

TABLE 149-3 ETIOLOGY AND GEOGRAPHIC DISTRIBUTION OF SYSTEMIC FEBRILE ILLNESS IN RETURNED TRAVELERS N = 3907

Etiology	Percentage of Cases ^a					
	Caribbean	Central America	South America	Sub-Saharan Africa	South-Central Asia	Southeast Asia
Malaria	<1	13	13	62	14	13
Dengue	23	12	14	<1	14	32
Mononucleosis	7	7	8	1	2	3
<i>Rickettsia</i>	0	0	0	6	1	2
<i>Salmonella</i>	2	3	2	<1	14	3

^aBold type is for emphasis only.

Source: Revised from Table 2 in DO Freedman et al: *N Engl J Med* 354:119, 2006.

and among those who become symptomatic within the first 2 months after return. Other important causes of fever after travel include viral hepatitis (A and E), typhoid and paratyphoid fever, bacterial enteritis, arboviral infections (e.g., dengue fever), rickettsial infections (including tick typhus, scrub typhus, and Q fever), and—in rare instances—leptospirosis, acute HIV infection, and amebic liver abscess. A cooperative study by GeoSentinel (an emerging infectious disease surveillance group established by the CDC and the International Society of Travel Medicine) showed that, among 3907 febrile returned travelers, malaria was acquired most often in Africa, dengue in Southeast Asia and the Caribbean, typhoid fever in southern Asia, and rickettsial infections (tick typhus) in South Africa (Table 149-3). Outbreaks of dengue, previously considered to be very rare in Africa, have been documented recently in Angola, Kenya, and Tanzania. However, in at least 25% of cases, no etiology of the fever can be found and it resolves spontaneously. Clinicians should keep in mind that no present-day antimalarial agent guarantees protection from malaria and that some immunizations (notably, that against typhoid fever) are only partially protective.

When no specific diagnosis is forthcoming, the following investigations, where applicable, are suggested: complete blood count, liver function tests, thick/thin blood films or rapid diagnostic testing for malaria (repeated several times if necessary), urinalysis, urine and blood cultures (repeated once), chest x-ray, and collection of an acute-phase serum sample to be held for subsequent examination along with a paired convalescent-phase serum sample.

SKIN DISEASES

Pyodermas, sunburn, insect bites, skin ulcers, and cutaneous larva migrans are the most common skin conditions affecting travelers after their return home. In those with persistent skin ulcers, a diagnosis of cutaneous leishmaniasis, mycobacterial infection, or fungal infection should be considered. Careful, complete inspection of the skin is important in detecting the rickettsial eschar in a febrile patient or the central breathing hole in a “boil” due to myiasis.

EMERGING INFECTIOUS DISEASES

In recent years, travel and commerce have fostered the worldwide spread of HIV infection, led to the reemergence of cholera as a global health threat, and created considerable fear about the possible spread of novel respiratory diseases, including those caused by influenza viruses (H5N1, H1N1, and H7N9). For travelers, there are more common, everyday concerns. One of the largest outbreaks of dengue fever ever documented is now raging in Latin America and Southeast Asia; chikungunya virus has spread rapidly from Africa to southern Asia, southern Europe, and, for the first time in the Western Hemisphere, the Caribbean; schistosomiasis is being described in previously unaffected lakes in Africa; and antibiotic-resistant strains of sexually transmitted and enteric pathogens are emerging at an alarming rate in the developing world. In addition, concerns have been raised about the potential for bioterrorism involving not only standard strains of unusual agents but mutant strains as well.

CONCLUSIONS

The growth of global travel and migration now demand that the clinician become as familiar as possible with travel medicine. Practitioners may choose either to refer their patients to a travel clinic before departure or to acquire knowledge that enables them to provide pre-travel counseling and to prescribe appropriate vaccinations and chemoprophylaxis. It is equally important for physicians seeing ill returned travelers to be familiar with common post-travel syndromes and diseases, particularly those that may have been acquired in the developing world, and to identify other physicians who can assist with com-

plex post-travel illnesses. The CDC publishes a biennial text, *Health Information for International Travel* (accessed through their website at www.cdc.gov/travel) that provides pretravel health recommendations. The International Society of Travel Medicine (www.istm.org) publishes a list of travel clinics, and the American Society of Tropical Medicine and Hygiene (www.astmh.org) publishes a list of clinical tropical medicine specialists.

As Nobel Laureate Dr. Joshua Lederberg pointed out, “The microbe that felled one child in a distant continent yesterday can reach yours today and seed a global pandemic tomorrow.” The vigilant clinician understands that the importance of a thorough travel history cannot be overemphasized.