Preface

Travel Medicine

Alimuddin Zumla, MD, MSc, PhD, FRCP(Lond), FRCP(Edin), FRCPath(UK), FSB

Ronald H. Behrens, MB ChB, MD, FRCP(Lond)

Ziad A. Memish, MD, FRCP(Can), FACP, FRCP(Edin), FRCP(Lond), FIDSA

Guest Editors

One of five Americans travel abroad annually, and 38 million visits are to developing and tropical countries. Trauma and accidents are the leading cause of death and injury in travelers. While noncommunicable diseases and climate-related disorders can be important, tropical, infectious, and parasitic diseases now pose an increasing problem for travelers from the United States and Europe to other continents and geographical regions.

The most common cause of ill health in travelers is from diarrhea, as the adage goes, “travel broadens the mind and loosens the bowels.” One of the most serious tropical diseases in returning travelers is Plasmodium falciparum malaria, which is responsible for an estimated 2 million deaths annually worldwide. Fewer than one in five travelers from the United Kingdom to malaria-endemic regions take prophylactic antimalarial drugs or other mosquito bite preventive measures. Thus, malaria must always be excluded in any ill traveler. Eosinophilia and fever of unknown origin in returning travelers and migrants from the tropics may point toward imported tropical infections or parasitic diseases. Common causes of nonmalarial fever from Africa include rickettsial diseases, filariases, amoebic liver abscess, and Katayama syndrome; from South and South East Asia include enteric fever and arboviral infection; from the Middle East include brucellosis; and from Asia, South America, Mediterranean, and East Africa include visceral and cutaneous leishmaniasis. Human echinococcosis remains highly endemic in regions of South America, Turkey, Mediterranean, Eastern Europe, East Africa, Central Asia, China, and Russia. Sexually transmitted diseases including HIV are endemic globally and pose a great risk to travelers. Rabies continues to cause mortality in certain parts of the world. Because the spectrum of dermatological manifestations seen in travelers while abroad or on return to their home countries is wide, it can be challenging for physicians to recognize and treat such conditions. Of global importance is a wide range of bacterial, viral, and fungal respiratory infections.

In addition to diseases acquired during cross-continental travel, the past two decades have seen a slow resurgence in “tropical” infectious diseases in the West. In Europe giardiasis is considered a travel-related disease but routine surveillance data
from Germany indicate that nearly 50% of infections were acquired during travel within Germany. Within the United States, travelers between the states can be exposed to several “tropical diseases,” such as Chagas’ disease, viral encephalitides, and leptospirosis.

Thus it is extremely important that physicians globally are aware of the wide spectrum of tropical, infectious, and parasitic diseases their patients may have been exposed to during their travels abroad or within their own countries. It is prudent to inquire about a travel history early on in their consultations, since early diagnosis and treatment of the majority of patients with a potentially fatal infection are required make a rapid and full recovery. With the global emergencies of killer infectious diseases, malaria, tuberculosis, and HIV/AIDS, it has become essential to exclude these early in the consultation. Increased awareness and knowledge among health care providers, family doctors, and hospital emergency departments regarding imported or locally prevalent infectious diseases, early and accurate diagnosis with effective intervention, and treatment measures will reduce morbidity and mortality. In addition to the education of the health care provider, education of the traveler and prescribing preventive measures before travel are of paramount importance. It is also important that those working on the front-lines of medical care globally feel confident in the safe acute management of the health problems travelers present with before specialist help is available.

This special issue of Infectious Diseases Clinics of North America on Travel Medicine consists of 15 articles written by 34 authoritative experts from all around the globe. It gives a comprehensive overview of common travel-associated illnesses and highlights the latest preventive, diagnostic, and treatment measures.

Lorriane Noble, Adrienne Willcox, and Ron Behrens emphasize that pretravel consultation is essential for all travelers since this is intended to educate, motivate, and equip travelers to respond to the health risks posed to themselves by their trips. Despite the ready availability of travel health advice, the number of people who experience travel-related illness or injury each year remains significant, with 8% of travelers from predominantly Western industrialized societies requiring medical intervention during or after their travel.

Joanna Herman and David Hill cover vaccine-preventable diseases and emphasize that prevention is better than cure and that pretravel vaccination is essential for all travelers. Leo Visser describes the problems associated with pretravel vaccination in travelers who are immunosuppressed from any cause and the increased risk they face of acquiring infectious diseases during their travel. Alberto Matteelli, Anna Cristina Carvalho, and Sara Bigoni focus on preventive measures in other vulnerable travelers: those who have health conditions that impose limitations to movement or are associated with a higher susceptibility to health distress or diseases, like pregnant women, children, or the elderly, people with preexisting health problems, and disabled travelers. They classify migrants who return to their country of birth to “Visiting Friends and Relatives” as vulnerable travelers, since they are known to suffer from a disproportionate burden of travel-related morbidities.

Blaise Genton and Valérie D’Acremont emphasize that any traveler to malaria-endemic destinations should be thoroughly informed regarding personal and environmental measures to avoid mosquito bites and that urgent medical advice should be sought as quickly as possible if they develop fever or feel ill.

Travel-associated skin disease is extremely common and a frequent cause of the returning traveler seeking medical attention. In contrast, those presenting with localized skin disease, such as a blister, nodule, plaque, or ulcer, are usually well in themselves but may have sustained a bite or sting that may lead to the introduction of infection. Sarah Moore, Jennifer Mordue (Luntz), and James Logan describe the main approaches for the prevention of bites and stings. They provide an overview of the worldwide distribution of different vectors, the pathogens they carry, and their behavioral
activity, in terms of seasonality and time of day. They remind us that tree vector-borne diseases, malaria transmitted by Anopheline mosquitoes, dengue transmitted by Stegomyia (formally Aedes) mosquitoes, and rickettsial infections transmitted by ticks account for half of all systemic febrile illnesses in returned travelers attending travel or tropical-medicine clinics. Rachael and Stephen Morris-Jones in their elegantly illustrated article describe a range of skin abnormalities seen in travelers who seek medical attention on their return from localized infections, penetrating injuries, bites, or stings from insects or an animal. Other skin manifestations may be a marker of an underlying systemic disease acquired while traveling and a diagnosis is best achieved through comprehensive clinical history taking, thorough clinical examination, and focused investigations.

Herwig Kollaritsch, Maria Paulke-Korinek, and Ursula Wiedermann cover travelers’ diarrhea, the most important health issue affecting travelers. The risk of acquiring diarrhea is influenced by many factors, such as the destination of the trip, duration of the stay, standard of accommodation, type of travel, age of the traveler, and also by individual risk factors. They describe prevention strategies, including educating travelers about food and water hygiene measures, conditions under which to use prophylactic antibiotics, and vaccination against diarrhea caused by enterotoxigenic *Escherichia coli*.

Sundeep Dhillon highlights that there has been a recent increase in both recreational and adventure travel to extreme environments and environmental hazards, such as weather extremes (hot and cold) and high altitude, frequently pose health problems for travelers. Short-term visitors can adjust to these austere environments provided they have the knowledge and time to acclimatize sufficiently.

Every year millions of people travel to religious, rock, or sporting events from all over the globe, where mass crowding, rapid population movement, and poor hygiene lead to the emergence of a range of infectious diseases, with the potential for spread across the globe. Jaffar Al-Tawfiq and Ziad A. Memish review the risks of infectious diseases and key interventions for their prevention, at mass gatherings.

Rabies is a dreaded and invariably fatal disease and is present in more than 150 countries on all continents. An estimated 55,000 to 70,000 persons die from rabies every year. Christoph Hatz, Esther Kuenzli, and Maia Funk comprehensively cover prevention including vaccination, and detail exposure, prophylaxis, and treatment.

Jaundice and an elevated eosinophil count are common in returning travelers. Liver disease morbidity is common among ill returning travelers, presenting as jaundice. Wilson Chana, Adrienne Showler, and Andrea K. Boggild cover the range of infectious and noninfectious causes of jaundice in travelers.

Andrew Ustianowski and Alimuddin Zumla describe causes of eosinophilia and say that an elevated eosinophil count is a common, frequently unrecognized finding in travelers returning home. Although there are multiple causes of eosinophilia in a traveler, it is often related to an acquired parasite infection.

Examination of the causes of mortality and morbidity has led to a change in emphasis on ways of reducing morbidity. Ronald Behrens and Bernadette Carroll in their article on travel trends and patterns of travel-associated morbidity highlight unanswered questions that relate to the contribution of medical comorbidities on travel-associated illness; how communication can enhance or influence behavior change; and the best strategies to influence the travelers at greatest risk. They provide an overview of the trends in travel and groups of travelers at most risk and examine patterns of morbidity during and after travel.

A traveler with ill health may have a condition that may be noninfective and possibly unrelated to travel; an infectious disease that has a cosmopolitan distribution but may be more common in resource-poor settings; a classical tropical disease which is endemic in a distinct geographical location; or a new or emerging disease not readily
identified. Thus evaluation and workup of an individual traveler require the consideration of a wide range of possible diagnoses and urgent laboratory investigations to confirm the diagnosis. Rosemary Daly and Peter Chiodini give a summary outline of laboratory methods for diagnosis of infectious diseases in the returning traveler. They emphasize that in trying to rapidly identify the etiology of the presenting illness in the traveler, knowledge of their natural history and a carefully taken account of the location of the trip undertaken and potential exposure to exotic infections will help narrow the range of possibilities and thus the amount of laboratory investigation and imaging needed to confirm a diagnosis.

Travel Medicine is a young emerging specialty. This Travel Medicine volume of *Infectious Diseases Clinics of North America* comprehensively illustrates the importance of this formal discipline and provides an important addition to the latest literature on the subject. We hope that this volume will serve as a useful guide for physicians, health personnel, travel clinics, and travelers worldwide.

**ACKNOWLEDGMENTS**

We are very grateful to all the authors for their contributions to this comprehensive volume on Travel Medicine. Our sincere thanks to Stephanie Donley, Clinics Editor, Elsevier Publishing, and their staff for their kind assistance and diligence throughout the development of this special issue. Dr Robert Moellering, Consulting Editor for *Infectious Disease Clinics of North America*, gave his enthusiastic and unflinching support to this project. Adam Zumla provided administrative support to Professor Zumla. We thank our families for their patience during the many long hours spent on this project.

Alimuddin Zumla, MD, MSc, PhD, FRCP(Lond), FRCP(Edin), FRCPath(UK), FSB
Professor of Infectious Diseases and International Health
Department of Infection
Division of Infection and Immunity
University College London Medical School
Directorate of Infection
University College London Hospitals NHS Foundation Trust
London, United Kingdom

Ronald H. Behrens, MB ChB, MD, FRCP(Lond)
Consultant in Travel Medicine, and Director, Travel Clinic
Hospital for Tropical Diseases
Senior Lecturer, London School of Hygiene and Tropical Medicine
Keppel Street
London, United Kingdom

Ziad A. Memish, MD, FRCP(Can), FACP, FRCP(Edin), FRCP(Lond), FIDSA
College of Medicine
Alfaisal University
Deputy Minister for Public Health
Ministry of Health
Riyadh 11176
Kingdom of Saudi Arabia

E-mail addresses:
a.zumla@ucl.ac.uk (A. Zumla)
Ron.Behrens@lshtm.ac.uk (R.H. Behrens)
zmemish@yahoo.com (Z.A. Memish)