most studies have reported prevalence rates of around 6% among children from Iraq and higher prevalence rates (14–33%) among children from Southeast Asia and sub-Saharan Africa [42–46]. Diagnosis with latent infection is far more common than active disease [41].

Tuberculosis screening begins prior to US arrival during the overseas medical examination (OME), and protocols differ for younger and older children [47]. For the OME, screening evaluation for children <2 years depends upon history and exam alone. Toddlers and younger children (2–14 years) living in countries with a WHO-estimated tuberculosis incidence rate of ≥ 20 cases per 100,000 population are tested using interferon-gamma release assays (IGRAs). Older adolescents (≥ 15 years) are screened using chest radiograph. Many refugee health providers

repeat screening after arrival in the United States, particularly for older children who have not had a tuberculin skin test (TST) or IGRA as part of the OME. If TST is used, interpretation is the same for children who have and have not received BCG [4].

Although the diagnosis of latent tuberculosis may seem commonplace for clinicians, it is important to remember that even latent tuberculosis can be a source of fear and stigma for families. Adequate explanation about the difference between latent infection and active disease is particularly important, as are assurances about confidentiality and reassurance that tuberculosis is not caused by poor parental care [48–50]. Parents may also be skeptical when children who have received BCG are diagnosed with tuberculosis. However, BCG is effective only in preventing disseminated disease and tuberculosis meningitis in children. It does not prevent primary infection or the reactivation of latent infection.

Parasites

As noted in Chaps. 6 and 8, pre-departure presumptive treatment for intestinal helminths, schistosomiasis, and malaria has significantly decreased the risk of infection among refugees arriving from endemic or holoendemic regions [51, 52]. However, primary care providers should remain alert to signs and symptoms of infection in children. Children with age-based, weight-based, or medical contraindications may receive partial or no pre-departure presumptive treatment [53], or pre-departure treatment may not have been implemented as recommended [54]. In such cases, clinicians may recommend screening or presumptive treatment after resettlement [4]. Additionally, some common infections, e.g., *Giardia intestinalis*, are not susceptible to single-dose albendazole, currently the most common pre-departure presumptive therapy, and even susceptible organisms may not be eradicated in all children [52]. Similarly, presumptive pre-departure treatment for malaria is not effective against the intrahepatic lifestage of non-*falciparum* species, including *Plasmodium ovale* and *Plasmodium vivax*. Finally, parasitic infections may also be present among children from populations who are not receiving pre-departure presumptive treatment. For example, malaria is endemic at the Thai-Burma border, but refugee children from this region do not receive presumptive malaria treatment [53, 55].

Hepatitis B and C

The addition of hepatitis B vaccination to national childhood vaccine programs over the past three decades has led to a decrease in childhood hepatitis B virus (HBV) infection and lower risk relative to adults from the same communities [56–58]. However, HBV infection remains significantly more common among refugee

children than among children in the general US population. There is also evidence that many recently arrived refugee children are being excluded from screening programs [59]. The severe long-term sequelae of childhood infection, risk of household transmission, and availability of treatment continue to strongly support serologic screening of children who were born in or have lived in countries with intermediate (2–7%) or high ($\geq 8\%$) prevalence of chronic HBV infection. Screening for infection is recommended regardless of vaccination history [4].

Although hepatitis C virus (HCV) infection has not been commonly reported among recently arrived refugee children, the severity of long-term sequelae and availability of treatment support screening for selected populations. Among refugee children, risk factors for HCV infection include having been born or lived in countries with high HCV prevalence, blood transfusion, maternal infection, and injection drug use [56, 60–62]. At present, the CDC recommends screening recently arrived refugee children with risk factors for hepatitis C infection [4]. Many refugee health specialists also believe it is reasonable to screen all children who were born or have lived in countries with moderate (2–5%) or high ($\geq 5\%$) HCV infection prevalence [4].

HIV and Sexually Transmitted Infections

HIV/AIDS has not been commonly reported among recently arrived refugee children in the United States, although data are limited [44]. As with HBV and HCV, the prevalence of HIV among populations of refugee children arriving in the United States is likely to reflect the prevalence of HIV in countries where children are born or live prior to resettlement [12, 45, 62–64]. As noted in Chap. 9, screening for HIV is recommended for all recently arrived children ages 13 years and older, and screening of younger children is encouraged [4]. As with HBV and HCV, screening for HIV is justified by the severity of long-term sequelae and availability of effective treatment.

Psychosocial Issues: Considerations for Children

Refugee children are typically exposed to a broad range of social and emotional stressors both prior to and during the resettlement period [65–67]. The prevalence of traumatic stress reactions and other forms of psychological distress varies considerably by prior and current exposure to adverse life events [68–71]. Children who have been exposed to violent conflict and unaccompanied refugee minors are at particularly high risk [65]. Screening for emotional distress and mental illness is challenging, particularly in primary care settings that may not have sufficient access to treatment programs. Further, refugee children may be reluctant to volunteer or disclose mental health symptoms to providers with whom they do not yet have a

trusting relationship. As a result, screening practices look different in different resettlement settings [4, 7].

As described by Betancourt and Williams, treatment for children experiencing emotional distress or mental health problems may be conceptualized as psychosocial or psychiatric [72]. Psychosocial interventions are intended to help children get back to “normal” by restoring routines and building/rebuilding a child’s social environment. Psychiatric approaches start by identifying children with mental disorders and delivering therapeutic interventions designed to address specific diagnoses.

Access to both psychosocial and psychiatric interventions is often challenging for refugee children. After resettlement, little about a child’s setting may be familiar, and even family relationships may undergo changes. For example, parents may become increasingly dependent on their children, who often learn English more quickly, or relationships may shift when children are separated from or reunited with extended family members. Consequently, restoring routines and reconstituting a familiar social environment can be difficult, particularly when parents and caregivers are also under strain.

Accessing psychiatric interventions can be equally challenging [73]. Families may be asked to complete screening intake questionnaires using standardized instruments that have not been translated or validated for a wide variety of languages or cultures [74]. Access to bicultural interpreters or counselors is often limited, and in small communities interpreters and patients may derive from the same social milieu. This may raise concerns about confidentiality or stigma. Increasingly, however, refugee resettlement agencies and primary care providers are collaborating with mental health providers to ensure that refugee children are able to access needed care.

At present, the evidence base for both psychosocial and psychiatric approaches is limited but growing. Approaches to mental health care for refugee children are typically based upon the broader evidence base for children’s mental health treatment, with special attention to issues of language and culture [66, 67, 75]. Empirically evaluated approaches that show promise among refugee children include school-based mental health care and group-based interventions. There has also been increasing attention to programs that address parental well-being or that use family and expressive arts approaches [67, 75].

Remarkably, the majority of refugee children manifest good psychological adjustment. While longitudinal data are limited, there is also evidence that the prevalence of distress decreases over time after arrival [70]. Additionally, even those with PTSD, generalized anxiety, somatization, traumatic grief, and generalized behavior problems may be at relatively low risk for engagement in substance abuse, criminal activity, or self-harm [76]. Stable resettlement, family cohesion, parental well-being, and access to social supports are particularly important as protective factors [65, 77–79]. As might be expected, perceptions of broader social acceptance, as well as support from peers, are associated with self-esteem and improved psychological functioning. Acculturation is both difficult to define and to measure, but having some degree of alignment with both the host culture and the child’s original culture may be beneficial.

General Primary Care

The clinician must take care to address age-appropriate primary care issues as they would with any child or adolescent. Immunization catchup and the periodic screenings performed by the primary care physician are of special importance to refugee children, as many children have had limited prior preventive care. Key components include development, growth/nutrition, oral health, lead screening, and anemia. Among younger children, it may also include screening for selected genetic and metabolic disorders. In many if not most US states, newborn screening labs will accept samples for foreign-born children, regardless of age. Among adolescents, periodic screening includes attention to sexual and reproductive health, as well as substance use.

Development and Nutrition

Developmental screening is important to assess any motor or language delays, as well as any behavioral health issues, including but not limited to autism. Commonly used tools in the United States include the Ages and Stages Questionnaire (ASQ), the Parents' Evaluation of Developmental Status (PEDS), the Survey of Well-Being of Young Children (SWYC), and the Modified Checklist for Autism in Toddlers (M-CHAT). These tools have been validated in only a handful of language and cultural groups. However, validation efforts for other national and ethnic groups are ongoing, and translations are available in a wide variety of languages. Screening results should be interpreted in the context of a comprehensive history and physical exam, including assessment of vision and hearing.

After the initial assessment of growth and nutrition mentioned previously, the primary care provider needs to continue to assess these on an ongoing basis. Children whose charts show wasting upon arrival need to be followed carefully for catchup growth. For all children, weight gain also needs careful follow-up to assure that it does not result in increasing BMI. After arrival in the United States, children may adopt a high-calorie, low-nutrient diet as well as a more sedentary lifestyle.

Lead Screening

Periodic lead screening is also of great importance for refugee children. The prevalence of elevated blood lead (EBL) levels ≥ 10 mcg/dL ranges from $<1\%$ among US-bound refugee children from Malaysia to 3.4% among children arriving from Kenya and Uganda to 16.7% among children arriving from Afghanistan [46, 80]. Approximately one in six recently arrived children has a blood lead level between 5 and 9.9 mcg/dL [46, 80]. Sources of environmental lead exposure that may be

unique to refugee children include lead-alloy cookware, car batteries used as household generators, and contaminated foods, cosmetics, or traditional medications.

Because children of all ages may be exposed to contaminated products, laboratory screening is recommended for all newly arrived refugee children and adolescents. In urban areas with older housing stock or heavy industry, children may also be exposed to environmental lead after arrival in the United States [80–83]. For this reason, repeated screening is recommended between 3 and 6 months after arrival. Additionally, children <6 years should receive an age-appropriate multivitamin with iron, as individuals with malnutrition and micronutrient deficiencies are at increased risk of lead poisoning.

The treatment of elevated blood lead levels focuses on removing the source of lead contamination and, in severe cases, chelation and decontamination. Although blood lead levels <10 mcg/dL may impair neurodevelopment [84], acute symptoms are typically present only with levels of 45 mcg/dL or higher. These include headache, abdominal pain, constipation, and neurologic impairment, such as clumsiness or lethargy. Severe acute neurologic effects include ataxia, seizures, coma, and death. Detailed management of elevated blood lead levels is beyond the scope of this chapter, but should be consistent with established guidelines. Parental education is also critical, as many parents are unfamiliar with lead and lead poisoning prevention. Educational materials in different languages have been collated online by the US National Library of Medicine via *HealthReach* [85].

Anemia

The prevalence of anemia among recently arrived refugee children varies across age groups and regions of origin [10, 44, 45, 81, 82, 86, 87]. Broadly, anemia is more common among recently arrived refugee children than among children in the US general population [45, 46, 81].

Causes of anemia include micronutrient deficiencies, for example, iron or vitamin B12, and hereditary forms of anemia, such as G6PD deficiency, thalassemia, and sickle cell anemia. Unlike children born in the United States, refugee children have not undergone newborn screening, and they may have limited information about their family's medical history. As a result, hereditary anemias may be diagnosed at a later age than might be typical for other primary care patients. Children at risk of hereditary anemias include those from the Middle East (thalassemia, G6PD deficiency, rarely sickle cell anemia) [88, 89], Burma and other regions of South and Southeast Asia (thalassemia, including hemoglobin E) [90], and sub-Saharan Africa (G6PD deficiency, thalassemia, sickle cell anemia). For each of these diseases, the prevalence rates differ by population but may be as high as 20%. As a result, clinicians should have a high index of suspicion for hereditary etiologies when evaluating anemic children from these regions.

Dental Care

Refugee children, like other immigrant children, are especially at risk of dental problems, particularly caries [10, 91, 92]. Primary care providers should survey a refugee child's teeth as part of routine health surveillance and refer any acute dental issues immediately. They may also apply dental varnish if available and review the basics of dental hygiene. Most importantly, they should refer all refugee children to a primary pediatric dentist for routine dental care as soon as possible after arrival in the United States.

Culturally Sensitive Care

In addition to managing primary care conditions, clinicians for recently resettled children must simultaneously strive to provide linguistically and culturally appropriate care. This is of particular importance when treating adolescents, as some aspects of adolescent health care in the United States are not routine components of the patient-doctor relationship in many other regions of the world. Adolescents and their parents often do not expect the physician to complete a breast or genital exam or to ask questions about social functioning, substance use, or sexual and reproductive health. Adolescents may not be familiar with options for confidential sexual, reproductive, or mental health care [93]. Orienting adolescents and their parents beforehand can help to normalize these experiences, as may giving adolescents the option of having a gender-concordant provider.

Similarly, clinicians may collaborate with community leaders and other experts to develop anticipatory guidance that is consistent with a refugee community's frame of reference, opportunities, and expectations, as well as parents' literacy level [16]. For example, dietary guidance may be most effective when based upon foods that are both familiar to families and accessible in the United States and can often build upon parents' existing beliefs regarding healthy and unhealthy nutritional practices. In contrast, anticipatory guidance regarding home safety, e.g., use of smoke and carbon monoxide detectors, may require that clinicians introduce an entirely new set of concepts and objects for families who have come from refugee camps or agrarian regions with limited access to electricity. Similarly, families with low literacy levels may require visual aids, such as pictograms or marked syringes, to safely administer medication to their children, while those with very high literacy levels may prefer written or even online information in their preferred language. Culturally informed anticipatory guidance is particularly important when counseling against practices that may be commonplace in the family's country of origin, such as female genital mutilation/cutting (often called "circumcision" in other languages) or use of smokeless tobacco products such as *paan* or *gutka*.

In general, approaches characterized by cultural humility, defined by Tervalon and Murray-Garcia [94] as a long-term process of engagement and reflection with

the intention of learning to work respectfully and effectively with patients from different cultural groups, can help clinicians develop strong therapeutic relationships with children and families. Working with families in this way is a unique learning experience for the provider and a critical point of engagement for children and families who may be intimidated or overwhelmed by the complexity of the US health system. Primary care providers, who are often a child's first point of contact with US healthcare, play an indispensable and often formative role in determining how children will experience all subsequent care.

Summary

Children and adolescents represent a significant subset of refugees, and many of their health needs differ from those of adults. After resettling in the United States, growth and nutrition, communicable conditions, vaccine catchup, potentially toxic exposures, and entry into primary and specialty care are the focus of healthcare. Over time, psychosocial needs and chronic disease management, including development and dental health, may predominate. Importantly, the structure of the initial and ongoing visits, including cultural considerations, effective triadic communication, and collaboration with community services, is formative in the care experience for both children and their families and a key element of care delivery for refugee children.

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Chapter 19

Medical Evaluation of Asylum Seekers



Katherine C. McKenzie

Introduction

An asylum seeker is a foreign national who meets the definition of a refugee, seeks protection and legal status in the United States, and is physically in or arriving into the United States [1]. Asylum seekers claim persecution or a “well-founded fear” of being persecuted if they return to their home countries. Every year, thousands of individuals seek refuge in the United States and apply for asylum. From 2011 to 2018, asylum has been granted to approximately 23,000–38,000 individuals per year [2]. A medical forensic report from an expert clinician can increase the likelihood that asylum will be granted [3]. Physicians and other clinicians are uniquely positioned to assist this vulnerable group of individuals [4].

Asylum Seekers

As defined by US law, a refugee is an individual in the United States “who is unable or unwilling to return to ...[his or her] country ...because of persecution or...fear of persecution...on account of race, religion, nationality, membership in a particular social group or political opinion” [5]. Asylum seekers are not admitted to the United States through a refugee resettlement program, but must meet the definition of being a refugee. The legal pathway to asylum is based on US laws and derived from international legal obligations. Asylum seekers are assessed individually, and determination of eligibility is based on testimony and corroborating expert evidence in immigration court.

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Some persecuted individuals arrive at a US border with a visa that allows them to enter the country. In order to remain legally in the United States once the visa expires, an applicant must be granted asylum. Other individuals present to a point of entry without documentation that allows entry. These asylum seekers are either permitted to apply for asylum and have their claims adjudicated while on parole in the community or are placed in detention to await the outcome of their cases. Asylum seekers are initially not provided with work permits or eligible for government aid and are therefore especially vulnerable and marginalized.

Torture and Persecution

Torture is officially condemned by most nations but continues to be carried out in at least 141 countries [6]. In 1984, the UN General Assembly, Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment, 10 December 1984, United Nations, Treaty Series. Available at: <https://www.unhcr.org/cgi-bin/texis/vtx/home/opendocPDFViewer.html?docid=49e479d10&query=convention> [accessed 22 July 2020], defined torture as:

Any act by which severe pain or suffering, whether physical or mental, is intentionally inflicted on a person for such purposes as obtaining from him or a third person information or a confession, punishing him for an act he or a third person has committed or is suspected of having committed, or intimidating or coercing him or a third person, or for any reason based on discrimination of any kind, when such pain and suffering is inflicted by or at the instigation of or with the consent or acquiescence of a public official or other person acting in an official capacity. It does not include pain or suffering arising only from, inherent in or incidental to lawful sanctions. [7]

While torture is the intentional infliction of severe mental or physical pain, persecution covers a wider spectrum of hardships. Torture is a form of persecution, and both can be valid reasons for asylum to be granted. Physical and psychological sequelae from common forms of torture are listed in Table 19.1.

Types of psychological torture include deprivation and inhumane conditions during detention, humiliation (especially sexual), proximity to torture of others, threats, and blackmail.

Persecution related to being a member of a “particular social group” refers to those whose legal appeal is related to gender-based violence [12], gang violence [13], and LGBTQ violence [14]. Persecution in the form of gender-based violence encompasses acts such as domestic violence, female genital mutilation/cutting (FGM/C), and forced marriage. A UNICEF report notes that FGM/C is practiced in 30 countries, and at least 200 million girls and women alive today have undergone the procedure [15]. Women who have experienced FGM/C are eligible to be granted asylum based on legal precedent in the United States [16]. Asylum petitioners who are requesting protection due to gang violence, gender-based violence, or LGBTQ violence flee from societies where the government is “unable or unwilling” to protect individuals from these forms of persecution.

Table 19.1 Typical Sequelae of Torture [8–11]

Form of torture	Acute injury	Chronic physical scars	Functional sequelae
Blunt trauma	Contusion, fracture	Hyper- or hypopigmented, irregular borders, hypertrophic	Uncommon
Sharp trauma	Laceration, incision cut	Well demarcated, often linear, hypertrophic	Uncommon
Thermal and chemical trauma	Burn	Shape can be instrument dependent; nonspecific if liquid	Uncommon
Electrical shocks	Burn	Well demarcated; shape can be instrument dependent	Uncommon
Forced position	Joint pain	Uncommon	Chronic pain, motor and sensory deficits
Asphyxiation	Respiratory compromise	Uncommon	Cognitive and memory impairment
Falanga (blunt trauma to the bottom of the feet)	Foot swelling/bruising	Deformation of plantar aspect of foot	Ambulatory impairment, chronic pain
“Telefono” (blunt trauma to ears)	Swelling of pinna, ruptured eardrum	Scarring of pinna, rupture of eardrum	Chronic pain, hearing loss, tinnitus
Rape, sexual torture	Lacerations, swelling, bleeding	Often none	Sexual dysfunction, chronic pain

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Role of the Expert Clinician

Asylum seekers present to physicians and other clinicians seeking professional evaluation of psychological and/or physical trauma. Medical care is not provided during this evaluation; it is felt that the clinician must gather objective evidence to be used in the legal case for asylum. Consequently, asylum seekers are often referred to as clients, not patients. This evaluation requires clinical judgment and medical expertise of the clinician [17].

Clinicians interview the client, determine whether the client’s physical and/or psychological sequelae are consistent with the alleged ill-treatment, and produce a written report of these findings. The clinician evaluator is not responsible for verifying a client’s identity, confirming the veracity of the client’s report, determining whether the petitioner meets legal criteria for asylum, or predicting what would happen if the client returns to their country.

Clinicians of any specialty can be trained to perform asylum evaluations. Training conferences typically last a half or a full day. Human rights organizations can also provide ongoing mentorship for expert clinicians. Asylees are referred to trained clinicians from private lawyers; from human rights groups such as Physicians for Human Rights, HealthRight International, and others; or from law schools. An attorney will interview the client, and a declaration that

outlines the persecution or torture will be shared with the clinician prior to the medical evaluation. A background report on the country of origin of the asylee may be provided as well, to outline details of the political and social climate of the country. When necessary, the law office will arrange for an interpreter to accompany the client.

Clinicians who are interested in performing asylum evaluations can undergo training provided by human rights groups such as Physicians for Human Rights and HealthRight International or academic asylum clinics. These trainings typically last 1 day. Once trained, clinicians can benefit from ongoing mentorship from more experienced colleagues.

Interviewing the Client

The Istanbul Protocol (IP) provides guidelines for clinicians performing medical forensic evaluations of asylum seekers [18]. Meetings with the client can take 1–3 hours and begin with acknowledgement of the alleged trauma the client has experienced. Although the client has already been informed that the purpose of the meeting is to gather medical information to provide in court, expectations regarding the interview are reviewed. Clinicians must strive to provide a sense of control during the encounter; to this end, a client may be told that the interview can be paused or halted if the discussion becomes too traumatic.

The declaration that was sent from the attorney is reviewed, with emphasis on the details of the injury that has produced psychological and/or physical scars. Note should be made of post-injury treatment as well, including medical care provided, medication given, procedures, hospitalizations, or surgery. The client is asked to be as specific as possible when describing the incidents of injury. A detailed account of the injury can enhance a client's credibility. Nevertheless, some trauma survivors have poor recall due to head trauma, sensory deprivation during detention, or PTSD [19]. A clinician may be able to note that lapses in memory or nonspecific descriptions can be influenced by such factors.

Examining the Client

The physical exam is focused on assessing physical scars and functional sequelae from trauma. Each scar is examined, measured, and described in detail. With the client's permission, photographs can be taken. Interpretation of scars and assessment of whether the scar is consistent with the alleged injury can be documented using the IP degrees of consistency guidelines [18] (Table 19.2).

Table 19.2 Degrees of Consistency. (Adapted from the Istanbul Protocol) [18]

Not consistent	The lesion could not have been caused by the trauma described
Consistent with	The lesion could have been caused by the trauma described, but it is nonspecific and there are many other possible causes
Highly consistent	The lesion could have been caused by the trauma described, and there are few other possible causes.
Typical of	This is an appearance that is usually found with this type of trauma, but there are other possible causes
Diagnostic of	This appearance could not have been caused in any way other than that described

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A mental health professional can perform an evaluation on an asylum seeker who has psychological scars related to the persecution and may or may not have physical scars [20]. Psychological scars can be assessed and documented using standardized assessments. Some psychological assessments take longer than physical evaluations and are performed over two sessions.

Writing a Medicolegal Affidavit

After the interview and exam, the clinician writes a medicolegal affidavit outlining the findings. The affidavit may include a brief outline of the client's life preceding the torture, any medical history, and background about country conditions. The clinician recounts details of the persecution based on the declaration and interview.

Physical and psychological findings related to alleged persecution and torture are noted in the report. Labeled body diagrams (Fig. 19.1) [18] and/or photos can be used. Scar documentation should be as precise as possible, with specific measurements and explicit descriptions (Fig. 19.2). Psychological scars can be described in a narrative fashion with quantitative descriptions using validated measurement tools.

Expert Testimony

The client's attorney or the government attorney may request testimony in court from the clinician; this usually lasts less than 30 minutes and can be provided telephonically in most cases. During testimony, attorneys may review the clinician's credentials. Both the client's attorney and the government attorney can ask questions based on the information in the affidavit. The clinician provides an expert opinion regarding whether the history and physical or psychological findings are consistent with the reported injury and persecution.

Full Body, Male – Anterior and Posterior Views (Ventral and Dorsal)

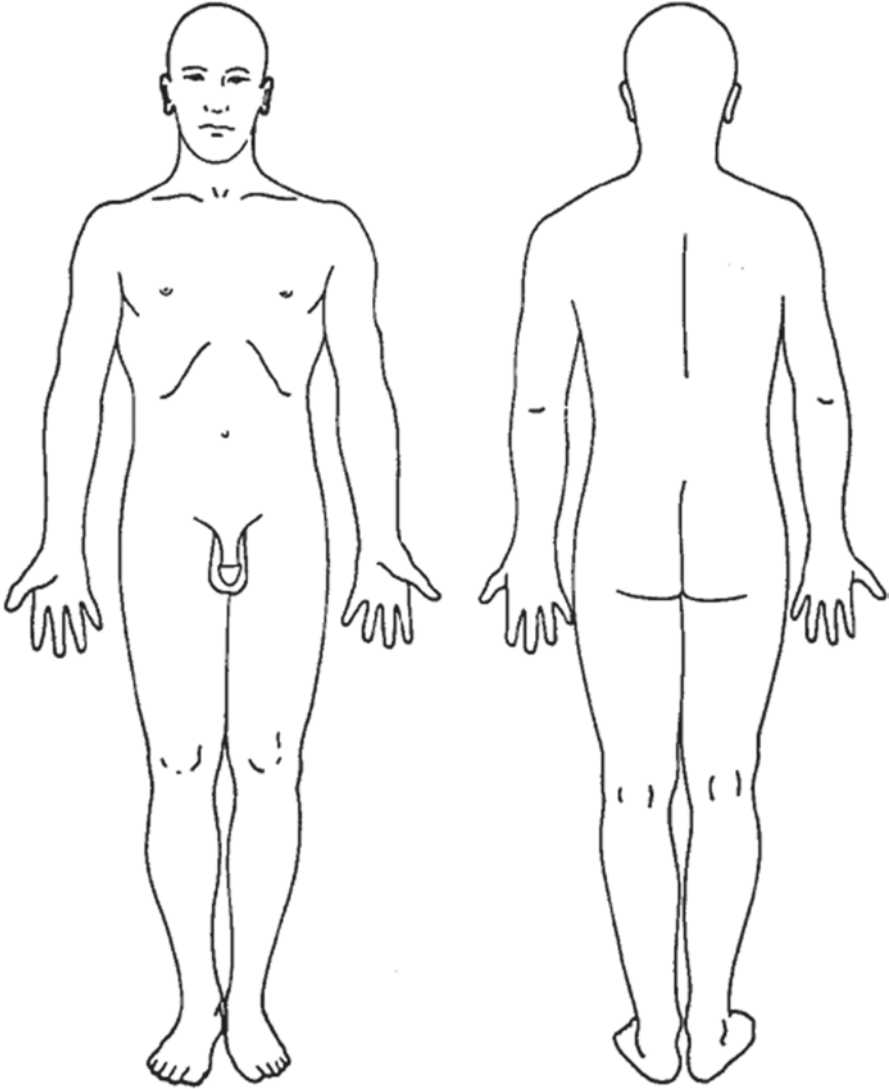


Fig. 19.1 Anatomical drawings for documentation of torture and ill-treatment [18]. (Adapted from the Istanbul Protocol)



Fig. 19.2 Scars from being kicked by an individual wearing steel-tipped boot. Scar #1: A 6.5 cm-long, 4 cm-wide, flat, and oval-shaped scar with irregular pigmentation and sharp borders. It is on the medial side of the right leg and is consistent with a scar from blunt trauma. Scar #2: A 4 cm-long, 1 cm-wide, flat linear scar on the medial side of the right leg consistent with blunt trauma. Scar #3: A 3/4 cm circular hyperpigmented scar on the medial side of the right leg consistent with blunt trauma. Scar #4: A 3 cm faint pigmented linear scar on the right leg consistent with blunt trauma. Scar #5: A 2 × 5 cm faint hyperpigmented oval patch with irregular borders consistent with blunt trauma. (Author's photo, used with permission from the asylum seeker)

Summary

An expert forensic medical exam by a trained clinician can contribute strong evidence in immigration court for an asylum seeker in the United States [21]. The objectivity, credibility, and expertise of a trained clinician provides powerful corroboration for asylum petitioners.

Clinicians can be reassured that their role requires medical knowledge, but they are not responsible for determining whether a client's report of abuse is true, nor is a clinician required to determine if a client meets the requirements for asylum. Performing evaluations of alleged victims of persecution allows clinicians to use their training and medical skills in a manner different from providing care. It is not often that a clinician can impact a person's life in this unique way. The experience of interviewing and examining people who have suffered such profound trauma is emotionally and intellectually challenging, but deeply rewarding [22].

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