Common Illnesses In Rhode Island Immigrants: A Primer For Health Care Practitioners

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Between 2000 and 2006, Rhode Island’s foreign-born population increased by 12.7%.1 [The figure includes some, but not all undocumented residents, depending on how many do not report to the census.] During this period the state gained over 18,000 immigrants, bringing the number of foreign-born residents to over 137,000, or greater than 10% of the total population. The majority of immigrants are from Portugal (17.6%), Dominican Republic (13.7%) and Guatemala (7.6%). Columbia, Italy, Canada, Cambodia, United Kingdom, China and Laos account for another 22.7% of the immigrants to Rhode Island. Over 10% of immigrants originated from Africa: the state has growing communities of Liberians, Nigerians and Ghanaians.

These immigrants may be at risk for diseases not commonly seen in the native-born Rhode Island population, especially immigrants from tropical regions of Africa and Asia. Newly arrived immigrants may bring with them illnesses native to their region, although many will have had some disease screening performed prior to their initial arrival. Immigrants to the United States through legal channels are required to be screened for communicable diseases of a public health significance, and present documentation of having received vaccination against vaccine-preventable diseases, including mumps, measles, rubella, polio, tetanus and diphtheria toxoids, pertussis, influenza type B and hepatitis B.2

Undocumented immigrants require special consideration because they may not have had any prescreening or previous immunizations.

First or second generation immigrants who have lived in the US for some time but who have visited friends and relatives (VFRs) in their homeland may also be at risk for tropical or travel related diseases. In 2002 VFRs represented 40% of US international air travelers. VFRs have a higher risk of acquiring malaria, typhoid fever, cholera, and hepatitis A, compared with the traveling population overall. In 1999, 39% of imported malaria cases in US were in VFRs, making them 8 times more likely to acquire malaria than US-born travelers. In addition, 77% of imported typhoid cases and 78% of imported cholera cases in US are in VFRs.3 VFRs are at increased risk for disease, because 1) adherence to pre-travel advice, including vaccines and prophylaxis, may be low;4) 2) they may stay abroad for prolonged periods; 3) they may eat in less sanitary settings than other travelers; and 4) they may have closer proximity to local populations with various infectious diseases. Using traveling populations as a guide to immigrant illnesses, surveillance data from 30 geo-sentinel sites from 6 continents have shown that malaria, dengue fever, rickettsial infection and parasite-induced diarrhea are common causes of fever and illness.5

The objective of this manuscript is to give the practitioner an understand-
tropical diseases, such as malaria, filariasis, and parasitic infections. These are not easily transmitted in temperate, developed areas such as RI.

The practitioner should ask the patient how long he stayed in the host country, and how long he has been in the United States, before he felt symptoms of illness. Intestinal parasites are more frequently found in newly arrived individuals, but usually decrease as the length of time in the host country increases. Therefore, examination for intestinal parasites might be considered a routine screening study for newly arrived immigrants. Conversely, filarial parasites can persist for years, so tests for these should arguably be conducted in immigrants from endemic areas regardless of their arrival date.

The practitioner who suspects an infectious disease should know the incubation period of various disease entities, to rule out possible etiologies. For example, fever beginning 3 or more weeks after return greatly reduces the probability that the cause is dengue fever, rickettsial infections, or a viral hemorrhagic fever. Sexually transmitted diseases, specifically syphilis, are a frequent diagnosis in immigrants, especially sub-Saharan Africans. Similarly, infection with HIV is observed more frequently in this group.

The rate of tuberculosis (TB) among foreign-born individuals is reported to be nearly nine times that of US-born persons. Although legal immigrants to the US are screened for TB, immigrants reportedly accounted for over 53% of all new TB cases in the US in 2003, up from less than 30% in 1993. This makes TB the most important infectious disease to consider and screen for in immigrants to RI. Most cases of TB in immigrants are reactivated during the first five years after arrival. Thus, immigrants to RI, especially undocumented immigrants whose access to health care is poor, should be screened for both latent and active TB.

Malaria must always be considered in immigrants who have spent any time in tropical or malaria endemic regions. Published data on frequency of imported malaria in immigrants varies with the origin and destination of the immigrant, as well as the sophistication of the medical facilities doing the evaluation and screening. In the US over 1,000 annual cases of malaria are reported each year. In 2002, there were 1,337 cases reported, even though malaria has been essentially eradicated in this country since the early 1950s. During the period from 1990-1998, 38 cases of malaria were identified in RI, and more than 80% of these patients were foreign-born. Malaria may present with the classic cyclical fevers, but will commonly present without non-specific symptoms, such as vomiting and diarrhea, and may even present without fever. Appropriate laboratory tests, including a malaria smear should be done expeditiously, and testing should be repeated if the initial result is negative. P. falciparum malaria often presents with very nonspecific symptoms, without the classic periodic fevers taught to clinicians in medical school.

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RI IMMIGRANTS PRESENTING WITH FEVER

Immigrants may present acutely ill with fever. With the growth of immigration and international travel, some patients who present with febrile illness may have symptoms relating to exposure during travel to foreign countries. Approximately 3% of people traveling to international destinations report developing fever requiring medical attention. Diseases may become evident weeks, months, even years later. Obtaining a travel history is crucial when evaluating any ill patient and it is particularly important to obtain an exact itinerary and details of pre-travel immunizations, whether malaria chemoprophylaxis was taken, and any exposures the traveler encountered during the trip. Some studies show that only about half of primary care clinicians inquire about a travel history when encountering a patient who presents with fever.

Most immigrants and travelers who develop infections overseas will become ill within 12 weeks after returning to the United States. However, diseases such as malaria may not cause symptoms for as long as 6-12 months or more after exposure, consequently, practitioners can easily miss the link between their patients’ presenting symptoms and their travel some months ago.

About 90% of malaria infections from P. falciparum manifest symptoms within 4 weeks of returning to the US. However, only about 50% of infections caused by P. vivax develop symptoms by 4 weeks. In addition, about 2% do not develop symptoms until one year or greater, illustrating the difficulty of having this diagnosis come to mind for most clinicians. Tourism to malaria endemic areas is a major reason for acquisition of this disease, but VFRs account for almost 40% of cases. Clinicians should remember that malaria does not always present with a classic picture of recurring high fevers and diaphoresis. Between 10 and 40% of patients with malaria are afebrile on first presentation.

Dengue fever is another consideration in travelers returning with fever. Considered one of the important emerging infectious diseases, dengue is now pandemic, with prevalence in over one hundred countries. Dengue has a short incubation period of less than a week, and presents as an influenza like illness, with fever, intense myalgias, and headache. About half of patients develop lymphadenopathy and a maculopapular or petichial rash. The two serious variants of the illness, dengue shock syndrome and dengue hemorrhagic fever, are rare in travelers; these develop only in persons who have had a prior infection with a different one of the four known serotypes of the virus. The diagnosis is clinical, although acute and convalescent titers can be performed as confirmation.

Arthropods are a risk factor for infectious disease transmission in many
forms of illness, including meningococcal and typhoid fever, which should be considered for rickettsial infections, such as African tick typhus, Mediterranean tick typhus, and scrub typhus. The finding of a painless dark eschar at the inoculation site is a clue, as well as the historical note of the patient being in high risk areas, such as brushy grassy areas, especially if they have been camping or hiking in these regions.12

The triad of fever, headache and myalgias can also be seen in early cases of leptospirosis. A classic diagnostic sign is conjunctival suffusion, but it is seen in less than half of cases.12 The increase in adventure travel, and outdoor activities has shifted the demographic of typical patients with this disease from occupational to recreational. Suspicion for this disease should be raised as a possibility in patients with a history of exposure to fresh water through camping, swimming, rafting, etc. The disease is usually biphasic, with liver and renal involvement. Leptospirosis is treated with tetracycline or penicillin plus supportive care.

Typhoid fever presents with fever, often in VFRs. Gastrointestinal symptoms are often present, including abdominal pain, and constipation (notwithstanding the common misconception that diarrhea is a frequent finding). Other clues can be a cough, lymphadenopathy, and leukocopenia or thrombocytopenia. For this disease, serologic tests are unreliable, and the agent, Salmonella typhi, must be isolated by culture from blood, stool, or bone marrow. Quinolones and third generation cephalosporins are generally the drugs of choice for treatment. Travelers can reduce their risk with pre-travel vaccinations against typhoid fever. The patient should be cautioned that the vaccine is only partially protective and that surveillance for fever is still important during travel and after return.

Fever accompanied by eosinophilia should raise the consideration for an infection caused by a helminth, and results from the worms passing through tissues resulting in inflammatory response from the host. Among the myriad infections from exposure to worms and their larvae, the most common to consider are hookworm, ascariasis, strongyloides, shistosomiasis, visceral larva migrans (toxocariasis), trichinosis, and filariasis.15 In these patients, it is important to perform one or more examinations of stools for the presence of ova or parasites. Serologic tests, blood smears, and skin snips may assist in the diagnosis of the various diseases, depending on the geographic area where the travel occurred, as well as the details of the clinical findings.19

Diarrhea is a common complaint in international travelers.20 Most causes are benign and self limited, but as the duration of illness increases, the likelihood that the disease is caused by a parasitic infection increases. Giardia lamblia, Cryptosporidium parvum, Entamoeba histolytica, and Cyclospora cayetanensis are the most common parasites found although they are detected in fewer then one third of travelers presenting with chronic diarrhea after international travel.21 Since most parasitic infections have relatively short incubation periods, diarrhea beginning more than one month after returning from travel, is likely not related to the international venue.15 The sensitivity of laboratory examination of stool specimens varies, but in general is at least 80%.22 Patients with noninflammatory diarrhea can be treated empirically with an antibiotic such as a quinolone or macrolide, and an antimotility agent. However, if the diarrhea appears inflammatory, an antimotility agent should not be used.

Dermatologic lesions can be perplexing entities for clinicians to diagnose, especially when they present in returned international travelers. The most common etiologies to consider are cutaneous larva migrans (anctlystoma braziliense), larva currins (Strongyloides stercoralis), the various rickettsioses, as well as Tungiasis (sand fleas-Tunga penetrans), myiasis (tumbu-Tunga penetrans), and loiasis (Loa loa).

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CONCLUSION

Providing care to Rhode Island’s growing immigrant population presents unique challenges to the health care provider. Illnesses, cultural issues, recent travel and access to services may be significantly different than those encountered in the native-born Rhode Island population. Maintaining a high index of suspicion for malaria and tuberculosis is paramount. Using an organized, systematic approach in evaluating and treating immigrants can only improve early identification of life threatening illnesses, reduce missed diagnoses, improve individual treatment and enhance public health.

REFERENCES

15. CDC Yellow Book, Chapter 2, June, 2007
Global Health Medical Education In Rhode Island: A Review and Look To the Future

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The need for medical training in global health has increased dramatically, because of an increasing proportion of immigrants in the Rhode Island population, increasing international travel, migration of populations, spread of diseases, and the rapid exchange of information through technology. This article reviews some national trends in global health medical education, as well as some established and novel global health medical education programs in Rhode Island.

Global Health – An Emerging Medical Construct

Recently Kaplan et al. in the Lancet defined global health as “an area for study, research and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level of clinical care.”

This definition includes important aspects of global health, viewed by many as essential, including its interdisciplinary nature and the goal for health equity. In contrast to the term “International Health,” which highlights the differences in diseases in countries other than one’s own, “Global Health” emphasizes the commonality of our health concerns and the need to approach solutions in a collaborative fashion.

Due to the marked increase in need and interest, the field of global health medical education has rapidly expanded. In 1978, 6% of medical students participated in an international health elective during medical school. By 2009, the percentage rose to 30%. In response, global health activities have been increasingly incorporated into medical training. A recent study found that 52% of pediatric residency programs in 2006-2007 offered global health electives, up from 25% in 1996.

Global health medical education benefits the local communities. Training in global health may improve clinical care for refugees, travelers and immigrants in our local medical centers. Many feel that training in global health augments trainees’ knowledge of diseases not commonly found in the United States. Communication skills and cultural competency are often improved, and studies have suggested that global health experiences sustain idealism and humanism in medical students and physicians in training. Many physicians realize early in training that entering medicine requires knowledge and participation in the larger global health issues of the world. For example, the global health community has spearheaded the fight against the HIV/AIDS pandemic and the newly emerging concept of global health equity.

During medical training and practice, exposure to global health is increasingly common. This occurs not only through clinical care teaching and research in the international setting but also through care of immigrants, travelers and refugees in the Rhode Island population. Many feel that global health medical education consists of a combination of strong medical exchange programs, didactics, local or international global health educational experiences and mentorship from those experienced in global health settings. However, there are few standardized guidelines outlining a formal approach to global health education.

The Global Health Education Consortium (GHEC) is devoted to furthering these goals and has grown over the past two decades. The American Academy of Pediatrics Section on International Child Health has developed clinical competencies for global health education in pediatrics residency training. Overall, however, best practices in global health medical education are still in development stages and further research is needed in curriculum development and evaluation.

Global Health Education at Brown University

As global health interest has grown, the global health medical education efforts in Rhode Island have expanded. Some of the key programs at Brown University were

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