

The **Nuts & Bolts** of Global Emergency Medicine

First Edition

John Roberts
Janet Lin
Scott Weiner

2016

Dedications/Acknowledgements

We would like to thank SAEM, ACEP, AAEM, and EMRA for their support of this project, especially to the members of the international divisions that first identified the need for such a book. We also extend our gratitude to the medical students and faculty of University of Illinois at Chicago for their participation in the proof-reading of this book.

Marcia Edison, PhD
Eric Foster, MS4
Shaun Harty, MS4
David Lee, MS4

Produced in collaboration with:



We would also like to extend a special thanks to Dana Marotta of Diva Gرافix for her design expertise.

Copyright © 2016

Photos and images all courtesy of Janet Lin. Use of photos by permission only.

Editors

John E. Roberts, MD – Carolinas Medical Center
Janet Y. Lin, MD, MPH – University of Illinois at Chicago
Scott G. Weiner, MD, MPH – Brigham and Women's Hospital

Section Editors

Ashkon Ansari, MD – Los Angeles County + University of Southern California (LAC+USC Medical Center)
Cindy Bitter, MD, MA – University of Illinois at Chicago
Nirma D. Bustamante, MD – Brigham and Women's Hospital
Stephen J Dunlop, MD, MPH, CTropMed, FACEP – Hennepin County Medical Center/University of Minnesota
Bhakti Hansoti, MBChB, MPH – Johns Hopkins
Sean Kivlehan, MD, MPH - Brigham and Women's Hospital
Payal Modi, MD, MPH, MSc – UMass Memorial Medical Center
Joseph Reardon, MD – Duke University Medical Center
Theresa Tran, MD – Mayo Clinic, Mayo School of Graduate Medical Education
Janis P. Tupesis, MD – University of Wisconsin School of Medicine and Public Health, University of Wisconsin – Madison Global Health Institute

Authors

Erik Akopian, MD – Los Angeles County + University of Southern California (LAC+USC Medical Center)
Jessica Best, MD, MS – Baylor College of Medicine
Cindy Bitter, MD, MA – University of Illinois at Chicago
Chamé Blackburn, MD – Albany Medical Center
Stacy Chamberlain, MD, MPH – University of Illinois at Chicago
Mary Cheffers, MD – Los Angeles County + University of Southern California (LAC+USC Medical Center)
R. Myles Dickason, MD, MPH – New York Hospital Queens (NYHQ)
Vinoos Dissanayake, MD – Loma Linda University Medical Center
Stephen J Dunlop, MD, MPH, CTropMed, FACEP – Hennepin County Medical Center/University of Minnesota
Silpa Gadiraju, MD - Baylor College of Medicine
Puja Gopal, MD - University of Illinois at Chicago
Camilo Gutierrez, MD – Boston Medical Center
Christopher Greene, MD – University of Alabama at Birmingham
Joel Hamm, MD - University of Alabama at Birmingham

Bhakti Hansoti, MBChB, MPH – Johns Hopkins
Patricia Henwood, MD – Hospital of the University of Pennsylvania
Iltifat Husain, MD – Wake Forest Baptist Health
Scott W Irvine, MD, MPH – University of Alabama at Birmingham
Vijay Kannan, MD – Maricopa Medical Center
Sangil Lee, MD, MS – Mayo Clinic College of Medicine
William K Mallon, MD, DTMH – Stony Brook University (SUNY)
Mariana Martinez, MS4 – Keck School of Medicine of USC
Payal Modi, MD, MPH, MSc – UMass Memorial Medical Center
Emily Neill, MS4 – Keck School of Medicine of USC
David Newman, MD – Hospital of the University of Pennsylvania
Bret A. Nicks, MD, MHA – Wake Forest Baptist Health
Mikala Pacifique, MD – John H. Stroger Hospital of Cook County
Joseph Reardon, MD – Duke University Medical Center
R. James Salway, MD – Los Angeles County + University of Southern California (LAC+USC Medical Center)
Alison Smith, MD, MPH – University of Utah
Jenna Sussex, MS4 - Keck School of Medicine of USC
Vicken Y Totten, MD – Kaweah Delta Medical Center
Ross M Vander Noot, MD – University of Alabama at Birmingham
Jonathan Wagner, MD – Los Angeles County + University of Southern California (LAC+USC Medical Center)
Dave Walker, MD, FACEP, FAAP – New York Hospital of Queens (NYHQ)
Browning S. Wayman, MD – University of Alabama at Birmingham
Laura Weber, MD – Albany Medical Center

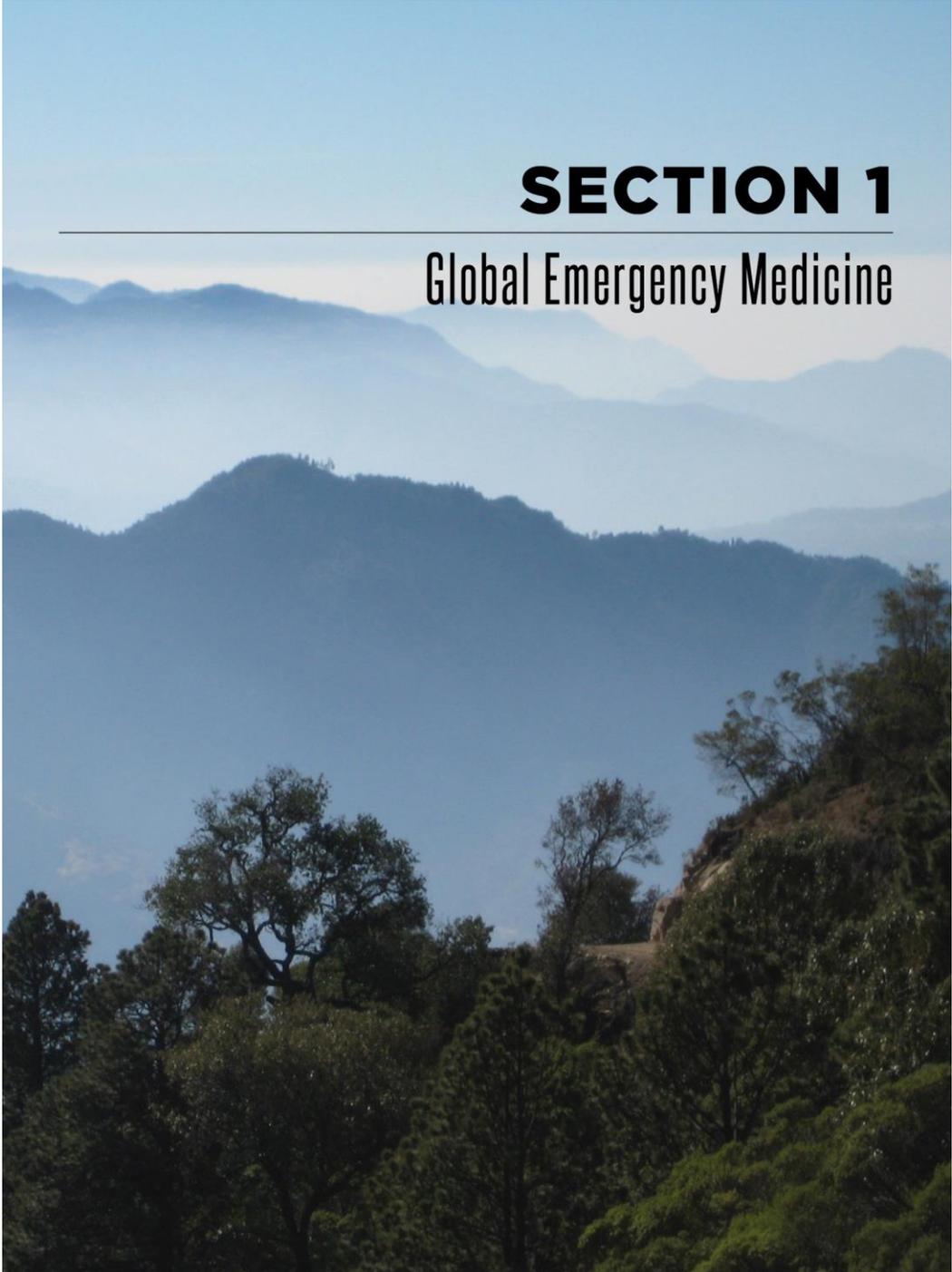
Table of Contents

List of Abbreviations	vi
<hr/> Section 1 Global Emergency Medicine <hr/>	
Chapter 1 Introduction and Terminology	2
Chapter 2 Global Emergency Medicine	7
Chapter 3 Organizational Map of Global Emergency Medicine	12
<hr/> Section 2 Competencies <hr/>	
Chapter 4 Clinical Skills	17
Chapter 5 Tropical Medicine	27
Chapter 6 Ethics	35
Chapter 7 Cultural Awareness	45
<hr/> Section 3 Educational Opportunities <hr/>	
Chapter 8 Mentorship: How to Choose a Mentor	51
Chapter 9 Research: How to Choose a Project	57
Chapter 10 Funding: Show Me the Money!	65
Chapter 11 Fellowships	73
Chapter 12 What Other Fellowships Are Out There?	95
<hr/> Section 4 Organizations Involved In Global EM <hr/>	
Chapter 13 Not Interested in Fellowship? Other International Options	101
Chapter 14 Alphabet Soup	107
<hr/> Section 5 Travel-Related Information <hr/>	
Chapter 15 Traveler Health and Wellness	117
Chapter 16 Safety Considerations	136
Chapter 17 Mobile Communications	140
Chapter 18 Additional Travel Documentation and Resources	146
<hr/> Section 6 Int'l Experiences And Rotations, & Medical Student Resources <hr/>	
Chapter 19 Specifically for Medical Students	159
Chapter 20 Specifically for Resident Trainees	168

List of Abbreviations

AAEM: American Academy of Emergency Medicine
AAEM/RSA: American Academy of Emergency Medicine / Residents' and Students' Association
ACEP: American College of Emergency Physicians
ACGME: Accreditation Council for Graduate Medical Education
AEM: Academic Emergency Medicine
AFEM: African Federation of Emergency Medicine
AfCEM: African Conference in Emergency Medicine
AfJEM: African Journal of Emergency Medicine
AOI: Areas of Interest
AMSA: American Medical Students Association
ASTMH: American Society of Tropical Medicine and Hygiene
CDC: Center for Disease Control
CTropMed: Certificate of Knowledge in Clinical Tropical Medicine and Travelers' Health
CV: Curriculum vitae
DTMH: Degree in Tropical Medicine and Hygiene
ED: Emergency department
EIS: Epidemic Intelligence Service
EM: Emergency Medicine
EMR: Electronic Medical Record
EMRA: Emergency Medicine Residents Association
EMS: Emergency Medical system
EPI: Emergency Physicians International
EuSEM: European Society of Emergency Medicine
EuJEM: European Journal of Emergency Medicine
FB: Foreign body
FTE: Full time equivalent
GECC: Global Emergency Care Collaborative
GEM: Global Emergency Medicine
GEMA: Global Emergency Medicine Academy
GEMLR: Global Emergency Medicine Literature Review
GH: Global Health
GME: Graduate medical education
GPS: Global Positioning System
HIPAA: Health Insurance Portability and Accountability Act
HIV: Human immunodeficiency virus
IEFMC: International Emergency Medicine Fellowship Consortium
IEM: International Emergency Medicine
IFEM: International Federation of Emergency Medicine
IFMSA: International Federation of Medical Students' Associations
IMC: International Medical Corps
IRC: International Rescue Committee
IVCP: International Certificate of Vaccination

JEM: Journal of Emergency Medicine
LGBT: Lesbian, gay, bisexual, trans
LMIC: Low and Middle Income Countries
LOR: Letter of recommendation
MDG: Millennium Development Goals
MSGH: Masters of Science of Global Health
MSF: Médecins sans Frontières
N95: Respirator that filters at least 95% of airborne particles but not resistant to oil
NGO: Non-governmental organization
NMO: National member organizations
NPO: Non-profit organization
ORS: Oral rehydration salts
PD: Program director
PE: Physical exam
PEM: Pediatric Emergency Medicine
PEP: Post exposure prophylaxis
PI: Principal investigator
PIH: Partners in health
PPE: Personal protective equipment
RRC: Residency Review Committee
SAEM: Society for Academic Emergency Medicine
sidHARTe: Systems Improvement at District Hospitals and Regional Training of Emergency Care
STEP: Smart Traveler enrollment Program
TD: Traveler's diarrhea
UNICEF: United Nations International Children's Emergency Fund
USD: United States Dollar
UCSF: University of San Francisco
UCLA: University of California Los Angeles
WADEM: World Association for Disaster and Emergency Medicine
WHO: World Health Organization
YF: Yellow Fever



SECTION 1

Global Emergency Medicine

Introduction

Welcome to the Nuts and Bolts of Global Emergency Medicine. This book was created for the increasing number of students, residents, and other trainees that want to “do global emergency medicine (EM)” but don’t know how to get started. There are a variety of ways to get involved and there are a multitude of programs, projects, and institutions all doing work internationally. However, as it is a growing niche, learners and trainees often find it difficult to navigate the information available in order to get a good and solid understanding of what global health is, how it relates to global emergency medicine, and how to get involved.

This book grew out of an expressed need from trainees to have a resource that helps explain the entirety of global emergency medicine. We therefore enlisted these students, residents, fellows, and faculty to create this guide book for you. While the book is meant to be comprehensive, it is not exhaustive, both because of the dynamic nature of global health and the fact that there are other excellent resources already available that supplement this text.

Once you have decided that you want to get involved in global EM, the next question is...**how**? “Nuts and Bolts” is intended to provide the “how”. As a secondary goal, we will identify some key concepts (**what**) and the players (**who**) within global emergency medicine.

Terminology

To begin, let’s discuss terminology. An understanding of key terms is important in developing an informed working knowledge of this field, and communicating effectively with those who work in it. In this section we discuss commonly used terms and differentiate between closely-related terminologies.

Global Health vs. International Health

These terms have been used interchangeably for a long time, and are often still used interchangeably today. However, there are some distinctions that should be defined. Generally, “global” means worldwide or universal, applying to the whole world, and tends to be more inclusive. Alternatively the term “international” has been used to describe to the interaction between two or more countries, such as an exchange where

physicians from one country train physicians in another country. As seen in this example, “international” sometimes implies that there is a directional component to the relationship. International health, then, refers to health issues that are addressed in a country other than that of the person using the term. It is thought to be less inclusive than global health.

Health scholars have supported the idea that “the ‘global’ in global health refers to the scope of problems, not their location” (Koplan, Lancet 2009) and further define 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 trans-national health issues, determinants, and solutions. It involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration, and it is a synthesis of population-based prevention with individual-level clinical care.

Global health and international health, however, are still often used interchangeably and so are collectively referred to as the consideration of health on a planet-wide scale, rather than on an individual-country scale.

Global or International Health vs. Public Health

This may seem like an obvious distinction, but there has been some confusion from trainees in the past. Winslow, C. -E.A. (1920) defined Public Health as: “the science and art of preventing disease, prolonging life and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of communicable infections, the education of the individual in person hygiene, the organization of medical and nursing services or the early diagnosis and preventive treatment of disease and the development of the social machinery which will ensure to every individual a standard of living adequate for the maintenance of health; organizing these benefits in such a fashion as to enable every citizen to realize his birthright of health and longevity.” These attributes are applicable anywhere in the world, and this term describes a way of approaching healthcare in general rather than specifying where it occurs. The term global health, while it relies heavily on public health, seeks to describe the provision of these services to different areas of the world rather than specifying what those services are.

Contextual Definitions

Many terms are used to describe the status of nations. Most often they refer to the level of economic development of the nation. While most of these terms are still used, the “proper” or appropriate terms to refer to nations change and evolve over time. These changes are often due to perceptions of negativity or inferiority associated with the terms. The purpose of differentiating these terms here is to provide a context to the use of these terms.

First world vs. third world: This is antiquated terminology that comes from the “Three Worlds Theory” of former Chinese leader Mao Zedong. He claimed that the “first world” includes superpower countries. The “second world” is comprised of lesser powers. Finally, the “third world” consists of exploited nations. Other definitions center on politics during the Cold War, in which the “first” and “second” worlds were the capitalist countries and communist countries, respectively, and the third world contained countries outside the Cold War division. Because of this ambiguity, and the idea that “third world” is often associated with poverty and exploitation without clear definitions, it is best to avoid this terminology.

Developed vs. developing vs. under/least developed: This terminology attempts to categorize countries based on the Human Development Index (HDI), which is based on life expectancy, education, and per capita income. As with the “three worlds” theory, there is no consensus on which point the HDI categorizes the countries. This terminology can also be misinterpreted and subject to criticism, as “developing” or “underdeveloped” may be perceived as labeling as inferior to a “developed” country.

Global North vs. Global South: This division is made primarily on geography, but does not follow the equator. It is mainly a socio-economic and political division. Global North includes the United States, all of Europe, and Russia. Global South includes Latin America, Africa, Southern Asia, and Australia.

High Income, upper middle income, lower middle income, and low income countries: This terminology is based strictly on per capita income as set by the World Bank. For fiscal year 2016, the cutoffs are: high income \$12,736, upper middle income \$4,125, lower middle income \$1,045 and low income countries have a per capita income less than that. If there is a need to categorize countries, this terminology is probably the best to use, given that is based on an objective indicator and not viewed as derogatory.

Resource -rich vs -limited vs. -poor: This differentiation separates countries by their natural/financial resources. This terminology is useful when describing a country with regards to their ability to provide certain healthcare resources to its population. Unfortunately, “resource-rich” does not mean improvement in the quality of life for a country’s inhabitants. For example, countries like Nigeria and Venezuela have an abundance of oil but their populations suffer from poverty and/or violence. Resources can also lead to corruption, such as in Sierra Leone where mining makes up 30% of the country’s exports, but the mining industry is corrupt and the profits do not benefit the population.

There is also a concept termed the “resource curse” (or paradox of plenty), where countries with more natural resources sometimes

experience less economic growth and worse economic development than countries without the resources. Finally, countries that are reliant on a single resource (e.g. oil) may have economies that are completely dependent on the global economy and current price of the resource, creating an unpredictable, and thus unstable, economic situation.

Global Emergency Medicine

Evolution from International Emergency Medicine to Global Emergency Medicine

International emergency medicine as a subspecialty of emergency medicine primarily started in the mid 1990's and had two primary aims: to promote emergency medicine as a recognized specialty in other countries and to provide humanitarian assistance.² It has been most commonly defined as "the area of emergency medicine concerned with the development of emergency medicine in other countries."¹

The term global emergency medicine has emerged in the past several years, much in line with the distinctions drawn between the terms global and international health. More and more people refer to what previously was called international emergency medicine as global emergency medicine because it focuses not only on the global practice of emergency medicine but also on efforts to promote the growth of emergency care as a branch of medicine throughout the world.

For the purposes of this book, we will be using the term "global emergency medicine" as it is most inclusive with the understanding that this term may include international emergency medicine.

What is Global Emergency Medicine?

Global emergency medicine (GEM) encompasses a diverse array of initiatives, settings, approaches, and objectives that center on health care system capacity building, and the delivery of healthcare (specifically acute care) worldwide. GEM activities and competencies can be categorized into 3 major areas: emergency medicine development, delivery of acute care in resource limited settings, and disaster and humanitarian response. GEM research has also become a specialty itself due to unique challenges inherent to global research, and it intersects with the three major areas. Below are brief overviews of each category. There is, of course, a lot of overlap between parts of these areas, but for the sake of clarity we have created distinct categories.

Emergency Medicine Development

As countries improve their economies and healthcare systems, their burden of disease changes from infectious disease, sanitation, and

nutrition to trauma (particularly motor vehicle), heart disease, and cancer. These new burdens require a new type of system and provider that specializes in delivery of this care. Emergency medicine development (EMD) focuses on the development of emergency medicine globally, both at the health-systems level and individual training level. It seeks to strengthen public health systems and emergency medical systems into ones that are organized, integrated, equitable, and accessible to anyone needing acute care. Endeavors include, but are not limited to, establishing pre-hospital medical and trauma care systems, creating culturally appropriate emergency departments within hospitals, and training providers to staff those departments.

EMD also encompasses EM specialty development (including advocacy for EM at the national level), development of collective national organizations that unite, inform and educate their members, and the initiation and expansion of residency/graduate level training programs. In addition, EMD aims to improve and advance emergency medicine education and training through propagation of structured training programs (e.g. Advanced Cardiac Life Support, Advanced Trauma Life Support, and other resuscitation programs). Other strategies include specific education about topics relevant to a region (e.g. infectious diseases, sanitation, and injuries), tele-simulation, and public/community education. The goal of an EMD program is collaboration and local capacity building which are essential for the sustainability and the longevity of EM in any region.

Acute/Emergency Care in Resource-Limited Settings

This aspect of GEM focuses on the actual delivery of care: diagnosis, management, and prevention of diseases in low- and middle- income countries to improve the overall health of the population. The inherent uncertainty and challenges of medicine multiply exponentially in resource-limited settings due to limited infrastructure, staff, and diagnostic and therapeutic resources. This area focuses on optimizing the use of resources available, examining the efficacy of treatment regimens for diseases seen primarily in these settings (e.g. rehydration methods for diarrheal illnesses), and improving bedside skills (e.g. diagnostic algorithms, physical exam skills). Traditional areas of interest include vulnerable populations, maternal and child mortality, and infectious diseases (e.g. diarrheal illnesses, pneumonia, TB, malaria, and HIV). Given that injury and diseases of old age now exceed communicable diseases as leading causes of death in many resource-limited countries, there has also been a surge in stroke, heart disease, and trauma-related illnesses in these settings. Research has therefore also expanded to injury prevention and heart disease/stroke prevention. In addition to the delivery of care, this area of GEM seeks to address the inherent challenges in conducting research in low-resource settings.

Disaster and Humanitarian Response

Disaster and humanitarian response (DHR) focuses on care of those affected by natural disasters, armed conflict, disease epidemics, mass migrations, political/economic instability, and other potentially reversible situations. DHR not only encompasses disaster response, mitigation, and assessment, but also prevention, preparedness, and rebuilding. The care for the populations involved includes attention to the short term problems of food, water, sanitation, healthcare, shelter, and safety in the acute phase of a disaster as well as attention to the long-term problems of rebuilding damaged health and social infrastructure and addressing psychological and emotional distress of affected people.

In recent years, humanitarianism has seen rapid expansion and undergone professionalization with the development of its own standards, ethics, training, and research. This advancement is based upon two important principles. The first is that the limited resources available must be allocated to provide the greatest benefit to the greatest number of people. The second is that disease prevention and health promotion (e.g. nutrition, sanitation, communicable disease control) should be emphasized over complex medical care. By utilizing these strategies, morbidity/mortality rates have been reduced during complex humanitarian disasters. A large area of focus in DHR is developing skilled communication and coordination of resource allocation rather than on improving the actual healthcare delivery. In addition to the above topics, improving the training of aid workers has increased their effectiveness, allowing them to deliver aid more effectively in complex political and social climates in which they have to operate. A seminal publication in the field came out of the 'Sphere Project' entitled "Humanitarian Charter and Minimum Standards in Disaster Response", which outlines the core principles and minimum standards for humanitarian programs during emergencies.

Global Emergency Medicine Research

Conducting research in culturally distinct and often resource-limited settings provides challenges that are unique to GEM. Therefore, GEM research has become a specialty in itself, and has grown rapidly over the recent years. Some of the unique challenges to research in GEM are:

1. Lack of adequate funding
2. Lack of appropriate resources
3. Lack of healthcare infrastructure
4. Cultural/Societal differences between patients, local researchers, and foreign researchers
5. Feasibility of integration of advancements into the present healthcare system

6. Historical studies in which the ethical standard of a sponsoring country was not applied to research in the host country

These challenges have led to the formation of specific fundamentals of GEM research. In addition, the growing body of “grey literature” produced by governmental agencies and nongovernment organizations reflects the widespread interest in developing and enhancing emergency medicine systems in different countries.

The four fundamentals of GEM research are:

1. Capacity building - utilizing local members of a region in a project
2. Health care improvement domains – helping develop standards of care by changing structure, process, or outcome
3. Implementation – consideration of the efficacy, feasibility, and cost effectiveness of proposed interventions
4. Methodology – addressing specific challenges of design and data collection, pushing utilization of epidemiological data

As mentioned above, the focus of GEM research has changed recently and now includes domains such as trauma, injury, preventive care, and a focus on chronic disease in addition to infectious disease and malnutrition. For example, cardiovascular diseases are now the number one cause of death globally. In the United States, the development of observation units and intensive care units has reduced rates of missed diagnoses of myocardial infarctions. However, these interventions might not be translatable globally due to cultural and economic differences. Thus, research is needed to find the best management plans for this ever-growing cohort of patients in a variety of care environments.

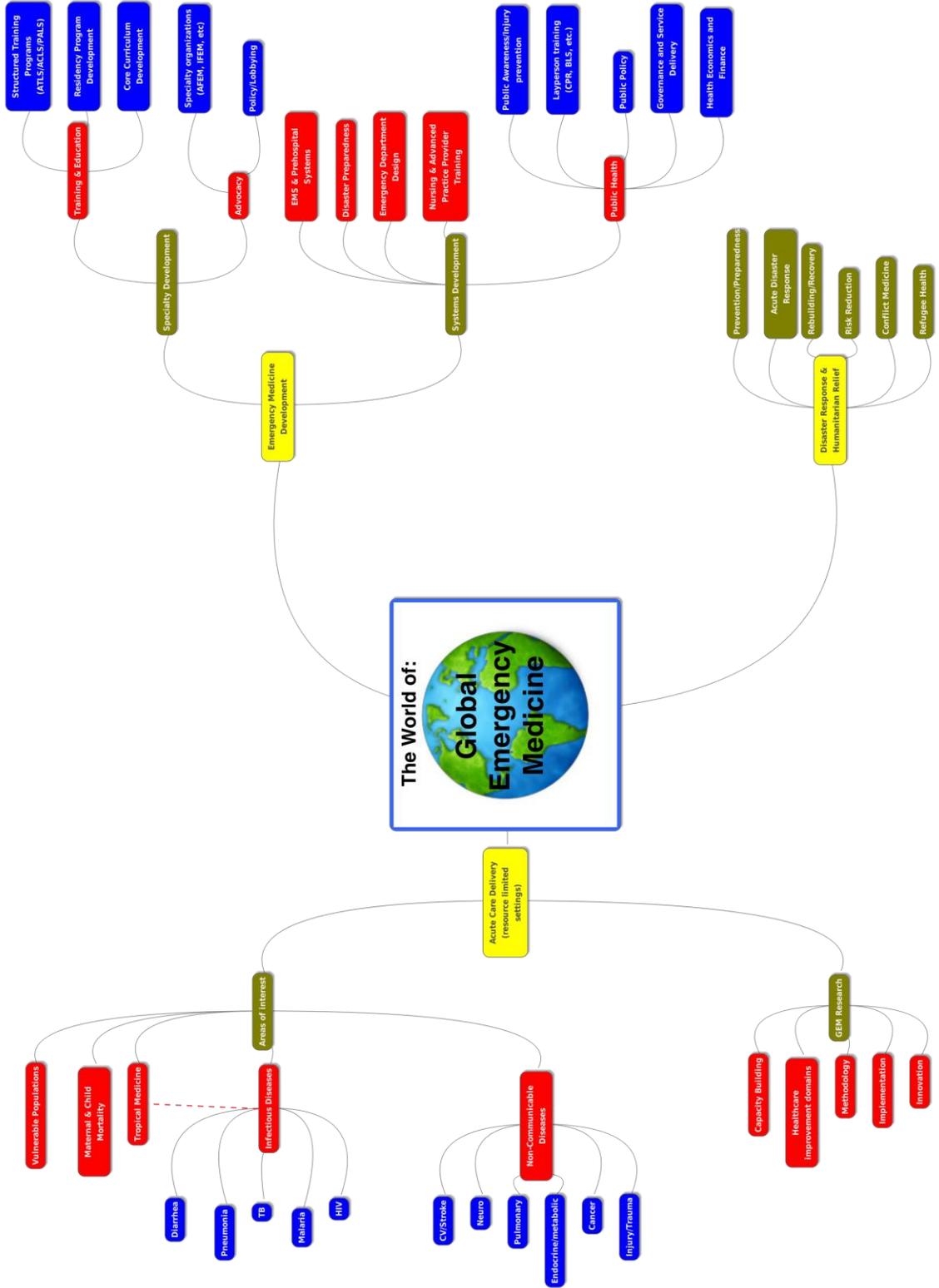
Final words

Global Emergency Medicine is an ever-growing field that is becoming more specialized each year. Skills and competencies for those interested in a career in GEM expand beyond the necessary EM competencies to provide clinical care in a variety of settings. As described above, there are many different aspects of GEM. In the following pages, we hope to provide you with the fundamentals needed to explore GEM as a specialty or part of your career as a whole. There are many different ways to become involved as a student, a resident, or as a practicing physician. Thank you for reading, and welcome to the world of Global Emergency Medicine.

References

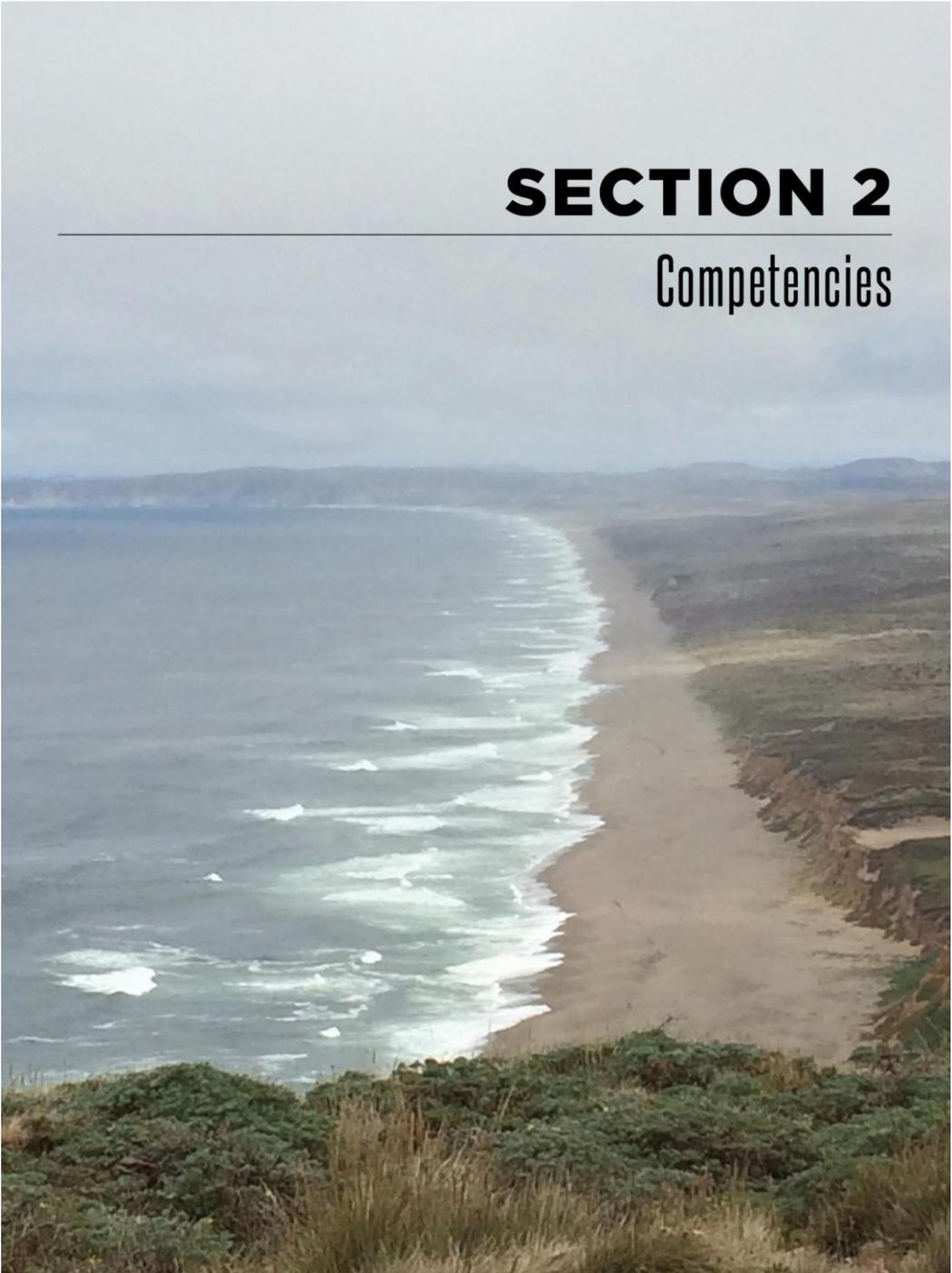
1. Arnold, Jeffrey L. (January 1999). "International Emergency Medicine and the Recent Development of Emergency Medicine Worldwide". *Annals of Emergency Medicine* 33 (1): 97–103
2. Sistenich, Vera (August 2012). "International Emergency Medicine: How to Train for It". *Emergency Medicine Australasia* 24 (4): 435–41
3. Arnold LK, Razzak J. Research agendas in global emergency medicine. *Emergency Medicine Clinics of North America* 2005; 23:231-257.
4. Becker T, Jacquet G, March R, et al. Global emergency medicine: a review of the literature from 2013. *Academic Emergency Medicine* 2014; 21(7):810-817.
5. Brennan R, Nandy R. Complex humanitarian emergencies: a major global health challenge. *Emergency Medicine* 2001; 13:147-156.
6. Cardiovascular diseases. World Health Organization website. <http://www.who.int/mediacentre/factsheets/fs317/en/>. Accessed June 20, 2015.
7. GEMLR Procedures Manual 2013. Available at: http://www.gemlr.org/uploads/1/4/6/4/14642448/2012_gemlr_procedures_manual_abridged.doc. Accessed June 20, 2015.
8. Hogan D, Burstein J. *Disaster Medicine*. 2nd ed. Philadelphia: Lippincott Williams Wilkins; 2007.
9. Hsia R, Razzak J, Tsai A, et al. Placing emergency care on the global agenda. *Annals of Emergency Medicine* 2010; 56(2): 142-149.
10. Humanitarian Charter and Minimum Standards in Disaster Response. Available at: <http://www.sphereproject.org/resources/download-publications/?search=1&keywords=&language=English&category=22>. Accessed June 20, 2015.
11. Jacquet G, Foran M, Bartels S, et al. Global emergency medicine: a review of the literature from 2012. *Academic Emergency Medicine* 2013; 20(8):835-843.
12. Schroeder E, Jacquet G, Becker TK, et al. Global emergency medicine: a review of the literature from 2011. *Academic Emergency Medicine* 2012; 19(10):1196-1203.
13. Smith J, Haile-Mariam T. Priorities in global emergency medicine development. *Emergency Medicine Clinics of North America* 2005; 23:11-29.
14. Sphere Project. Available at: <http://www.sphereproject.org/>. Accessed June 20, 2015.

Organizational Map of Global Emergency Medicine



SECTION 2

Competencies



Global Emergency Medicine is a diverse area of emergency medicine that requires its own special skillset. These “competencies” arise from challenges faced when encountering medical systems and people that are different than in your home country. In this section, we will discuss clinical skills, tropical medicine, ethics, and cultural awareness. While some of the topics discussed in the following chapters will seem intuitive, the topics have been chosen at the request of students and residents, as well as from problems that have arisen in our own experiences.

While you read this section, keep in mind that this is not exhaustive but it is meant to give you a good starting point for further study. We cannot prepare you for everything that you will possibly experience, but we can inform you about situations, dilemmas, and scenarios you are likely to encounter.

Introduction

There is a dire need for emergency care in low- and middle-income countries. According to one study, over 80% of deaths due to non-communicable diseases (NCDs) occur in low-income and middle-income countries; consisting mostly of cardiovascular disease, cancer, and respiratory disease¹. Furthermore, 90% of the global deaths from injuries occur in low-income and middle-income countries. This same study of 30 hospitals in Western Kenya it revealed that:

- 1) Less than half had access to an anesthetist.
- 2) Less than half had adequate resources to care for cardiac patients – i.e., functional ECG, sublingual nitroglycerine, or a defibrillator.
- 3) Only a third of referral hospitals had an organized approach to trauma.
- 4) Only a third of hospitals could care for diabetic emergencies.
- 5) No facilities had clinical sepsis guidelines¹.

These statistics demonstrate the large gap between the changing patient pathology in resource-limited settings and the ability to combat these pathologies. Lack of materials, resources, and skilled providers produces many challenges to providing adequate emergent care in these settings. In this chapter, we discuss these broad challenges in the context of specific challenges faced directly in the ED. We will then discuss how to combat these challenges by discussing “things to know” and “things to do”, and provide resources to help you with this.

Specific Challenges

Advanced Care/Procedures

Advanced procedures are commonly used in high-income countries to provide care to critically ill patients. However, this is often not possible in low-resource settings due to lack of equipment, resources, and specialists.

ED Equipment/Resources: Lack of physical resources is often a problem in low-income countries and resource-poor settings. For instance, intubation is challenging or unfeasible as many ED's lack advanced airway equipment or have suboptimal equipment. The lack of appropriately sized ET tubes, end tidal CO₂ detectors, adjunctive airway equipment, and ventilators could require a higher threshold for intubation than in resource-rich countries, if not precluding it completely.

Inpatient Resources/Specialists: Additional dilemmas to providing emergency care include disposition of the critical patient. Once a critical patient has been successfully resuscitated, there is often a paucity or absence of inpatient ICU beds and intensivists needed to continue the patient's care. This raises the question: "at what point the patient is safe to leave the ED, if ever?"

Delays in Care

Clinicians working in low-resource settings need to work expeditiously to avoid delays in care. Wachira et al found that over half (58%) of the patients presenting to the ED in Kenya were investigated in the department but only 29% of patients seen received any intervention in the ED⁴. Paradoxically, most of the immediate therapy is provided only to patients with minor conditions who are subsequently discharged. Sicker patients most often have to await transfer to wards or specialist units to start receiving treatment. Given the stated lack of ICU beds, ED interventions and care need to become more comprehensive and definitive.

Lack of Triage/Re-evaluation

Expeditious and appropriate triage of patients is essential to identify and prioritize the sick, and subsequent regular reassessments of the patient are essential. Baker et al assessed ten hospitals in four regions of Tanzania and found that only 40% of the hospitals had formal systems for adult triage, and less than one-third of them had physician re-evaluation of critically ill patients more than once daily².

Important Principles

The skills discussed in this chapter are meant to help you combat the challenges listed above. Keep these principles in mind as you read about the competencies in this chapter.

Self-sufficiency

In resource-limited settings, it is not unusual for the ED clinician to have to assemble and lay out equipment, which is often done by ancillary staff in resource-rich settings. Carts and trays may need to be personally replenished. Knowing how to find and operate all the equipment and supplies yourself is important everywhere, but in the low-resource setting, it is indispensable.

Management/Administration

Working in a resource-limited setting you may have to wear many hats, including that of department manager, pharmacist, technician, and counselor. It is not uncommon for medicines and supplies to run out. This is often due to inadequate restocking rather than the equipment not being available. You may need to take on the role of monitoring supplies and ordering ahead, taking into account turnaround time for procurement.

Leadership

You may need to take a leadership role to ensure that your department or clinic operates at a high level of safety and efficacy; and leadership that stresses teamwork and communication reduces avoidable errors and speeds up processes. You may be needed to secure standards of hygiene and infection control to limit the spread of nosocomial infections. You may need to improve medical documentation, making it possible to measure quality, ensure follow-up, and help identify problem areas. Be ready to step into that role, knowing that it can make a large difference.

Cultural competency

Remember, not all medical and social practices that are effective in your home setting are culturally appropriate in other countries and regions. It is essential to address patient and provider needs in the appropriate local context. Diplomacy with the local staff is required to work well together, as they might not be used to your way of doing things and might not share a similar approach to patients. Discussing expectations with patients and staff and having conversations about differences could improve the care of patients immensely. More about this in Chapter 7.

Things to Do/Skills to Learn

Given the above challenges and keeping in mind the above principles, the following are some things that you can do to prepare for an international clinical elective or to begin a career working in resource-limited settings.

Gain Prior Knowledge

First, know your surroundings. What resources are available at your clinical site? In resource-limited settings you must be prepared to make clinical diagnoses without laboratory results and imaging. You may be asked to perform clinical procedures that may have typically been performed by specialists in your home institution. It is hard to prepare for it

all, however knowing the specific clinical, economic, and social environment of the location before you depart is indispensable.

Learn Effective Triage

Organizing the ED in a way that allows for good monitoring and an overview of all patients makes it possible to intervene before a patient deteriorates. The ability to triage patients into different risk categories is especially important, and learning basic triage concepts will help you adapt them to whatever clinical environment that you work in. Baker et al suggest that early warning scores (EWS) based on simple physiological parameters, such as pulse rate and respiratory rate, can identify patients with higher risk of death. These can be addressed prior to establishing a diagnosis by a clinician, and could be effective in reducing mortality in the acutely ill in the low-resource setting.³

Improve Clinical Exam Skills

Advanced History and Physical: The importance of a good history and physical exam cannot be stressed enough. The clinical skills attained while practicing medicine in resource-limited settings is commonly listed as one of the most beneficial experiences gained while doing an international elective. International clinical rotations foster an improvement of physical examination and procedural skills due in part to less availability and lower quality of laboratory services, lack of accessible consultants, and absence of diagnostic imaging. In addition, relying on sparse consults can delay treatment decisions and thus delay care for your patient. Everyone takes a clinical skills course during medical school: remember what you learn, and improve on these skills during your domestic clinical rotations. Unfortunately, many of these skills decline through residency as time with patients is limited and diagnostic resources are plentiful. Keep them up!

Close Re-evaluation: Given the delays in care and lack of appropriate triage, close re-evaluation of patients while in the ED is paramount. Neglected patients in overwhelmed emergency departments can suffer unrecognized clinical deterioration with devastating consequences.

Clinical Exam Resources

Medical Apps: One of the most beneficial resources you can have with you at all times is a good medical app to act as your immediate consultant when you have questions about an exam finding, or need a refresher on performing a procedure. Just make sure your phone app works without Wi-Fi. Specific applications are addressed later in this book.

Clinical Atlas: A good clinical atlas relevant to the local setting would also be useful (such as an atlas on African dermatology if working in

Africa) as well as a locally relevant textbook. Check out these resources below:

Clinical Atlas Resources	
Principals of Medicine in Africa - 4th edition	http://www.cambridge.org/us/academic/subjects/medicine/medicine-general-interest/principles-medicine-africa-4th-edition?format=AR
The AFEM Handbook of Acute and Emergency Care	http://www.afem.info/resources/afem-handbook/?id=48
WHO - Good Clinical Diagnostic Practice	http://applications.emro.who.int/dsaf/dsa236.pdf?ua=1

Physical Exam Guide: Brush up on your physical exam skills! Remember the Objective Structured Clinical Exam (OSCE)? If you need a primer, there are plenty of FOAMed sites to refresh your memory. Below are a couple of good sites, but find your own as well!

Physical Exam Guides	
“Objective Structured Clinical Exam” skills website	http://www.osceskills.com/
Life in the Fastlane - Clinical Examination site	http://lifeinthefastlane.com/education/signs/
Heart sounds website	http://solutions.3m.com/wps/portal/3M/en_EU/3M-Littmann-EMEA/stethoscope/littmann-learning-institute/heart-lung-sounds/heart-sounds/

Procedure Skills

Brush up on these: You may be called upon to perform procedures that you normally don't have to perform because of the availability of nurses, ancillary staff, and specialists. You should be able to perform these:

- Intravenous and Intraosseous access
- Thoracentesis/Paracentesis
- Lumbar puncture
- Burn management and wound care
- Fracture/Dislocation reduction
- Medical management of MI with fibrinolytics (where a cath lab is not available)

Learn these: Some procedures are not routinely practiced by emergency physicians in high-resource settings with the availability of specialists, consultants, and advanced equipment, but may be necessary skills in low-resource setting. Take a look at the list and heed the information in the box below the list.

- Regional Anesthesia (see below)
- Emergency Obstetrics
 - Delivery of breech presentations/complicated pregnancy
 - Management of post-partum hemorrhage
 - Uterine evacuations
- Neonatal Critical Care
- Emergency intracranial evacuation (i.e. burr holes)

Use Caution

Any performance of these procedures must be considered with a cautious assessment of the risk versus the benefit. You may know how to intubate someone, however what happens if there is no ventilator or ICU? What good is an ED thoracotomy if there is no trauma surgeon on-call? In addition, **never perform a procedure that you are not qualified to perform without appropriate supervision** - this cannot be overstated enough.

Regional anesthesia: According to the same Kenyan study cited earlier, less than a quarter of the patients who presented with fractures received any analgesia or sedation, even for the reduction of the fractures.⁴ Low-resource anesthetic techniques and regional blocks for management of fractures, dislocations, and wound care can be critical skills in the low-resource setting.

Advantages of regional anesthesia over general are:

1. Regional anesthesia techniques are generally less expensive compared to general anesthesia and use equipment that is often more readily available in low-resource settings.
2. The patient remains conscious or mildly sedated.
3. Airway and respiration are not as often affected.
4. The incidence of postoperative thromboembolism is reduced.

Disadvantages of regional anesthesia include:

1. Special skills and training are required to do a nerve block successfully.
2. Analgesia may not always be effective, so conversion to general anesthesia might be necessary.
3. Immediate complications can occur, such as toxicity or hypotension, and adequate equipment and appropriate medications need to be available to treat them.
4. The patient may not agree or be amenable to a regional block.

Common nerve blocks:

- 1) Ring block: Indications are fractures and lacerations.
- 2) Intravenous regional anesthesia (Bier's block): Bier's block may be a very effective block for upper and lower limb manipulation, such as manipulation during reduction of dislocation, managing simple fractures and suturing of lacerations.
- 3) Intercostal nerve block: A typical indication would be postoperative pain relief after cholecystectomy or thoracotomy, as well as pain relief from fractured ribs.
- 4) Hematoma Block: Anesthesia injected directly into the hematoma caused by acute fractures can be used to alleviate pain during reduction of fractures. Note – these don't work in subacute fractures, as the hematoma has likely dissipated.
- 5) Wrist block: Wrist blocks may be used if a plexus block is incomplete, as a diagnostic block, or for pain therapy.
- 6) Ankle block: Indications are for all kinds of foot surgery, including amputations.
- 7) Spinal Anesthesia: Rarely used in resource-rich nations because of easy access to general anesthesia and epidural nerve blocks performed by anesthesiologists.
- 8) Hip Block: A variety of techniques are used for anesthesia after a hip fracture.

Nerve Block Reference: <http://reference.medscape.com/features/slideshow/regional-blocks>

Ultrasound

Bedside ultrasound can also be an integral part of the physical examination and aid diagnosis when advanced imaging isn't available. It is portable, inexpensive, dynamic, and available in real time. The following are some common uses for bedside ultrasound that can be useful in the resource-limited setting. Brush up on these before going.

1. **Trauma:** The E-FAST (extended focused assessment with sonography in trauma) exam can be used when a CT scan isn't available to determine the appropriate intervention.

2. **Hypotension:** The RUSH (rapid ultrasound in shock/hypotension) exam can also be performed to evaluate undifferentiated shock. The evaluation of the IVC alone can assess hydration status.
3. **Skin:** Can be used to help the diagnosis of abscesses, cellulitis, and locate IV sites.
4. **Lungs:** Can be used to examine the lungs for consolidation, pneumothorax, hemothorax, and pleural effusion.
5. **Heart:** Cardiac echo can be used to look for pericardial effusion, CHF, pulmonary embolism, and valvular anomalies such as rheumatic heart disease.
6. **Abdomen:** Can be used to assess for ascites, hepatomegaly, splenomegaly, gallbladder disease, and can help in the diagnosis of extrapulmonary tuberculosis and HIV.
7. **Pelvis:** Very useful in assessing diseases of the pelvis as well as complications of pregnancy. Many women are unaware of the dates of their pregnancy. The ultrasound can also uncover anomalies of pregnancy as well as placental location. In a study by Shah et al from Rwanda, researchers found that 43% of the women who received an US had a change in their obstetric management, mostly to surgical intervention.⁵
8. **Nerve Blocks:** US allows you to visualize the nerve to be blocked to ensure that the anesthetic goes where you want it to.

Ultrasound Resources	
Partners in Health	http://www.pih.org/blog/a-new-resource-for-using-ultrasound-in-developing-countries
Sonoguide	http://www.sonoguide.com

Humanitarian Response Courses

There are courses available that may help you obtain the necessary training to meet your goals and help support your interests. For those interested in disaster response or in care for refugee populations, the Health Emergencies in Large Populations (H.E.L.P.) course is beneficial. It is offered by the International Committee of the Red Cross at several locations throughout the world. The goal of the H.E.L.P. course is to provide practitioners (physicians and non-physicians) with the needed skills to respond to the public health needs of individuals in refugee, disaster and conflict situations. This is accomplished through in-class didactic activities and practical group sessions.

Many academic institutions also offer certificate or short courses related to various aspects of humanitarian assistance. Some of these courses are integrated into other graduate level degree programs. One

course that is geared toward refugee care and disaster response is the Humanitarian Response Intensive Course (HRIC) offered through the Harvard Humanitarian Initiative. This two-week course provides practical training for public health workers (physicians and non-physicians) who desire to respond to complex humanitarian disasters, like the Haiti earthquake in 2010. The course concludes with a two-day simulation offering students the opportunity to practice the skills learned during classroom instruction.

Physicians for Human Rights hosts training sessions for physicians on how to conduct forensic evaluations of immigrants seeking political asylum including to document evidence of psychological or physical torture.

These are certainly not the only courses that are available out there. You will find more information on the H.E.L.P. and HRIC courses as well as other courses that we have found helpful on the table below.

Humanitarian Response Courses	
H.E.L.P. course	http://www.icrc.org/helpcourse
HRIC course	http://hhi.harvard.edu/education/workshops/hric
Global Health Emergencies Course	http://globalemergencymedicine.org/GHEcourse.html
Humanitarian U	http://www.humanitarianu.com/online-courses/core-professional-humanitarian-training-program/

References

1. Burke TF, Hines R, Ahn R, et al. Emergency and urgent care capacity in a resource-limited setting: an assessment of health facilities in western Kenya. *BMJ Open* 2014; 4:e006132.
2. Baker T, Lugazia E, Eriksen J, Mwafongo V, Irestedt L, Konrad D.; Emergency and critical care services in Tanzania: a survey of ten hospitals. *BMC Health Serv Res.* 2013 Apr 16;13:140.
3. Baker, T. (2009), Critical care in low-income countries. *Tropical Medicine & International Health*, 14: 143–148.
4. Wachira BW, Wallis LA, Geduld H. An analysis of the clinical practice of emergency medicine in public emergency departments in Kenya. *Emerg Med J.* 2012Jun;29(6):473-6.
5. Shah SP, Epino H, Bukhman G, Umulisa I, Dushimiyimana JMV, Reichman A and Noble VE. Impact of the introduction of ultrasound services in a limited resource setting: rural Rwanda 2008. *BMC International Health and Human Rights* 2009, 9:4.

Introduction

One of the goals of your global health participation and training should be delivering exceptional medical care to those you treat. To accomplish this, a traveling student or physician must understand the context of his or her practice. For many locations, the first step is developing expertise in tropical medicine. Consider an asthmatic patient who has been coughing and wheezing for one week. In non-tropical settings, a short burst of steroids is the cornerstone for managing acute asthma exacerbations. However, in a tropical setting, the same therapy could precipitate a life-threatening parasitic infection with *Strongyloides stercoralis*. Tropical medicine is very heavily focused on infectious diseases, many of which you may not be comfortable diagnosing or treating. For this reason, we offer this short introduction into tropical medicine and give you resources for further study.

Things to keep in mind as you read this chapter are:

1. Global health does not equal low-resource setting.
2. Medicine in low-resource settings does not equal tropical medicine.
3. Tropical medicine in one location does not equal tropical medicine in another.
4. There is no substitute for a focused study of the specific diseases seen in the specific location that you will work.

Some additional thoughts:

- A large proportion of global health includes work in low-resource settings and low-income countries, however this is not always the case. Practicing internationally in New Zealand is very different from practicing medicine in Sub-Saharan Africa.
- A large proportion of the low-income countries are located within 23.5 degrees of the equator, or what we would call “tropical”. The diseases here differ significantly from those areas outside the tropics due to different climate and development conditions. However, practicing medicine in rural Nepal is very different than practicing on the Thai-Burmese border. With this in mind, we will be speaking about medicine specifically in the “tropical” world.
- Tropical medicine encompasses different presentations depending on where in the world you are. For example, South American Trypanosomiasis is very different from African Trypanosomiasis and requires different treatment. In addition, treatment for the same disease may differ from location to location (even within the same country) due to differing resource availabilities and cultural

practices. For example, Malaria treatment may be different in Ecuador than it is in Indonesia.

- An adequate understanding of the area or areas in which you will work is paramount to providing adequate care. We recommend that before any medical trip that you carefully research the local pathology and become familiar with their local diseases and treatments. The websites for local ministries of health, the WHO, and CDC can provide wonderful clinical information for the soon-to-be travelling student or physician.

In addition to being useful abroad, an understanding of tropical medicine will help you become a better clinician at home as well. As millions of people continue to travel and relocate across borders annually, probability suggests you will evaluate a patient in your ED who has recently returned from a lower-income country. As providers who work on the frontlines of U.S. healthcare and providers who are passionate about global health, it is our responsibility to be prepared to provide care to these patients and to educate our peers so they can do the same.

This leads us to the question that is often asked by students and residents considering making this a part of their life: “How much and what type of tropical medicine do I need and how do I access it?” We will attempt to answer these questions in this chapter.

How Much Tropical Medicine Do I Need?

Every individual reading this book will have different objectives that they are seeking to meet. In order to decide how much tropical medicine is needed, you should ask yourself two questions: “What are my goals, and where will I work?”

1) What are my Goals?

There are many ways to get involved in global health, and the extent of tropical medicine knowledge and training you need will vary. So first and foremost, identify your particular goal: “what do I need this information for, and what will I do with it?” Clearly the list of possible answers is endless, however, it is useful to break the answer into two parts. Are you planning on making global health your career, or will it be an adjunct to your career?

Career Track: Career possibilities are endless. Some wish to work in academics, emergency medicine development, policymaking, or research. Some aspire to move abroad and spend years serving at a hospital or clinic in a low-resource country. Others may work with the CDC, WHO, or Doctors Without Borders. In general, those who want to make global health a large part of their career will require a larger and more

comprehensive amount of tropical medicine training. For those planning on a fellowship or an advanced degree such as an MPH, these programs will provide differing amounts of tropical medicine training depending on the program.

Adjunct Track: Others want global health to be a part of their career rather than the focus. This may come in various forms as well. You may want to participate in an annual medical mission trip sponsored by a medical school, residency, church, or other NGO. You may wish to respond to a single disaster or conflict. This will require a less comprehensive amount of tropical medicine knowledge and can be focused depending on the variety and location of the specific places that you work.

2) Where will I work?

The particular setting in which you are going to work will greatly affect the amount of tropical medicine experience you need. As stated earlier, it is always important to review the pathology of your specific destination prior to departure to gain specific knowledge about that area. The question “Where will I work?” is really asking two questions.

- Will I work in a variety of different locations, or will I primarily be working in a single type of environment?
- What type of environment(s) will I be in?

Amount of Variety: If you will be working in a large variety of locations, it will be necessary to have a large breadth of tropical medicine that covers many different locations and situations. The best way to obtain this knowledge is often comprehensive formalized tropical medicine training. This provides an extensive overview of tropical medicine concepts that can be applied to many different locations. However, if you are going to focus on a specific area of the world, then a more focused or self-study of specific diseases and location specific treatment approaches in your specific location may be more appropriate.

Type of environment: When we ask about the type of environment, we are really asking about the aspects of that environment that affect the type of pathology that you will encounter. We can think of this in terms of resources, climate, or urban development.

Resource-rich VS -poor: Will you be working in high-income, middle-income, or low-income countries? Higher-income countries generally need less tropical medicine knowledge. These countries tend to be more heavily urbanized and less tropical, decreasing the chance of seeing tropical diseases. Low-income countries, in contrast, have much greater diversity of locations leading to a larger diversity of pathology. Low-income countries also tend to have a larger proportion of tropical climates and a larger overlap between urban and rural. In addition, health literacy, sanitation, hygiene, and public health endeavors tend to be less

developed making the populations more susceptible to tropical diseases. The resources available to fight these diseases will also be less in low-income countries on both the local, rural level and the national, urban level.

Tropical vs. non-tropical: This may seem oversimplified, however if you work outside of the middle 47 degrees of latitude, then you will encounter much less tropical medicine than in one located in the tropics. In addition, topography and climate determine whether you will need tropical medicine training. In general, the warmer and wetter the climate, the more likely you will be practicing tropical medicine. However, remember that medicine in the Peruvian Andes will be different from that of the Peruvian Amazon.

Urban vs. rural: In low-income countries the location and setting will influence your need for tropical medicine. For instance, you may work in an urban hospital, treating primarily “developed” world diseases, while just a few hours away, in a rural village you would see more tropical diseases.

TROPICAL MEDICINE WORKSHEET			
Goals?		Career Focus	Adjunct to career
Where?	Amount of Variety?	Varied Environment	Single environment
	Type of Environment?	Resource-Rich	Resource-Poor
		Tropical	Non-tropical
		Urban	Rural

Other Considerations

For providers who are hoping to incorporate global health into their career, a good start is to obtain a working knowledge of travel health and field medicine.

Travel Health: A curriculum related to travel health focuses on the health and well-being of international travelers. Topics include: epidemiology of travel-related diseases, vaccinations, healthcare risks, environmental hazards, and provision of medical care to travelers.

Field Medicine: Field medicine focuses on the provision of medical care while working in the international setting. Topics include: tropical medicine, emergency medical care in severely resource-poor settings, improvised medicine, and patient transport. These are covered in other sections.

How Can I Access Tropical Medicine?

As you read through this section, please keep in mind that no book, website, or course can replace focused study and knowledge of the specific pathology and treatment patterns in each area that you will be working. This is still the most effective way to prepare for any clinical experience.

Books

There are a number of ways to obtain tropical medicine knowledge and training, as well as some simple resources that may be of value while practicing abroad. There are a number of high yield books available. All may be purchased online or from your local bookstore. There are also many country and location-specific handbooks that are available depending on where you are going, some of which are available from the local ministries of health or other governing bodies. We highly recommend that you research the availability of these, as they can be indispensable resources for you.

Tropical Medicine Textbooks		
Title	Author(s)	Description
Handbook of Medicine in Developing Countries	Dennis Palmer, Catherine E. Wolf	Written by physicians that have practiced in the resource-limited environment for years and provides a solid review of common diseases, presentations, and treatment algorithms.
Oxford Handbook of Tropical Medicine	Andrew Brent	A great small handbook that can be kept in your pocket and used at the bedside. Book used by the Gorgas course and other courses.
The Travel and Tropical Medicine Manual	Elaine C. Jong, MD	Also a great portable resource for both travel and tropical medicine at the bedside.
Cahill's Tropical Medicine: A Clinical Text	Kevin M. Cahill	A larger and more comprehensive textbook, however not good for quick reference.
Meunier's Tropical Diseases: A practical Guide for Medical Practitioners and students	Yann A. Meunier	Another larger text with great reviews

Tropical Medicine Courses/Certificates

If your goal or interest involves formal training in tropical medicine, there are essentially two routes to accomplish that goal – the DTMH and The CTropMed.

Degree in Tropical Medicine and Hygiene (DTMH): There are several routes to obtaining a DTMH, however normally this is obtained by completing an accredited diploma course that provides an in-depth education in tropical medicine. Diploma courses range in duration from 9 weeks to 6 months and involve intensive classroom, laboratory, and in many cases practical experience. There are diploma course located all over the world, including the United States, Europe, South America, and

Asia. Many of these courses have regional focuses. For example, while the Gorgas Course in Clinical Tropical Medicine covers most topics in tropical medicine, there is a stated focus on diseases of South America. In comparison, the London School of Tropical Medicine and Hygiene has courses focusing mainly on Africa and Southeast Asia. Individuals may want to seek out specific diploma courses to meet their educational goals. As of January 2016, these Institutions have accredited diploma courses:

http://www.astmh.org/ASTMH/media/Documents/ASTMHdiplomacourseistasof1-13-16_1.pdf

- Baylor College of Medicine, USA
- Baylor International Pediatric AIDS Initiative, USA
- Bernard Nocht Institute for Tropical Medicine, Germany
- Gorgas Memorial Institute of Tropical and Preventive Medicine, Peru
- Charité - University Medicine Berlin, Humboldt University and Free University Berlin, Germany
- Johns Hopkins Bloomberg School of Public Health, USA
- Liverpool School of Tropical Medicine, UK
- London School of Hygiene and Tropical Medicine, UK
- Mahidol University, Thailand
- Prince Leopold Institute of Tropical Medicine, Belgium
- Tulane University, USA
- Uniformed Services University of the Health Sciences, USA
- University of Minnesota/Centers for Disease Control and Prevention, USA
- University of Texas Medical Branch at Galveston, USA
- University of Virginia Health System, USA
- West Virginia University, USA

CTropMed: The Certificate of Knowledge in Clinical Tropical Medicine and Travelers' Health (CTropMed) is sponsored through the American Society of Tropical Medicine and Hygiene (ASTMH). The CTropMed is a certificate rather than a diploma course. This certificate is obtained by passing an examination that is offered twice a year. Before taking this examination, one must complete both an approved tropical medicine course and complete 2 months of overseas work. See the ASTMH website listed below for specific details about requirements and qualifying courses that you may complete in order to sit for the CTropMed. The CTropMed may be more suited for individuals who already have prior tropical medicine training or do not have the time to complete a full DTMH diploma course. Of the tropical medicine courses that satisfies the requirements for the CTropMed, two of the most well-known are the programs at Tulane University and the University of Minnesota. Upon completion, individuals will be eligible to sit for the CTropMed.

See table below for information on some of the previously mentioned courses.

Tropical Medicine Courses				
Degree	Course	Location	Length	Website
DTMH	Gorgas Memorial Institute of Tropical & Preventive Medicine	Lima, Peru	9 weeks	www.gorgas.org
	Liverpool School of Tropical Medicine	Liverpool, England	3 months	http://www.lstm.liverpool.ac.uk/learning-teaching/lstm-courses/professional-diplomas/dtmh
	London School of Hygiene and Tropical Medicine	London, England	3 months	http://www.lshtm.ac.uk/study/cpd/stmh.html
CTropMed	Tulane University	New Orleans, LA + overseas	3.5 months	www.sph.tulane.edu/publichealth/tropmed/diploma.cfm
	University of Minnesota / CDC	Online + overseas	Self-paced	http://www.globalhealth.umn.edu

Wrap-up

For individuals desiring to work in global health, a basic understanding of tropical medicine is needed. As we have illustrated, the depth and type of training will depend on your goals and where you will work. Depending on your self-assessment, there are many available options to obtain this knowledge and training. Remember, the goal is to provide you with the needed skills to provide high quality care both here and abroad.

Introduction

The benefits for medical students and residents participating in global health work are numerous, including reinforcement of physical exam skills, exposure to new disease processes, greater appreciation for public health interventions, and increased intent to work with underserved populations upon return.¹ This experience, however, can also be problematic and raise ethical dilemmas.^{2,3} Global health educational opportunities often place students and residents in situations where the cultural and professional norms are significantly different than those to which they are accustomed. Although increasing numbers of residents participate in international clinical rotations and 30% of U.S.-trained medical students embark on global health experiences,⁴ global health curricula remain limited and poorly standardized. Some educational institutions provide formal global health education with close faculty supervision, while others offer virtually nothing.⁵ Many residents, particularly those with prior global health experience, even choose a residency program based on the availability of global health training opportunities.⁶ This does not mean, however, that those residents have been or will be given a formal education on ethics and professionalism while working in low-resource settings.

Critics of global health experiences argue that trainees going abroad may have the perception that those who live in poverty will benefit from any medical care, whether delivered by an experienced provider or not.⁷ Good intentions of helping during disaster situations or rotating through low-income countries, though, cannot excuse substandard medical care. One major problem is that trainees are frequently less supervised when working abroad than they are in their home institutions. With the tremendous need for healthcare in many low-resource settings, trainees may be allowed or even expected to provide care beyond their level of experience. These elements can result in serious medical errors and endanger patients.⁸ Students and residents may also be placed in situations where they are asked to perform tasks that make them uncomfortable. For example, a trainee may be asked to draw blood from a patient in a region with high rates of HIV infection without the availability of sterile gloves, or to assist with a surgery that is not utilizing sterile technique due to unavailability of antiseptic and sterile supplies. In other instances, a patient may undergo a procedure without informed consent, or receive treatment that the trainee considers to have an unacceptable risk-benefit ratio.⁹

As the examples above demonstrate, working overseas can present the trainee with a tremendous number of ethical dilemmas, both personal and patient-centered. The paradigm of medical ethics in a host

institution may be entirely different than what the trainee has learned to abide by and pay credence to at his/her home institution. With that in mind, we will discuss common pitfalls in ethics and tips to combat these pitfalls.

Pitfalls to Avoid

Improper ethics preparation

There are some ethical dilemmas that can be avoided by preparation, and some that can be prepared for. Learn how to address both.

Importance of Establishing Learning Objectives: As you will see in the next section, ethical dilemmas can arise when expectations are not clear. Your expectations, those of your home institution, and those of your host institution must all be brought into alignment with each other in order to avoid misunderstandings and misunderstandings. Learning objectives should be discussed between these three, before your trip begins, with clear criteria for a successful experience.

Departure Ethics Training: As you will again see later in this chapter, there are certain ethical dilemmas that arise as a result of different cultures interacting. Although these conflicts sometimes cannot be avoided, they can be prepared for with proper global health and pre-departure training. A global health curriculum is a program within that trains residents, students, and faculty for unavoidable obstacles that arise in all global health work. All global health curricula should include training in ethics. Pre-departure training is geared specifically towards a specific region or program and addresses local issues or obstacles. Exposing trainees to a basic ethical framework based on best practice guidelines¹⁶ and practicing clinical scenarios they may encounter will help the learner to make appropriate decisions when he or she is working independently. It is encouraged for institutions to have a global health curriculum with country-specific pre-departure training prior to a global health rotation, as this is an effective way to mitigate these situations.¹⁵

Unrealistic expectations

It is vital for you as a visiting resident or student to have appropriate expectations of yourself and your host institution/nation. However, there are common situations where a trainee's expectations of an international experience can lead to problems.

Cultural Expectations: Although one of the main goals of international clinical experiences is to go outside of your comfort zone and broaden your horizons, there is significant stress that is inherent to living

outside of your routine and customs. Understand that the culture and way of life in a foreign country may be very different than it is at home, and expecting people to behave and operate the same way that you do at home can lead to frustration and conflict, and detract from your learning experience. Understand that no matter how experienced of a traveler you are, “culture shock” is a very real and common phenomenon that most people experience at some point while abroad. Maintaining a cultural curiosity, learning appropriate language skills, and educating yourself on the socio-cultural, political, and historical context can go a long way in protecting yourself from this. In addition, regularly take time out to reflect upon the experience, be patient with differences in practice, and maintain your own wellness to foster your resilience to this common occurrence. This being said, expecting to become completely comfortable with the local culture in your short time there can also lead to frustration, so be realistic with yourself.

Clinical Expectations: It is important not to assume that the practices and approaches learned at home are superior to those practiced in your host country. Local medical protocols may be dictated by cultural norms with which you are not familiar or cannot comprehend within the time constraints of a brief rotation. While you may be able to teach healthcare workers in the host nation about aspects of your practice at home, they are the experts in their local diseases and are well-versed in making the most of limited resources. Learn from and honor their experience. Always remember that your primary purpose of being there is to learn.

Professionalism Expectations: Remember that the standards of professionalism in other countries will almost certainly differ from your standards, and you may witness behaviors and practices that run counter to your home expectations. Attempt to learn as much as you can about the reasons for certain behaviors and understand why local practitioners operate the way that they do. Although you are expected to behave within the constraints of locally appropriate behavior, remember that you are also expected to adhere to the same standards of behavior, timeliness, engagement and professionalism that would be expected at home.

Impact Expectations: As good as your intentions may be, you are unlikely to make lasting effects on host nation systems during a two-week or even a two-month rotation. Some aid workers suggest that those who are overly optimistic about the results of their efforts are more prone to depression and burnout.¹⁰ Remember you are a guest in the institution, and that host-nation students and faculty will be there long after you return home. In addition, any interventions or studies planned during the rotation should be sustainable and help increase capacity in the host nation. As an example, bringing donated equipment or medications can be helpful if they integrate with host’s setting, but bringing poorly functioning/incompatible equipment or unfamiliar, expired, or poorly labeled medications actually may be a disservice for the host institution.

Being a burden

Always remember that being able to participate in a global health rotation is a privilege, not a right. You are not only representing yourself and your home institution, but also medicine in your home country as well. You should aspire to learn as much as possible without becoming a burden on the host institution.

Information: As a trainee, you should be informed: learn about the history, political situation, social norms and health infrastructure of the country you will be visiting. In addition, becoming familiar with the local language and learning some local words goes a long way toward establishing a connection with your hosts and patients. This will help you to integrate more seamlessly into the local environment and decrease the obligation on your hosts. General travel guides can be a good source of information, along with updates on the political situation on the US State Department website. (Go to www.state.gov and search for your host country under the “Countries & Regions” tab.)

Duration: The duration of your experience should be tailored so that you are in-country long enough to derive true clinical benefit from it, but not so long that you becomes a burden to the host. Some papers suggest that 6-8 weeks is the optimal amount of time to invest in an overseas global health rotation.^{11,12}

Monopolization: Visiting students sometimes monopolize host nation faculty time, potentially decreasing mentorship for local students. Be cognizant and respectful of the other learners around you.

Communication: To minimize any negative impact on the host institution, it is important to maintain good communication with a local mentor regarding goals and expectations for the experience prior to arrival, and to maintain that communication throughout the experience. In addition, adequate communication between both your home and host institutions can ensure that everyone is benefitting.

Professionalism: It is also of the utmost importance to be respectful and professional at all times. Arrive at your overseas site prepared to work hard and learn as much as you can while contributing in any way you can. This will go a very long way toward being an asset and not a burden to your hosts. Of course, work within your set of qualifications and under appropriate supervision.

Inadequate Supervision

If well organized and executed, an overseas elective can be an extremely positive experience for both the host and the trainee. While some students and residents participate in established programs with extensive pre-trip preparation and close clinical supervision, others may find that supervision and guidance both leading up to and during the actual clinical experience are inadequate. This is particularly true for those seeking experiences independently or as part of open electives that are self-organized. A lack of persistent and quality supervision of a medical trainee can be frustrating for the learner as well as dangerous for patients.

Level of Experience: Arguably, the optimal time to practice clinical medicine abroad is during residency, after you develop a clinical context of diseases and familiarity with common treatments and procedures. Whatever the stage of training, however, close, on-site supervision by an attending physician with experience working in your specific clinical context is paramount. If your supervisor is from your host institution, it is important to also have a close relationship with a faculty mentor at your home institution as well.¹³ This facilitates the exchange of experiences, emotional and logistical support, and resources while you are at home and while overseas, as well as keeping you accountable for your experience. He or she should be someone who is accustomed to working with residents and medical students and is familiar with clinical teaching and feedback practices. These are key for a positive learning experience and for ensuring patient safety.

Scope of Practice: Even within the same specialty of medicine, there will be differences in the scopes of practice between different countries. When you visit a facility, you have an ethical mandate to practice within their scope of experience and not perform treatments or procedures beyond your competency level.¹⁴ While you may be asked to teach or oversee residents and students at a host institution, it is important to be honest about your limitations and inform your mentors if you are uncomfortable supervising specific procedures or in certain situations.

Professionalism

In addition to being informed, linguistically adept, culturally competent, and respectful of other learners, other factors contribute to professionalism while working abroad. Most medical curricula include formal professionalism training, but it is not uncommon to fail to apply these norms when working abroad.

Remember your purpose: It is expected that new experiences in new places are part of your experience abroad. However, while it may be tempting to explore your new surroundings and spend your time in the country sightseeing, keep in mind the agreement you made with your host

institution and the primary purpose of your trip. Timely arrival to shifts, active participation in discussions, and completion of your work are just as important abroad as they are at home.

Privacy and Consent: Patients encountered abroad deserve the same high standards of respect and privacy as those at home. Although photos of rashes and other physical exam findings can be excellent teaching tools for those back home, you should make sure that they are obtained professionally and in accordance with both local standards and the standards of your home institution.

Cultural Professionalism: Be sensitive to gender roles, cultural taboos and social norms in the country where you are working. In many countries, for example, it is inappropriate to come to work or to any professional meeting wearing anything but formal business attire. Observe what the people around you are doing, ask questions, and be aware of the things you are doing that may not be appropriate or professional in your role as a visiting provider or trainee.

Twining Partnerships

Data on whether institutions benefit from hosting residents and medical students is scarce, but reciprocal institutional benefit should always be the goal.¹⁷ Twining partnerships are one way to ensure this benefit. Twining partnerships are mutual exchange programs between host institutions rather than unilateral exchanges, and they emphasize leadership development for host-nation physicians, context-specific educational content, and multidisciplinary collaboration¹⁸. Although these require a significant institutional commitment, they can allow for better understanding between both institutions and the students and residents that participate in them.

In Closing

Students and residents who participate in global health rotations have a responsibility to have a beneficial (or at least neutral) impact on the countries where they rotate. Proper preparation, anticipating ethical quandaries, and maintaining respect for the host institution's structure will allow you to get the maximal benefit from your experience.

Additional Resources

Journal Articles To Read
Gray BH. "World Blindness and the Medical Profession: Conflicting Medical Cultures and the Ethical Dilemmas of Helping" <i>Millbank Q</i> (1992) 70: 535-556
Jayasinghe S. "Faith-based NGOs and healthcare in poor countries: a preliminary exploration of the ethical issues" <i>J Med Ethics</i> (2007) 33: 623-626.
Lemery, J. "A Case for White Coat Diplomacy" <i>JAMA</i> 2010;303:1307-08
Morton, M and Burnham, G. "Dilemmas and controversies within civilian and military organizations in the execution of humanitarian aid in Iraq: A review." <i>AJDM</i> 2010; 5:385-391
Wall LL, Arrowsmith SD et al. "Humanitarian ventures or "fistula tourism?: the ethical perils of pelvic surgery in the developing world" <i>Int Urogynecol J</i> 2006; 17: 559-562.
Gray BH. "World Blindness and the Medical Profession: Conflicting Medical Cultures and the Ethical Dilemmas of Helping" <i>Millbank Q</i> (1992) 70: 535-556
Jayasinghe S. "Faith-based NGOs and healthcare in poor countries: a preliminary exploration of the ethical issues" <i>J Med Ethics</i> (2007) 33: 623-626.
Jesus, J. "Ethical Challenges and Considerations in Short-Term International Medical Initiatives: An Excursion to Ghana as a Case Study." <i>Ann Emerg Med</i> (2010) 55:17-22.
Morton, M and Burnham, G. "Dilemmas and controversies within civilian and military organizations in the execution of humanitarian aid in Iraq: A review" <i>AJDM</i> (2010) 5:385-391
Wall LL, Arrowsmith SD et al. "Humanitarian ventures or "fistula tourism?: the ethical perils of pelvic surgery in the developing world" <i>Int Urogynecol J</i> (2006) 17: 559-562

Online Training	
The Practitioner's Guide to Global Health	https://www.edx.org/course/practitioners-guide-global-health-part-1-bux-globalhealthx-1
First Do No Harm: A Qualitative Research Documentary	https://vimeo.com/22008886
Johns Hopkins- Berman Institute of Bioethics. Ethical Challenges in Short-Term Global Health Training	http://ethicsandglobalhealth.org/index.shtml

Textbooks To Read	
Title	Authors
Global Health and Global Health Ethics	Solomon Benatar and Gillian Brock
Reimagining Global Health: An Introduction	Paul Farmer and Arthur Kleinman

References

1. Jeffrey J, Dumont R, Kim G and Kuo T. Effects of International Health Electives on Medical Student Learning and Career Choice: Results of a Systematic Literature Review. *Fam Med* 2011; 43(1): 21-28.
2. Crump JA, Sugarman J. Ethical considerations for short-term experiences by trainees in global health. *JAMA*. 2008; 300: 1456-1458
3. Jesus J. Ethical Challenges and Considerations in Short-Term International Medical Initiatives: An Excursion to Ghana as a Case Study. *Ann Emerg Med* 2010; 55:17-22.
4. Association of American Medical Colleges. 2013 GQ Medical School Graduation Questionnaire: all schools summary report. Washington, DC. Association of American Medical Colleges; 2013.
5. Shah S, Wu T. The medical student global health experience: professionalism and ethical implications. *J Med Ethics*. 2008;34(5):375-378.
6. Drain PK, Holmes KK, Skeff KM, Hall, TL, Garder P. Global Health Training and International Clinical Rotations during Residency: Current Status, Needs, and Opportunities. *Academic Medicine*. 2009 March; 84(3): 320-325.
7. Shah S, Wu T. The medical student global health experience: professionalism and ethical implications. *Journal of Medical Ethics*. 2008;34:375-78.
8. Bhat SB. Ethical coherency when medical students work abroad. *Lancet* 2008;372:1133-34.
9. Bhat SB. Ethical coherency when medical students work abroad. *Lancet* 2008;372:1133-34.
10. Hunt M. Moral experience of Canadian healthcare professionals in humanitarian work. *Prehosp Disaster Med* 2009; 24(6):518-24.
11. Drain PK, Holmes KK, Skeff KM, Hall, TL, Garder P. Global Health Training and International Clinical Rotations during Residency: Current Status, Needs, and Opportunities. *Academic Medicine*. 2009 March; 84(3): 320-325.
12. Drain PK, Primack A, Hunt DD, Fawzi WW, Holmes KK, Gardner P. Global Health in Medical Education: A Call for More Training and Opportunities. *Academic Medicine*. Mar 2007. 82(3):226-230
13. Crump JA, Sugarman J. Global Health Training: Ethics and Best Practice Guidelines for Training Experiences in Global Health. *American Journal of Tropical Medicine and Hygiene*. 83(6), 2010:1178-1182.
14. Crump JA, Sugarman J. Ethical considerations for short—term experiences by trainees in global health. *Journal of the American Medical Association*. 2008; 300:1456-1458.
15. Sarfaty S and Arnold LK. Preparing for International Medical Service. *Emerg Med Clin N Am*. 2005;23:149-75
16. Crump JA, Sugarman J. See above.

17. Crump JA, Sugarman J. Global Health Training: Ethics and Best Practice Guidelines for Training Experiences in Global Health. *American Journal of Tropical Medicine and Hygiene*. 83(6), 2010:1178-1182.
18. Busse H, Azazh A, Teklu S, Tupesis JP, Woldetsadik A, Wubben RJ, & Tefera G. Creating change through collaboration: a twinning partnership to strengthen emergency medicine at Addis Ababa University/Tikur Anbessa Specialized Hospital-- a model for international medical education partnerships. *Acad Emerg Med* 2013;20(12):1310-18.

Introduction

Communication and rapport with a patient is vital to the healing process. Cultural sensitivity - the awareness and understanding of another individual's cultural background - greatly enhances communication and the building of relationships with patients and thus is an essential skill for all medical providers. However, a complete understanding of a culture, especially one very different from your own, is an unrealistic goal. With this mind, though, there are a set of general cultural sensitivity practices based in mutual respect and politeness that will allow visiting medical professionals to be effective providers and help mitigate cultural misunderstandings.

General Principles

Assumptions

Be careful when making assumptions. While it is completely natural to assume things, especially when struggling to adapt in a foreign environment, making assumptions can have devastating consequences. For example, you are a man and you go to Pakistan. You meet a woman physician. You are pleased to meet her and stick out your hand to shake hers. It may not have occurred to you that religious Muslim women should not socially touch unrelated men. Or, you are working on a Dineh Indian Reservation. You have just sewn up a child's leg. The child is cute and you pat him on the head and tell him he was very brave. The grandmother glares at you. You were not aware that touching the head of another is very rude. The best way to avoid such misunderstandings is to be aware of the assumptions you are making and to question them.

Questions

Ask questions. Don't be afraid to ask the people you interact with, "I would like to _____. Is this ok / acceptable to you?" Overall, letting the individuals you are interacting with lead, using respectful silence, and frequent "Please", "May I?" and "Thank you" are always useful in avoiding unintended rudeness.

Generalizations

While each region of the world may have certain commonalities in language, ethnicity and/or culture, there are also great differences. For example, differences in regional dialects mean that the same word can have very different meaning to different people. As only one example, in some Spanish-speaking countries, “intoxicado” can mean that something is wrong in general. If the medical practitioner assumes they feel unwell from intoxication from alcohol or drugs they might miss an important alternative diagnosis.

Observation and Imitation

Observe and imitate. Observe your environment and the interactions between other individuals carefully. Choose a person of similar age, gender and social status and watch for behaviors you can mirror. Be aware of interpersonal distance: how far that person stands from different types of people, who sits first, who serves whom, who touches whom, and even who speaks first. While all of these “social graces” may seem minor, being aware of and adhering to the cultural norms of a society can enhance your relationship with those you are trying to serve, and not doing so can severely hinder it. This will matter to local people at a level they may be unconscious of.

Misunderstandings

Expect misunderstandings. Cultural misunderstanding goes both ways. If you are coming from the United States, you will meet people who will make assumptions about you as an American. Each country has its own complicated relationship and history with the United States, and this history may distort people’s view of you as an individual. If you are going to be traveling to a country for significant period of time, take the time to read and learn about that country’s history and think about its relationship with the United States. Remember that the image they have of America comes from politics and American media; they may think Hollywood and TV portray America accurately! For example, if you are a Mexican-American traveling in the Andes, many native people are confused when you identify yourself as an American. They expect Americans to be tall, blonde and blue eyed instead of looking similar to them.

Restraint

Wait and reflect before you react. Cultural sensitivity is easier said than done. You may come across practices that conflict with your values or upset you. It is okay to be upset, but before you tell others what to do it is important to understand when, and if, it is appropriate for you, as a foreigner, to voice your responses and thoughts. Being culturally sensitive

is a learned skill that requires understanding, communication and most importantly, respect for all human beings.

Titles and Respect

Age and profession are achievements deserving of respect. If the patient appears older than the practitioner, offer respect. Ways of demonstrating respect and humility can also vary by culture. In Nigeria, for example, a slight head-bow (by a male) or a slight genuflection by a female physician is sufficient. When a title is offered by the patient or is included in previous documentation, use it. Titles such as 'Chief', 'Professor', 'Reverend', even 'Engineer', etc. may be highly valued. When in doubt, 'sir' and 'ma'am' can be used.

Gender

Gender matters. Cultures vary widely in the rigidity in which they separate gender roles. What is appropriate behavior for a male physician may not be for a female physician. Homosexuality may be ignored, or punishable by death. In many cultures men rarely suffer social consequence from extramarital sex while the same by a woman is shameful. Women affected by sexually transmitted diseases may not know, or may not want to know, if their husbands have “strayed”.

Religion

Eighty-five percent of the world identifies with some type of religion or faith.¹ Regardless of whether this describes you or not, it would be impossible to discuss culture without discussing faith and religion. It can determine culture, behavior, attitudes, prejudices, legal matters, and almost every aspect of a country or region of the world. A working knowledge of the predominant religious practices in the community in which you will be working will be of utmost importance to you as you attempt to care for its people. That being said, we will refrain from commenting here on any specific religion. We encourage you to do your own research using sources that you find useful, as there is no one correct source for any commentary on such an expansive topic.

Resources

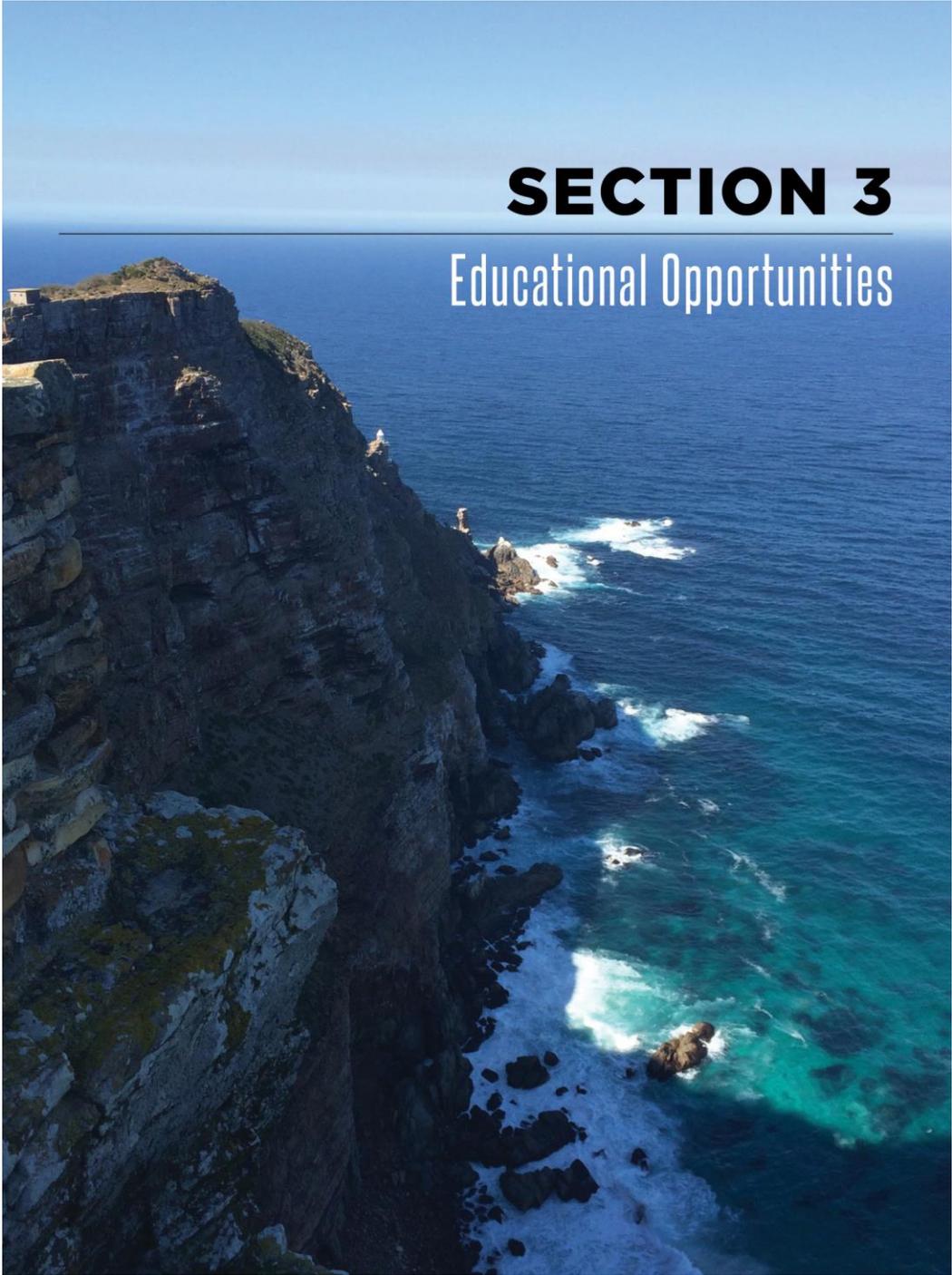
Disclaimer: The following are just a few of the resources that are available to you to help prepare for your trip. Remember that culture is dynamic, evolving and ever changing. Whole careers have been devoted to cultural practices and thus even the careful and thoughtful research you may do before your trip will not make you an expert. Common sense,

respect, and asking for feedback should be your touchstones along with all the topics discussed above.

Ethics Resources		
Source	Website	Description
US State Department	http://travel.state.gov/content/travel/en.html	Country specific information, especially useful for researching learning about foreign relations and legal issues that may affect you while traveling abroad. Make sure to read country specific fact sheets. Remember that these are written by the US government and thus reflect their views!
CDC	http://www.cdc.gov/tb/publications/quidestoolkits/ethnographicguides/	This series of five guides aims to increase the knowledge and cultural sensitivity of tuberculosis program staff that provide services to foreign-born persons.
The Spirit Catches You and You Fall Down	N/A	Best-selling book about a Hmong child and American Doctors Caring for her and the cultural differences between the two. Author - Anne Fadiman
Executive Planet	http://www.executiveplanet.com/	Country specific guides geared towards doing business abroad.

References

1. C Hackett, B Grim, M Stonawski, V Skirbekk, M Potančoková. [The Global Religious Landscape](#). Pew Research Center's Forum on Religion & Public Life. Washington DC



SECTION 3

Educational Opportunities

This section was created to give the reader a clearer understanding of the opportunities that exist for training in global emergency medicine beyond the “competencies” discussed in the previous section. These topics are very procedural in nature, seeking to educate you on things that need to be considered during your training to maximize your time in medical school and residency. These topics are indispensable for those seeking a career in global EM, but are also important for anyone interested in GEM. In the following chapters, we will discuss how to find a mentor, how to get involved in a GEM project, how to fund that project, how to choose an IEM fellowship, and other ways to get involved in GEM.

Introduction

This chapter focuses on the process of selecting a global emergency medicine mentor. Your selection process should be every bit as rigorous and well researched as your project and destination selection. When properly matched, a mentor can be far more than a stepping-stone on the path to your GEM career – a mentor can be a catapult.

Characteristics of an ideal mentor

An ideal mentor should be approachable, empathetic, patient, honest, lover of learning, and with the vision to see your potential.¹ You should be sure that a mentor cares enough about your development to make you a priority in their busy schedule. They should be willing to help you set realistic goals and timelines to achieve them. By the same measure, they should be equally willing to tell you if your goals are unrealistic. You want someone who will give you honest, constructive feedback. Mentors should not encourage you to pursue every opportunity, but rather they should look at your ideas and actions objectively and give you honest feedback. The ideal mentor is someone you should be able to confide in, who you can share your fears and mistakes with, without fear of embarrassment or repercussions. Mentors should be loyal to their protégés; willing to stand up for you and ready to back you when the time comes to move on to residency, fellowship, or a career move.

Ideal Mentor Characteristics	
Approachability	Empathy
Patience	Lover of Learning
Vision	Care about you
Loyalty	Pragmatism
Candidness	Objectivity

Junior versus Senior Faculty

There is no universally correct answer to this question. This choice should be based on your personality and experience, as well as your chemistry with potential mentors. In fact, the latter may be the most important consideration. The table below may help you to make this decision by outlining the pros and cons of each.

	Junior Faculty	Senior Faculty
Pros	<ul style="list-style-type: none">• More one-on-one time• Likely recently went through application processes for residency or fellowship• Could provide bigger role in projects	<ul style="list-style-type: none">• Increased overall experience• Well-established careers; therefore, more opportunities for first authorship on papers• Could offer more connections for projects or career opportunities
Cons	<ul style="list-style-type: none">• Generally, less overall experience• Likely unable to provide first authorship, as they may need to continue building their own résumé• Less established connections	<ul style="list-style-type: none">• Busy schedule could interfere with one-on-one time• May require more self-motivation and/or initiative• Often work on large projects that could make it difficult to offer a large role

You may find it advantageous to seek out multiple mentors, especially when just starting on your path to a GEM career. In this manner you will be able to take advantage of the pros of both junior and senior faculty – but beware! Spreading yourself too thin between projects will only work toward your detriment.

Finding a mentor

Depending on your institution, there may be a limited amount of possible mentors depending on how active it is internationally. Finding a mentor at your home institution offers the advantage of proximity, but it is not necessary. In fact, working with colleagues across great distances will become a part of your daily routine, so be prepared!

Specialty/Interest

Global emergency medicine is a diverse, rapidly expanding field with many distinct areas of concentration. The first question to ask of yourself is: Do I have a particular interest within GEM? Education? Disaster? Policy? If so, seek a mentor specializing in this area; do not assume faculty are well-versed in all areas of GEM by virtue of the fact that they are prolific in one. Also, individuals who have connections and experience in a particular country or region you are interested in will allow you to receive mentorship and guidance, along with access to existing projects.

National Organizations

Great places to start are national and international organizations. SAEM, AAEM, and ACEP all have a dedicated international section or committee. Explore the leadership of each of these divisions to get an idea of who is active in GEM and what they are doing. At national conferences there are meetings, conferences, and talks dedicated to every facet of international emergency medicine and global health. The leadership is always excited to meet the future of GEM, and it is okay to attend open meetings and conferences. There are also societies dedicated to most countries/regions, and many of them have some form of an annual meeting.

What is a mentor looking for in me?

Motivation

Mentors are looking for self-motivated individuals that will follow through with plans. You need not come to the table with a stepwise approach to solving the pre-hospital transport woes of Sub-Saharan Africa! An impassioned demeanor and a penchant for hard work are all that is expected.

Self-Awareness

It is important that you possess the self-awareness to understand what your particular motivations are for working in the global health sector, as well as the ability to articulate those motivations clearly. This question will come up repeatedly throughout all stages of your career and your answer to it may affect your future greatly. Be prepared for potential mentors to ask it.

Flexibility/Adaptability

It is also important to demonstrate your ability to work with (and occasionally, to lead) those across geographic and cultural gaps. If you already have this kind of experience, be sure to volunteer it during your initial conversations. If not, be sure to seize on these opportunities as they come, as they will build your mentor's confidence in your potential.

Approaching potential mentors

Don't be shy!

An introduction via a mutual colleague or friend is always a plus. Offer a handshake at a conference or drop a sincere email expressing interest in working together. Global emergency physicians are a small, tightly-knit community always looking to help usher in the new era of leaders.

Set yourself apart

Eminent figures within this community are approached frequently by eager students seeking mentorship, so how do you set yourself apart? First, ask questions about your specific interests during the initial encounter. Mentors are far more likely to respond to these than to generalized questions about the field. Second, make sure to talk about your background, consider offering them a copy of your CV to demonstrate your qualifications. Finally, be humble, it is easier to teach than to re-train and overselling yourself can be off putting.

Mentor Resources

AAEM

There are resources available from AAEM that can provide guidance in seeking and selecting a mentor or deciding on the characteristics you are looking for in a mentor; especially if your home institution doesn't have an active international program.

- Institutions that allow outside rotators to get involved in GEM:
<http://www.aaemrsa.org/resources/international-resources>
- The Who's Who in IEM:
<http://www.aaem.org/international/whos-who-in-iem>

Mentor matching

Mentor matching sites: Several mentor-matching resources are available through professional societies such as EMRA and SAEM that

help interested residents and medical students find faculty willing to serve as mentors. Below are links that provide useful information:

Mentor Matching Sites	
EMRA fellowship mentor site	https://www.emra.org/committees-divisions/international/International-EM-Fellowship-Mentorship/
EMRA Research Mentor Site	https://www.emra.org/committees-divisions/international/International-EM-Research-Mentorship/
GEMA Mentor Site	http://www.globalem.net/content/gema-search

Mentor Match Worksheet: Use this sheet to organize yourself when trying to select a mentor.

MENTOR MATCH WORKSHEET		
Considerations	Mentee:	Mentor:
Institution:		
Qualifications: MPH, PhD		
Countries of interest:		
Global Health Area of interest: Disaster/Humanitarian, Research, Education, EMS, Public Health, Health Systems		
Common contacts:		
Projects of interest:		
Style of working: approachable, laid back, available, over committed		
Publications / work of interest		
Ideal project		

References

1. Melanson, M. Qualities of the Ideal Mentor. U.S. Army Medical Department Journal. Jul-Sep 2013; p47.

Introduction

For medical students and residents contemplating a career in GEM, a project can be a wonderful opportunity to learn more about a specific aspect of our field, gain critical clinical and research skills, and form the foundation of a network of colleagues that you will continue to build upon for the rest of your career. Projects can take many different forms other than the traditional research paper and are limited only by your creativity. This book started as a project between residents and GEM faculty! Projects are a large part of GEM, and although they are extremely important assets that make GEM impactful, they are not absolutely necessary for the medical student or resident. If you do decide to start a project, or join one, remember that you must be imaginative and flexible. Projects rarely go as planned, and the ability to improvise and adapt cannot be overstated.

STEP 1: What do you like?

Given the vast nature of GEM, it can be difficult to come up with a project on your own or even choose a project you would like to join. One approach is to start by exploring the different facets of GEM that exist, and pick a subject matter that interests you. All you have to do is start reading what you enjoy: after all, this is what interests you, right? Another approach is to decide on the type of project that interests you and using this as a guide to the subject matter of your project. Different project styles lend themselves to different types of people, and not everyone enjoys all types.

STEP 2: How do you want to do it?

Will this be your project or will you be aiding on an already existing project? Do you have an idea or vision that you want to explore?

Personal Project:

Starting and completing your own project can be exciting, rewarding, and teach you about every aspect of the process. Designing your own project allows you to be innovative, nimble, and make the project exactly what you want it to be. You will be able to cover the material you find

important, in the way that you deem necessary. However, this is a large undertaking, especially if you have limited experience in project creation. Completing your own project will necessarily be more labor intensive and will likely require substantially more time. If you have never completed a project before, you will likely need guidance and mentorship from someone experienced in the subject matter and type of project that you are interested in. Although this is likely to be out of the realm of possibility for most residents and medical students, it is doable with the correct amount of planning and ambition. Later in this chapter you will find links to resources to help you get started designing your own project depending on the type of project you select.

Existing Project:

A more practical option may be to join an existing project. By playing a supporting role rather than the role of mastermind, you will be gaining several advantages: the time commitment will likely be substantially less, you will have more support, and more resources will be at your disposal. This is often the best option for those just starting out. However, this will require someone else's ideas to resonate with you, and you will likely not have the same control over the project that you would have over your own. For those who decide to join in on an existing project, your assistance (and free labor) will be appreciated. In turn, you will gain experience, make connections, and possibly have your name on a large published paper.

	Personal project	Existing project
Pros	<ul style="list-style-type: none"> • Control over subject matter and project format • Ability to change as needed • Can work on your own schedule and timetable • Substantial educational opportunity • Very impressive if done as a student or resident 	<ul style="list-style-type: none"> • More manageable time commitment • More guidance/less responsibility • More resources available • Can observe the entire process of project creation while not having to navigate it on your own
Cons	<ul style="list-style-type: none"> • Large time/resource commitment • Limited experience/knowledge • Will likely be a smaller project with less impact • Will likely require mentor, who may not have expertise in the subject matter or project type 	<ul style="list-style-type: none"> • Less creative control • Working on someone else's timetable • May not have a project available in your chosen field

Considerations for all Projects

Timeframe: Most projects take longer than planned, and it takes experience to become efficient. In the beginning of your GEM career, think small! There is nothing wrong about thinking small. In fact, many times a small project can be the beginning of something much more advanced and encompassing. Furthermore, time constraints of medical school and residency typically do not allow for very extensive projects, so thinking small equates to thinking realistically.

Cultural Sensitivity: Being mindful of the host country's healthcare landscape is of utmost importance as their resources and problems may require a unique approach.¹ Depending on your familiarity with the local culture and standards, you may unwittingly offend or take advantage of those you are trying to help. Knowledge of the host language is also valued resource, but may not be required.

Planning Ahead: You should also account for the time frame that is available to you. Keep in mind that most projects are going to take longer than expected. Typically, at least a month of on-the-ground time commitment in the area of interest is necessary for most projects to be completed.

Funding: Once you have a specific project in mind, you may need to acquire resources and funding. This might seem like a daunting task, but it can make your GEM experience all that much more rewarding. Chapter 10 provides information on this topic.

Research Divisions: Many academic emergency departments have entire divisions dedicated to producing new projects and providing guidance to those that are interested in creating projects. These can be invaluable to help you determine what is feasible and the right way to approach different types of projects. Even if they do not have experience specifically in international research, many of the same principles are common to all projects and research.

Project Types

Case report or Clinical Image: “You diagnosed African Trypanosomiasis!? In California!?” These can be fascinating and fun to research, and are straightforward projects to get your foot in the door. In addition, they require less time/resource commitment and you will likely need less guidance.

- Templates: <http://www.intjem.com/authors/instructions>.
- Example: <http://www.ncbi.nlm.nih.gov/pubmed/9815513>

Survey or Focused Needs Assessment: “Do mothers in Uganda have adequate prenatal care?” This type of project centers on assessing the availability of a certain aspect of medical care. This is regarded as an easy research approach, but when completed properly, they have the potential to produce useful data. Surveys are realistic for medical students and residents because they result in a large amount of data in a short period of time for a low cost.³

- Guide: <http://intqhc.oxfordjournals.org/content/15/3/261.full>
- Example: <http://www.sciencedirect.com/science/article/pii/S2211419X13000098>

Observational Study: “I wonder how often people in Katmandu, Nepal are dying of sepsis since the earthquake?” Observational studies are studies that don’t require any specific intervention in order to collect data. They can also be completed fairly quickly without having to spend long periods of time in a host country. This is especially true if data gathering has already been done and the study you propose is retrospective. This sort of research must be done in collaboration with the host country and may require an initial visit to see what kind of data they collect on their patients.

- Example: <http://www.ncbi.nlm.nih.gov/pubmed/26014761>

Literature Review: “What does the literature say about the proper treatment for cerebral malaria?” This type compiles all of the literature on a specific topic. A literature review can be relatively straightforward,

however it can be very tedious so make sure you plan accordingly. Remember that the more specific your question, the more you can narrow down your search.

- Example: <http://www.epijournal.com/articles/197/indian-em-a-system-overview>

Manuscript Preparation: “Hey Steve, I have all of this great data showing the efficacy of the new community health worker training on the Thai-Burmese border but I’m too swamped with work to write it up – can you help me out?” This type of project involves the preparation of a written piece only, rather than collecting/analyzing data or developing relationships. It is a useful service that you can provide when the party that collected the data doesn’t have the time or resources to analyze, compile, summarize, and/or publish existing data. This can provide much-needed help to a busy researcher from your home institution, or resource-burdened foreign researchers. You can take advantage of your access to the resources of your home institution to help out researchers in a host country that may not have the means to organize and publish data on their own. You can also offer to translate completed work into English and submit it to a journal. User-friendly guidelines exist for preparing manuscripts can be found at this citation.⁵

Memorandum of Understanding (MOU): “I wish that we could rotate at another hospital somewhere in India, but our residency doesn’t have any relationship with institutions there.” An MOU is simply a formal agreement between two or more parties that outlines the terms of a partnership and will govern their expectations and interactions. For instance, MOUs exist between institutions that participate in exchange programs. This is different than research, however can be very impactful by bringing two different groups together over shared interests.

A specific type of MOU is the Global Health Learning Opportunity (GHLO). When a school becomes a part of GHLO, it enters into an agreement to exchange students from other GHLO schools as part of a partnership, like an MOU. Medical students can set up a GHLO account at their medical school and a host country’s institution.

- See the AAMC website: <https://www.aamc.org/services/ghlo/about>.

Comprehensive Needs Assessment: “What types of healthcare services are lacking in Cuzco, Peru?” This type of project requires a great effort with a team-based approach in order to obtain timely and accurate information. Typically, this involves an epidemiologically-based assessment of ill health and the identification of what emergency health services are needed.⁴

Prospective Trial: “What is the optimal resuscitation strategy for septic children in resource-limited settings?” Although this is considered the gold standard for a research study, a prospective trial is a large undertaking. A prospective trial abroad requires a dedicated in-country

team, as well as an understanding of the host countries ethics and IRB process.

Policy Change: “I wonder if we can make Emergency Medicine a boarded specialty in Italy?” To make a policy change abroad, one must dedicate an enormous amount of time and effort. An example of this is establishing EM as a recognized specialty in a country that has yet to have EM residency programs.

STEP 3: Presenting your work

Peer-Reviewed Journals

Although this is the most widely recognized presentation format for a project, peer-reviewed journals are typically heavily scrutinized and have significant competition for a coveted number of available spots. In addition, it may not be the appropriate presentation format for your specific project.

Magazines/Non-peer reviewed

Institutional or national EM magazines are avenues to publish as well, and your work will typically not be subject to the scrutiny of a peer-reviewed journal.

Conferences

No one expects a medical student or resident to present his or her first project in a national or international journal. A noble goal is to present your work as an abstract in a local or international conference. These can provide a more open forum where you can discuss your project with other like-minded colleagues, in addition to gaining recognition for your subject matter.

- Conferences: <https://www.acep.org/Membership/Sections/ACEP-Endorsed-International-Conferences/>

Avoiding Pitfalls

- Always include names of your **host country counterparts** in published work. This is a sign of respect. It creates friendly relationships, and it fosters a sense of academic partnership that will pave the way for future collaboration.
- Always contact the **IRB** at the host country to ensure that all local regulations are being followed.
- Keep your **timeframe** in mind. Realize that everything takes longer than you think.
- Make sure you have **community buy-in** for the project, and that the project aligns with the priorities of the people at the study site. The last thing you want to do is form a bad relationship with your population.
- For large projects, consider performing a **feasibility study** to trial your study design. Something that may be relatively straightforward at home may be impossible to accomplish abroad (and vice versa).

Other considerations

Service Learning Project

An SLP is a charitable service project that meets the needs of a community or population while providing valuable education to those that perform it. They are impactful because they are structured to benefit both the organization receiving the aid, and the group providing it. An MOU is an example of an SLP. You can submit your own idea to the annual AOA Medical Student Service Leadership contest for a chance to receive funding for your project.

Observational Rotations

If you do not feel that a discrete project is something that interests you, or if you merely want to learn more about a particular area of the world, you may want to complete an observational rotation. This can provide you with an understanding of local cultural backgrounds and allow you time to develop a project in the future.²

- ACEP international rotations:
<https://webapps.acep.org/EktronApps/InternationalRotations/Default.aspx>

References

1. Kirsch TD, Holliman CJ, Hirshon JM, et al. The development of international emergency medicine: the role of United States emergency physicians and organizations. *Acad Emerg Med.* 1997; 4:996–1001.
2. Arnold JL. International emergency medicine and the recent development of emergency medicine world-wide. *Ann Emerg Med.* 1999; 33:97–103.
3. Kate Kelley, Belinda Clark , Vivienne Brown , John sitzia. Good practice in the conduct and reporting of survey research. *International Journal for Quality and Healthcare.* 2003;15:261-266.
4. Wright J, Walley J. Assessing health needs in developing countries. *BMJ : British Medical Journal.* 1998;316(7147):1819-1823.
5. MacDonald NE, Ford-Jones L, Friedman JN, Hall J. Preparing a manuscript for publication: A user-friendly guide. *Paediatrics & Child Health.* 2006;11(6):339-342.

Introduction

Finding funding for your global health project may seem like a daunting task, but with a little hunting you will find there are many sources willing to invest in the right match. Funding sources range from local institutions to national foundations that are willing to support initiatives of varying scope, from modest two-week clinical missions to ambitious multi-year campaigns. In this chapter, you will find tips for composing a strong grant proposal and a breakdown of available resources. However, given that opportunities change so frequently, it is impossible to list every possibility. We encourage everyone reading this to take the information learned below and explore yourself.

The Well-Written Proposal

General Format

The cornerstone of convincing an organization or institution to provide you with funding is a written proposal of your project. Proposal writing is an art unto itself and our goal in this section is merely to introduce general concepts, to get you thinking, and to provide resources for further study. The style of proposal will vary tremendously depending on the scope of the project and the intended audience; however, a proposal will usually include goals and objectives, methods for meeting these goals, anticipated outcomes, how you will measure these outcomes, and anticipated problems that you may run into along the way.

- 1) **Goals/Objectives:** The goals of your selected project should be discrete, measurable, and reflect the interests of the organization(s) to whom you are submitting. Quantifiable objectives will appeal to a broad spectrum of potential supporters, rather than nebulous outcomes that can be ambiguous. Be careful to set achievable goals. Make certain that they are appropriate to the scope of your project, the local need/interest, your personal experience, and available resources. When conceptualizing your project, start with these to ensure that your methods and intervention will be described in a clear and focused manner and that their significance will be unambiguous.
- 2) **Methods:** How will you reach these goals set at the beginning of the proposal? How will you measure/evaluate/analyze this outcome? These should be straightforward, uniform, and as detailed as possible.

- 3) **Anticipated Outcome:** Be careful not to overstate your potential impact of your proposal. Reviewers are experienced individuals and exaggeration is not appreciated.
- 4) **Limitations:** The more forthcoming you are with limitations, the more likely you will be funded. It demonstrates that you are realistic and pragmatic as a project lead.

Writing/Submitting Tips

Partnerships: When crafting the description of your intervention, be sure to emphasize any existing partnerships or infrastructure that you will be leveraging. Take advantage of bridges already built to add a sense of achievability for your proposal.

Past Accomplishments: The same applies to emphasizing your personal achievements. Donors will be more inclined to support projects pioneered by applicants who have been able to demonstrate successful outcomes in the past. For those just starting out, draw attention to relevant past accomplishments that have given you the skills you will need in this new endeavor.

Timeliness/Persistence: Submit applications early and often to a variety of groups in order to increase the likelihood of securing timely funding. One of the most important points to consider when writing a proposal for funding is knowing the closing date for grant applications well in advance. Lack of awareness to deadlines, or starting the process too late, may mean a weaker application and missing ideal funding opportunities. You may need signatures from your program leaders, department heads and deans prior to submission.

Research: Consider reviewing successful proposals submitted by peers and mentors to appreciate appropriate tone, content, depth, and breadth.

Expectations: Keep realistic expectations! Understand your selected target and your chances of being funded, and remember that not every proposal will be funded. In addition do not get discouraged by early rejection. Seek feedback from reviewers on missing or weak elements of your application and adjust your applications accordingly.

Key Aspects of the Well-Written Proposal

- Understand your **audience**, craft your proposal to reflect their goals
- Stay aware of **deadlines**, prepare applications early and submit to a variety of potential funding sources when relevant
- Articulate the specific **objectives**, with measurable outcomes if possible, and then work your proposal backwards from there
- Demonstrate the local **need** for your intervention/proposal; use available health statistics to justify
- Emphasize use of existing **partnerships** and infrastructure
- Reference your **track record** of accomplishments and draw attention to your unique strengths

Locating Funding

When looking for funding, begin with what is closest to you, and work out from there. Although the award may be comparatively smaller, the closer the funding source is to you, the more likely you are to gain funding. So start at the institutional level and work out from there.

Institutional

Residency/Medical School: Begin your hunt for funding closest to home. For residents, this should start with a frank discussion with your chairman, program director, or research director regarding availability of funds within the residency for travel support or international programs. In addition, faculty with global health or research interests can be excellent resources to help you locate sources of funding. Your chairman and program director can help you locate faculty, recent graduates, and fellow residents with global health interests. Similarly, medical students should begin by approaching the appropriate dean's office for help, but should also consider their affiliated emergency medicine residency leadership as a resource.

Broader Institution: The next step should be an evaluation of funding sources at the institutional level. Many medical schools have grants or memorial funds from alumni or local philanthropic groups that can be used to fund medical student and resident initiatives. These funds are often disbursed as fellowships, grants, and travel awards. These awards may be administered by a global health programs office that can guide students through the application process, so contact your institution's office or appropriate dean to explore this option. For residents, institutional grants are often administered by individual departments or by the employing hospital. However, these grants may not be restricted to residents within one department. Consider contacting departments outside

of emergency medicine who have ongoing partnerships abroad, most commonly internal medicine, family medicine, pediatrics, or infectious disease.

Local and Regional

Professional Organization Chapters: Most national organizations also have state chapters that may provide access to state-specific funds and grants that can be designated towards a global health project. General medical societies at the state or regional level may also distribute grants for resident projects, so check with organizations in your area. Additionally, regional chapters of national civic organizations receive far fewer applications than their national counterparts - this substantially increases your chances of winning an award. Organizations to consider include, but are not limited to, the Lions Club, Rotary, Jaycees, etc.

Cultural or Religious Organizations: Area-specific ethnic, cultural or religious organizations are often enthusiastic supporters of global health initiatives targeted towards improving care within their respective region or towards a sister congregation internationally.

Corporations: Similarly, regionally-focused corporations may be interested in engagement if you are introducing a training or medical device that might be relevant to their industry, or you have a personal connection to corporate leadership.

National

Finally, and perhaps most important, is the search for grants at the national level. Application numbers for these grants are usually high and competition is fierce. Organizations providing such grants at the national level include major federal government institutions (CDC and NIH), national professional organizations (ACEP/SAEM), national scholarships or fellowships (Fulbright), major philanthropic foundations (Bill and Melinda Gates Foundation), or large national industry partnerships. It is worth noting that certain programs are available only to select participating institutions.

National Resources for Global Health Funding

Grants.gov

This federal website provides a searchable, central repository for thousands of federal grants, annually. The website also includes a tutorial on grant applications. Registration to apply for grants is complex, however, and can take over 3 weeks. www.grants.gov/web/grants

Fogarty International Center: Funding Opportunity Directory

Provided by the NIH's Fogarty International Center, this website includes a comprehensive list of NIH and non-NIH funding sources for trainees at all career stages. <http://www.fic.nih.gov/Funding/Pages/default.aspx>

Long Term Grants (greater than 3mo)

Doris Duke Charitable Foundation – International Clinical Research Fellowship

This year-long fellowship available to medical students at 6 selected institutions provides support for a year off from medical school to conduct mentored clinical research in a developing country.

<http://www.ddcf.org/what-we-fund/medical-research/goals-and-strategies/encourage-and-develop-clinical-research-careers/international-clinical-research-fellowship/>

Fulbright Fellowship

Sponsored by the state department, this year-long fellowship is available to US graduates (including medical students and residents) pursuing research abroad. Over 1,000 are issued each year.

Proficiency in language of host country is a must. <http://us.fulbrightonline.org/about>

Albert Schweitzer Fellowship

This fellowship is awarded to four 3rd year medical students who spend clinical 3 months in pediatrics or medicine in Lambarene, Gabon. <http://www.schweitzerfellowship.org/chapters/lambarene/>

Fogarty Global Health Program for Fellows and Scholars

This one-year program provides mentorship and research

opportunities for early-stage investigators (students and residents) in global health over 8-10 months at designated international sites as part of the Global Health Equity Scholars program.

<http://www.fic.nih.gov/Programs/Pages/scholars-fellows-global-health.aspx>

Fulbright-Fogarty Fellows and Scholars in Public Health

This partnership allows Fulbright applicants to conduct public health research at Fogarty-affiliated institutions. Application is through the Fulbright Program

<http://www.fic.nih.gov/Programs/Pages/fulbright-fellowships.aspx>

Short Term Grants (less than 3mo)

O.C. Hubert Student Fellowship in International Health

Offered by the CDC, this program for 3rd and 4th year medical students includes a brief orientation at the CDC, followed by placement at a CDC partner site in the developing world for 6 to 12 weeks. It includes \$4000 towards total costs.

<http://www.cdc.gov/hubertfellowship/More.html>

Be the Change Challenge

\$5000 awarded by EMRA for residents or students willing to “dream big” and pursue a project designed to have an impact on EM education, research, practice, or policy.

<https://www.emra.org/Content.aspx?id=1652>

EMRA Research Grant

\$1000 awarded for residents or students towards completion of a research project.

<https://www.emra.org/Content.aspx?id=167>

James S. Westra Memorial Endowment Fund (Christian Medical and Dental Associations)

\$500 awarded quarterly to 3rd/4th year students participating in missionary preceptorship. Requires CDMA membership and letter of support from a pastor.

<https://www.cmda.org/missions/page/westra-short-term-mission-scholarship-information>

Yale/Stanford J&J Global Health Scholars Program

Available to residents at 7 institutions, awards \$3,000 travel award for 6 week clinical rotation at one of several mentored sites.

<http://medicine.yale.edu/intmed/globalhealthscholars/about/program.aspx>

CMDA Johnson Short-Term Mission Scholarship

Up to \$1000 awarded to a resident to participate in medical preceptorship or clerkship abroad. Requires CMDA membership and pastor letter of support. <http://cmda.org/missions/page/johnson-short-term-mission-scholarship-information>

Wilderness Medicine Society Research Grants

Up to \$5000 available to medical students and residents for projects pertaining to wilderness medicine, potentially in a global health setting.

<http://wms.org/research/default.asp>

Emergency Medicine Foundation Medical Student Research Grant

The charity arm of ACEP awards medical student research grant, up to \$5,000.

www.emfoundation.org

AMA Seed Grant Research Program

Open to medical students and residents with applicant-conceived project. Not specific to global health.

<http://www.ama-assn.org/ama/pub/about-ama/ama-foundation/our-programs/medical-education/seed-grant-research.page>

American Medical Women's Association Overseas Assistance Grants

Provides travel grants of up to \$1000 for member students and residents working in clinics around the world for at least 4 weeks.

<https://www.amwa-doc.org/our-work/american-womens-hospital-services/overseas-assistance-grants/> .

David E. Rogers Fellowship Program

Five awards of up to \$5,000 for medical students between first and second year to embark on a research project focused on the needs of an underserved or disadvantaged population. <http://www.nyam.org/grants/rogers.html/>

Arnold P. Gold Foundation Student Summer Fellowship

This grant awards a \$4,000 stipend to medical students for a service

project related to community health. <http://humanism-in-medicine.org/programs/student-opportunities/student-summer-fellowships>

AAEM/RSA Medical Student Scholarship

Two yearly awards of \$500 for medical students with a passion for emergency medicine. Must be AAEM member and nominated by an attending, fellow or resident. <http://www.aaemrsa.org/resources/medical-student-scholarship>

Introduction

This chapter is a beginner's guide to International Emergency Medicine Fellowship (can also be referred to as Global Emergency Medicine Fellowship, but we will refer to them as IEM fellowships here, as this is still the name associated with most fellowship programs) in the United States. We interviewed 16 fellowship directors either on the phone or in person and asked them a similar set of questions. The responses were as varied as the programs, however there was also a large amount of consensus. We share with you their answers on whether or not a fellowship is right for you, how to select the one that is right for you, and what fellowship directors are looking for. You will also learn about application and interview process from those that just went through it. Before we get to that, however, let's talk some facts.

Some Starting Information

IEM fellowships have grown substantially over the past 15 years. Originally there was no consensus about what constituted an appropriate fellowship, and much work has been done to try and structure these fellowships to maximize the benefit to the fellows. Today, there are around 30 nationally recognized fellowships in the United States. Not every fellowship takes a fellow every year, but the majority takes 1 each year and many take two. Most fellowships are 2 years, and most offer an advanced degree such as an MPH, DTMH (Degree in Tropical Medicine and Hygiene), MSGH (Masters of Science in Global Health), or MBA. If you have already completed an advanced degree, some programs will allow you to complete just 1 year. The majority of applicants come straight out of residency, and all applicants must be EM board eligible by the time that they will start their fellowship. Each fellowship program is different, both in its concentration and the personality with which it approaches that concentration(s). Broadly, most fellowships focus primarily on one of the following.

- Emergency medicine development (Residency building, EM skills training)
- Acute Care in Resource Limited Settings/Capacity Building
- Disaster Relief/Humanitarian Aid

The Core Elements

Fellowship training is further broken down into the “7 Core Curricular Elements” that are believed to constitute adequate fellowship training in GEM. These were laid out in a paper published in 2008 by Bayram et al¹. It is considered by most directors that a fellowship incorporate as many of these as possible, and most fellowships will normally include several of these core elements.

1. EM systems development
2. Humanitarian Relief
3. Disaster Management
4. Public Health
5. Travel and Field Medicine
6. Program Administration
7. Academic skills

Do I need to do a Fellowship?

Well it all depends on what your interests are. Most basically, you do NOT have to do a fellowship to work internationally. For those interested in international clinical work, an IEM fellowship is most likely not necessary. The purpose of IEM fellowship is to train leaders in international/global emergency medicine, policy makers, systems builders, researchers, and those people who wish to dedicate a large portion of their life to the specialty. If clinical or mission work is what you seek, there are other ways to accomplish this that will not require you to give up as much as \$500,000 over two years to complete a fellowship (assuming a high-paying community job instead of the fellowship). These other options are discussed in Chapter 13.

When deciding whether to do a fellowship, ask yourself WHY you want a fellowship: what do you wish to gain from it? Our interviewees offered two different decision-making paradigms, both of which agree that the more time you wish to dedicate to GEM, the more likely you are to benefit from a fellowship.

Paradigm #1 – Utilitarian

As one director put it, there are three things that fellowship offers: experience, mentorship, and skills development. If you need these then fellowship may be the place for you. Think of it as a one stop shop for GEM goodness. However, if you have 2 of these 3 then fellowship may not be beneficial enough for you and there are probably easier ways to gain whichever attribute is lacking.

- **Experience/Exposure:** Fellowship places you into the world of GEM, and to the people and organizations that are shaping the international health world. It puts you face-to-face with the processes, challenges, and hardships inherent in the world of GEM: international research, program development, and education. For those not doing fellowship, it takes years to gain enough experience to reach a place where they will be surrounded by the world of GEM in a way that they can learn from it. In a fellowship you can learn these things in much less time. In addition, fellowship can offer you a larger breadth of exposure. This is a good option if you're not sure which part of GEM interests you the most.
- **Mentorship/Networking:** Experience can only take you so far. Mentorship allows you to gain experience in GEM while being in an environment that allows you to benefit maximally from those experiences. By placing yourself around people that are more experienced, you benefit from the knowledge generated before you got there. In addition, mentors can put you into contact with people that you would have never had access to without them, and lend you credibility that you cannot get from a CV. Finally, the people that you meet and have contact with during your fellowship will become your network of people to reach out to for projects, advice, and collaboration.
- **Skills Development:** Did you learn everything you needed to know in residency? Of course not. The types of skills that are required in GEM are as varied as those that are in it. Only you can determine which skills you want to have, however here are some things to think about:
 - Public Health Skills/Epidemiology: An MPH degree teaches you about health on a large scale. This skill can be invaluable on the global sphere where it is often public health interventions rather than brilliant diagnostic skills that make the largest impact.
 - Research Skills: How do you create a focused needs assessment? How do you ensure a quality homogenous chart review? How do you talk to an IRB in India? These are skills that will benefit you.
 - Education Skills: How do you teach a physician in Kenya about ATLS? How do you educate residents in Cambodia? Learn from those that do.
 - Program development skills/Health systems: What does it take to set up an EMS system in Panama? Can you design a program for combating maternal mortality in Slovakia? What do you do to help out with an earthquake in Nepal?
 - Clinical Skills: How do you treat typhoid? What do you do about sepsis when you have only limited antibiotics and no IV fluids?

Paradigm #2 – Career based

So maybe you have 2 of the 3 qualifications, but you want to build a “sustainable” career in GEM? Think of fellowship as a jumpstart to that career: putting in the time at the outset to reap rewards at the end (much like medical school). By completing a fellowship, you are telling those that you work with that you have both the expertise and desire to be successful in this field. This can sometimes be difficult to communicate to people who don’t know you or who are selecting between many qualified candidates for a position. In addition, the advanced degree that you gain from fellowship will lend you another layer of legitimacy. Some examples of careers that will benefit you by doing a fellowship are:

- **Academic Careers in Emergency Medicine:** Do you want to become faculty in an emergency department that actually earns part of his or her living from creating international opportunities? Fellowship directors, international directors, jobs with protected time for international projects; these jobs are few and far between, and are almost exclusively offered to individuals that have completed fellowship.
- **International Organizations:** If you want to become a medical director, research director, or be part of the leadership in an international organization, NGO, or the UN, a fellowship can take you a long way.
- **Niche/Expert:** If you are looking for a niche in this large field of emergency medicine and you want to be able to speak with authority on your topic of choice, then a fellowship gives you the skills and credentials to do so.

What other advantages does a Fellowship give me?

According to over half of the fellowship directors in the country, the most common advantages are the ones addressed in the above paradigms – experience, mentorship, training, and career development. However, there were other ones that were often mentioned.

- **Protected time:** In fellowship you have the time to go to conferences, time to complete research, to meet people, and to gain further education.
- **Protected status:** many of the leaders in the field remember what it was like to be without experience, and many times will go out of their way to help you with projects, land interviews, and score

grants. They want to see you succeed so that you can advance the field.

- **Perspective:** Fellowship also provides you with a different perspective on healthcare. Normally you approach health care from an individual place. However fellowship allows you to care for populations rather than just individuals.

Are there any disadvantages?

According to the directors, there are also disadvantages of doing a fellowship.

- **Less Money:** Firstly and most obviously, as a fellow you don't make an attending's salary, much less the same salary that you would make as a community doc. In fact it could be up to 1/3 of what some faculty make.
- **Expertise Limitations:** In addition, a program may not have expertise in every aspect of GEM, and they may not be able to offer you training in all of the aspects of GEM.
- **Lack of Autonomy:** If you have a structured fellowship curriculum, you may not have the autonomy to become exposed to all aspects of GEM that you are interested in. More on this later.
- **Program Responsibilities:** You will also have substantial program responsibilities while in fellowship, which can at times be difficult to balance.
- **Decreased Status:** Some directors also cited the fact that as a fellow, some attendings may still see you as something other than a peer. This perception of decreased status can be frustrating as well as possibly hinder you when trying to work alongside certain people.

Advantages	Disadvantages
Experience/Exposure	Lower Pay
Mentorship	Structured Curriculum
Networking	Lack of Autonomy
Skills Training	Substantial Responsibilities
Career development Fast Track	Diminished Status
Advanced Degree (MPH, DTMH, MBA)	
Protected time	
Protected status	
Perspective	

Should I go straight in from residency?

This is a very common question that is asked of fellowship directors. When is the best time to do a fellowship? Is it right out of residency when you are still in learning mode, or is it after a couple of years when you have more experience? From those that we interviewed, there were many different opinions on this. To illustrate this take a look at this conversation between “Straight Through” and “Wait a Couple of Years”.

Wait	Do I really have to go straight through? I want to gain more experience and come into fellowship with much more to offer and a better idea of what I want to focus on in fellowship.
Straight	I see what you’re saying. However the truth is, the longer you wait the harder it is to go back. For a number of reasons (salary, responsibilities, autonomy) once you are in the “real world”, it is much harder to go back to being a fellow. In addition, life gets in the way sometimes – you get married, have children, and gain more responsibilities as you get older and this can place fellowship lower on your list of priorities. Why not get the training while you are still primed for it?

Wait	Yes but I'm not sure what I want to do yet! I can't just go into fellowship if I don't know what I want to do yet!
Straight	Fellowship can help you to design your career path going forward and give you a better idea of what is available once you graduate. In addition, you will have access to already established, large-scale projects headed by potentially great mentors that have your interests at heart.
Wait	Yes, but what if my interests don't line up with the fellowship's plans? I don't want to get roped into a project that I can't get behind.
Straight	Hopefully you have done your homework on which fellowships have the same goals as you do, and these are the ones that you are applying to.
Wait	But I have this great interest in setting up a residency program in Peru. I have contacts there that are on board, and I think that I want to explore this first before going into fellowship.
Straight	<p>There are lots of different types of fellowship programs out there (you will see in the next section.) There are many that will support whatever you are passionate about. In addition, you will likely make more progress and impact with experienced people backing you.</p> <p>That being said, if you have an amazing goal that you want to do on your own, then you may want to complete that before you start fellowship. The last thing fellowships want is someone who isn't committed. The problem with taking years off is that it can be perceived as non-committal. If you are going to wait for fellowship, make sure that you can articulate why you waited – both for yourself and for the fellowship program. One last thought: If you already know exactly what you want to do and don't need a fellowship for it, do you need to do a fellowship at all?</p>
Wait	Okay, I understand. So what I give up in autonomy, I gain in experience and mentorship? Okay this is something that I will have to think about, but I am much more comfortable with knowing more about it.

Remember that each of the decisions that we have talked about are very personal decisions, and no one can tell you what you want. All we can do is try and guide you into the best possible informed decisions. Remember to keep this in mind as you continue to read.

What do I look for in a fellowship?

This is very important. Fellowships will impart on you the training and perspective that you will carry with you for the rest of your career. Because this is a non-boarded fellowship, programs are very heterogeneous and lack standardization. This can be a strength or weakness depending on who you talk to (more on that later). Given that there is no board exam at the end, you need to find a fellowship that gives you the tools to make your career successful. Applicants are as different as the fellowship programs, and career success will be measured differently for each person. Seek to find the best fit for you and don't concentrate on things that, in the end, don't mean as much.

The most unanimously agreed-upon attribute of a good program was support. You want a program that supports you and your goals, and it should offer the keys to making this a reality. Support comes from many different levels in the hierarchy of a fellowship program: from the hospital administration towards the department, the chair towards the fellowship, the core fellowship faculty for the fellows, and the fellows for the residents. However the most important person to have support from is the fellowship director. Your director should be able to take time to mentor you and work with you, instead of leaving you to fend for yourself. He or she should encourage you and hold you accountable to your goals. A director that is too busy to dedicate time to you will be detrimental

That being said, every program has different internal interests and strengths. It isn't fair to try and change a program's entire structure just because they aren't interested in what you are. This is a big field, and you should find out what YOU need before trying to decide on the fellowship that is right for you. A program with the best fit will likely be much better than a program with a big name or lots of credentials.

Look at what the people in the fellowship are doing and talk to current and former fellows - will it give you opportunities that you want? To explore this, we will break down the differences in programs into interests, curriculum, focus, and autonomy. We will also talk about other considerations that you will need to make.

Interests (Areas of Interest)

The first and likely the second most important aspect to consider after support is whether your interests and the program's match. What do they focus on? What are they good at? In general, programs tend to focus on one or more of the 3 areas of interest (AOIs) mentioned earlier – EM development, public health/capacity building, or humanitarian/disaster relief. In addition different programs have different regions/countries of interest. You don't want to be working on humanitarian relief if you're interested in EM program development. You don't want to be in India if your heart lies in Myanmar. One of these may be more important than the

other, but your interests should align with at least one, and this should shape how you consider the rest of these attributes.

Curriculum (Structured vs. Flexible)

Another important aspect to consider is the type of curriculum it offers. Programs tend towards being either structured or flexible, however most are somewhere in the middle of this continuum. Structured programs have a set curriculum that all fellows follow, because it is believed that there are core concepts that all fellows need to learn despite what their interest is. Some structured programs tend to glean this curriculum from some form of the “7 Core Competencies” referred to earlier, but this is not universal. Other programs believe that they should allow the fellow to determine what they want to learn and focus on. Most programs fall somewhere on the spectrum between these two ideas. Different applicants will gravitate towards different types of programs. Some applicants appreciate the structure, and others find this structure stifling. You need to match your style of learning to the program’s style of teaching.

Focus (Broad vs. Narrow)

Some programs will have one area of focus, and others have many. This applies to both the program’s areas of interest and the countries that they are involved in. You will have to decide which you prefer, by deciding if your goals match up to the program’s focus. Are you interested in a specific AOI or country or are you open to new opportunities? Maybe your AOI is specific but your country is flexible, or vice versa. For those without specific goals, then it may be better to be at a program that has a wide focus. Keep in mind that a program can be structured but still have a broad focus in both their countries and areas of interest.

Autonomy (Hands-on vs. Hands-off)

Some programs are very involved in every aspect of their fellows’ journey. This ensures that the fellow remains engaged and on task. While most directors agreed that being hands-on is much preferable to hands-off, some fellows value a large degree of autonomy when working and can feel stifled by hands-on programs. These fellows tend to be proactive, self-starting, and independent, however they are also at risk of getting side-tracked and off task if left alone too much. Remember that 2 years can pass quickly and you want to have something to show for it.

Fellowships Characteristics	
Interest	Area & Country
Curriculum	Structured vs. Flexible
Focus	Country specific vs. Broad experience
Autonomy	Hands-on vs. Hands-off

Other Considerations

These are other things that were consistently mentioned during our conversations with the fellowship directors.

Personality: To directors, this was more important than any of the characteristics listed above. You will be working very closely with your program for up to 2 years, and possibly longer. How do you approach problems? How do you resolve conflict? How do you interact with those of differing opinions? Although no one personality is right or wrong, differences in personality between the program and the fellow can make working together more difficult. Fellowship interviews are good for this. If you don't mesh well with the people you interview with, then likely that program isn't the best place for you.

Research: While "research" has different meanings to different people, most programs place at least some emphasis on publishing your work. That being said, there are differences in the amount of emphasis. In addition, different programs will have different types of projects. Take a look at the amount and type of projects that former and current fellows/faculty are involved in and this will give you a better idea of how you will fit in.

Time Abroad: How much do you want to be out of the country? Will the program allow you to stay abroad long enough to make your project/research worthwhile? This will be answered on an individual and project basis, however if you are only allowed very limited time abroad this could be a drawback. On the other side, what if you have a family that you can't leave? Are you expected to be abroad 6 months of the year? How flexible is the program on this?

Advanced degrees: The vast majority of fellowships today have the option of obtaining an advanced degree, most commonly an MPH. Given the lack of a standardized board exam, this is the one of the unifying factors of fellowship training. It is almost universally agreed upon that each

program offers some form of advanced degree, be it MPH or other degree, and that this degree be global health focused.

Other Training: Many programs offer other types of training in addition to a full advanced degree. These are universally agreed to be helpful, but the importance of these differ among directors. Courses such as the H.E.L.P. course, DTMH, and other training mentioned earlier in this book can be great additions to your training and should be considered.

Length of program: Most directors surveyed believed that most programs should be 2 years, unless the fellow already has an advanced degree. One year is a very short amount of time to get anything done. If the fellow already has a degree, the consensus was that exceptions can be made.

Experience: There were differing opinions on this. On the one hand, some directors thought that older, more established programs are better. The idea is that they have a better idea about the day-to-day operations of a fellowship, more contacts, more available funds, and more field/research experience. However others felt that older programs could be rigid and less open to the fellow's individual needs or to new ideas. These latter directors felt that newer programs can be more accommodating and innovative because they are not set in their ways. Again, the applicant will have to make their own decisions about what they prefer.

Contacts: In the words of one director "the point of fellowship is to make contacts, and to have someone that will prevent you from making the same mistakes that they made. Unfortunately (for the first point) people are not interchangeable, the important people are the important people, and certain people and organizations are keys to doing what you want in life". Does the program help you build the relationships and contacts that will help you achieve your goals?

Affiliations: It was noted that many programs have affiliations with universities and medical schools overseas, international NGOs (MSF, IMC, ICRC, WHO), and governments that can help you achieve your goals. With few exceptions these can be immensely valuable, especially if you hope to work with one of these entities in the future.

Other skillsets: Many programs or individual faculty members may have expertise in a subject that can prove invaluable depending on your interests. These will vary according to program, however a few of the skillsets that were mentioned were: tropical medicine, ultrasound, pediatrics, EMS, medical informatics, statistics/epidemiology, public policy, or education. This should be taken into consideration as well.

Questions to ask

Some of these questions may seem like minutia, but we were assured by many directors that these can greatly affect your fellowship experience and these are things that are often overlooked by many applicants.

How is the fellowship paid for? Between your salary, travel funding, stipends, and advanced degree expenses someone has to pay for it. It is important to make sure that the funding stream for your fellowship will be secure. Most have at least some combination of the following.

- **Clinical shifts** - This is the way that the majority of the fellowships are funded. You aren't making a full working wage, so the money that comes in as a result of your clinical work will go towards keeping the fellowship open. The proportion of the fellowship that is funded in this manner will be based on many different local factors.
- **Endowment/grant** - Some fellowships are partially paid for through an endowment or from a grant to the program. While this can mean that you will be taking home more of your hard-earned cash, these endowments are only as good as long as the money stays in place. This is almost never a problem, but is something to keep in mind.

How is my advanced degree paid for?

- **Fellow** - The money is taken out of your salary. This isn't as bad as it sounds, because it is all pre-tax money so the degree will still be much cheaper than if you went out and tried to pay for it yourself.
- **Program** - This takes no money out from your salary to pay for it. This is obviously preferable, but may or may not be a deal-breaker for you and should also be weighed against how much your base salary is.

How many clinical hours am I working?

- This is measured in "full time equivalents" (FTEs) which is normally calculated based on a 40-hour work week, so 0.5 FTE would be 20 hours/week. As one director said: "Don't let them turn you into a workhorse for cheap labor. This still happens and is a problem". How are you supposed to conduct meaningful projects or earn your degree if you are always in the ED?
- In addition to this, it is important to know whether your hours will be averaged over the entirety of the fellowship or month-to-month? This will determine how flexible your schedule is to adapt to your needs.

Where will I be working? This is your day-to-day life, so make sure it is something that you can live with.

- What is the clinical environment like?
- Is it a clinically-strong ED?

- Is it academic or community?
- What kind of support do I have?
- Will I get to (or have to) work with residents?

What about my time?

- How much administrative work will I be doing?
- How much free time/vacation will I have?
- How much time will I have abroad?

What about money?

- What is the starting salary?
 - Keep in mind that the starting salary isn't always the most important factor in determining how much you are getting "paid". Consider stipends, hours worked, and how your advanced degree is paid for.
- Do you get travel stipends?
- Do you get project stipends? What can they be used for?
 - Remember that the fellowship may only provide funding for "already established projects" which means that it may not be applicable to the project that you are planning.

What are your people doing?

- What percentage of the faculty still work in global health?
 - Are you going to be mentored by someone who last left the country in 1983?
- Are the former fellows in positions that allowed them to pursue their passions?

Am I allowed to do 1 year if I already have a degree?

- This will differ from program to program.

What other resources are available? This can make your fellowship much more productive if you don't have to spend your time doing things that detract from your learning.

- Do I have access to a statistician that can help with number crunching?
- Can I get a research assistant to help me with data collection?
- Do I have the support from a division of global health?
- This goes back to the "support" that we spoke about earlier.

Pearls from individual directors

- "When trying to gauge programs look at how prolific a program is. Do they regularly contribute to the body of literature? Are they involved with national or international conferences? Are they helping make decisions? Do they have a presence overseas? Are they helping to shape the world, or sitting in the background?"

- “You have to take into account where you want to live as well. No one operates in a bubble, and the happiness of your family and those around you is just as important as the program’s individual attributes.”
- “Ask yourself how much is this program going to develop my skills as an emergency physician and clinician? Global Emergency Medicine is not just about research and program development, you are still learning how to be a doctor and that has to be taken into account.”
- “Be wary of programmatic dogma in their approach to global health. Are they open to new ideas? Your training will dictate to some extent the way you approach global health and those that work within it.”
- "It is important to find a fellowship that can expose you to at least four of the seven core competencies, but also allow and support you to focus a bit more if you need to. For example, some fellows want to develop skills in humanitarian assistance, disaster response or direct clinical service delivery; while others might be looking for a longer term exposure...applicable public health methods, or acute care health systems strengthening. If you have prior international experience and are more monomaniacal in your focus, your fellowship should have the capacity to help you hone that specific area of interest."

What do fellowships look for in the applicant?

Bottom line: There is no perfect candidate. Every program is different and is looking for different things. The only universal response that we received was that every program is looking for the “best fit” for their program. However what this meant was always different. These are the other characteristics that our fellowship directors found important. For the most part they are listed from most commonly to least commonly mentioned.

Core Characteristics

These were universally agreed upon by our group of directors.

Passionate: The second most important characteristic mentioned, after being the “best fit”, was that they wanted applicants with a passion for GEM. They wanted what some described as “lifers”: applicants who were committed to the specialty and wanted to improve it and make it

grow. Programs want to see that you are already involved in GEM. What are you doing to show that? Are you working on international/global health projects? Are you up to date on current issues? Do you understand the contexts that are involved and where you will likely fit within the world of GEM? Do you have an idea of what your interests are? You don't have to have answers to all of these questions, but you do need to be able to show that you have thought about them. The directors often talked about those applicants that don't know what they want to do but they felt like "travelling may be fun". Don't be this applicant.

Motivated: The next most common response was that they wanted an applicant that was motivated and internally driven. While many programs go to great lengths to support and guide their fellows, directors pointed out that fellowship will likely be the most free time that you have in your life and you need to use it wisely to make an impact. In short, they want leaders. Do you create opportunities for yourself? Do you get yourself involved, or do you wait to have someone involve you? It was mentioned that this is often a characteristic found in applicants coming from residencies that lack a strong international infrastructure.

Open Minded/Adaptable: Programs are looking for people that are adaptable, enthusiastic, and open-minded. There will be many situations during fellowship and life that are unpredictable and don't work out as planned, and a successful fellow needs to be flexible enough to adapt to these situations and move on. A high-maintenance fellow was one of the most commonly cited negative traits from the directors. This is where the interview is really important – this tells them a lot about who you are and is very hard to demonstrate on a paper application.

Discussion

The Open-Minded Applicant vs. the Goal-Directed Applicant

Open-mindedness and motivation were cited above as two of the most important characteristics in an applicant, however at times these can be at odds with each other. How do you balance these two? Directors want someone that is teachable and moldable, but not someone who lacks ambition or motivation for self-learning. They want goal-directed applicants, but not too polished, prematurely specialized, or arrogant, as this can lead to un-teachable, close-minded, and dogmatic. Having a plan for fellowship shows that you are motivated, but don't be too set in your ways.

Specific topics

International Experience: Previous international experience in residency can go a long way to showing interest in the field, but it isn't absolutely necessary. Passion is much more important to fellowship directors than experience. Fellowship directors understand that international experiences are hard to obtain in residency, especially if your residency program is not involved internationally. "Experience" can be obtained in fellowship; passion is not teachable. Directors want to see a wide variety of experiences rather than many international trips. That being said, if you have limited international experience, it is important to have other ways to show your commitment to GEM. Examples of these are:

1. Away rotations – doesn't necessarily have to be international. These show that you can operate in environments that aren't your own.
2. Participation in projects – especially those that show that you have been preparing for GEM. Such as those in public health, resource-poor settings, or tropical medicine (see chapter 9).
3. Residency tracks or interest groups - not all residencies have these, but if yours doesn't then consider starting your own.
4. Local interest groups – there are lots of interest groups centered on global health all over the country. They don't necessarily have to be within the residency.

Publications/Research: Publications can be one of the best ways to show innovation, research skills, and commitment to the specialty. That being said, experience and passion are more important to directors than publications. Much more important is to get involved in some type of project, whether that be research or not.

Educational Experience: Remember that a large part of GEM is teaching others how to do something. This can be as simple as giving lectures to students and junior residents, or as complex as helping to develop a residency curriculum in Kazakhstan. If you have given lectures, please place them somewhere on your CV. This is one of the best ways to show that you have this skill. That being said, directors noted it as important but not paramount to an application.

Foreign languages: Again, shows passion (especially if it is the language of your country of interest that you didn't learn growing up) but this is not essential.

Will this ever be a boarded specialty?

This was the last topic that we discussed with each of the directors and has been a topic of discussion since fellowships first started. There are

several ACGME accredited specialties in Emergency Medicine, and with accreditation came greater standardization and board examinations. It was almost universally agreed upon by those we spoke with that GEM will not be a boarded specialty in the near future. While some directors lamented the lack of perceived legitimacy inherent in this fact, the majority saw this as a point of pride. The reasons cited were varied, but there were some consistencies. Many felt that this is simply just too broad of a specialty to confine within parameters that can be tested with a board exam. It was thought that trying to do this would detract from the original reasons for starting fellowships in the first place: to give the fellows the tools to achieve their goals. Many also thought that the advanced degree offered by fellowships was a surrogate way of standardizing fellowships. As discussed earlier, however, keep in mind that due to the lack of formal standardization, just because you completed a fellowship doesn't mean that you will be offered THE job or THE position that you desire. You should focus on learning as much as you can in fellowship and take advantage of the opportunities given to you by virtue of you being in one of these fellowships. This makes it that much more important to pick the right one for you.

Of note, the Society for Academic Emergency Medicine has a program to “approve” fellowships that meet a list of standards. The process is designed to create quality control for EM fellowships that are unlikely to become ACGME-approved. International EM fellowships were recently allowed to apply for this process. It is optional for fellowships to apply to this process, but the document describing the requirements to achieve approval is comprehensive and is a good starting place for candidates who are interested in comparing the features of different programs.

- Approved IEM fellowships: http://www.saem.org/membership/services/fellowship-directory?Fellowship_Type=Global+International+Emergency+Medicine
- Approval Criteria: <http://www.saem.org/docs/default-source/fellowship-approval/global-em-fellowships/saem-fellowship-approval-process--application-and-program-description-for-global-em-fellowship-programs-final-version-for-board-of-directors-1dec14.doc?sfvrsn=6>

How do I apply?

You still with us? If you decide that IEM Fellowship is right for you, you can find information and the application requirements for each program on the International Emergency Medicine Fellowship Consortium (IEMFC) website www.iemfellowships.com. The IEMFC is a new organization of fellowship directors and former directors that help to unite all of the fellowships under one roof. This website was launched in 2013 and has been a wonderful resource not only for applying, but also for finding “stats” on specific programs. All of your application materials will be uploaded via this site, with a few exceptions that are clearly marked on the site. For the most part, application materials include a cover letter, CV, three letters of recommendations, a personal statement, and your USMLE scores (and sometimes a transcript.) If you are selected, you will be invited for an

interview. As for competitiveness of programs, this can vary widely. The bottom line for applications is this: there are normally more fellowship spots than there are applicants, so if you absolutely want to go to fellowship, there will be a spot for you somewhere. That being said, some of the more established programs can be VERY competitive as most of the applicants in the country have likely applied to them. In addition just because you can get a spot, doesn't mean that it will coincide with your interests. Keep this in mind.

Timeline (subject to change year-to-year, but this is a good overview)

- **Spring/Summer before senior year:** spend time researching programs on both their own websites and the consortium website, and narrow down your list of programs that you are interested in.
- **September:** most of the application deadlines are in mid-September. This will require you to get ALL of your materials in by that time. Leave yourself plenty of time for that last LOR to be sent.
- **October:** Interviews are usually clustered around ACEP, as this is the most convenient time to get everyone in the same place. It may help to schedule an easy elective at this time to prevent scheduling problems.
- **November:** This is not a match. The “no offer date” is the 2nd Monday of November, after all of the interviews have been completed. On this date you will be called and offered a spot. You have 24 hours to accept or reject your position before it goes to another candidate. All of the programs have agreed not to extend any offers before this time, and most recently there were no reports of any program violating this. PLEASE RESPOND PROMPTLY SO THAT THE PROGRAMS CAN CONTACT THE NEXT PERSON ON THEIR LIST. Think about how nervous you were on “match” day and imagine what that next applicant will be feeling like waiting on an offer.



The Application

1. **Cover Letter:** Some of you may have never written a cover letter before, and it is pretty straightforward. However, don't overlook this. As one author puts it: “the cover letter is the trailer, and your CV is the movie”. There is a great short introduction on how to write these written by Dr. Bill Sullivan for post-doc applications but it is just as applicable to fellowship applications². The only deviation we have is that this should probably be kept to 1 page, not 1½.

2. **Curriculum Vitae:** This is how you show directors that you have the qualities that they are looking for. There are so many different ways to do this that we won't try and tell you which format to use. However, keep in mind that fellowship directors have to read tons of these so the ease of reading and how it looks on paper is almost as important as the content. PLEASE HAVE SOMEONE PROOFREAD IT!
3. **Letters of Recommendation:** These are important because they can demonstrate that you have the qualities discussed in this section. Most programs want you to have three, and many programs would like to see each of the following mentioned in at least one of your letters: clinical skills, research experience, teaching experience, and service experience.
4. **Personal Statement:** This is less important than the CV and the LORs, however this is also much less tangible. This is how the program gets to know you before they meet you and is also your way to explain any deficiencies in your CV or things that you don't get to mention in your CV that make you the excellent applicant that you are.

What about the interview day?

Most interviews happen around the time of ACEP during your final year of residency. This interview is much like all interviews; the program wants a chance to meet you and see what makes you tick. The interview dates tend to be more flexible than residency interviews. Interviews may happen at the location of the fellowship, or at another location that is convenient for both the interviewer and interviewee (some of them happen at ACEP!) This is a great opportunity to find out more about the program's personality. You will almost definitely meet with the fellowship director, but other than that it will depend on where you are interviewing. If interviewing at the hospital, you may also interview with the chairman (who actually has to sign off on your "hiring"), and other high-level faculty. Other activities may include touring the school of public health, ED, and other support facilities.

Tips from the interview trail (From those that just did it)

- When making your final year schedule remember that you will need time to interview. Requesting an elective, vacation, or less time-intensive rotation during the time of ACEP will make scheduling interviews much easier and less stressful.
- Get to know the other applicants that you are interviewing with. These will be colleagues for the rest of your life. It goes without saying that you should be collegial with them. Don't be a gunner - that's not what this specialty is about.

- Remember that the most important thing to a program is a good “fit.” Just because a program has a big name doesn’t mean that they will be able to give you what you need, and vice versa.

What should I be doing in the meantime?

Find out what you’re interested in! Your fellowship will frame the rest of your life. Determining your interests will help you narrow down the programs that you want to apply to, the projects that you will become involved with, and what you will focus on. Begin to cultivate the skills and traits talked about above. It is never too early to start, plus the longer you have been involved with the specialty, the more it will show in your application. Put yourself in a position to meet people involved in GEM. Go to conferences, read the literature, and get involved as a resident or medical student.

Are there other places to get information on a program?

Websites for programs are notoriously out of date and often reflect what is currently happening at a program. If you want to know what the program is up to, look at what the fellows are doing. They may be the most active parts of the program and can be a great barometer of what is happening there. Look where they are working and what they are doing. Look on PubMed to see publications from the faculty. Current and former fellows also tend to be much more available than the fellowship director for questions or inquiries, and will be much more likely to give you unfiltered answers to your questions. Another helpful avenue is to look at what the core international faculty are involved in – you don’t want to apply to a fellowship hoping to do EM specialty development only to find out that they only work in humanitarian relief!

INTERNATIONAL EM FELLOWSHIP WORKSHEET

Program Name:			
Tangible things			
Director/Contact Email:			
Number of positions?			
Interview date(s):			
Application deadline:			
Current projects/focus?			
Countries involved in?			
Affiliations? (Universities, NGOs, etc.)			
Research Requirements?			
Protected project time?			
Time Abroad?			
Project/Travel stipend?			
Conference/CME stipend?			
Advanced Degree? How is it paid for?			
Other training opportunities?			
Clinical hours?			
Are clinical requirements based on shifts/month or on overall hours/year?			
Admin responsibilities?			
Free time/vacation?			
Option for 1 year?			
How many fellows have graduated?			
What are their graduates doing now?			
Moonlighting opportunities?			
Adjunctive resources? (Research assistants/statisticians)			
Intangible Things			
Do they align with my interests, focus, and learning style?			
Do I click with the fellowship director and faculty?			
Support from the chairman/hospital?			
What is the program's track record/reputation?			
Where do I want to live?			
Does the program help me build relationships and contacts?			
What is the clinical environment?			
How much will the program develop my clinical skills?			

References

1. Bayram J, Rosborough S, Bartels S, Lis J, VanRooyen MJ, Kapur GB, Anderson PD. Core curricular elements for fellowship training in international emergency medicine. *Acad Emerg Med*. 2010 Jul;17(7):748-57.
2. Sullivan, Bill. How to Write a Killer Cover Letter for a Postdoctoral Application. *ASBMB Today*. Oct 2013.
http://www.asbmb.org/asbmbtoday/asbmbtoday_article.aspx?id=48927

Introduction

Fellowships, as defined here, are generally considered post residency subspecialty training for physicians in the United States. Within emergency medicine there are fewer fellowship options than there are for internal medicine or pediatrics. Often they do not define a clinical career like cardiology, endocrinology, gastroenterology, etc. Emergency physicians regardless of fellowship training still clinically practice as emergency physicians. Global emergency medicine has become a subspecialty in and of itself and trains physicians with a unique skill set, however other emergency medicine fellowship programs have incorporated global health into their training, as well. Additionally, there are a variety of fellowship programs that are not strictly intended for emergency medicine trained physicians, but available to different types of practitioners and offer various levels and types of training. In this chapter, we discuss emergency medicine fellowships as well as some of the 'other' fellowships that are out there. These 'other' fellowships are often available to people from different training backgrounds and education levels.

Emergency Medicine Fellowships with Global Health Opportunities

As emergency medicine fellowships mature and the types of fellowships increase more programs are integrating a global health a global health component. Some of the key emergency medicine fellowships which overlap or have introduced linkages with global health are: pediatrics, toxicology, ultrasound, education and simulation, disaster medicine, and austere or wilderness medicine. These generally do not provide core expertise on the social determinants of health or specific training to work in resource-limited settings, however they do recognize the benefit of the respective subspecialty in resource-limited settings and often include global health as value-added components to training. While not exhaustive, we discuss two specific types of programs here.

The Pediatric Emergency Medicine (PEM) Route

Of fellowships incorporating a recognized global component, global pediatric emergency medicine (PEM) is probably the best developed. That PEM practitioners are involved in providing or developing emergency care globally makes sense. In low- and middle-income countries, populations tend to be younger. The WHO continually supports initiatives to improve

morbidity and mortality of children under the age of five. Some major organizations that address health and wellness globally specifically focus on this vulnerable population, for example, Save the Children, UNICEF, and Safe Kids International. Also, increased effort is being placed on responding to and understanding the unique challenges of child victims of natural and man-made disasters. While some PEM providers are engaged in work within the aforementioned public health domain, the majority of providers interested in global health currently work to expand and develop capacity for care centers and practitioners to provide emergency care for acutely ill or injured children.

In response to increased interest of global health among fellowship applicants, the majority of PEM fellowships now allow for shift-free elective time during which fellows can travel abroad to initiate relationships, assist in ongoing projects or work clinically in areas where the concept of pediatric emergency medicine is new or nonexistent.

Several programs have also begun dedicated global pediatric emergency fellowship programs. The structures of these fellowships vary, lasting 3-5 years and may or may not include the option of an MPH. Some programs incorporate the global health experience within the traditional 3-year program as an academic area of interest for the fellow. Others extend the duration of the fellowship to allow for fieldwork, program development, and additional study to foster knowledge and skills for global pediatric emergency care.

Baylor College of Medicine/Texas Children's Hospital started a global pediatric emergency medicine fellowship in 2005. It aims to provide the knowledge, training, skills and mentorship for fellows to function independently in the global arena. Other academic centers have followed suit and now there are a handful of similar fellowships: Boston Children's Hospital, Eastern Virginia Medical School, Detroit Medical Center/Children's Hospital of Michigan to name a few.

There has also been a trend toward the creation of subdivisions of Global Health or International EM within Sections of Pediatric Emergency Medicine, mostly within the larger academic groups located at the bigger children's hospitals. Only a few of these groups have specific training in international or global EM. The global PEM field is young and you can participate without having completed fellowship training. If you are interested in getting involved in both pediatrics and global EM, discuss with prospective fellowship directors about the ability to pursue this. Reaching out to subdivisions of global PEM is a good initial step if you are interested in collaborating with experts in the provision of pediatric emergency care abroad. They are also great resources if you are working on a more general project and are looking for collaborators with pediatric expertise.

Global Toxicology Fellowship

Medical toxicology was established as a formally recognized fellowship program in emergency medicine in 1992.¹ It has a rigorous training structure with a specific board examination to ensure uniformity and attainment of unique expertise. While not new, the burden of disease due to poisonings, overdoses, medication interactions, and occupational or environmental toxin exposures is increasingly acknowledged throughout the world. In 2011, University of Illinois at Chicago created a 3-year Global Toxicology Fellowship program. It incorporates the structured curriculum of toxicology, an MPH, and international fieldwork. As opposed to concentrating solely on domestic poisoning and toxicology, it emphasizes understanding of the pathophysiology and the socio-ecological influences of poisonings on a global scale. While the program concentrates on preparing the clinician for board certification in medical toxicology, research and scholarly activity focus on and promote the exchange of knowledge and understanding of globally important issues related to medical toxicology.

Multidisciplinary Fellowships in Global Health

There is a growing movement of interdisciplinary fellowship programs drawing trainees from multiple specialties. Fellows come from a wide range of specialties including Internal Medicine, Family Medicine, Pediatrics, Women's Health, Surgery, Anesthesiology and Emergency Medicine. These allow for cross collaboration, knowledge sharing, and increased understanding of different perspectives of medicine and health issues. Fellowships in interdisciplinary fields are increasing in number.

Some examples include:

Interdisciplinary Fellowships	
Brigham and Women's Hospital Global Women's Health Fellowship	http://www.brighamandwomens.org/Departments_and_Services/womenshealth/ConnorsCenter/GWH/Default.aspx
Massachusetts General Hospital Global Health Leadership Fellowship	http://www.massgeneral.org/emergencymedicin/globalhealth/education/Global_Health_Leadership_Fellows.aspx
University of California Global Health Institute GloCal Health Fellowship	http://www.glocalfellows.org/Pages/default.aspx

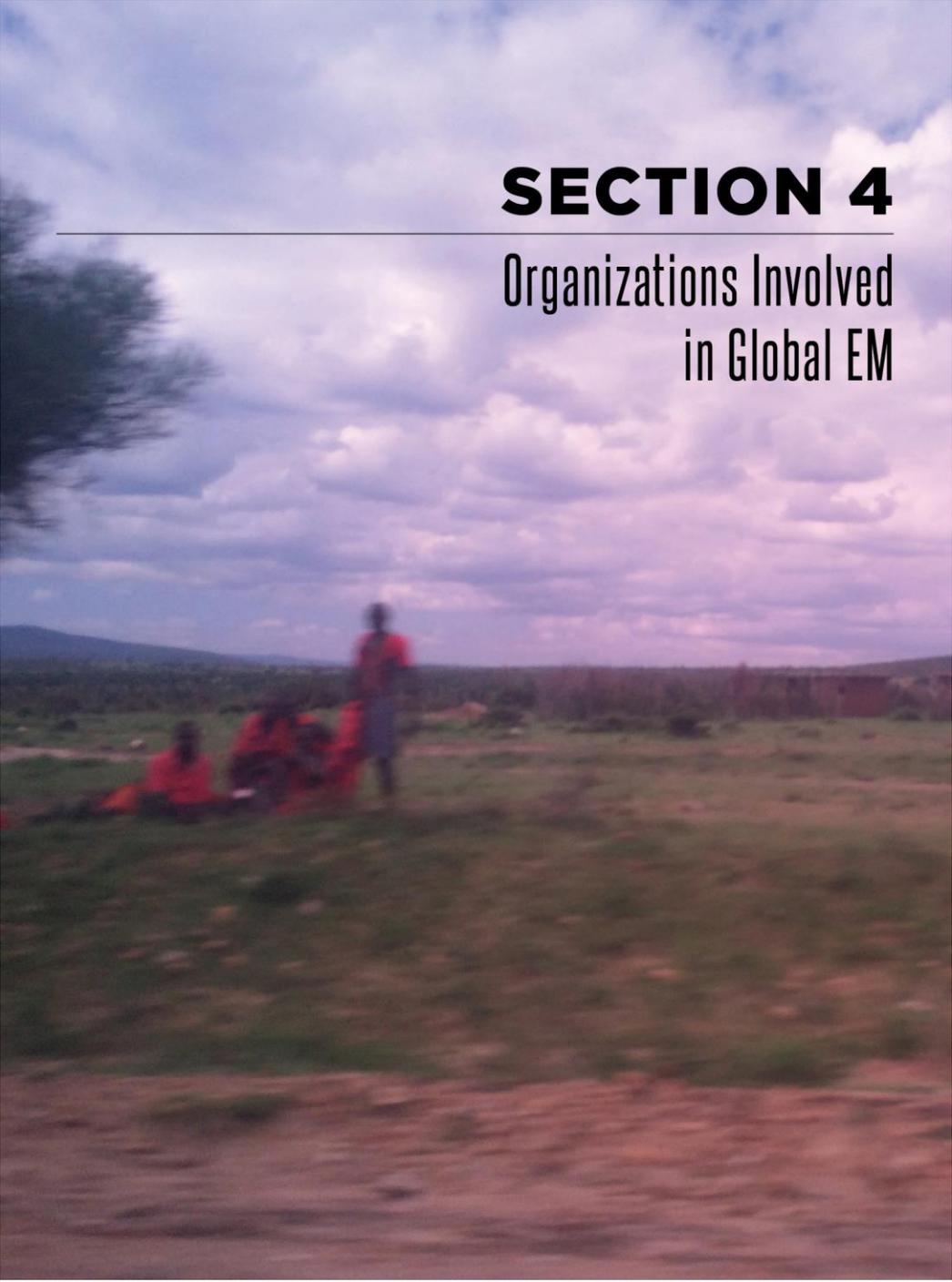
Other types of fellowships

Outside of U.S. based medical training, there are several other types of fellowship programs that are geared towards professional development. For instance, some programs are tailored to health policy, while may be focused on research. Most of them are short term, offer a mentored learning experience, and afford opportunities to learn from leading experts in global health. A few of the more well-known programs available are identified below.

Professional Development Fellowships
Global Health Program for Fellows and Scholars NIH Fogarty International Center http://www.fic.nih.gov/Programs/pages/scholars-fellows-global-health.aspx This program provides mentored research training for early investigators from the U.S. and low- and middle-income countries.
USAID Global Health Fellows Program II https://www.ghfp.net/ This program focuses on training global health professionals from a variety of backgrounds to address USAID-identified health priorities
ASPPH/CDC Allan Rosenfield Global Health Fellowship Program https://fellowships.aspph.org/programs/details.cfm?programID=2 This program trains graduates of accredited schools of public health who are interested in a career in global health and want to work on the frontlines of global public health.

References

1. http://www.acmt.net/History_of_ACMT.html
2. Drain PK, Primack A, Hunt DD, Fawzi WW, Holmes KK, Gardner P. Global health in medical education: a call for more training and opportunities. Acad Med. 2007 Mar;82(3):226-30.



SECTION 4

Organizations Involved in Global EM

No description of global emergency medicine is complete without a listing of the key organizations and societies involved. These organizations represent a rich history of GEM leadership, ethical and professional reflection and development. While much of the work is done on a volunteer basis, the visibility of the work is important not only for the specialty as a whole but also for the budding international practitioner.

It would be impossible for all GEM practitioners to be fully connected to every professional organization and volunteer organization. We encourage you to learn more about each organization and become meaningfully involved in one or a few organizations. Involvement with a professional society helps you avoid “practicing in a vacuum” and inspires participants with fresh ideas for their region(s) of the world.

NGOs and governmental organizations often employ residency-trained emergency physicians. We provide an overview of these organizations and their respective missions and prior work. These organizations have allowed emergency physicians to participate in coordinated, appropriate humanitarian and development projects throughout the world. This section is intended to connect you to an important professional stepping-stone, or a lifelong career!

The organizations continue to evolve rapidly, so their websites are usually a more up-to-date resource for learning about their most recent activities.

Not Interested in Fellowship? Other International Options

Introduction

Fellowship is only one of many ways to become involved in global EM. While fellowship provides a core skillset for global EM, there are many other ways to develop similar skillsets and dive into international work. The opportunities below are all open to EM graduates.

Epidemic Intelligence Service

The Epidemic Intelligence Service (EIS) is a 2-year fellowship-level field epidemiology training program of the Centers for Disease Control and Prevention. Approximately 80 officers are recruited to the program each year, which is primarily a civilian service but also has a branch in the Public Health Commissioned Corps.¹ While EIS has historically recruited a wide variety of health professionals, it is increasingly popular among EM graduates. The program recruits people at varying stages in their career from those immediately after residency, to those after fellowship, to those wanting a mid-career change.

EIS officers have a bewildering array of possible opportunities to select. About half are assigned to a state-level position in which they are responsible for investigating and controlling all disease outbreaks within their state including tracking cases, shutting down restaurants, advising hospitals, and more. The other half are assigned to disease-level positions primarily based in Atlanta, GA in which they work on various aspects of disease research and control in a given discipline (for instance, tuberculosis, vector-borne diseases or influenza). EIS officers played a key role in the 2014-2015 Ebola response in West Africa.

The main disadvantage of EIS for the EM graduate is its lack of clinical exposure. EIS officers are prohibited from any paid clinical work or moonlighting during the 2-year period. While many EIS alumni return to part-time or full-time clinical practice, a substantial number opt to work only in public health. Some EIS alumni who entered straight from residency feel that their clinical skills had languished during their EIS training. They will often pursue a 6-9 month transitional period working in double-coverage Atlanta area EDs and attend residency conferences before starting full-time independent practice.

Non-governmental Organizations (NGOs)

There are many NGOs that recruit and hire EM physicians. In general, NGOs tend to focus on either humanitarian work or development work, although many bridge the line. Positions are of variable length and involvement, with some requiring on-the-ground commitment in one country while others are consultancies that require travel to multiple sites over the course of a year.

International NGOs

Doctors Without Borders / Médecins sans Frontières (MSF): The Nobel Prize-winning humanitarian organization recruits residency-trained physicians. For EM physicians, MSF typically requires a minimum 6-month commitment.

A field assignment with MSF is widely considered a quintessential global health experience, and many physicians work for an extended period of time with other organizations before working with MSF. After a multi-tiered application process, recruits are placed in a pool and offered field assignments.² Physicians do not have much say in the types of assignments they are offered, but they are also not obligated to accept any individual assignment if they deem it unacceptable. While EM is a great preparation for an MSF assignment, physicians are usually called upon to provide a variety of types of general medical care.

The drawbacks to MSF are similar to those of other international NGOs. MSF is known to work in acute crisis situations, often in difficult, war-torn regions. Therefore, the assignments are usually focused on acute relief rather than long-term development and sustainability. Its policy of providing care for all patients without regard to religious, political or other factors has challenged its ability to maintain complete neutrality. MSF, like its sister organizations, has suffered from recent violence targeted at humanitarian workers requiring evacuations. Physicians are paid a *per diem* allowance and offered deferral letters for loans but compensation is minimal compared to a typical attending job. Physicians working in these extreme circumstances usually find their jobs to be exhilarating, exhausting, or a combination of both.

MSF recently partnered with Columbia University's International EM (IEM) Fellowship to offer dedicated field placements to fellows.

International Medical Corps: This is another option for EM graduates. International Medical Corps works in similar areas to MSF but places a greater focus on development and capacity-building. Although International Medical Corps is not a primary care organization, physicians with the organization often provide more longitudinal or primary care. They typically advertise field positions directly rather than recruiting physicians into a general volunteer pool.³

International Medical Corps also recently partnered with Case Western Reserve University's and Harbor/UCLA's IEM Fellowships to offer dedicated field placements to fellows.

Partners in Health (PIH): This historically has been known for their development projects in Haiti, Rwanda, and other countries worldwide. PIH works in post-conflict and chronic low-resource settings in areas where MSF and IMC would have typically already completed the initial disaster relief work. PIH's work in emergency medicine has focused on training and capacity-building. PIH has recently opened an emergency medicine residency program in Mirebalais, Haiti that has recruited faculty members on both a permanent and an interim rotating basis.

PIH recently partnered with UCSF to establish a new Health Equity fellowship open to emergency medicine.

The International Rescue Committee (IRC): It was founded to assist Europeans displaced during World War II and today focuses on care for refugees and displaced persons worldwide. IRC has worked with emergency physicians for refugee care.

Care International: This is primarily a European relief agency that works to end poverty in a multidisciplinary approach and is involved with a variety of sectors. Care International has recruited emergency physicians for its disaster and conflict response.

Mercy Ships: These are medical relief ships that travel from port to port to provide medical relief. Although Mercy Ships provides primarily surgical care, emergency physicians have also been recruited for medical care.

International Coordinating Organizations: While many international organizations do not employ emergency physicians in a clinical capacity, they still appreciate the emergency medicine perspective in disaster response. In a complex humanitarian emergency, the United Nations Cluster System is usually deployed.⁴ The cluster system organizes NGOs around their particular areas of expertise and prevents duplication of labor. The health cluster is typically led by the World Health Organization or its representative in conjunction with local Ministry of Health officials. In addition to physician groups being mobilized, the health cluster often includes representatives from NGOs such as the International Federation of the Red Cross, Save the Children, Oxfam, Partners in Health, and others. Any of these organizations may appreciate the expertise of an emergency physician on staff.

Human Resources for Health: This is a project of the Rwandan Ministry of Health with support from the U.S. Government. This multi-year training program aims to provide Rwanda with a fully trained specialist

workforce by 2019. Specialists, including emergency physicians, are recruited to be academic faculty in Rwanda typically for 1-2 year terms.

EM-specific NGOs

In addition to the international NGOs, there are a few organizations started by emergency medicine physicians that often have international postings focused on emergency care. Although smaller organizations, they tend to focus on development work in particular countries of interest.

Global Emergency Care Collaborative (GECC): It was founded with the goal of improving education for nurses in Uganda, but has now expanded to other countries as well. The organization uses the train-the-trainer approach to educate mid-level providers with EM faculty providing education, supervision, and research support.

Muhimbili National Hospital Emergency Medicine Residency: Is in Dar es Salaam, Tanzania, and was developed to train EM physicians. It relies on a consortium of five universities to provide academic attendings who rotate as visiting faculty for the program.

Systems Improvement at District Hospitals and Regional Training of Emergency Care (sidHARTE): It was established to improve care in sub-Saharan Africa, starting at the district level. Their programs, based mainly in Ghana and Rwanda, have utilized EM physicians in training physician assistants to perform emergency procedures.

Research Fellowships

Fogarty Global Health Fellowship Program: is an 11-month fellowship that trains medical students, residents and post-doctoral researchers in research techniques in an international setting. The Fogarty program partners with U.S. universities and designated countries for projects.

Marshall Sherfield Scholarship: is a program that pays for U.S. graduates to perform post-doctoral research through a British academic institution for 1-2 years.

The Road Less Traveled: Self-Initiated Projects

There's no need to find a cookie-cutter international experience if you possess the drive to create your own. While individual physicians usually have difficulty starting a unilateral project in a disaster scenario, more

stable situations allow individuals to seek out or create the job they envision for themselves in global EM.

Directly Advertised Openings: Online job advertisement services such as ACEP's EM Career Central occasionally list EM employment opportunities outside of the U.S. and Canada, with EM positions as close as the Caribbean and as far as Antarctica.⁵

International Academic Emergency Medicine: It is possible to apply for an academic position in another country of interest. The Accreditation Council on Graduate Medical Education (ACGME) recently launched an international accrediting body, ACGME International. Thus far, ACGME International has accredited residency programs in Singapore, Qatar and the United Arab Emirates with more program accreditations planned.⁶ Many countries have their own residency program accreditation programs and policies on licensure vary by country.

Direct Contact with Local Groups: It is possible to contact local hospitals and healthcare organizations directly. For instance, in the late 1990s, Dr. Haywood Hall, a young recent graduate of the University of New Mexico EM residency, piled his belongings into a car and drove to San Miguel de Allende, Mexico where he volunteered to teach life support classes. Over subsequent years and discussions with area governments and healthcare facilities, his center (PACEMD) has become one of the largest resuscitation training programs in the region.⁷

To facilitate contacts in other countries, the ACEP Ambassadors program through the ACEP International Section offers emergency physician contacts for most countries of the world.⁸ The AAEM International Committee also has frequent opportunities posted.⁹

The opportunities above are not intended to be a comprehensive list of fellowship alternatives, and many of them do not have a formal educational component. Regardless, they are sure to offer a unique window on global EM for those travelling off the beaten path.

References

1. Centers for Disease Control and Prevention. Epidemic Intelligence Service. Secondary Epidemic Intelligence Service 2015. <http://www.cdc.gov/eis/>.
2. Medecins Sans Frontieres. Who We Need: Physicians. 2015.
3. International Medical Corps. Careers. Secondary Careers 2015. <https://careers.internationalmedicalcorps.org/careers.aspx>.
4. U. N. Office for the Coordination of Humanitarian Affairs. Cluster Coordination. Secondary Cluster Coordination 2015. <http://www.unocha.org/what-we-do/coordination-tools/cluster-coordination>.
5. American College of Emergency Physicians. EM Career Central. Secondary EM Career Central 2015. <http://www.healthcareers.com/acep/search-jobs/>.
6. ACGME International. 2013-2014 ACGME-I Data Book. Secondary 2013-2014 ACGME-I Data Book 2014. http://www.acgme-i.org/Portals/0/Databook/2013-2014_ACGMEInternational_Databook.pdf.
7. Ashoka Fellowship. Haywood Hall. Secondary Haywood Hall 2015. <https://www.ashoka.org/fellow/haywood-hall>.
8. American College of Emergency Physicians. International Ambassador Program. Secondary International Ambassador Program 2015. <http://www.acep.org/IntlAmbassador/>.
9. American Academy of Emergency Medicine. International Medicine. Secondary International Medicine 2015. <http://www.aaem.org>.

Introduction

This chapter gives a concise overview of the important organizations and associations that are involved in global EM. In each case, links to the websites to facilitate one's personal search are provided. This chapter organizes the associations and organizations according to the following:

- United States national EM groups with subsections dedicated to international medicine
- International emergency medicine societies or organizations

National Emergency Medicine Groups with International Sections

American College of Emergency Physicians (International EM Section)

ACEP is the largest EM specialty society in the United States, with over 32,000 members. ACEP publishes the *Annals of Emergency Medicine*, which covers topics of international interest in emergency medicine. The ACEP Section on IEM serves as a resource to other countries in their development of EM and promotes international interchange, understanding, and cooperation among physicians in the field.

- International section website - <http://www.acep.org/internationalsection/>
- International section spotlight - <http://www.acepnow.com/article/section-spotlight/>

Opportunities: Provides a website to search for rotations abroad as residents or students. ACEP also provides links to the websites of medical centers that offer observerships to foreign medical trainees.

Resources: ACEP has assembled a comprehensive group of “Ambassadors” who serve as point persons for physicians interested in particular countries. The Ambassadors must have close ties to the country of interest and create reports about EM in each country on a regular basis. These reports are stored on the section website.

- <http://www.acep.org/ISContent.aspx?id=31034&reports=true>

Conferences: At the ACEP annual meeting each fall, the international section has meetings and events specifically for IEM. The ambassador conference also takes place at this time and is a great way to meet

practitioners from around the world. ACEP International Section also maintains an up-to-date list of EM conferences offered around the globe.

- http://www.acep.org/_InternationalSection/International-EM-Conferences/

Membership Criteria: Membership to the IEM Section requires ACEP membership. Medical students and residents become members of ACEP when they join EMRA (see below).

Emergency Medicine Residents' Association (EMRA), International Division

EMRA's International Division is a robust, introductory, and highly relevant resource for any medical student or resident who is interested in getting involved in IEM. EMRA's International Division has a three-fold goal. The first goal is to act as a resource for all EMRA members for finding rotations abroad and as resource of information about IEM fellowships. The second goal is to be a resource and liaison for international medical students and residents who are interested in EM as a specialty. The final goal is to connect members with up-to-date IEM research opportunities and literature.

- <http://www.emra.org/committees-divisions/international-division/>

Opportunities: EMRA provides a list of links to several organizations. The list is not exhaustive, but can provide ideas and links to helpful resources.

Resources: In addition to providing a central place to link you to many other organizations, EMRA has also worked with GEMA (see below) to build a mentorship program for residents interested in fellowship or research in IEM. EMRA also has several resources for international travel, as well as articles for those who are exploring their interests in IEM. A key resource that should be considered mandatory reading is EMRA's International Emergency Medicine guidebook available for a nominal fee or to download as an e-book from the EMRA International Division website for free.

Conferences: The Division meets in person twice a year, at ACEP and SAEM's conferences, and also works by phone conference.

Membership Criteria: Any resident, medical student, or fellow in an emergency medicine residency program or in a related specialty associated with these residencies. International medical students, residents, and fellows interested in EM can also join. Membership to EMRA also includes membership to ACEP. Currently, the cost for residents and fellows is \$105/year and for students is \$55/year.

American Academy of Emergency Medicine (AAEM)

AAEM is a specialty society that emphasizes the value of board certification in EM, and also focuses on education. The official journal of AAEM is the Journal of Emergency Medicine (JEM). AAEM has an International Committee to which members must be appointed. AAEM also has an active Resident/Student Association (AAEM/RSA) which also has an International Committee.

- International committee - <http://www.aaem.org/about-aaem/leadership/committees/international-committee>

Opportunities: Students and residents may join the AAEM/RSA International Committee.

Resources: The International Committee website lists a number of resources including lectures, upcoming conferences, IEM articles, projects, and biographies of some of the leaders in IEM.

Conferences: AAEM's strength in the international arena is creation of educational conferences, and has co-sponsored several iterations of the Mediterranean Emergency Medicine Congress (in the Mediterranean basin), the Pan-Pacific EM Congress (in Asia) and the Inter-American EM Congress (in South America).

Membership Criteria: Residents may join for an annual fee of \$60 and medical student membership is free.

Society for Academic Emergency Medicine (SAEM)

SAEM is the major academic EM organization, representing faculty, fellows, residents and students. SAEM has both small interest groups as well as larger sub-organizations called academies. The IEM academy is called the **Global Emergency Medicine Academy (GEMA)**. SAEM promotes quality care in EM through a focus on education and research. SAEM's journal is Academic Emergency Medicine (AEM). GEMA seeks to improve the global delivery of emergency care through research, education, and mentorship. GEMA also works to enhance SAEM's role as the key international organization that augments, supports, and shares advances in global research, education, and mentorship in the field of EM.

The GEMA website serves as a central location of communication for those interested in IEM. The open-access website (www.globalem.net) contains information about conferences, grants and other news pertaining to IEM. The GEMA newsletter is also published on this site. There is also a dedicated MentorSite where residents and students can search for mentors in their geographic area of interest.

The SAEM website is www.saem.org. GEMA's site on the SAEM page is limited to members only, and contains a repository of information pertaining to IEM.

- **GEMA Website** - [http://www.saem.org/saem-community/academies/global-emergency-medicine-academy-\(gema\)](http://www.saem.org/saem-community/academies/global-emergency-medicine-academy-(gema))

Opportunities: GEMA communicates via its website and newsletter regarding new funding opportunities, projects looking for volunteers, and educational conferences.

Conferences: At the SAEM annual conference, there are usually several activities pertaining to IEM that are appropriate for students and residents to attend, including research presentations, didactic sessions and the GEMA business meeting.

Resources: GEMA facilitates mentorship and provides a place for residents and students to get involved in a vibrant IEM community.

Membership Criteria: Any resident or student interested in emergency medicine can join SAEM and pay yearly dues for this membership. Resident membership is \$170/year and medical student membership is \$100/year. Academy memberships cost an additional \$25 for both students and residents.

International Emergency Medicine Societies and Organizations

International Federation of Emergency Medicine (IFEM)

IFEM is an international consortium of national EM organizations. Its goal is “to promote at an international level interchange, understanding and cooperation among physicians practicing emergency medicine.” It has a particular interest in developing EM internationally and to this end has published curricula and sponsors the International Conference of Emergency Medicine. IFEM is an “organization of organizations.” In the United States, ACEP is the primary, voting organization representing EM in the U.S. Additionally, SAEM, AAEM and EMRA are affiliate members.

- <http://www.ifem.cc/>

Opportunities: There is a myriad of opportunities to get involved that can be found through IFEM’s website. They include job postings and links to the IEM Fellowship website. Also, although only organizations can be members, IFEM has several committees that welcome individual participants, especially trainees.

Resources: IFEM’s website offers links to several educational resources, other EM organizations, clinical reference resources, research information, and links to publications.

Conferences: IFEM hosts the International Conference of Emergency Medicine. This conference is held in various places around the world. IFEM also hosts topic-based symposia.

Membership Criteria: IFEM welcomes national EM organizations as members and does not have individual memberships. IFEM confers honorary fellowship (FIFEM) on particularly noteworthy leaders in EM.

International Emergency Medicine Fellowship Consortium (IEFMC)

This is a consortium formed by the majority of U.S. IEM Fellowships. The IEMFC is an independent organization, but administrative support is provided by SAEM. The website lists information about a majority of IEM fellowships. Most U.S. fellowships now accept applications only through this site.

- <http://www.iefellowships.com/>

Opportunities: Active IEM Fellowships are advertised on this website.

Resources: The website maintains a list of active fellowship programs and pertinent information including application process, key dates, active projects, and a fellowship map.

Conferences: None

Membership: None. Applicants must register for full access to the site, but applying to programs is free.

Global EM Literature Review (GEMLR)

GEMLR has been around for over 10 years, and highlights and disseminates high-quality IEM research in the fields of EM development, disaster and humanitarian response, and emergency care in resource-limited settings. An annual review of literature is published in Academic Emergency Medicine and also is typically highlighted at the SAEM Annual Meeting.

- <http://www.gemlr.org/>

Opportunities: Residents may help review articles and contribute to the process. Contact gemlrgroup@gmail.com to become involved.

Resources: A list of top EM articles per year in the fields described above.

Conferences: None

Membership Criteria: Membership is by application to the GEMLR and applicants generally have some prior international and publication

experience. Foreign language skills are desirable, and trainees are welcomed to participate.

World Association for Disaster and Emergency Medicine (WADEM)

The World Association for Disaster and Emergency Medicine is a multidisciplinary professional association whose mission is the global improvement of pre-hospital and emergency health care, public health, and disaster medicine and preparedness. WADEM typically focuses more on disaster relief and less on emergency department care than its sister organizations.

- <http://www.wadem.org/>

Opportunities: WADEM focuses on research and sponsors the World Congress on Disaster and Emergency Medicine every other year.

Resources: Includes an online research repository, RSS feeds and Twitter updates, links to global health organizations, and news about upcoming events.

Conferences: World Conference on Disaster and Emergency Medicine

Membership Criteria: Open to health professionals from any country with an interest, background, or expertise in disaster and emergency health. Membership provides access to journals and discounts at conferences. Membership fees are determined by annual income.

Emergency Physicians International (EPI)

EPI is a magazine and online network dedicated to emergency medicine development throughout the globe.

- <http://network.epijournal.com/>

Opportunities: EPI uses its social network and publication to provide educational materials, to disseminate news related to IEM, and to facilitate communication among individual emergency physicians throughout the globe via forums, blogs, and twitter. The publication welcomes submissions from physicians around the globe.

Resources: The EPI website contains a vigorous discussion about EM practiced around the world, and includes a list of events, blogs and articles from the magazine.

Conferences: none

Membership Criteria: N/A

African Federation for Emergency Medicine (AFEM)

AFEM was founded in 2009 as a coalition of national societies, organizations, and individuals from over 40 countries in Africa. AFEM seeks to promote EM in Africa by providing data to inform policy-making; offering emergency care training curricula and workshops, and publishing the African Journal of Emergency Medicine (AfJEM).

- <http://www.afem.info/>

Opportunities: AFEM provides opportunities in research, curricula development, journal publication, and offers individuals and organizations the opportunity to sponsor delegates from various African countries to attend the AFEM conferences.

Resources: the AFEM website provides open-access information to an interdisciplinary audience aimed at educating providers in the specialty of emergency medicine. In particular, the AFEM Handbook of Acute and Emergency Care is a comprehensive textbook guiding care of patients in resource-limited settings <http://www.afem.info/resources/afem-handbook/?id=48>

Conferences: AFEM sponsors a conference (AfCEM) regularly for providers in Africa.

Membership Criteria: Like IFEM, membership is primarily for national emergency medicine organizations and not individuals. However, individuals are welcome to participate on task forces and other initiatives.

European Society for Emergency Medicine (EuSEM)

EuSEM is an organization that aims to promote and foster the concept, philosophy and art of EM throughout Europe, encourages research through the publication of the European Journal of Emergency Medicine (EuJEM), and has a particular interest in contributing to international collaboration in the field of EM.

- <http://www.eusem.org/>

Opportunities: Job positions, research projects, international surveys, and conferences are posted on the different sections of EuSEM's website. Submissions to EuJEM are also accepted.

Resources: Provides policies, EM curricula, and through membership, communication with other European EM groups.

Conferences: EuSEM holds an annual European Congress on Emergency Medicine, bringing together emergency physicians from across Europe and beyond.

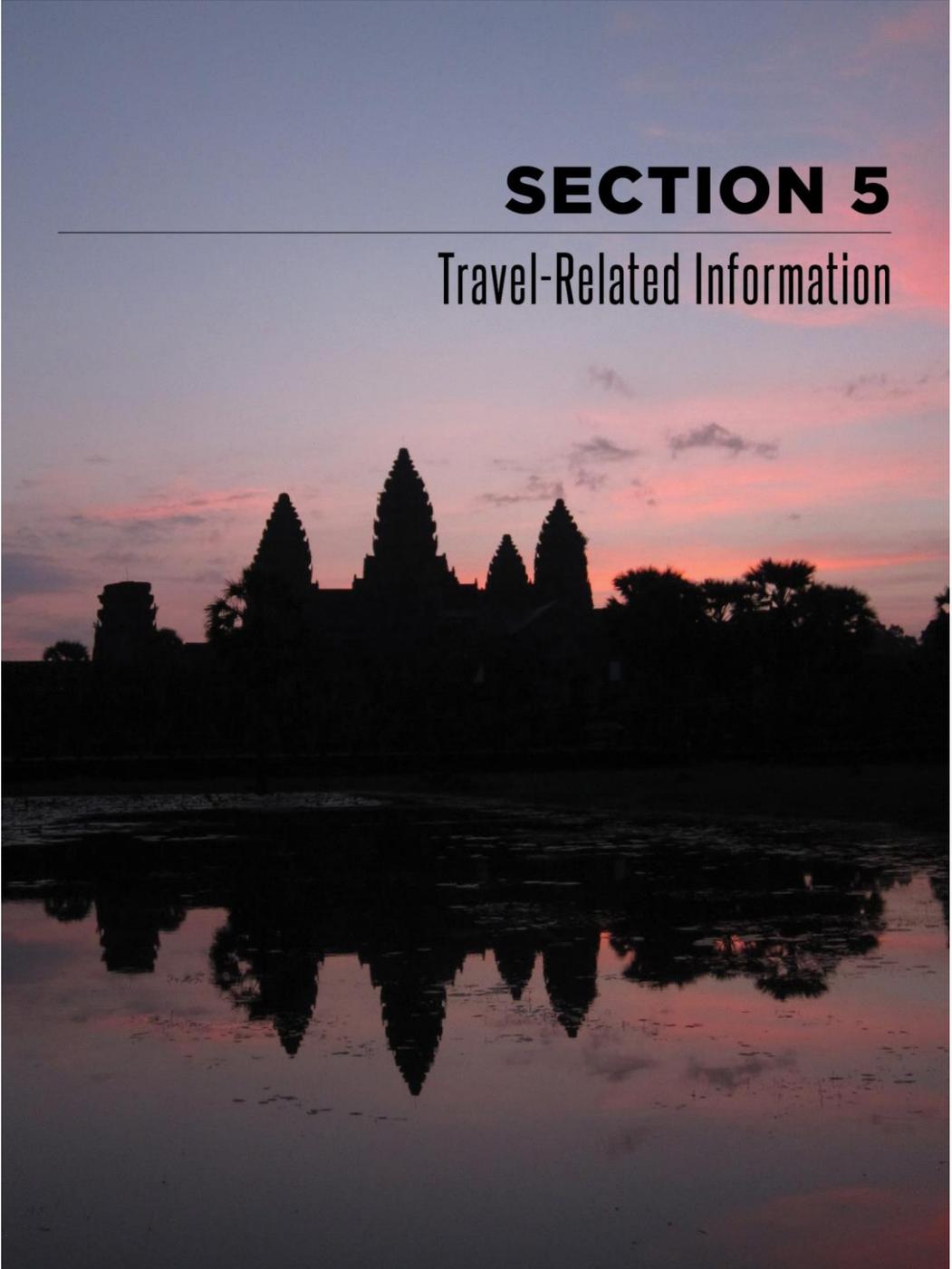
Membership Criteria: Accepts individuals who are members of other European EM groups. International associate membership is available if you are not a resident of Europe

Other Letters in the Soup

The chapter is by no means comprehensive! There are organizations in India, Asia, Australia, South America and elsewhere – nearly every country has its own initiatives and organizations that are of fundamental importance. However, we hope this introduction to the “Alphabet Soup” of Global EM will spark your interest in the exciting initiatives as well as networking and meaningful projects that arise from organized medicine and urge everyone to seek out the opportunities that these groups provide.

SECTION 5

Travel-Related Information



This section contains information that helps any person planning for international travel, but especially those traveling for global health work. It is divided into four chapters devoted to Health, Safety, Communication, and Additional Travel Documentation and Resources.

Despite the variability of travel due to region, type of work, or duration, common recommendations can be made for any traveler. It is always important to research the climate, the available local resources, and the ability to obtain necessary or essential supplies while in the country.

Many resources are highlighted within the various topics in this section, but key resources are also available as a list in Chapter 18.

Introduction

With hundreds of destinations around the world that you can travel to, it is impossible and imprudent to try to describe the variety of potential illnesses that you might encounter. Not all illnesses are preventable, but with appropriate precautions, many are avoidable. Having an understanding of the health risks and setting of the destination is invaluable for preparation. The Center for Disease Control (CDC) offers an excellent resource on Traveler's Health with country-specific recommendations <http://wwwnc.cdc.gov/travel/destinations/list/>. They also offer an app version.

The following are health and safety recommendations that provide additional considerations and resources specifically for travel, but do not ignore or suspend normal practices or health advice. Many people who travel abroad may be more worried about contracting a rare infectious disease, but accidents or injuries are the leading cause of death in travelers. Be aware of your surroundings and use helmets, seat belts, and drive at reasonable speeds. The Association of International Road Travel <http://www.asirt.org> provides country-specific risks.

Additionally, the CDC website offers information on other personal health-related resources including, but not limited to topics such as pregnancy, motion sickness, altitude sickness, extreme temperatures, deep vein thrombosis, and mental health.

If you have a chronic illness, plan to carry medications that will be required for the duration of trip and leave them in the original container. With some medications, verify that they are not illegal in the country you are entering (e.g. narcotics). Carry a letter from the prescriber that states your medical condition and medications prescribed. Be wary of counterfeit drugs or the unavailability of specific medications in some countries.

Vaccinations

Vaccinations are an important part of any pre-travel preparation. Routine vaccinations should be up-to-date prior to any travel and should include immunization against measles, mumps, rubella, polio, varicella, meningococcal spp, hepatitis A and B, human papilloma virus, influenza, tetanus, diphtheria and pertussis depending on the age of the traveler. The Centers for Disease and Control and Prevention (CDC) publish routine vaccination schedules. Any traveler should ensure compliance with these prior to departure.¹ Additional vaccines might also be recommended depending on your travel destination. CDC has country specific

information available online and is an invaluable resource

<http://wwwnc.cdc.gov/travel/>.

Importantly, proof of certain vaccinations, e.g. yellow fever and meningococcus, may be required by immigration in specific countries. Other vaccines, e.g. for cholera, have been developed but are not currently available in the United States. The recipient of any vaccine should be counseled regarding the risks and benefits of receiving the vaccine. An analysis of the recipient's risk tolerance should also factor into decision-making, as should specific risk associated with the traveler's itinerary. In addition, vaccinations do not negate the need for other protective measures.

Most Commonly Recommended Vaccinations For Travel:

Vaccination	Dosing and Booster Intervals	Approximate Time Required for Adequate Immunity
Hepatitis A	Series of two vaccines: Dose 1: 0 month Dose 2: 6 months No boosters needed	Approximately 96% of immunity acquired two weeks after first dose. Immunoglobulin is available for immediate immunity.
Hepatitis B	Series of three vaccines: Dose 1: 0 month Dose 2: 1 month (accelerated dosing: 14 days) Dose 3: 6 months No boosters needed	Approximately 90% of immunity acquired after receiving second dose. Immunoglobulin is available for immediate immunity
Influenza	Annual, nasal spray or injectable	Protection is conferred about 2 weeks from vaccination
Measles Mumps Rubella	In general, travelers can be considered immune to measles if they have documentation of physician-diagnosed measles, laboratory evidence of measles immunity, or proof of receipt of two doses of live measles vaccine on or after their first birthday. No booster needed after dose of MMR in adulthood.	Because of the risk of experiencing side effects, may travel two weeks after receiving the live vaccination
Polio injectable	One time adult booster	
Tetanus/Diphtheria /Pertussis	Adult booster every 10 years	If had primary series as child, may travel after receiving adult booster.
Typhoid Fever	Booster every two years for injectable Typhim Vi Every 5 years for oral Typhoid	If had previous adult Typhoid vaccine, may travel 10 days after receiving vaccine.

Other Commonly Recommended Vaccinations Based On Travel Destination			
Vaccinations	Dosing and Booster Intervals	Approximate Time Required for Adequate Immunity **	Recommended for
Meningo-coccus	Booster recommended every 5 years if continued exposure and 3 years for travel to Saudi Arabia for Hajj	Protection conferred 7-10 days after administration	Meningitis belt in dry season and Saudi Arabia (Hajj)
Yellow Fever	Booster every 10 years. However as of June 2016, one time injection confers lifelong immunity.	Not considered active until 10 days after administration	Travel to parts of Sub-Saharan Africa and Central/South America. Travel to countries that require documentation of previous vaccination
Rabies	Series of three vaccines: Dose 1: 0 days Dose 2: 7 days Dose 3: 21 or 28 days No boosters recommended	If exposed recommend 2 doses at day 0 and 3. No IG needed. If no prior vaccination: 4 doses at day 0, 3, 7, 14 and IG with first dose.	Travel to endemic areas and likely contact with animals at risk
Japanese Encephalitis	Series of two vaccines: Dose 1: 0 days Dose 2: 28 days	Considered effective 10 days after last dose.	Travel to Asia and in rural areas, outside frequently, traveling for a long time in tropical areas with mosquitos

Hepatitis A

Infection with Hepatitis A is often self-limited, although, fulminant hepatitis with coagulopathy and encephalopathy can occur.⁴ The vaccine is composed of a live inactivated virus. Two doses are recommended per CDC. The first dose can be given after one year of age.⁵ The booster is recommended 6-18 months later, although excellent protection occurs with just one dose. Those with cirrhosis are more susceptible to the

severe form and must be vaccinated. Immunoglobulin is recommended for immunocompromised individuals or travelers over 40 years of age who are not previously immunized and will provide 3-6 months of protection.⁵

Hepatitis B

Most people who contract HBV are asymptomatic and become chronic carriers. Cirrhosis and hepatocellular carcinoma are serious complications.⁴ Risk is increased with sexual contact, sharing contaminated needles, receiving blood products, adventure travel, and in health care workers.⁶ Risk is more behavior driven than destination specific. The vaccine is also an inactivated live virus. A 3-dose schedule will provide up to 90% protection.⁶

Typhoid

Salmonella typhi is the causative agent of typhoid fever, and is an important cause of waterborne illness in resource-poor settings. Complications of typhoid fever include bowel perforation, severe GI bleed, meningitis, and hepatitis. A chronic carrier state can lead to cholangiocarcinoma.⁴ The vaccine is recommended for travel to Africa, SE Asia, India, South America.² Transmission is fecal-oral through ingesting contaminated food or water. There are two vaccines available. Both only provide 50-70% protection and can be overwhelmed by a high burden of *Salmonella typhi*. There is no protection for *Salmonella paratyphi*. The live-attenuated oral vaccine (Ty21a) provides up to 7 years of protection and can be given to children over six years old. It requires taking a dose every other day for four doses.⁷ It does require refrigeration and the live bacteria are sensitive to antibiotics if the recipient is taking them concurrently. The purified Vi-polysaccharide single dose injection provides up to 3 years protection and can be given to children 2 years or older.⁷ The manufacturers recommend repeating the injectable form every 2 years and the oral form every 5 years if there is continued exposure.⁷

Japanese Encephalitis

JE has high morbidity and mortality without pre-exposure prophylaxis. This is a mosquito-borne flavivirus prevalent in SE Asia. Ten to fifteen thousand people die every year and many more are left with permanent neurological disability.⁴ The vaccine is expensive. The primary series requires vaccinations at 0 and 28 days. For short-term travelers (<1 month) to endemic countries, it is recommended only if going to rural areas or doing extensive outdoor activities. It is recommended for anyone going to endemic areas long-term, defined as >1 month.¹⁰

Meningococcus

The “Meningitis Belt” runs across equatorial Africa, especially during the dry season, December through June. Health care workers should be vaccinated if going to any of these countries.¹¹ It is also required for travelers going to Saudi Arabia to the Hajj and recommended for all travelers going to endemic areas during the dry season.¹¹ In the U.S., all adolescents from age 11 now receive it as part of their routine series, however, a booster is recommended at 5 years.¹²

Rabies

Rabies has one of the highest case fatality rates in the world. It is highly endemic in Africa, Asia and parts of Latin America. Rabies is uncommon in travelers, however animal bites are relatively common.⁸ Finding reliable post-exposure prophylaxis when traveling can be difficult to access, expensive and there are issues with counterfeits. Therefore it is recommended to have pre-exposure prophylaxis before going to endemic areas, especially if one has an occupational risk of exposure, an extended stay, outdoor travel plans or is traveling with children.⁹ The pre-exposure vaccine series involves 3 doses of 1.0 mL given IM (0,7,21-28 days). Once pre-vaccinated, no booster is needed and you are covered for life. If bitten, 2 post-exposure vaccine doses are required. If you have not had pre-exposure prophylaxis, treatment requires Rabies IG and 4 doses of vaccine (0,3,7,14 days) per Advisory Committee on Immunization Practices (ACIP) guidelines.⁹

Yellow Fever

Most commonly a flu-like illness that resolves, however 15% of patients will develop severe disease including hemorrhagic fever, fulminant hepatitis and renal failure. If severe, mortality approaches 50%.⁴ There are an estimated 30,000 deaths per year mainly in the South American Amazon and Africa.¹³ The vaccine is live-attenuated and thus contraindicated in patients with primary immunodeficiencies, transplant recipients, those taking immunomodulatory drugs and those with thymic disorders.¹³ If entry into a country requires a YF card (ICVP card), the vaccine must be given at least 10 days prior to entry. If you have a contraindication to vaccination, or you and your travel health care specialist decide that the risks of vaccination outweigh the benefits, you may get the vaccination card, date it and sign it with “NI” written on it to indicate “Not Indicated”. This will avoid unnecessary hassle at the border. WHO in 2013 stated that one dose is good for life however countries may still require the 10 year booster as part of regulations.¹⁴ The vaccine can be given at one year of age. There have been 32 vaccine-related deaths (out of approximately 50 million doses). The very rare and severe adverse effects are viscerotropic disease and meningoencephalitis in young

infants. As such it should only be given if needed based on CDC guidelines.¹³

Other Vaccines

There are other vaccines that have been developed but are not currently available for commercial use in the U.S., including **Tick-borne Encephalitis (TBE), Plague, Smallpox, Cholera and Anthrax**. Decision to start these vaccines should be made with your personal physician and/or the organization you are working with.

Travel Medications

A priority in any medical trip is the health of you as the provider. An understanding of diseases common to travelers is essential for determining which medications are necessary for prevention and treatment. Without appropriate preparation, your trip of a lifetime might be tragically cut short by an illness that is otherwise preventable or easily treated.

Malaria Prevention

Malaria is the most common cause of fever in the returned traveler in cases where an etiology for systemic febrile illness is identified.¹ It is a parasitic infection transmitted by female Anopheles mosquitoes and is endemic throughout the tropical and subtropical regions of the world. While chemoprophylaxis is highly effective against the transmission of malaria, the first step in prevention is avoiding exposure to mosquito bites. Permethrin-impregnated clothing, DEET containing skin spray, and chemically-treated bed nets are essential to the prevention of malaria and other mosquito-borne illnesses.

Despite meticulous care to avoid mosquito bites, they are inevitable, and malaria chemoprophylaxis is of paramount importance for travelers to endemic regions. Choosing the appropriate medication depends both on the traveler and the destination. Detailed, country-specific resistance patterns are accessible via an online resource published by the CDC called the Yellow Book. http://www.cdc.gov/malaria/travelers/country_table/a.html

Atovaquone-proguanil (Malarone) is the drug of choice with regard to efficacy, resistance, and convenience. Mefloquine and Malarone have similar, near 100% efficacy when used as prescribed. However, due to its neuropsychiatric side effects, mefloquine therapy is often discontinued prematurely.² Doxycycline, another efficacious chemoprophylactic agent,³ is the least expensive option, and can protect against other common infectious diseases like leptospirosis, *Rickettsia* and some sexually transmitted diseases. There is some emerging resistance to doxycycline, however, and its side effect profile may also inhibit compliance with the full necessary course. It is useful for you if you are on a budget, or an adventure traveler who will be exposed to water or rural areas.

Regardless of your choice of anti-malarial agent, compliance with initiation, dosing and duration of therapy is crucial in preventing infection with plasmodium species. Most “treatment failures” of malarial prophylaxis occur due to noncompliance, missed doses or self-discontinuation. You should be aware of the potential side effects of the medicine you plan to take.

Malaria Prophylaxis: Pros and Cons		
Agent	Pros	Cons
Atovaquone/ Proguanil	<ul style="list-style-type: none"> • Can be started 2 days before travel • Long half-life, and only needs to be continued for 7 days after return • Minimal side effects • Highest efficacy • Least resistance 	<ul style="list-style-type: none"> • Most expensive drug • Does not protect against other infectious diseases
Mefloquine	<ul style="list-style-type: none"> • Less expensive • Dosed once weekly • Best for pregnant travelers 	<ul style="list-style-type: none"> • Neuropsychiatric side effects • Region specific resistance (c.f. CDC Yellow Book) • Must be continued 4 weeks after cessation of travel • Must be started 2 weeks before travel
Doxycycline	<ul style="list-style-type: none"> • Least expensive • No neuropsychiatric side effects • Initiate therapy the day before travel • Protects against other infectious disease (STIs, Rickettsiae, Leptospirosis) 	<ul style="list-style-type: none"> • GI side effects • Increases susceptibility to sunburn • Resistance reported • Must be continued 4 weeks after return • Daily therapy

Adapted from the CDC website: CDC.gov/malaria/travelers/drugs.html

Diarrheal Illness

Diarrheal illness is the most common syndrome affecting travelers to the developing world. Traveler’s diarrhea (TD) is a syndrome with many causative agents including bacteria (90%), viruses, and parasites,¹ and may occur in as many as 70% of travelers.⁴ Since bacteria found in food and undertreated water make up majority of cases, medical therapy is

directed primarily at these agents. Medications for traveler's diarrhea fall into two categories: prevention and treatment.

Prevention

The mainstay of prophylaxis should be water and food hygiene. Medications cannot replace good dietary decisions, and boiling water is far more effective at killing the myriad of causative organisms than any prescription. Candidates for chemoprophylaxis should be carefully selected, since effective agents have significant side effects, and may be poorly tolerated. Prophylactic medications are best for short trips and travelers who cannot afford a day or two of diarrhea (VIPs, athletes, etc.). Two drugs have been shown to decrease the incidence of traveler's diarrhea are bismuth subsalicylate (BSS) and rifaximin. BSS is a salicylate-containing compound available in pill and liquid form, but must be dosed 4 times daily as it has short term antimicrobial effects.⁵ While it is efficacious in preventing up to 90% of traveler's diarrhea, BSS has many side effects as listed in Table 2.⁶ Rifaximin, an antibiotic that is not absorbed through the gut, has also been shown to be effective in reducing traveler's diarrhea. Its efficacy is limited to non-invasive bacterial pathogens.⁷ Moreover, its long-term side effects due to changes in gut flora are poorly understood and most experts recommend against using this medication. "Probiotics" such as lactobacillus formulations remain controversial.⁴ Previously effective antibiotics (e.g. Bactrim and Doxycycline) are no longer recommended due to high resistance profiles.⁶

Treatment

Whereas prophylaxis for traveler's diarrhea is poorly studied and should be limited to special populations, the incidence and morbidity associated with TD necessitate most travelers to have a treatment plan. The main causative organisms include bacteria (*E. coli*, *Shigella*, *Salmonella*, *Campylobacter*) and protozoa (*Giardia* and others). Many cases of traveler's diarrhea are self-limited with minimal morbidity. Travelers with less than 3 stools per 8 hours, who are well-appearing without signs of dehydration or dysentery likely require no therapy. For those with diarrhea of longer duration, but without signs of dysentery (fever, severe cramping, bloody stool) may benefit from antimotility agents such as loperamide. Due to concerns for intestinal complications, loperamide and other antimotility agents are not recommended in patients with any signs of dysentery.³ Patients with severe or prolonged diarrhea (in our opinion greater than 2 days), or with dysentery while traveling should be treated with an antimicrobial agent. Ciprofloxacin remains effective against most bacterial diarrheal infections and is recommended by most experts as first line antibacterial therapy due to its price.⁶ However, there is increasing resistance among strains of *Salmonella typhi* (the causative agent of typhoid fever) and *Campylobacter* in the Middle East and much of Asia.⁸ If you travel to these regions, consider the use of

Azithromycin. Ciprofloxacin is also not effective against amoebic or other parasitic dysentery. Metronidazole is first line therapy for giardiasis and is a cheap medication that is a reasonable inclusion in the traveler's medication kit. Most protozoan and other parasitic infections have longer incubation periods (1-2 weeks), compared to bacteria (2-5 days). Thus the need for metronidazole as a treatment modality while traveling is limited to longer duration trips and prolonged diarrheal cases.

You should seek prompt medical care for severe diarrheal cases with marked dehydration, prolonged high fevers, bloody diarrhea, or abdominal pain. IV fluids or more intensive antibacterial therapy may be required for severe infections or infections with invasive or toxigenic pathogens.

Diarrheal Medications		
Medication	Dose	Characteristics
Bismuth Subsalicylate	2 262 mg tabs qid up to 3 weeks	<ul style="list-style-type: none"> • Prevention and symptom treatment • Causes black stools or a black tongue • Should not be taken with salicylate allergy/sensitivity
Rifaximin	200 mg tid x 3 days	<ul style="list-style-type: none"> • Minimal to no systemic absorption
Loperamide	4 mg x1, then 2mg p each stool, max 16 mg/day	<ul style="list-style-type: none"> • Useful for uncomplicated watery diarrhea • Antimotility agent • Associated with toxic megacolon, sepsis, intestinal perforation in patients with dysentery • Side effects include constipation
Ciprofloxacin	500 mg BID x 3 days or Levo 500 mg x 1-3 days	<ul style="list-style-type: none"> • Fluoroquinolone • Effective against most bacterial diarrheal pathogens including many that cause dysentery • Increasing resistance necessitates judicious use
Metronidazole	Giardia: 250 mg tid x 5-7 days Amebiasis: 750 mg tid x 5-7 days	<ul style="list-style-type: none"> • Useful for <i>Giardia lamblia</i> and other select parasitic diarrhea. • First line therapy for <i>Clostridium difficile</i> • Typically used for prolonged diarrhea unresponsive to Ciprofloxacin or in confirmed cases of parasitic diarrhea
Azithromycin	1 gm x 1 or 500 mg qd x 3 days	<ul style="list-style-type: none"> • Macrolide • First line therapy for diarrhea in SE Asia • Effective against <i>Salmonella typhi</i> and <i>Campylobacter</i>

Other Medications

You should have other medications available for other purposes as well. Prescription medications for pre-existing conditions should be continued. Consider drug-drug interactions between anti-malarials or anti-diarrheals and prescription medications, especially antidepressants or other psychiatric medications.

Sleep interruption can cause significant morbidity in travelers. Jet lag, a new environment, and the stress of the practice of medicine in an unfamiliar context all contribute to poor sleep. Good sleep hygiene should be practiced when possible. However, it is common for the international traveler to require pharmacological help. Antihistamines like diphenhydramine are useful as sleep aids and are doubly useful for unexpected allergen exposures. Zolpidem (Ambien) can also be used if there are no contraindications, but it is best to have tested it prior to any trip as it can be associated with significant side effects. The use of benzodiazepines or alcohol as sleep aids, although common, is associated with the risk of dependence and impaired decision-making and should be avoided.

When you travel you often endure long periods of inactivity during transport, restricted water intake, and changes in diet. Thus, in addition to infectious diarrhea, you are also at risk for constipation. Stool softeners such as docusate sodium can prevent the discomfort of constipation. Adequate clean water intake is always encouraged. Additionally anti-emetics like ondansetron may be considered, as nausea and vomiting are common and can limit antimalarial compliance.

Common over-the-counter medications may be limited in low-resource settings. Include commonly used medications such as ibuprofen, acetaminophen and antihistamines for treatment of mild illnesses in your medical kit. If you have a history of anaphylaxis, bring at least one injectable unit of epinephrine in the event of an episode, as this may not be available where you travel to.

If you will be working in a clinical setting and are at risk for HIV exposure, prompt post-exposure prophylaxis is essential. The current recommendation for HIV post-exposure prophylaxis is tenofovir + emtricitabine (Truvada) once a day plus raltegravir (Isentress) twice a day for 28 days as the preferred initial PEP regimen because of excellent tolerability, proven potency in established HIV infection, and ease of administration.⁹

Diet and Hygiene

In addition to vaccinations and medications, several practices and precautions can minimize exposure to potential illnesses and conditions.

Hand Hygiene and Water

Hand hygiene is important to minimize the spread of infectious agents. Bring alcohol gel or wipes when clean water is not available. Clean water is sometimes a limited commodity. If clean water is not available, there are several ways to purify tap or natural water. The method used will depend on location and available resources and time.

Methods of Purifying Water			
Method	Pros	Cons	Considerations
Boiling	<ul style="list-style-type: none"> • Safest method • Kills bacteria, protozoa, viruses. 	<ul style="list-style-type: none"> • Requires flame or stove • Does not remove sediment 	<ul style="list-style-type: none"> • Boil clear water for at least one minute
Chemical Disinfectant	<ul style="list-style-type: none"> • Multiple formulations (iodine, chlorine) • Inexpensive • Good for bacteria and viruses 	<ul style="list-style-type: none"> • Less effective than boiling • Does not kill protozoa (Cryptosporidium or Giardia) • Usually taste associated with disinfectant. • Does not remove sediment 	<ul style="list-style-type: none"> • Contact time, disinfectant concentration, water temperature, water turbidity, water pH, other factors impact effectiveness • Can use unscented household bleach (10 drops/L, 40 drops/gallon)
UV light pens/devices	<ul style="list-style-type: none"> • Good for protozoa, bacteria 	<ul style="list-style-type: none"> • Not good for viruses and chemicals • Requires clear water 	<ul style="list-style-type: none"> • Exposing water to UV radiation
Filtering	<ul style="list-style-type: none"> • Depending on size of filtration can remove protozoa, bacteria and viruses. 	<ul style="list-style-type: none"> • Can be bulky 	<ul style="list-style-type: none"> • Large variability of filter sizes. • Can combine with other disinfectants to increase effectiveness.

If you do get sick and do not have rehydration salts available (you should ideally bring some with you), you can make your own basic solution. In one liter of water, dissolve roughly one tablespoon of table sugar/honey/corn syrup and a half a teaspoon of table salt. Check out WHO's published (2013) formulation for oral rehydration salts http://apps.who.int/iris/bitstream/10665/69227/1/WHO_FCH_CAH_06.1.pdf?ua=1&ua=1

Food

Without access to your normal food routines, diets often times need to be adapted to the location and environment you travel to. While some people are flexible and adventurous and “eat as locals do”, there are food and food safety considerations every traveler should keep in mind.

If you can't “cook it, wash it, peel it, forget it”. Consume cooked food that is served hot, fruits and vegetables that you have peeled or have been rinsed in clean water, and pasteurized dairy. Avoid beverages with ice (as it is usually made from tap water; at a minimum, ask how ice is prepared). CDC has a downloadable app with country-specific guidance called “Can I Eat This” <http://wwwnc.cdc.gov/travel/page/apps-about>.

When eating out, be wary of street vendors. Be sure dishes are served hot. Look at the condition of the cart or kiosk before ordering. Is it clean and well kept? Is it busy? The fewer the customers, the longer the food may sit before being served and the quicker it may make you sick. Eat at your own risk.

Same thing with restaurants: go where the people are. Busy restaurants typically serve fresher, cleaner, and safer food. Apps like Yelp or TripAdvisor may help. Regardless, ask that food is cooked well-done. It is also a good idea to have a phrasebook handy to help translate items on the menu. Again, eat at your own risk.

Always remember to wash your hands before you eat and to use “safe” water not only for your hands, but also for any foods that you might prepare yourself.

Other Considerations:

- Consider the cultural diet of the region of travel. There may be food customs that are unfamiliar or off-putting. Some diets may not be compatible with certain personal dietary practices. In cases like these, it is best to be honest and politely decline.
- Vegetarians have no issue if the staple diet is predominantly vegetable based. However, vegetarians can still live and work in rural villages where meat is a main staple. It typically requires advanced planning and an ability or means to communicate your dietary restriction so as not offend the local community especially if they cook a meal.
- Comfort foods and protein bars or other non-perishable snacks are good supplements to pack in places where nutrient rich foods or the

variety of foods is limited. In addition, they can be something to share with local colleagues as a cultural exchange.

Drugs and Alcohol Use

Depending on the country and setting in which you are working, drugs or alcohol use may be inappropriate. In some regions of the world, drinking may be illegal, religiously offensive, or considered provocative or suggestive behavior. Check with your host or host institution of practices and any illegality of certain substances. Some countries carry stiff penalties for possession or use of drugs that can include imprisonment, hard labor or even the penalty of death.

Clothing and Protection From the Elements

While vaccinations can protect from certain vector-borne diseases, efficacy can depend on multiple factors and there are other vector-borne diseases for which there are no effective vaccines. Therefore, in areas where arthropod bites are of concern, other measures need to be used to prevent exposure. Ideally, clothing that covers exposed skin is preferable. However, where not possible or oppressive, the use of repellents and avoidance of peak times of day when the insects are most active is recommended.

General recommendations:

- Wear long-sleeved shirts, long pants, and socks.
- Treat clothing with permethrin or purchase pretreated clothing.
- Apply lotion, liquid, or spray repellent to exposed skin.
- For mosquitoes:
 - Dengue, yellow fever, and chikungunya vector mosquitoes bite mainly from dawn to dusk.
 - Malaria, West Nile, and Japanese encephalitis vector mosquitoes bite mainly from dusk to dawn.
 - Use common sense. Reapply repellents as protection wanes and mosquitoes start to bite.
- For ticks:
 - Check yourself daily (your entire body) and remove attached ticks promptly.

Topical Insect Repellents:	
Active Ingredient	Products
DEET*	Off! Cutter Sawyer Ultrathon
Picaridin* (Icaridin outside the United States)	Cutter Advanced Skin So Soft Bug Guard Plus Autan (outside the United States)
Oil of lemon eucalyptus (OLE) or PMD (synthesized version of OLE) ^	Repel Off! Botanicals
"Pure" oil of lemon eucalyptus (essential oil not formulated as a repellent) is not recommended; it has not undergone similar, validated testing for safety and efficacy.	
IR3535 ^	Skin So Soft Bug Guard Plus Expedition SkinSmart
*conventional repellents ^"biopesticide repellents": derived from or synthetic version of natural materials	

From CDC. <http://wwwnc.cdc.gov/travel/yellowbook/2016/the-pre-travel-consultation/protection-against-mosquitoes-ticks-other-arthropods>

Also, be sure to use sunscreen or some form of protection from sun exposure. For weather extremes, be sure to bring multiple layers and clothing that either cleans or dries readily.

Wellness

Well-being and psychosocial health during travel is just as important as any physical illness. Loneliness and homesickness especially for extended trips are not unusual. Establishing a plan and a system to stay in contact with friends and family back home prior to leaving is feasible even in difficult environments. Many modes of communication are now available in most countries: email, prepaid phone cards, cell phones, and communication via wireless apps. Even planned sporadic or intermittent contact can help alleviate feelings of being alone.

Homesickness is a natural feeling in foreign environments. The best way to alleviate homesickness is often to dive into the experience. The more you are having fun and involved in your experience, the less time you spend feeling homesick. Establishing a trusted contact person either in the host country and/or back home that you can confide in is also

important. This is someone who you should feel comfortable sharing your feelings and issues. Often, just knowing that there is someone you can contact can help alleviate loneliness or homesickness.

Not having privacy, personal space, or time to yourself can both exacerbate feeling alone and lead to the sensation of suffocation or being trapped. Most people in your group will probably feel the same way at some point during the trip. Establishing some boundaries explicitly or virtually is useful. Making plans with fellow colleagues to explore the area and to specifically spend time with each other outside of your living environment can be a way to establish some boundaries. Be sure to take time for yourself. Bring a leisure book or something else that is small and that you enjoy doing (a sketch pad to draw, a journal, etc.).

Easing into new environments can be overwhelming also. Bringing mementos that remind you of home can help ease this. Pictures of family and friends are good reminders of home, but also ways to allow people who you meet or are staying with to get to know you. Comfort foods, like a jar of peanut butter, or your favorite non-perishable snacks from home can help ease any culture shock with new foods.

Personal Medical Kit

Recommended items to pack (not exhaustive and may not be relevant for all trips)

- Any prescription/personal meds
- NSAIDS/Acetaminophen
- Diphenhydramine
- Ondansetron
- Pepto-Bismol
- Famotidine or other antacid
- Cipro/Azithromycin
- Bactrim
- Metronidazole or Tinidazole
- Antiparasitic (at least to take when you get home, if you are in an endemic area)
- Anti-malarial treatment course, like Coartem (if you are traveling to an endemic area)
- Imodium or Lomotil
- PEP for HIV (Truvada and Isentress)
- Epipen
- ORS packets
- Alcohol wipes/gel
- Steri-strips with tincture of benzoin
- Dermabond
- Small scissors
- Tweezers
- Duct tape
- Iodine tablets or Chlorine
- Insect repellent
- Sunblock
- Ziplock bags
- Headlamp

Post trip

International trips can be stressful. Reverse “culture shock” is not uncommon. Transitioning back to civilian life and the environment that you live and work in at home may be difficult. If possible, schedule a layover stay of at least 1-2 days in a location that is a departure from the environment in which you were working and is a break from your “normal” life. International trips are often harder work and associated with different types of stress. Some rest and relaxation is warranted.

If possible, do not schedule a clinical work shift on the day or the day after you return. Travel, due to time change, and travel itself is draining. Medical equipment and luggage should be unpacked promptly.

Disinfection of luggage, clothing, and equipment may be necessary to prevent contamination and/or to minimize risk of accidentally transported vectors.

In addition, when you travel you may get sick after arrival back home. Incorporating recovery time is ideal. Remember that many chemoprophylactic medications for malaria require you to take medications several days and weeks after return to be effective.

References (Medications)

1. Centers for Disease Control and Prevention. CDC - Vaccines - Immunization Schedules main page. Retrieved from <http://www.cdc.gov/vaccines/schedules/>
2. Centers for Disease Control and Prevention. Destinations | Travelers' Health | CDC. Retrieved from <http://wwwnc.cdc.gov/travel/destinations/list>
3. Gershman, M., et al. Centers for Disease Control and Prevention. *Travel Vaccines & Malaria Information, by Country - Chapter 3 - 2014 Yellow Book | Travelers' Health | CDC*. Retrieved from <http://wwwnc.cdc.gov/travel/yellowbook/2014/chapter-3-infectious-diseases-related-to-travel/travel-vaccines-and-malaria-information-by-country>
4. Guerrant, R.L., Walker, D.H., & Weller, P.F. (2006). *Tropical Infectious Diseases: Principles, Pathogens, & Practices*. Philadelphia: Churchill Livingstone.
5. Update: Prevention of Hepatitis A After Exposure to Hepatitis A Virus and in International Travelers. Updated Recommendations of the Advisory Committee on Immunization Practices (ACIP). (2007, October 19). Retrieved May 15, 2015, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5641a3.htm>
6. A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States Recommendations of the Advisory Committee on Immunization Practices (ACIP) Part II: Immunization of Adults. (2006, December 8). Retrieved May 15, 2015, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5516a1.htm>
7. Updated Recommendations for the Use of Typhoid Vaccine — Advisory Committee on Immunization Practices, United States, 2015. (2015, March 27) Retrieved May 15, 2015, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6411a4.htm>
8. Phanuphak P. *et al.* Should travelers in rabies endemic areas receive pre-exposure rabies immunization? (1994). *Ann Med Interne (Paris)*, 145(6), 409-11. Retrieved from [http://www.ncbi.nlm.nih.gov/pubmed/?term=Ann Med Interne \(Paris\) 145:409](http://www.ncbi.nlm.nih.gov/pubmed/?term=Ann+Med+Interne+(Paris)+145:409)
9. Human rabies prevention United States, 2008: recommendations of the ACIP. (2008, May 23) MMWR Recomm. <http://www.ncbi.nlm.nih.gov/pubmed/18496505>
10. Centers for Disease Control and Prevention. (2014, January 24). Retrieved May 15, 2015, from <http://www.cdc.gov/japaneseencephalitis/vaccine/index.html>
11. Meningococcal Meningitis. (n.d.). Retrieved May 15, 2015, from <https://www.iamat.org/risks/meningococcal-meningitis>
12. Centers for Disease Control and Prevention (2014, April 1). Retrieved May 15, 2015, from <http://www.cdc.gov/vaccines/vpd-vac/mening/who-vaccinate.htm>
13. Yellow Fever Vaccine: Recommendations of the Advisory Committee on Immunization Practices (ACIP). (2010, July 30). Retrieved May 15, 2015, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5907a1.htm>
14. Yellow fever vaccination booster not needed. Retrieved May 15, 2015, from http://www.who.int/mediacentre/news/releases/2013/yellow_fever_20130517/en/

Introduction

Traveler health is often the primary focus of people who travel, however the overall safety of the traveler includes health *and* measures to protect you from harm. Having an understanding of risks and being prepared to address those risks can mitigate harmful or dangerous situations. Get to know the local conditions, political environment, laws, and culture of the places that you will be working. Being aware of your surroundings, practicing safety precautions as a healthcare provider, and having safeguard measures in place prior to travel will minimize unforeseen dangers to security and well-being.

Personal Protection Equipment (PPE)

Check with your host or host organization about the need or availability of various PPE prior to travel. Consider bringing a supply of PPE if you will be doing a clinical or field rotation in a remote area where medical supplies are limited. Primarily intended for personal use, but unused items can also be donated to the clinical site. The key items to include are gloves, N95 masks, and some form of eye protection.

Personal Safety

In addition to PPE and protecting yourself from clinical or medical related exposures, personal safety measures for international travel include those to help prevent you from becoming a victim of crime or harm. These include individual considerations, services offered by organizations, and country or government level resources.

Individual considerations:

Know about your housing: Will you be staying alone? Is the site secure? Are there reliable phone or internet services available? Where will your housing be in relation to the medical site? If you are offsite from the medical center, inquire about the commute and transport options.

Be street smart:

- Use the same principles for assault prevention as you would anywhere else.

- Be vigilant if traveling alone or at night.
- Do not travel with a lot of cash.
- Avoid large gatherings with potential to become violent, i.e. protests, fights, or anything where a situation appears to be escalating.
- Keep valuable electronics, jewelry, watches at home or out of sight.

Have photocopies of travel documents: Carry copies of your passport, driver's license, credit cards and/or traveler's checks, itinerary, insurance policies. Another alternative is to have electronic copies of travel documents and contacts in a cloud-based application, like Dropbox. Be sure that you can access them offline as well.

Be familiar with local laws: While abroad, you abide by local law. The U.S. Embassy cannot protect you from legal proceedings in foreign countries. Some laws, such as those pertaining to drug use or possession, are harsh.

If you lose or your passport is stolen: File a police report immediately. You will need it for replacement. Contact the U.S. Embassy ASAP. They assist in stopping anyone from traveling with your documents and will provide a replacement passport for you to be able to return home.

Have a list of emergency contacts at home and abroad: These should be designated prior to departure and available to your host site or organization and friends or family at home.

Enroll in STEP (see below)

Institutions and organizations:

Many institutions and organizations have safety and security programs for faculty, staff, and students for travel abroad. Be sure to check with your institution or organizations if there are protocols or services in place. Some host organizations may provide security, housing, and transportation.

Government Resources:

The **United States Department of State** is an essential place to research any intended country or region of travel. They provide information for the traveler as well as for family members or friends.
<http://travel.state.gov/content/travel/en.html>

Travel *alerts* are issued when there are "short term" events that may alter your decision to travel to a destination, such as natural disaster or an election expected to be associated with civil unrest. Travel *warnings* are issued when travel is not advised because of dangers such as unstable governments, civil war, escalating violence, or terrorist activities.

Remember that every situation is unique and just because a country is not on the list it does not guarantee your safety. Also, some countries cultures may be outright hostile to certain populations (e.g. women, LGBT, race/ethnic background, religion). Be aware of any issues that might exist in your intended country or region of travel.

U.S. Embassies, Consulates, or Consular Agencies are invaluable resources when traveling. Consular personnel are available at all times. Know the location and contact information for the closest agency to your destination.

Smart Traveler Enrollment Program (STEP) is a free resource provided through the U.S. Department of State Bureau of Consular Affairs.

Enrollment allows for a more seamless communication between the traveler, consulates, and/or the traveler's family. The traveler will also receive safety notices from the Embassy. <https://step.state.gov/step/>

Insurance

Having some form of insurance while traveling is essential. The location and duration of the trip may determine the type(s) that you need. For travel abroad, there are three types of coverage: travel, medical/health, and medical evacuation. The three types can be bundled into a single policy. They are defined as the following:

- Travel Insurance - covers trip finances with reimbursement for trip cancellation, delay, or lost luggage.
- Travel Medical Insurance - insures overseas medical treatment.
- Medical Evacuation Services - provides transport including air ambulances, for medical evacuation.

Check your current health insurance for inclusions and exemptions, as it may already cover health insurance abroad. Also, if heading abroad with an organization, insurance may be included. Depending on the country, health insurance may not be recognized. In regards to priority when traveling for global health work, the most important type of coverage to have is probably medical evacuation, especially if the work is in a low-resource setting. Without insurance, the cost of a medical evacuation can easily exceed \$50,000.

There are numerous companies offering policies. Be sure to know the services and extent of services provided or not provided as there are distinctions to each type of policy. A comprehensive list of insurance providers is available through U.S. Department of State website

<http://travel.state.gov/content/passports/english/go/health/insurance-providers.html>

Things to ask about your abroad coverage:

- What does the insurance policy cover?
- Are pre-existing conditions covered?
- Are high-risk activities covered (e.g. mountain climbing, scuba diving)?
- Is preauthorization required prior to receiving emergency treatment?

- Is it necessary to carry copies of claim forms?
- Are medical payments abroad guaranteed? Are foreign doctors and hospitals paid directly?
- Who determines need for medical evacuation?
- Does the insurance company have a 24-hour physician backed support center?
- What kind of transportation is provided and to where?

References

1. Centers for Disease Control. Traveler's Health [website post]. Retrieved 4/21/15 from <http://wwwnc.cdc.gov/travel/>
2. Hansoti et al. "Guidelines for safety of trainees rotating abroad: consensus recommendations from the Global Emergency Medicine Academy of the Society for Academic Emergency Medicine, Council of Emergency Medicine Residency Directors, and the Emergency Medicine Residents' Association. *Acad Emerg Med* 2-13;20:413-420.
3. Iverson, Kenneth. *The Global Healthcare Volunteer's Handbook*. Tucson: Galen Press, 2014, Print.
4. U.S. Department of State, Bureau of Consular Affairs. Traveler's Checklist [website post]. Retrieved 5/1/2015 from <http://travel.state.gov/content/passports/english/go/checklist.html>
5. World Health Organization (WHO). Travel and Health [website post] Retrieved 4/21/15 from <http://www.who.int/topics/travel/en/>

Introduction

The current and future practice of global medicine requires navigating a myriad of issues which include logistical challenges, cultural and language differences, resource constrained care environments, and often limited communication between project members across the globe. Fortunately, many apps and web-based services are available to help mitigate many of these issues.

An important consideration when using a mobile device in an international setting is the telecommunications infrastructure of the host country. Nearly all major cities in the world have some Wi-Fi capacity, but the availability of reliable high-speed internet varies greatly. Outside of major cities, access to cellular networks or a Wi-Fi internet connection may not exist at all. Fortunately, many of the apps described in this chapter can be downloaded ahead of time and then used offline, making a mobile device useful regardless of local access.

Security must always be considered when traveling with expensive, easily stolen devices. Prudent judgement when using a device in public places, and ensuring such devices remain in a secure location when otherwise not in use is recommended.

Hardware

Worldwide, cellular networks use the Global System for Mobiles (GSM). Therefore, when choosing a phone to use internationally, make sure that it is GSM compatible. This is usually only a concern for residents of the United States, where some phones use the Code Division Multiple Access (CDMA) system and are not compatible with a GSM network.

To use a phone over a host-country's cellular network, the best choice is to get an "unlocked" GSM compatible phone and then purchase a prepaid subscriber identity card (SIM) when you arrive in your host-country. The SIM card is a small chip that links your device with a provider plan, determines the device's phone number, and stores information for the user's contacts. When working abroad you can insert a SIM card in your primary phone (disabling your primary phone number and contact list until the original card is reinserted), or you can purchase a second phone that you use for international trips. The latter option will allow you to keep your primary phone and contacts safe from loss or theft while abroad. Consider designating this phone as a project phone for others to share.

It is important to know the different type of SIM sizes available if you choose to purchase a smartphone for abroad.



You should be careful if you purchase a phone that has a Nano SIM. Apple made the Nano SIM popular with the iPhone 5, but this type of SIM storage solution is not readily available abroad. It is best to find a wireless carrier in the country you will be traveling to assess the available SIM card sizes. In addition, SIM card adapters are now available to fit different sized cards to multiple devices.

Calling and data plans tend to be cheaper when purchased from a local provider compared to using your home-country provider's international calling and data rates. However, many providers offer international calling and data plans. Consult with your current provider to compare rates with those available in your host-country.

We recommend focusing on data plans versus calling plans since data plans enable you to make phone calls cheaply using the services explained below. Further, getting a data plan that enables you to make your phone into a hotspot is invaluable as it enables you to make a laptop and tablet device functional if they are able to connect to your phone's data plan.

Finally, if you plan to work in areas that have limited access to electricity, consider purchasing an external battery so that you will have an extra charge until you are able to plug your device in again. Newer generation portable solar devices also work very well assuming there is a secure location from which to charge your device.

Software: Apps and Web-Based Services

Apps for Travel

Apps can assist with every aspect of travel, from your home country doorstep to remote regions. Many airline, bus, and train companies have their own apps allowing you to check a reservation status or make changes to an itinerary online. Make sure you have downloaded the app of each company that you will be using to travel.

Several apps are useful for integrating multiple travel plans and reservations into one master itinerary. The app Kayak <https://www.kayak.com> is a popular app that compiles information from many different reservations into one app. You are able to forward your trip confirmation emails to Kayak direction, and the app will automatically compile all of your trip information into the app systematically. The app will also send you flight notifications and flight change information. Another app, TripIt www.tripit.com

compiles the same information and integrates with the app FlightTrack <https://www.mobiata.com/apps/flighttrack> but comes at an associated cost.

Seasoned travelers also recognize not all seats are equal – on planes or trains. To help with seat selection during your logistics planning, use SeatGuru www.seatguru.com or other similar applications to identify the best seat option for each of your flight or travel segments. For those with higher frequent flyer status, there are more available options.

When working in countries with rudimentary or no wireless infrastructure, many travel apps can be used offline. Galileo Offline Maps <https://galileo-app.com> allows offline access to maps of an entire country. Additionally, this app uses your phone's GPS to locate your position on the map so you can see your current location, record the path of a trip, get directions from your current location to landmarks or addresses, and search for restaurants, hospitals, train stations, museums, and hotels. At the time of publication, the app is available in eleven languages and offers maps of over one hundred countries.

On your smartphone, you can now save Google Maps <https://maps.google.com/> offline. Google explains how to do this on their support site. If you choose to take your personal smartphone abroad, it is preferable to download the city's map that you will be staying in prior to departure, as doing this in your host country can be difficult based on your wireless connection.

Finally, you can download schedules for local buses, trains, and other transport ahead of time, and then access these files from areas without a wireless connection later. Also remember that you can use a device's camera to take a picture of a posted schedule or route map for later reference.

Apps for Communication

Ongoing communication with local and international project members is essential to the success of any project. Below are apps that allow audio and video calls, text messaging, and file sharing among individuals or larger groups.

Audio / Video Calls

FaceTime <http://www.apple.com/mac/facetime/>, Skype www.skype.com, Viber www.viber.com, and WhatsApp www.whatsapp.com now offer audio and video calling via laptop and desktop computers, tablets, and phones. These apps can be used over a cellular network in addition to the internet. Your device's front camera can show your face, or the back camera can be used to share a live video stream of an event or conference. All of these services allow free internet-based calls to other users of the same app. FaceTime is limited to users of iOS. Skype allows you to call landline numbers and cellular phone numbers, but does require an internet connection, and a fee based on the country you are in. This fee is relatively small compared to purchasing a phone plan abroad.

Text

WhatsApp, Viber, and WeChat www.wechat.com are all internet-based text apps that allow users to share texts, voice recordings, photos, and videos. Each app has advantages and disadvantages; for example Viber works best across different platforms and operating systems, whereas WeChat has social networking features. From our experience, WhatsApp is the most widely used, making it the best choice of the three recognizing the differences. Inquire locally as to which app is most popular. With WhatsApp now enabling phone calls between WhatsApp users, it is a critical download prior to going abroad.

File Sharing

When large files need to be shared, or when multiple people need to access and edit a document, a file sharing service can be used. Dropbox www.dropbox.com, Box www.box.com, Evernote www.evernote.com, and Google Drive www.google.com/drive allow multiple users to distribute and edit files so information sharing and project schedules remain coordinated and centralized. Depending on the amount of storage that you need, these services offer both free and paid packages. Dropbox offers a large amount of free storage with the free plan, but does not allow users to edit files without downloading them first. Evernote allows modifying files without downloading them, but the free packages are limited in space and functionality. Often times the free package offered by Evernote can suffice most users' needs if you don't plan on uploading large files. Google Drive offers plenty of storage with its free plan, and files can be manipulated using any of Google suite's online tools. If you are in an area without dedicated Internet service, Google Drive can be difficult to use since it is based online. You can still use it offline, but with much more difficulty than Evernote.

Language

Whether you are multilingual or only know how to ask for the bathroom, translation apps help communicate across language barriers. Bilingual dictionary apps exist for many language combinations, and many are free. Google Translate translate.google.com is an excellent free app that translates text or spoken passages into a desired language. Your partner can read the translated phrase from your device or the app can speak the phrase. The latter feature is helpful when working with blind or illiterate patients. Additionally, the app can read text written in many languages and alphabets as well as translate words or written passages into a target language (great for deciphering local menus!). While Google Translate does work offline for certain languages, sometimes it does require a dedicated internet connection to achieve its full functionality. The free Waygo www.waygoapp.com app offers a similar feature for Chinese, Japanese, and Korean.

Additionally, there are several translation apps designed for the medical professional. Canopy www.canopyapps.com and MediBabble www.medibabble.com have pre-programmed phrases covering many chief complaints and physical exam findings. These apps can speak questions to a patient, or the patient can read and respond to questions by tapping the appropriate buttons on the device. Both apps require an alert, oriented, cooperative, and stable patient, and neither translation interface is as fluid as via a third person fluent in both languages. However, when no human translator is present, these apps can allow you to navigate through fairly complex clinical interactions.

EMRs

When abroad, keeping track of the patients you are seeing can be a difficult task, especially if they are patients you are unfamiliar with. Using an electronic health record to keep track of the patients you care for can be an efficient way to make sure others who care for them at a later time can do so more effectively, and help with the continuation of care. There are a number of free electronic health records that you can utilize for ability. The free versions of these EMRs offer basic functionality, which is usually more than enough when overseas. When choosing an electronic health record to utilize, make sure it is HIPAA compliant. Practice Fusion www.practicefusion.com and OpenEMR www.open-emr.com are two examples of basic health records you can utilize to help keep track of your patient panel overseas. Practice Fusion in particular is tablet optimized, and does not require you to use a computer.

Other

An audio recording app is indispensable if your work involves interviewing subjects. You can purchase a separate piece of hardware for this purpose, but the voice recorder that comes with most smartphones works well, and files can be sent immediately to transcription or translation services or shared with research partners.

A currency exchange rate app is helpful to calculate expenditures and determine if local exchange rates are reasonable. XR Currency <http://www.xe.com/currencyconverter/> and iCurrency Pad <http://www.sollico.com/icurrencypad/> are two apps with similar features, including up-to-the-minute exchange rate updates when you have wireless access, and a historical log of recent rates for when you don't.

Virtual Private Network

Some countries limit internet content; additionally, some websites hosted in one country limit viewership from others. A virtual private network (VPN) allows you to access the internet from anywhere as though you were in your home country. For example, if a host-country blocks YouTube, you may not be able to show a splinting education video during

a lecture on orthopedic skills. Additionally, a VPN can add a layer of encryption to your internet transmissions, so if your research involves sensitive information (e.g. identifiable patient information) a VPN will allow you to transmit this information securely. There are many VPN providers that offer numerous features and price ranges. Private Internet Access www.privateinternetaccess.com is a VPN service that has garnered positive reviews, and also can be set up to work on your iOS or Android phone. Whichever VPN you choose, make sure it will also work on your mobile device.

Summary

While global medicine opportunities will certainly continue to change as global health redefines itself, so too will the integration and development of new mobile communications. In particular, the availability of cellular data has opened up a new era of opportunity that once did not exist. Real time patient consults, setting up an electronic health record in a remote region, and getting instant translation services are examples of advancements that were not available until recently. As this market remains incredibly dynamic, following ongoing dialogue will ensure having the best apps or programs prior to getting on ground.

Introduction

This chapter provides some practical guidance on other essential travel needs. These include considerations for appropriate and necessary documentation, mechanisms to contact you in case of emergency and prearranged safeguards prior to travel. In addition, having an idea of what to pack, how much money to bring, and how to budget for short or longer term trips are essential to having a meaningful and enjoyable experience.

Essential travel documents

In addition to having a valid passport, other documents should be obtained and or readily available to indicate your qualifications. Simple measures can help to ensure safe and timely recovery of documents if they are misplaced, lost or stolen. Implementing redundant measures can help to ease some of the stress that can be associated with missing documents. Some of this may seem obvious, but it never hurts to review and ensure that these are on hand.

Passport

Be sure your passport is up to date, at least 6 months prior to expiration. Passport agencies will do rush renewals, but at a premium cost. Also ensure that you have enough pages in your passport. Previously, you could pay for the insertion of extra pages if you did not have adequate space for entry/exit visa stamps. However, beginning January 1, 2016, people in need of additional pages in their valid passports must obtain a new passport. It is a good idea to carry extra passport size photos, especially if you will be traveling for an extended amount of time or plan to visit multiple countries. If you will be traveling to an area that requires a yellow international immunization card, be sure to have it readily available.

Visas

Be sure to check visa requirements prior to travel. While many countries do not require visas, some will allow you to obtain visas on arrival. More countries are requiring visas ahead of time, i.e. Kenya, and may not let you in the country without obtaining a visa prior to arrival.

In addition, be sure to budget visa costs as they can range anywhere from \$50 to \$200 USD. Inquire with your host institution or program what

type of visa will be required, i.e. is a tourist visa sufficient or will you require a business visa. If a business visa is required, you may have to get a letter or documentation from your host institution or program of your intended travel and work.

Duplicates of your travel and work documents

Have copies of your passport electronically and in paper form. Using a cloud-based service will allow you to access them anywhere, but be sure that you are able to access them offline also.

If you will be doing any type of clinical work, it is a good idea to keep a copy of your professional license with you. Remember to bring business cards if you have them. Some countries treat the exchange of business cards very formally.

Have copies of your relevant insurance cards/policies (health, travel, and medical evacuation). In addition, you should have a list of your emergency contacts on hand and be sure to share or distribute this list to people who are at home.

Emergency and Other Contact Information

While it is important for you to have a list of emergency contacts, it is just as important to share this list of names, numbers and relationships with other people who are not traveling with you. This list should include a list of family or friends as emergency contacts and contacts of those with whom you will be working or staying with.

Including contact information for the local U.S. Embassy or Consulate office for yourself and family members or friends is extremely helpful if they need to try to get a hold of you. All travelers should register for STEP, the U.S. Department of State Smart Traveler Enrollment Program. By doing so, there is a record of your travel through the State Department and in the event of emergency, the State Department will send out specific travel warnings and contact family members.

Many institutions or organizations will require you to identify emergency contact information as well. Sponsoring academic institutions may have additional requirements to account for their students, staff, and faculty when they travel and may also require release of information and waivers for FERPA (Family Educational Rights and Privacy Act) and documentation of health and/or medical evacuation insurance.

Money and Budgets¹

There are some very practical considerations in regards to the amount and type of money that you should bring. Access to money, the amount and type needed will vary with the country or region that you are traveling to. Being aware of the availability of banks, ATMs, wire transfer services is invaluable, especially if your money is stolen or misplaced. Having some

emergency cash on hand if you have the means can also alleviate the need to rely on more expensive options.

Also, establishing and sticking to a budget for the duration of your trip can avoid undue stress due to insufficient funds. More on this a little later in this chapter.

Cash

Cash is still the main type of money used in many countries. Even if you opt to primarily use a bank or credit card, it is still useful to carry a minimum amount of cash for emergency purposes. U.S. dollars, Euros, and British pounds are often accepted in many countries as currency (check prior to traveling if this is the case). They are also the easiest type of currency to change in low-resource settings.

In regards to exchanging money, you have several options, some which are better than others. Some banks in the United States will convert U.S. dollars to a desired currency, but you should check whether they offer this service and their rates. If you are able to plan in advance, you will likely find better rates. Several options to buy foreign currency exist: online, offline, from banks or private retailers (i.e. exchange bureaus). Typically, exchanging at an airport is an expensive option. Pay close attention to conversion rates. Also ignore advertisements that state “no commission” as the cost is often hidden through other means. Generally, changing money on the street is a good way to get scammed, especially if you are not familiar with the local currency. You should always try to exchange money at a recognized trader or bank.

In regards to the types of cash to bring, many countries will have a different exchange rate for the type and condition of the bills you desire to exchange. Most countries will not accept cash that looks old, worn, or has tears in them. The most prudent option is to go to your bank prior to departure and ask for newer bills. Depending on how much money you need, most currency exchange places will extend a better rate for larger denomination bills (\$50 or \$100). But you may opt to use smaller denomination bills (\$20) due to your budget or to not feel like you have to exchange all of your money at a disadvantageous rate.

Regardless if you are carrying local currency or U.S. dollars, you should never carry all of your cash with you or keep it in one location. If you get robbed or misplace your stuff, there goes all of your spending money. Typically, only carry the amount of cash that you will need for that day or a short period of time. There are many options to spread your money. These include money belts, secret pockets, Ziploc bags tucked into the lining of your suitcase, small canister in your laundry, etc.

Credit Cards

Credit cards or debit/ATM cards are a good alternative to cash, and in some places may be the preferred means to pay for things. If the country you are visiting uses ATMs, a bank debit card is often the best option to get local currency. You are able to access money pretty much in the same that you do at home and you do not have to carry large amounts of cash. It is a good idea to notify your bank of your expected travel and inquire about any fees that might be associated with withdrawing money internationally. While exchange rates are often favorable, if there is a significant fee, it may not be the most economical option. Some international banks have reciprocity with American banks and may waive fees. Be sure to check if these exist to help save some money. For example Bank of America has international partnerships <https://locators.bankofamerica.com/international.html> with Barclays, BNP Paribas, ABSA, BNL D'Italia, Deutsche Bank, Scotiabank, Banco Santander, amongst other banks throughout the world.

Credit cards are useful as a backup in case you lose or run out of your main source of money. They are also useful for making reservations, larger purchases, and in case of emergency. In most major cities you will be able to purchase things you need with a credit card. Again, be sure to check with your bank card to see if they charge any foreign transaction fees. In addition, many countries will charge you a higher rate for using credit (or debit) cards to purchase goods than they do for cash. This is sometimes negotiable and if you have cash, you may be able to get a better deal. It never hurts to ask if there is a discount applied if you pay via cash and you have the means to pay cash.

A couple of additional rules to keep in mind if you use plastic:

- Make sure your card is accepted in the country you plan to visit (i.e. Cuba)
- Call your bank and tell them where you are going and when, so they don't block your card the first time you use it on your travels.
- Never let your card out of your sight. Most credit card scams require time alone with your card – if you don't see an electronic-point-of-sale machine, better to play it safe and pay with cash from an ATM.
- Check the layout of the keypad on the ATM. Loads of travelers have their cards deactivated by entering the right pattern but the wrong numbers on a foreign ATM keypad.
- Do not rely on ATMs as your means of cash if you will be in a country where electricity and a phone signal are not reliable. They need them to function.
- If you have the option, pay in the local currency on your debit or credit card when abroad. Bank rates will be better than the retailer rates.

- Some credit cards incur no transaction fees for foreign purchases. This can save you considerable money, so investigate your card's fees prior to travel.
- Many foreign electronic point-of-sale machines now require a chip in the credit card, so ensure that yours has this feature prior to leaving.

Travelers Checks

Travelers checks are not used much anymore and are not as widely accepted as they previously were. They can be a hassle to change them into local currency. The advantage of them is that they are generally still accepted by most banks and money exchange bureaus all over the world and they are easily replaced if stolen or lost. You can get checks in different currencies depending on where you will be going. The most common vendor is American Express

<https://www.americanexpress.com/us/content/prepaid/travelers-cheques.html>

Wiring money

This is probably the last option for having money, to be used in case of emergency or if your other options are unavailable, such as due to theft or deactivation of your cards. Wiring money tends to be associated with high fees and you need to have someone who is willing to wire you the money. Western Union <https://www.westernunion.com/us/en/home.html> and Moneygram www.moneygram.com are the two most common and have locations all over the world.

Travelling On a Budget

Once you have secured your funding, the next step is to make sure that those hard-earned dollars (or Euros, shillings, rubles, rupees) stretch as far as possible. Obviously, budgets will vary depending on location, duration, type of mission etc. but there are some basic guidelines that will help you defray costs regardless of setting.

Fly with Foresight: Start searching early through multiple booking sites, set programmable alerts on these sites for tickets below your target price, and aim for two months in advance. There is extraordinary variability in the price for a given seat depending on the day of the week you buy, the website through which you book, and how far in advance you book. A recent study by the Airline Reporting Corporation suggests that the cheapest time to book is 57 days in advance, on a Sunday or Saturday.

Pack Light / Pack Smart: Try to pack the staples of your wardrobe with particular attention to garments that wash and dry easily and can do double-duty; nice pants that will be comfortable for casual days but can be dressed up for the evening and can even survive low-impact outdoor

activities. Have your bases covered by versatile and layerable practical choices. Anticipate the range of weather conditions you're likely to face, in addition to local cultural norms such as covered knees/shoulders. Fewer bags make you more nimble for last-minute changes of plan.

Eat like a Local / Cook like a Local: The cardinal rule here is that dining out will drain your budget. Learn the local cuisine and how to safely clean and prepare food, and then try your hand. These dishes will employ cheap, readily available and often novel ingredients. Take advantage!

Consider Alternative Lodging: Hotels are expensive, even those geared towards extended-stays. Prior to your trip investigate the possibility of guesthouses, homestays, hostels, or a reputable local host. You'll appreciate the cultural immersion and socialization while saving money. Airbnb www.airbnb.com has also taken the world by storm. You can find places to stay through Airbnb (or any other room/home share site) in many places throughout the world.

Bargain for Everything: Confirm that this is the local culture before you put on your haggling game-face, but recognize that prices are negotiable for consumer goods at markets around the globe. Get an idea of what your local colleagues pay before you head to the market. While bargaining may not always get you down to local price, you often save significantly. Plus, it's fun!

Walk or Bus: Taxis may come with high price tags. Avoiding them in favor of walking, train or bus can save cash and lead to a more enriching cultural experience. Depending on your destination, public transportation may be fraught with hassle or outright danger. Rely on the advice of trusted hosts or local friends. In many developing countries, it is safest to avoid travel after dark, especially by public transport. It is also best to avoid opening the can of worms of driving yourself, even if it means more expensive taxis are needed. Also consider ride share services like Uber www.uber.com and Lyft www.lyft.com are more global than they used to be.

Partner with Industry: While you may not have been able to extract hard cash from potential industry sponsors, many may be willing to make material contributions to your cause. If your project involves substantial physical supplies, some corporations may donate equipment for the opportunity to improve relationships with your home institution or increase market penetration at your host program. Yet, be sure to consider conflicts of interest with your leadership in advance.

The following is a helpful table to help to estimate costs for a trip.

TRAVEL BUDGET WORKSHEET				
	Cost/day	# of Days	Estimated Cost	Actual Cost
TRAVEL				
International Airfare				
Regional Transport				
Daily transport		x	=	
Travel Insurance		x	=	
ACCOMMODATION				
Locale 1		x	=	
Locale 2		x	=	
Locale 3		x	=	
DINING				
Meals		x	=	
Special Events		x	=	
Equipment costs				
Vaccines/prophylaxis				
Visas				
Medical licensure				
Other costs		x	=	
TOTAL				

What to pack

What you pack will depend a bit on where you are traveling, what kind of work you will be doing and how long you will be there for. However, there are a few helpful items to remember to pack regardless of the type of travel that can prepare you for almost any type of trip.

Suggested Packing List

Documentation

- Valid passport and *photocopy of front two pages (in case of loss)
- *Immunization Records (yellow card)
- *Health and travel insurance information
- *Copy of your professional license
- *Emergency contact information
- A record of useful in country numbers (i.e. EMS systems, the U.S. embassy/consulate, etc.)
- List of medications you are taking
- Documentation regarding any pre-existing illness/allergy that might require medical treatment
- *Note: good to keep copies in a separate plastic/Ziploc bag

Clothing

- Scarf, wrap or sarong (good for makeshift blanket, towel, etc)
- Warm fleece or hooded sweatshirt
- Rain jacket
- Flip flops or shower shoes
- Baseball cap/sun hat/bandana

Other

- Head lamp
- Multi-country travel adapter (even just for connecting airports or travel before/after)
- Hand sanitizer
- Reusable water bottle
- Sunglasses
- Sunscreen
- Lip balm
- Chewing gum (good also in case no water to brush teeth in emergencies)
- Ear plugs
- Alarm clock (battery operated) or smartphone
- Camera or smartphone
- Insect repellent (generally DEET or newer alternative recommended)
- Mosquito net
- Pocket knife or multipurpose tool (not in carry-on!)
- Duct tape rolled on a pencil (this saves space and comes in handy for all kinds of problems)
- Small packets of laundry detergent (useful for washing clothes in sinks/buckets)
- Moist wipes (good for quick "bath" or cleaning and hygiene)

- Feminine hygiene products (panty-liners can extend wear of underwear)
- Condoms (hey, you never know)
- Snacks (great for sharing with locals as a cultural exchange and good comfort food)
- Journal/notebooks and lots of pens
- Books, e-books, cards and board games, small musical instruments

Personal health related

- Personal Medical Kit (See **Chapter 15**)
- Include prescription medications in original containers

Professional health related for clinical work

- Common equipment: stethoscope, blood pressure cuff, otoscope, gloves, N95 masks, safety goggles.
- Alligator forceps if you are doing clinical work (great tool for FB removal)
- Small stickers for pediatric populations

*Note: you will rely heavily on your PE skills in certain resource limited settings

List of Useful Resources

Once you have made the decision to travel, gotten approval from your institution, and purchased all the appropriate gear and insurance for your trip, it is important to check out some specific resources that will help make your travel go smoothly. All of the sites listed below are fantastic and a few of them have overlapping information. Many of them have been identified elsewhere throughout this book, but this is a good repository of those specifically for travel.

So take 15 minutes and click on each link so you can get a flavor of the information they contain. No seriously...just check them out...now!

Also, other great resources include: Travel books/websites, students from previous trips, and in country contacts. The CDC has an excellent website that details the health information and pest protection suggestions by region.

The U.S. Department of State Country Specific Information site

This site provides information about specific required vaccines for entry, passport requirements, visa requirements, country specific diseases, and embassy locations. <http://travel.state.gov/content/passports/english/country.html>

The U.S. Department of State Country Travel Warning site

This site describes the specific country travel alerts and warnings issued by the State Department and the reasons behind those advisories.

<http://travel.state.gov/content/passports/english/alertswarnings.html>

The U.S. Department of State Smart Traveler Enrollment Program (STEP)

A definite must!!! This free service allows you to register your planned trip with the State Department. In the event of emergency, the State Department will send out specific travel warnings and contact family members. <https://step.state.gov/step/>

The U.S Government International Travel site

A clearinghouse for international travel information, ranging from international driver's licenses to passport renewals to embassy information. <http://www.usa.gov/Citizen/Topics/Travel/International.shtml>

The Centers for Disease Control Travelers' Health site

Main page for CDC information with travel warnings, advice for clinicians, and country-specific information. <http://wwwnc.cdc.gov/travel/>

The Centers for Disease Control Clinician Information Center

A comprehensive listing of CDC resources for clinicians, including downloadable references, journal articles, and online courses. <http://wwwnc.cdc.gov/travel/page/clinician-information-center>

Global TravEpiNet Travel Tools

Similar to the CDC's Travelers' Health site, this site offers easy to navigate pick and choose selections and dropdown menus allowing for tailored pre-travel health advice for both clinicians and patients.

<http://www2.massgeneral.org/id/globaltravepinet/tools/>

The American Society of Tropical Medicine & Hygiene Travel Medicine Consultant Directory

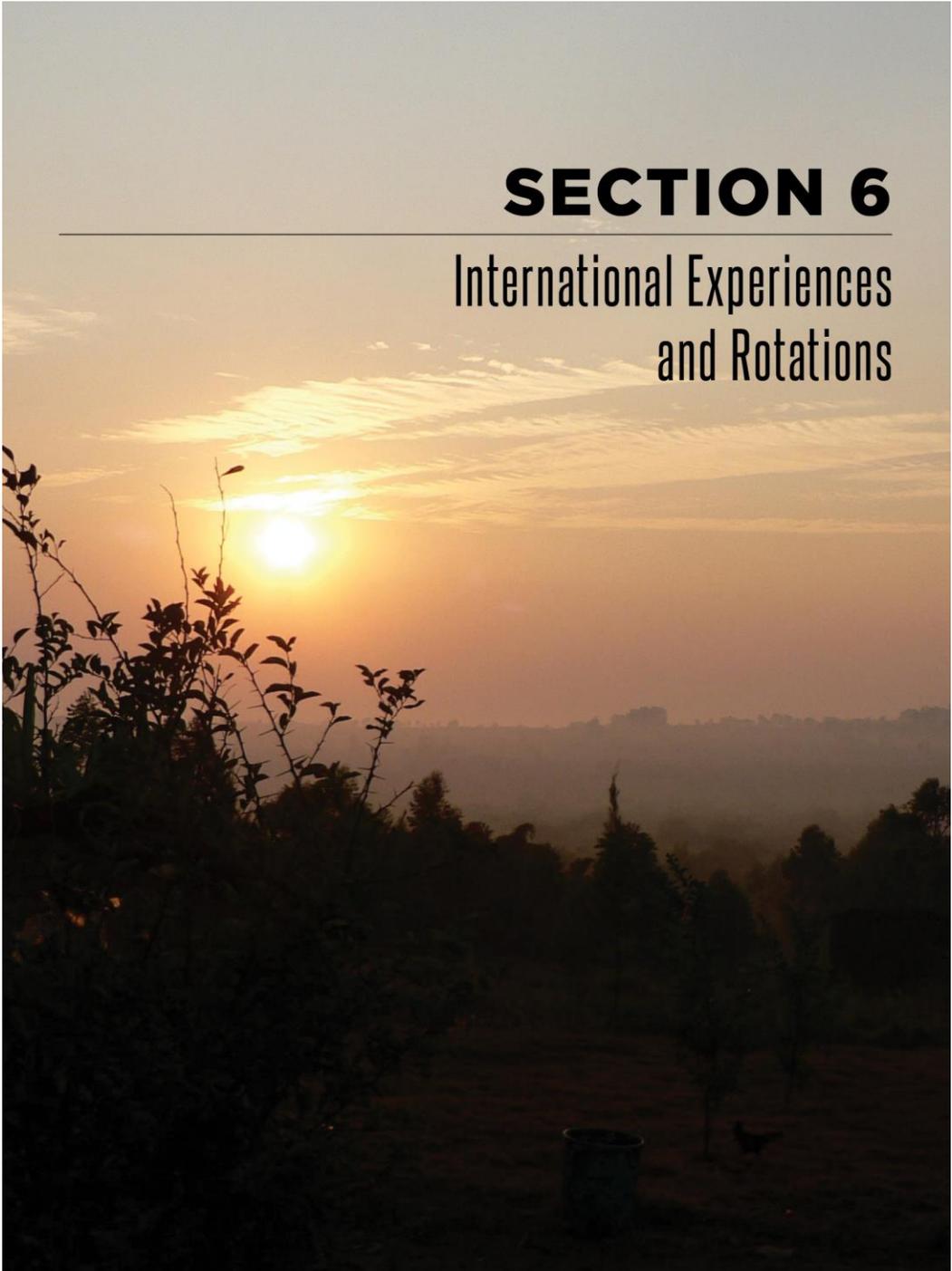
A directory listing many of the travel medicine clinics providing pre-travel immunizations and consultations, and post-travel evaluations and treatments. <https://www.astmh.org/for-astmh-members/clinical-consultants-directory>

References

1. <http://www.lonelyplanet.com/budget-travel/best-of-budget-travel/content/travel-tips-and-articles/76996#ixzz3yXyYfhFe>

SECTION 6

International Experiences and Rotations



This section is where the “rubber meets the road” and explains how to set up an international experience. There are two chapters, one for medical students and one for residents, with information specific to either type of trainee. Our goal was to make this useful for years to come, so we refrain from listing programs and instead provide a framework of how to approach and maximize an international rotation. Note that each institution will have its own particular set of regulations and expectations, but there should be several commonalities. Some of this information has been mentioned earlier in the book, however it is convenient to have all of this information in the same place.

Before You Go

Organizing a Rotation - The Basics

There are numerous people who can assist medical students in getting an international experience off the ground. A great place to start is the medical school advising office. Often there are administrators who are specifically tasked with handling international rotations. They will work with the medical student to obtain elective credit, and may have a list of organizations or foreign schools that students have successfully rotated at in the past. Mentors within one's intended specialty can often offer contacts for international rotations specific to your professional field. They can also provide valuable information on timing the rotation to best augment the students ERAS application, (i.e. not conflict with sub-internships or interviews).

As another resource, students are encouraged to reach out to previous PIs or current research colleagues for any information on projects happening internationally. There may also be international conferences, presentations or seminars that mentors may be aware of which can be great starting points for finding international contacts. Students who have previously successfully completed an international rotation are great resources who can provide contact information for in-country organizers, and tips on the application process. These students can also give site-specific information that is invaluable.

Program Type

Often the simplest path to an international clinical elective is through a pre-arranged program that is approved by or affiliated with your home institution. Your medical school has likely developed a relationship with international universities or hospitals and has sent students to these locations in the past, so the application process is often less burdensome. Additionally, many home institutions have a database of reviews and advice from past rotators that may help you to choose a program that fits with your goals. However, a drawback to these pre-arranged international rotations is that the options for locations and types of programs may be limited at some medical schools.

Alternatively, you can design your own elective in the location of your choice. This requires more dedication and time, as you must make all arrangements with both the home and host institution. For these self-created electives, most home institutions require faculty recommendations or sponsors from the home institution and/or a faculty supervisor at the

host institution. You should also be aware that some institutions reserve the right to deny academic credit, supervision, direction, or economic support for any international electives in regions deemed to be high-risk (for example, in areas with travel restrictions placed by the U.S. State Department). It is always smart to check early in your search process to see if your school has any restrictions in place.

Non-clinical Electives

You should also consider the type of international experience you are seeking. The vast majority of international rotations are clinically focused, but there are also opportunities for non-clinical electives as well, such as research, language immersion, or service-based electives. As with clinical international electives, the policies vary by home institution, but in general no credit is given for language immersion or non-clinical community service electives. However, some institutions may offer partial credit for combined clinical and language immersion programs. Research electives are usually easier to receive credit for but generally must be arranged individually by the student, although some home institutions do have international research affiliations. Usually, you must demonstrate that you have spent a minimum amount of hours directly participating in research during your elective and/or produce a research product, such as a data set or manuscript, by the end of your rotation. As with clinical rotations, be sure to verify your institution's policies early in your planning process to ensure that credit is granted.

Requirements

Each institution has a specific checklist with all the documents and requirements to apply for a GH elective. Most applications include a personal statement, letters of recommendation, projected schedules, waivers, immunization records, travel itineraries, copies of passports and airfare, and possibly financial information. Additionally, verify that you have completed all prerequisites for the international rotation – some schools require completion of all core clerkships prior to international rotations.

Be sure of what will be expected of you when traveling abroad. Find out the exact dates of your elective, your responsibilities as a member of the team, the language requirements (students must be conversant with the language of the host country unless there is a provision for translators) and finally be familiar with the goals and learning objectives of the elective.

Your school very likely will require a Letter of Acceptance from your elective site, in particular when it is an independently arranged elective. Contact your local administrator to determine if your school requires a specific format.

Finally, most schools will have GH orientation courses, lectures, simulations or workshops designed to offer an immersion on most aspects

related to global health and international rotations including culture specific and ethical considerations. They are aimed to facilitate your experience and explain in more detail the whole process.

Organizing a Rotation - When to Go?

Perhaps the most useful advice as a medical student is to start planning early. It is generally advised to plan at least one year in advance of an anticipated program start date. Several institutions require applications six to nine months in advance, and assembling the necessary documentation and health clearance can take a significant amount of time.

There are two popular times for scheduling an international experience during medical school. The first, and by far most common, is during the latter part of fourth year. At this point the student has enough clinical rotations completed to qualify for most international experiences, and has the scheduling flexibility of a second semester fourth year. The second time is the summer after first year. Many schools have one to two months of vacation or research scheduled during this period and students may choose to embark on an international experience. When students do not qualify for clinical rotations, there are language, research and health care oriented options available (See table 6.1).

Organizing a Rotation - Where to Go?

When deciding where to go, you should keep in mind the goals of your international experience. Medical students are still rounding out their medical education and options for international medical experiences are broader than those for say a resident or attending. Is the goal to gain clinical experience in an international setting with an away rotation? Or is to add to your international medical resume and study relevant topics such as infectious disease, public health or a foreign language abroad? Although specific programs are constantly changing dates and availability, see Table 19.1 for a framework of broad categories that medical students should consider when searching for an international program.

Opportunities in International Medicine Available to Medical Students

Experience Type	Description	Pros	Cons	Resources
International Away Rotations	Hosted by international medical schools, these rotations offer the medical student the opportunity to work directly with the healthcare education and delivery systems abroad.	Get hands on experiences in international medicine. Learn to work in more austere and resource-limited settings. Truly test your medical knowledge without relying on the lab or imaging results you do at home. Most clinically-oriented experience.	Many require significant advance planning, applications, visas, travel permits (apply early!). Programs are fluid and often changing, websites may not be updated. Find a contact at the sponsoring institution you are interested in.	<p>IFMSA - Oldest centralized database for international away rotations, listed by country in their explore section http://ifmsa.org/exchange/scope/explore/exchange-conditions</p> <p>GHLO – AAMC’s website for medical schools hosting international student rotations. https://www.aamc.org/services/g/hlo/</p> <p>AMSA – Medical student hub for international rotations in a variety of specialties. http://www.amsa.org/members/ca/reer/international-exchanges/</p> <p><u>Specific global EM resources:</u> ACEP’s International Division: has a list of rotations on their website http://apps.acep.org/InternationalRotations/default.aspx SAEM/GEMA: has lots of information in their website www.globalem.net</p>
Lamar Souter Library International Healthcare Opportunities Clearinghouse (HOC)	Links and contacts to almost 70 organizations	NGO, non-NGO, for-profit, and religious institutions listed		<p>Website: http://library.umassmed.edu/ihoc</p> <p><u>Contact emails:</u> Lisa.Palmar@umassmed.edu Robert.Vanderhart@umassmed.edu</p>

<p>International Aid Organizations</p>	<p>These multinational organizations often have opportunities for volunteers from any type of graduate school. Experiences are always changing but can range from being an intern at their headquarters, to doing field research at international sites.</p>	<p>Learn international medicine-politics, fundraising, resource allocation etc. Learn important non-clinical determinants of health: overcrowding, poor sanitation, communicable disease, displaced populations, food and water access. These are widely respected organizations in both the medical and wider humanitarian communities.</p>	<p>These experiences usually require a significant time commitment (6 weeks-1 year). Thus it may require you to use some of your elective and vacation time fourth year. They are highly competitive programs. They may not be medically focused in the day-to-day-to-day experience.</p>	<p>No aggregated website. Check out the NGO websites: <u>World Health Organization (WHO)</u>-Internships are available in a wide variety of areas related to the technical and administrative work of WHO. 6-12 weeks. <u>Center for Disease Control (CDC)</u>- Programs have included international research with CDC faculty. Additional programs in epidemiology. 6 weeks-1 year. <u>Médécins Sans Frontières (MSF)</u>. Also known as Doctors Without Borders-Intern position-while most U.S. internships are at the headquarters in New York, NY, there have been multiple positions that have required international fieldwork. 2 months-1 year.</p>
<p>Language immersion programs</p>	<p>Going to work with a unique population in residency or in your practice? Fourth year can be a great time to do a cultural immersion experience, and learn the language your patients will speak. There are a variety of private, university, and exchange language programs available to graduate students.</p>	<p>There will likely not be much time to devote to studying a foreign language after fourth year. International medical missions often prefer multilingual providers. Great addition to one's skill set as a future provider. Cultural competency with future patients!</p>	<p>Medical schools often don't award elective credit for these experiences, thus you may need to use vacation time. Not medically focused. Can be expensive.</p>	<p>There are numerous language immersion programs set in countries with native speakers. If there is interest in a particular region or language, explore the websites of local universities for foreign student language courses, search for private companies offering language instruction, and ask the advisors at a home institution in that languages department about opportunities abroad.</p>
<p>Public Health Schools</p>	<p>Take a course in statistics, public health, disaster management, or infectious disease. Many universities offer "short courses" of study that can be completed in 2 weeks to 2 months. See the resources section for example.</p>	<p>Round out education with topics that are highly valuable as an international physician, but may not have been covered in medical school. A great way to see a region of interest, as any location with a university is likely offering a short course.</p>	<p>Courses can be expensive. Travel and airfare are often not included in tuition. Dates are fixed; some institutions offer relatively few courses.</p>	<p>Look for short courses or summer courses offered by universities in your region of interest. Examples in the past have included: London school of Hygiene and Tropical Medicine offers short courses in a variety of public health topics. Schools in regions of endemic diseases can offer short courses in their management: For example The University of Ghana School of Public Health offers an annual short course in malaria monitoring and evaluation. Statistics courses at international universities are universally applicable to future international research and widely available</p>

Can I afford it?

Funding an international experience is a significant concern for most medical students. Fortunately there are a number of funding opportunities available. The first place to start at your home institution. You should ask advisors, a PI, and even other relevant degree programs (i.e. public or global health programs) what funding opportunities are available. Next, it is useful to research local scholarships, including regional, religious and other community funding options that are available. Additionally, there are several national and international scholarships specifically for medical students to complete international rotations. It is helpful to invest some time into scouring the internet for international medical scholarships, as there are major international grants, research programs, and NPO/NGOs that offer medical student funding. Finally, if funding is not secured but there is an opportunity to participate in a great international experience consider this: you are likely already accruing major debt by being a doctor in the United States. Is the difference between \$200,000 and \$202,000 enough to prevent you from going on a formative international experience? It's a personal decision but something to consider.

After you Return

Immediately after you return from your international rotation, be sure to complete any reports/evaluations/dissertations required by your home institution. Consider promoting your experience on campus or at conferences to other medical students who were once in your shoes trying to establish an international rotation. Not only will this potentially aid your site by encouraging other students to go, but you can also improve your public speaking, and network with other students who are interested in international health. Additionally, it may be possible to aid the clinic or organization you worked with by fundraising or donating needed supplies. Try to identify a need of your site, and find creative ways to meet that once you are home. Try to keep in touch with your international colleagues. It is always great to have an in-country contact, and it promotes the cross cultural exchange that is essential to global medicine.

There are multiple organizations that aim to keep people interested in global health informed and connected. Consider joining these organizations: ACEP, SAEM, AMSA (to work with IFMSA). You may also contribute directly, or benefit from, the emerging mentorship programs in global health. Keep an eye out for opportunities related to mentoring within the field.

IFMSA

The International Federation of Medical Student Associations is a multinational organization of medical students from over 100 countries.

Founded in 1951, the IFMSA aims to unite medical students across the globe, provide a forum to address educational and humanitarian issues, and promote cultural competency through exchange programs. Each participating nation is represented by its own national member organization (NMO). Medical students in the United States are represented to the IFMSA by the American Medical Students Association (AMSA).

The IFMSA benefits U.S. medical students in two ways. One, there are multiple international conferences, seminars, and leadership training events held for interested medical students. For example, AMSA members can apply to represent the U.S. at IFMSA's two General Assemblies. Held biannually, medical students from around the world meet to discuss emerging issues in medical education and international medicine. The second way medical students can utilize IFMSA's resources is by securing an international away rotation through their Explore Program <http://ifmsa.org/exchange/scope/explore/exchange-conditions>. This program aims to facilitate the cultural exchange of international medical students by streamlining the international away rotation process. They have created a centralized database on their website that lists host institutions and contact information for participating international medical schools.

A word of caution: while this is one of the best and most comprehensive databases available, contact information can sometimes be out of date. However, their list of host institutions is a great place to start searching for rotations. The IFMSA is a highly recommended resource for medical students interested in learning more about international medicine. Getting involved in both the community of international medicine and contributing to the leadership of this field can never be started too early. The IFMSA provides students the opportunities for both.

Other General Resources for Medical Students

Medical school attracts students from diverse backgrounds who share, at least in part, a common interest in serving their communities. More medical students are seeking experiences in global health. Between 1978 and 2004, the number of medical students who participated in a clinical experience abroad increased from 5.9% to 22.3%.² Some medical schools have responded to this growing interest by creating electives in international medicine or even establishing global health tracks within their programs. There is a recognition that the first step towards a career in global health begins with education. Medical students can best serve the global community by learning fundamental issues affecting global health today. Regardless of availability of formal electives or global health tracks, you can achieve global health education through extracurricular programs, student interest groups, policy and advocacy, and clinical experiences.

Extracurricular programs

Extracurricular programs in global health can fill educational gaps or complement existing coursework in medical schools. They generally fall into two categories: concurrent and parallel programs.

Concurrent programs: Concurrent programs offer training modules or formal curricula that may be undertaken within the four years of medical school. They do not require taking time off or additional years of training after graduation, and educational material can be seamlessly integrated into any institutional program. One model of concurrent programming employed by the World Health Organization and the Consortium of Universities for Global Health utilizes online training modules that serve as primers to fundamental topics including the global burden of disease, traveler's medicine, and immigrant health. This model benefits students who wish to study the material at their own pace or who are interested in specific issues. A second model of concurrent programming provides more structured, formal education utilizing live online lectures and remote conferencing for students to participate in journal article reviews, peer discussion and mentorship. The American Medical Student Association (AMSA) Global Health Scholars Program <http://www.amsa.org/members/career/scholars-programs/global-health/> is one of the most popular examples of this model.

Parallel Programs: Parallel programs in contrast require students to commit to time off from medical school, which can range anywhere from two months to up to two years. These programs offer in-depth, career-oriented training for students with a serious commitment to the promotion of global health. Examples include the Fogarty International Clinical Research Scholars Program <http://www.fic.nih.gov/programs/pages/scholars-fellows.aspx> and the Centers for Disease Control-Hubert Global Health Fellowship <http://www.cdc.gov/hubertfellowship/>. Whereas concurrent programs may be pursued at any time during medical school, parallel programs are often competitive and require an early commitment. Students should begin researching parallel programs and discuss their interest with academic advisors within the first year.

Policy Advocacy

Policy advocacy is another avenue for exploring pertinent issues related to global health. Students can participate at the grassroots level or through top-down, systems-based approaches. AMSA has organized action committees that encourage student participation including workshops on global health ethics and lobbying activities to advance components of the 2010 Global Health Act and Global Health Initiative. Special interest policies related to specific disease burdens or geographic locations can also be studied through student-run advocacy groups. Through these multiple channels students can gain an understanding on how global health policies are designed and implemented.

Getting your foot in the door!

For medical students simply seeking to gain elementary exposure to global health, student interest groups and international clinical experiences provide a good start. Student interest groups fulfill multipurpose roles, arranging for visiting lecturers, organizing participation in global health conferences, and matching experienced faculty mentors with interested students. Most importantly, student interest groups can allocate funding for these pursuits from their institutions, AMSA, and other organizations. International clinical experiences represent the more glamorous aspect of global health, in which students can work on faculty research projects, volunteer with aid organizations, participate in mission projects affiliated with various institutions, and learn languages through immersion programs. Each area alone is insufficient in gaining a comprehensive understanding of global health, but in combination they create a solid foundation on which to build a future in international health.

This chapter aims to guide emergency medicine residents to organize and find funding for an international elective. Our hope is for this guide to remain helpful for EM residents for years to come. Therefore, similar to resources for medical students, this chapter will be more of a framework rather than a list of resources. It is broken down into two sections – general information and funding.

Away Rotations

Before You Go

Figuring out your goals: Before planning an international elective there are several things to take into account. It is important to consider future career goals, whether it is in international emergency medicine and/or another area of global health. Remember that the term international emergency medicine (IEM) applies to the development of international emergency medical systems, emergency medicine residencies and training in certain global health areas such as humanitarian aid and disaster relief^{1,2}. Global health, by contrast, refers to a multidisciplinary approach to the development of public health and healthcare systems worldwide^{3,4}.

While many IEM careers are combined with global health, they are different and determining career interests will assist you in ascertaining the type of elective experience you wish to have.

Figuring out where to go: After identifying your own immediate and future goals for undertaking an international elective, the next step is to figure out where to go. There are a plethora of resources online to help plan and search for an international elective. While this chapter will not be exhaustive, Table 20.1 provides a good list of international emergency medicine electives to start from. Sifting through the myriad of international experiences can be a daunting task.

What To Look For When Choosing an Away Elective

- Safety – many residencies will not allow their residents to rotate in a country with travel alerts and or warnings. Visit the State Department Website <http://www.state.gov/travel/http://www.state.gov/travel/> for current country specific safety information
- Is the elective affiliated with a U.S. residency or fellowship program?
- Have other residents gone there before?
- Can develop a lasting relationship between the elective and your residency?
- Is there someone that could act as your in-country mentor?
- What are your residency requirements for away electives?

Resources For Finding and Planning an Away Elective

EMRA International Division

<http://www.emra.org/committees-divisions/International-Division/>

ACEP International Section

<http://www.acep.org/InternationalSection/>

International Emergency Medicine Fellowship Consortium

<http://www.iemfellowships.com/index.php>

International Federation of Emergency Medicine

<http://www.ifem.cc/>

International Medical Volunteers Association

<http://www.imva.org/>

Other Early planning: Other things to consider in the early planning stages include establishing how much time you can commit to an international experience, what your motivations are for an abroad rotation, your ability to adapt to changing environments, and possible challenges to overcome when working and living in a different culture.

Gaining approval from your residency program: After you have decided to go abroad and found a suitable elective, the next step is getting approval from your residency program. If your residency has an established IEM or GEM track, ensure that your chosen site conforms to your residency's requirements. Oftentimes your predecessors will have left

their experience in writing. Read them carefully and possibly contact the person to explore the details. Discuss your desire to travel abroad with your program director (PD) early on. In doing so, you assure that you have complied with all institutional administrative and legal procedures and have allowed them to plan ahead for staffing needs.

If your residency does not have international connections, what do you do? Understanding the challenges that residencies face when a resident rotates off site is vital to planning your elective and gaining approval from your PD. Two main challenges faced by programs are funding and time. Medicare reimburses residencies for resident salaries. When a resident rotates abroad, funding may no longer exist to pay that resident while away. Therefore programs have to provide justification to their home institution for salary reimbursement. The next section of this chapter will discuss funding options that can assist with this problem. The RRC and ACGME require that at least 50% of a resident's time must be spent at their home institution. Determining how much time you have in residency to devote to an international experience will aid in not only planning but getting approval.

Another challenge that needs consideration is insurance coverage, which entails not only your own health insurance but indemnification/malpractice insurance and evacuation insurance as well. This can total almost 1/3rd of your salary on top of what you actually get paid! Ensure your overall benefits package is addressed before your final decision has been made to pursue any time abroad. After understanding and coming up with possible solutions to obstacles, you are well situated to sell the benefits of going abroad to your PD. Here are the steps:

Step 1 – Contact GME office for policies and procedures

Usually the Graduate Medical Education Office (GME) has specific policies with which you need to be familiar. The policies will delineate clearly which procedures need to be followed for approval. Some institutions will have organized Global Health Departments whose function is to facilitate and coordinate post-graduate travel abroad. Find the contact person in your institution, as there may be institution-specific requirements in addition to the national GME requirements.

GME Considerations

- Any institution specific GME office requirements?
- Who covers malpractice and liability insurance & workers compensation? The individual? Training program? Training institution? Host institution?
- Salary and fringe benefits
- Trip-related expenses
- Financial responsibilities of trainee vs. institution

Step 2– Identify Country and Elective Site
See the section and Table above.

Step 3 – Meet with your Program Director

Meet early with your Program Director to determine any specific requirements that your individual department or training program has in addition to those from the GME office. Your Program Director will likely need to fill and signs forms required by the GME office. And keep in mind, the more things that you have considered and already taken care of, the less work it will be on the PD and the more likely he/she will be to approve it!

Program Director Considerations
<ul style="list-style-type: none">• Goals and objectives of your trip• Structure of the elective• Verification of supervision abroad• Structure of evaluations• Educational or research output after rotation• Your salary / expenses / reimbursement after you return

Remember that different residency and fellowship training programs may have specific requirements for their electives especially in relation to GH or “away” electives. Please verify that your trip objectives, time away, and evaluations are in compliance. Check with your Residency Review Committee (RRC) for details.

Program-Specific Considerations
<ul style="list-style-type: none">• RRC and ACGME requirements for your specialty training• Competency or milestone-based goals of the rotation• Competency or milestone-based evaluations of the rotation• Verification that travel will not modify the length of your training• Verification that your rotation will earn credit towards graduation

While You Are There

Now that your elective has been approved, here are a few tips for a successful experience. First of all, enjoy! This is a unique opportunity and hopefully the start of a long career in global medicine. Brush up on your history taking and physical examination skills. Read up on the cultural customs and practices in your elective county, and their traditional healthcare practices. If you are pursuing a career in GEM, use this opportunity as a starting point to develop and implement a project, or continue an existing one.

When You Return

When returning from your elective many residency programs will require a written summary of your experience. Consider turning your experience into a research paper, abstract or poster presentation. Leverage what you have done and explore your future job options. Most IEM fellowships and jobs prefer to see candidates with least 1-2 months of international experience during residency.

Funding

General Information

Obtaining funding for an international elective can be a daunting task, and for many it is a barrier to going abroad. Here are a few suggestions that will hopefully make this task easier. Participating in a sustainable project that targets one of the United Nations (UN) Millennium Development Goals (MDGs) increases your chances of getting funding for your elective, as these have been agreed upon by many countries and development organizations as the most important current world health issues. MDGs applicable to emergency medicine practitioners include improving maternal health, reducing child mortality and combating HIV/AIDS, malaria⁵. Other topics of high importance in the international setting include the development of EMS and trauma management systems, ultrasound training, and the management of cardiovascular disease. There are a myriad of organizations that provide money to practitioners working abroad, either in the form of grants or scholarships. Table 20.2 provides examples of current funding opportunities. Refer to Chapter 10 of this book for details on how to obtain grant funding for your project.

Funding Organizations	
Multilateral Lending Agencies (Funding comes from multiple governments)	<ul style="list-style-type: none"> • WHO: http://www.who.int/tdr/grants/en/ • UN: http://www.unfoundation.org/faq.html • World Bank: http://www.worldbank.org/projects/P123653/adkf-small-grants-program?lang=en
Bilateral Lending Agencies (Single government agency that provides aid to low-income countries)	<ul style="list-style-type: none"> • USAID: https://www.usaid.gov • CDC: http://www.cdc.gov/grants/
NGO (Non- governmental organizations)	<ul style="list-style-type: none"> • Oxfam: http://www.oxfamamerica.org/donate/make-grant/ • Bill and Melinda Gates Foundation: http://gcgh.grandchallenges.org • NGO aid: http://ngoaidmap.org/ • Global Medicine Network: http://www.massmed.org/Charitable_Foundation/Applying_for_Grants/International_Health_Studies_Program/#.Vy_0KWOPe-J
Emergency Medicine Organizations	<ul style="list-style-type: none"> • ACEP International Section: http://www.acep.org/InternationalSection/International-Section/ • EMRA: http://www.emra.org/committees-divisions/International-Division/ • Emergency Medicine Foundation: https://www.emfoundation.org
Global Health Programs that provide funding	<ul style="list-style-type: none"> • Yale Global Health Scholars: http://medicine.yale.edu/intmed/globalhealthscholars/ • Mayo International health Scholarship: http://www.mayo.edu/msgme/mayo-international-health-program/ • Systems Improvement at District Hospitals and Regional Training of Emergency Care: http://www.sidharte.org/http://www.sidharte.org/ • American Society of Tropical Medicine: http://www.astmh.org/
OTHER	<ul style="list-style-type: none"> • Self-funding • Fundraising through local organization, i.e. religious organizations, rotary clubs

References

1. Arnold, J.L., *International emergency medicine and the recent development of emergency medicine worldwide*. *Annals of emergency medicine*, 1999. **33**(1): p. 97-103.
2. Kirsch, T.D., et al., *The development of international emergency medicine: a role for U.S. emergency physicians and organizations*. *SAEM International Interest Group*. *Academic emergency medicine: official journal of the Society for Academic Emergency Medicine*, 1997. **4**(10): p. 996-1001.
3. Macfarlane, S.B., M. Jacobs, and E.E. Kaaya, *In the name of global health: trends in academic institutions*. *Journal of public health policy*, 2008. **29**(4): p. 383-401.
4. Koplan, J.P., et al., *Towards a common definition of global health*. *Lancet*, 2009. **373**(9679): p. 1993-5.
5. *News on Millennium Development Goals*. *United Nations*. <http://www.un.org/millenniumgoals/>. Accessed on 5/29/2015.

